# **ALSEP Performance Summary Reports**

1977

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#### APOLLO ALSEP PERFORMANCE SUMMARY REPORT

5 January 1977 G.m.t.: 1700

This report covers the two-week period from 1700 G.m.t., 22 December 1976, to 1700 G.m.t., 5 January 1977.

On 31 December a significant event was observed on the Lunar Seismic Profiling Experiment geophones. The event began at 1620 G.m.t., and continued for approximately 23 minutes. It is believed that the event may have been of such intensity that the Passive Seismic Experiments of the other ALSEPs may have recorded the event. Playback of the ALSEP 15 and 16 data for that time proved difficult to interpret due to Feedback Filter In operation.

# Apollo 17 ALSEP

Sunrise of the 51st lunation occurred on 26 December at the Taurus Littrow site. The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second) and engineering data from the central station and the other experiments is checked. Transmission of command octal 174 (delay uplink switchover), to inhibit automatic selection of the redundant command signal processing chain by the internally generated 61-hour pulses, continues during real-time support periods.

The Lunar Surface Gravimeter Experiment is in STANDBY.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic work.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 5 January the lunar surface temperature, as measured by the HFE thermocouples, was 369 ± 8°K. At a depth of 230 cm the subsurface temperatures were 256.9°K at probe #1 and 257.0°K at probe #2.

The Lunar Atmospheric Composition Experiment is in STANDBY.

The Lunar Ejecta and Meteorites Experiment was commanded from STANDBY to OFF for lunar day on 29 December.

#### Apollo 16 ALSEP

Sunrise at the Descartes Site occurred on 27 December for the 59th lunation. The Central Station 18-hour timer output pulses continue to be inhibited per the agreed operational plan initiated 6 May 1972. The DSS-1 (10 watt) Heater is OFF for lunar day operation. On 1 January the data printouts indicated that the Y data processor was intermittently resetting to Frame counter 90 during a sending sequence. The frequency of resetting increased during real-time support on 2 January. A switch was made to the X processor and normal operation was observed in the data.

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# Apollo 16 ALSEP (continued)

The Passive Seismic Experiment is ON with thermal control Forced OFF, component gains 0 db, and feedback loop filter IN. The thermal control was commanded to Forced OFF on 31 December and the uncage-arm fire circuitry to UNCAGED on 29 December in an attempt to minimize heating in the experiment during lunar day. The sensor temperature was offscale HIGH on 3 January at a sun angle of 87.0°. In previous lunations the sensor temperature has been HIGH at or near sun angles of 66.3°. Since 29 December the uncage-arm fire circuitry has been cycling from OT to Uncaged. This anomaly was first observed in February 1973 (Ref. ASTIR #5, A16 PSE Functional Changes).

The Lunar Surface Magnetometer Experiment is ON and recording data. Science data from the Z-axis remained static this report period. Flip calibration sequences are being conducted during the lunar day and a total of 1250 have been executed and verified by the experiment engineering data since deployment.

The Active Seismic Experiment is OFF (Apollo 16 ALSEP, SMEAR 27).

# Apollo 15 ALSEP

Sunrise of the 68th lunation at the Hadley Rille site occurred on 28 December. On 27 December the Merritt Island and Goldstone Tracking Stations reported telemetry data point AB-05 out of limits. A special real-time support was called and data indicated that the Power Conditioning Units (PCU) had switched from 1 to 2 and the SIDE was in standby power ON. At 0619 G.m.t., 27 December, mission control reselected PCU 1 (octal 060) and commanded the SIDE to ON (octal 153) and the station was in the normal configuration again. The switch of the PCU from 1 to 2 is believed to have been caused by a spurious command (octal 062, PCU 2 select). A CVW would not be seen nor reported by the tracking stations.

The Passive Seismic Experiment is ON with the thermal control Auto ON, component gains O db, and feedback loop filter IN. The uncage-arm fire circuitry switched from OT to UNCAGED between support periods of 31 December and 1 January. The functional change is believed to have been caused by a spurious command (octal 073, uncage-arm/fire), but a command verification word (CVW) was not observed by the tracking stations. As the operation of the experiment is not affected by this change, corrective action was not needed. The sensor temperature (DL-07) was offscale HIGH on 2 January at a sun angle of 62.8°.

The Suprathermal Ion Detector Experiment is in STANDBY. The experiment is presently being cycled from STANDBY to ON during real-time support periods to avoid exceeding an internal temperature of 85°C (Apollo 15 ALSEP, SMEAR 47). During these periods the instrument is operated in the Reset SIDE

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# Apollo 15 ALSEP (continued)

Frame Counter at 39 with Channeltron high voltages ON. The CCGE high voltage (+ 4.5 Kvdc) remains OFF.

The Heat Flow Experiment was commanded ON, 29 December, and all science data appears normal after the seven days of operation. The instrument is presently operating in the gradient mode and all sensors are being sampled in full sequence. The lunar surface temperature was 368.2°K on 5 January as measured by the cable thermocouples. The subsurface temperature was 253.9°K at the bottom of the lowest section of probe #1. Probe #2 indicated a temperature of 250.3°K at its lowermost point. A ring bridge survey was obtained on 3 January.

The Solar Wind Spectrometer Experiment was commanded OFF 14 June 1974.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974. The instrument experienced a functional change to operational power ON (octal 042) between the support periods of 2 and 3 January. A CVW was not seen in the downlink by the tracking stations. The LSM was commanded OFF (octal 044) and an increase of 5 watts in reserve power was noted. This is an indication the instrument electronics are still functioning but the data processor is not, as all ones are being received.

# Apollo 14 ALSEP

Sunrise of the 74th lunation at the Apollo 14 site occurred on 30 December. The central station DSS-1 (10 watt) heater is OFF for lunar day operation. The external 14 and 7-watt power dump resistors were commanded ON, 1 January. This action should relieve some of the heat dissipation into the Power Conditioning Unit (PCU) and central station thermal plate and may assist in preventing the loss of downlink signal as the central station approaches lunar noon.

The Passive Seismic Experiment is ON with the thermal control, Forced OFF; component gain O db; and feedback loop filter, OUT. The heater was commanded to Forced OFF for lunar day operation on 3 January.

The Active Seismic Experiment is in STANDBY (Apollo 14 ALSEP, SMEAR 86).

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments were commanded OFF on 21 May 1976.

The Charged Particle Lunar Environment Experiment was commanded to STAND-BY on 1 January. Between support periods of 29 and 30 December the CPLEE experienced a functional change to the + 3500 vdc range. On 31 December the instrument was in full voltage sequencing (+ 3500 to - 3500 vdc). As the first required two commands (octal 115) and the second occurring in close conjunction it is not believed the changes were caused by spurious external commands. The instrument was reset to - 35 vdc range in both

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Apollo 14 ALSEP (continued)

instances during real-time support

#### Apollo 12 ALSEP

Sunrise of the 89th lunation occurred on 30 December. The central station DSS-1 (10 watt) heater is OFF for lunar day operation.

The Passive Seismic Experiment is ON with the thermal control Auto ON, long period XY and Z-axes component gains 0 db, short period Z axis component gain - 20 db, and feedback loop filter IN. At 2353 G.m.t., 29 December, the instrument experienced a functional change (feedback loop filter OUT) as reported by the Madrid tracking station in observing the CVW (octal 101) in the downlink. This was confirmed by mission control during real-time support on 30 December. The filter was commanded IN (octal 101) at 2340 G.m.t., 30 December. The instrument assembly temperature (DL-07, 126.3°F) returned onscale at a sun angle of 3.3° on 30 December. The Z-motor was commanded OFF for lunar day operation on 30 December.

The Solar Wind Spectrometer Experiment was commanded ON, 30 December, and is recording solar wind plasma data in the normal gain mode. The instrument was in STANDBY during lunar night to increase the temperature of the PSE electronics located in the central station. From 1609 G.m.t., 1 January, to 1530 G.m.t., 2 January, the experiment was operated in the extended gain mode because of an observed increase in solar wind activity.

The Suprathermal Ion Detector Experiment was commanded OFF 3 May 1976.

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

NIGHT DATA	Lunation)
NOON and	(Latest

	.1.3	of During
	Night	67 264.9° -141.5 dbm 50.1w 11.3w -13.6°F 7.2°C 110.3°K STBY
APOLLO 15 ALSEP	Noon	67 94.6° -138.5 dbm 52.1w 17.3w 112.9°F HIGH 67.7°C 372.6°K STBY
APOLL		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. PSE T. (DL-07) SIDE T. (DI-05) CCGE T. (DI-05)
	Night	73 261.9° -142.0 dbm 59.8w 14.8w 24.7°F 124.1°F -22.7°C
APOLLO 14 ALSEP	Noon	73 85.7° -139.0 dbm 60.6w 14.3w 113.5°F 134.6°F STBY
APOLL		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. PSE T. (DL-07) CPLEE T. (AC-06)
	Night	88 255.6° -140.0 dbm 47.7w 10.1w 3.5°F LCW STBY
APOLLO 12 ALSEP	Noon	88 92.4° -141.0 dbm 50.0w 24.3w 92.8°F HIGH 68.0°C
APOLLO		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. PSE T. (DL-07) SWS T. (DW-13)

APOLLO	
ALSEP	
APOLLO 16	
APO	

17 ALSEP

Night	50 255.0° -138.5 dbm 64.8w 15.9w 10.0°F -16.1°F -52.0°F 52.0°F 52.0°F 14.3°F
Noon	50 85.5° -137.0 dbm 63.7w 28.5w 93.9°F 161.4°F 183.5°F 330.3°K STBY 97.3°F
	Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. LACE T. (AM-41) LEAM T. (AJ-11) HFE T. (DH-13) LSG T. (DG-04)
Night	58 276.9° -135.5 dbm 63.2w 14.3w 28.1°F 125.9°F
Noon	58 94.3° -137.5 dbm 63.5w 31.2w 106.0°F HIGH 49.5°C
	Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. PSE T. (DL-07) LSM T. (DM-05)

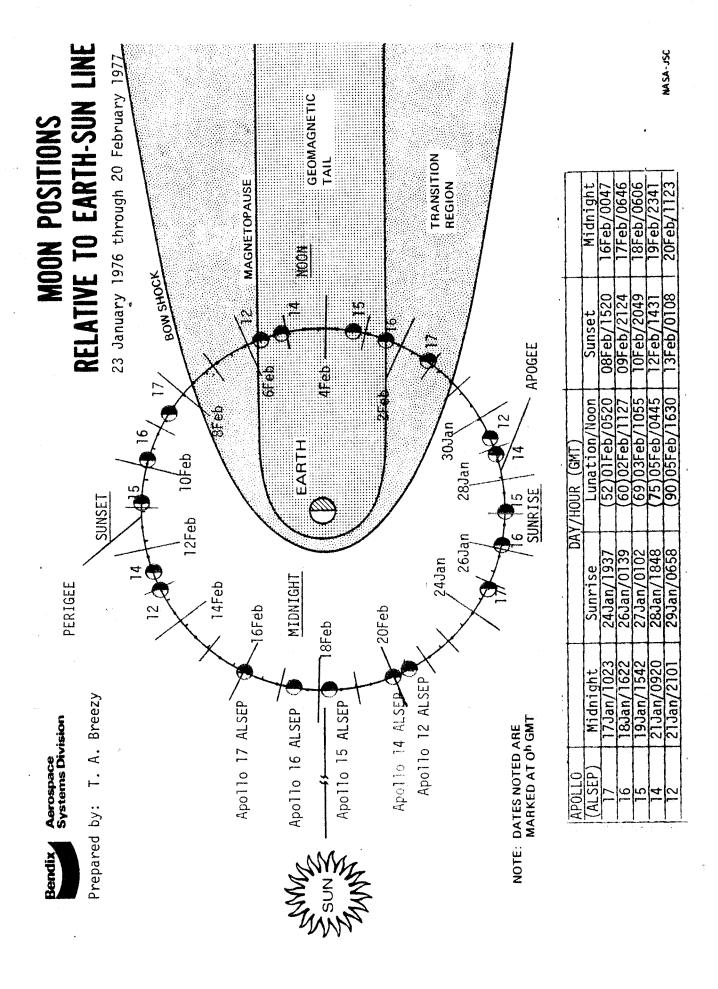
•	AI SFP	as of week ending	1700 Z (G.m.t.)	5 January 1977		
2		Apollo 12 ALSEP 1	10 14	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
eb	DepToyed	F	2/5/71	7/31/71	19382, 4/21/72	12/
una	Lunar Location	က			15.5°E, 9.0°S	30.8°E, 20,2°N
una	Lunation/Days Ops		74/2028	68/1985	59/1720	
Phase,	Sun And	Sunrise, 73.3°	Sunrise, 79.3°	Noon, 39.5°	Noon, 112.3°	Noon, 127.6°
Cinds	- Total/Week	31377/149	17131/75	38706/228	23692/185	36291/83
anc	Sourious Changes	116	86	121	11	0
	_	73.6w/49.4w	72.5w/60.6w	74.7W/ 50.7w	70.9w/62.8w	75.4w/63.3w
_ Σ		-	14.0w	16.4w	$31.6\omega$	28.5w
	Avg. Therm. Plate	Plate 34.8°F	113.4°F	112.8°F	103.4°F	88.7°F
	1	8, 7/8/74	8, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
TA1 P	Processor	Y, 8/25/76	Y, 8/24/76	۷, 10/19/76		X.R.S.W.DCDR B 3/74
133						2
IEVE IEVE	Tingr	Inoperative	Inoperative	Operative Reset: 12/27/76	Inhibited 5/72 Reset:	Operative Inhibited:1/5/77
	Heaters	USS-1 (10W) - OFF	DSS-100 100 1717/30	OFF	(19/2)-CFF	APM STATUS:
	LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	db0.0.0	LSPE - HBR 8/15/76
	Heaters	1	Forced OFF, 1/3/77	Auto On	Forced OFF,	Real T
	(A)	OFF, 12/30/76			12/31/76	Mon, Wed, Fri
? <u>E</u>	Filter	IN - 6/29/75	9//11/11 - INO	IN - 6/29/75	IN - 6/29/75	HFE - ON, NBR
Sd	DL-07 Temp.	138.6°F	134.5°E	1/2/	HIGH, 1/3/77	Data Mon, Wed, Fri,
	Urcage Ckt.	Uncaged	Uncaged	Uncaged	Uncaged, 12/23/76	RBS weekly
		SHS - ON, 12/30/76	CPLEE- STBY, 1/1/77	SIDE - ON, Cycle	LSM - ON	LEAM-OFF, 12/39/76
	Ξ',	Range: Norm. 1/1/?? Ext. 1/2/??	Anal B Failed 4/71	OFF 12 > 85°C XX, Y, Z, POS, 180° CCGE-Failed 7/18/75Flip Cals 1250 Z Failed 3/3/75	Kip Cals 1250 Flip Cals 1250 Z Failed 3/3/75	static @ night since 7/16/76
OTMOM STRAIN	TIVE/			<u>HFE</u> Degraded 12/75		LSG-STBY 8/15/75 Auto Htr Failed No Free Modes on
	d0	Dust Detector - ON	DTREM - ON	DTREM - ON	*	closed Loop Ops
L.,		9/	SIDE-0FF 1/5/75	SWS-0FF 6/74	HFE-OFF Since	LACE-STBY 7/22/76
	VBLE VE/	Increase reserve power for C/S heat	Failed	Failed	deployment, cable severed.	HV failed 10/73
	NACTI NOPER	<u>LSM-OFF 6/74</u> Failed	/23/7	LSM-OFF 6/74 Failed	ASE-OFF 12/23/74 Wortar #1 unfired.	
	II		uou l			
	- Apollo 11	Deployed 7/21/69, 23	23.4°E, 0.7°N- Lost Up	.7°N- Lost Uplink 8/25/69, Lost	Lost Downlink 12/14/69	

# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 1/5/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
			LOS 26/0103		
26 December	HAW/GWM	Higher Priority	AOS 26/0123	ALL	20 <sup>m</sup>
			LOS 29/1040		
29 December	ORR/GWM	Higher Priority	AOS 29/1220	ALL	1 <sup>h</sup> 40 <sup>m</sup>
	·		LOS 31/1905		
31 December	MAD	Higher Priority	AOS 31/1941	ALL	36 <sup>m</sup>
			LOS 31/2224		
31 December	MAD	Station Problem	AOS 31/2228	ALL	04 <sup>m</sup>
			LOS		
<u>1977</u>			AOS		
			LOS 01/2010		
01 January	ACN/MAD	Higher Priority	AOS 01/2035	ALL	25 <sup>m</sup>
			LOS 02/2005		
02 January	ACN/MAD	Schedule	AOS 02/2011	ALL	o6 <sup>m</sup>
			LOS		
Miles	·		AOS		
			LOS		
			AOS		
			LOS		
			AOS		
			LOS		
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			AOS		

	PSE CALS DAILY	800/80	0900-1100 ALSEP 15 SIDE ON	15/015	0900-1100	22/022	NO SUPPORT	NASA-JSC
	r en verbreib de de vige et de la color de creata de vige et de la color de verbreib de la color de verbreib d	02/002	0900-1100 ALSEP 15 CYCLE SIDE ALSEP 16 LSM FLIP CAL ALSEP 17 NBR - LEAM STBY	14/014	0700-1100 ALSEP 12 C/S HTR ON PSE 2 MTR OH ALSEP 14 C/S HTR ON ALSEP 17 NBR -	21/021	0900-1100 ALSEP 17 NBR -	
	ENIS	900/90	0900-1100 ALSEP 15 CYCLE SIDE	13/013	0900-1100 ALSEP 14	20/020	NO SUPPORT	
	ALSEP SUPPORT SCHEDILE/EVENTS	05/005	0900-1100 ALSEP 15 CYCLE SIDE ALSEP 16 LSM FLIP CAL ALSEP 17 NBR . 16 <sup>m</sup> HFE RBS	12/012	0900-1100 ALSEP 15 ALSEP 14 CPLEE ON PDRS OFF ALSEP 17 NBR - HFE RBS	9/0/61	0900-1100 ALSEP 17 NBR - HFE RBS	
	ALSEP SI	04/004	0900-1100 ALSEP 15 CYCLE SIDE	110/11	0900-1100 ALSEP 16 ALSEP 14 PSE HTR ON	18/018	NO SUPPORT	
		03/003	0900-1300 ALSEP 15 ALSEP 15 SIDE SUPPORT HFE RES LSM FLIP CAL ALSEP 17 NBR - 1 11 m HFE RBS ALSEP 14 PSE HTR OFF	010/01	0300-0400 1200-1300 2100-2200 ALSEP 16 C/S HTR ON LSM FLIP CAL	17/017	0900-1100 ALSEP 17 NBR -	
•	TIMES - CST	JAN 02/002	0900-1100 ALSEP 15 CYCLE SIDE	JAN 09/009	0900-1100 1900-2000 ALSEP 17	JAN 16/016	0900-1100 ALSEP 12 SWS STBY	BEN-20

TIMES - CST		ALSEP S	SUPPORT SCHEDIII E/EVENTS	ENTS		PSE CALS DATLY
JAN 23/023	24/024	25/025	26/026	27/027	28/028	29/029
LON	0900-1100 ALSEP 17 NBR -	ALSEP 16	0900-1100 ALSEP 15 TIMER RESET ALSEP 16 C/S HTR OFF TIMER RESET LSM FLIP CAL ALSEP 17 NBR - HFE RBS	0900-1100 ALSEP 17 LEAM OFF	0900-1100 ALSEP 14 ALSEP 16 LSM FLIP CAL ALSEP 17 NBR -	0600-0800 ALSEP 12 C/S HTR OFF PSE Z MTR OFF SWS ON ALSEP 14 C/S HTR OFF 1700-1800
JAN 30/030	31/031	FEB 01/032	02/033	03/034	04/035	05/036
lolu	0900-1100 ALSEP 15 SIDE STBY ALSEP 16 LSM FLIP CAL ALSEP 17 NBR -		0000-0400 ALSEP 15 SIDE SUPPORT ALSEP 16 LSM FLIP CAL ALSEP 17 NBR - HFE RBS	0900-1100 ALSEP 15 CYCLE SIDE	0900-1100 ALSEP 15 CYCLE SIDE ALSEP 16 LSM FLIP CAL ALSEP 17 NBR	0900-1100 ALSEP 15 CYCLE SIDE ALSEP 17 LEAM STBY
FEB 06/037	07/038	08/039	09/040	10/041	11/042	12/043
0900-1100 ALSEP 15 CYCLE SIDE	0900-1100 ALSEP 15 SIDE ON ALSEP 16 LSM FLIP CAL ALSEP 17 NBR -	0400-0500 ALSEP 17 1400-1500 2300-2400	0700-0809 1600-1700 ALSEP 16 C/S HTR ON LSM FLIP CAL ALSEP 17 NBR - ALSEP 14 PSE HTR ON	0900-1100 ALSEP 15 ALSEP 14 CPLEE 0N	0900-1100 ALSEP 17 NBR -	0900-1100 ALSEP 14 C/S HTR ON ALSEP 12 C/S HTR ON PSE Z MTR ON
REN_20						NASA-JSC.



#### ALSEP PERFORMANCE SUMMARY REPORT

12 January 1977 G.m.t.: 1700

#### Apollo 17 ALSEP

The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second) and engineering data from the central station and the other experiments is checked.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic work.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 12 January the lunar surface temperature, as measured by the HFE thermocouples, was  $118 \pm 8$ °K. At a depth of 230 cm the subsurface temperatures were 256.8°K at probe #1 and 257.0°K at probe #2.

The Lunar Ejecta and Meteorites Experiment was commanded from OFF to STANDBY for lunar night 8 January.

#### Apollo 16 ALSEP

The Central Station DSS-1 (10w) Heater was commanded ON for lunar night on 10 January. Operation is normal since X processor selected on 2 January.

The Passive Seismic Experiment is configured for seismic network congruity (thermal control, AUTO ON; component gain 0 db; and feedback loop filter IN). The heater was commanded to AUTO ON for lunar night operation on 10 January. The operation of the PSE with the heater Forced OFF and uncaged status has shown a decrease in the sensor temperature and a reduction in the frequency of levelling normally required. The instrument assembly temperature (DL-07) was offscale High from 3 to 9 January between the sun angles of 87.0 to 171.7° or 3 days less than previous lunar days.

The Lunar Surface Magnetometer is ON. Flip calibrations have been discontinued for this lunar night due to the low temperature of the Z-axis sensor head. A total of 1254 calibrations have been executed and verified by the experiment engineering data since deployment.

#### Apollo 15 ALSEP

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP). The instrument assembly temperature (DL-07) was offscale HIGH from 2 to 9 January between the sun angles of 62.8° to

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# Apollo 15 ALSEP (continued)

147.7°. The experiment received a spurious function command (PSE Thermal Control Mode to Auto OFF, Octal 076) as observed by the Madrid Tracking Station at 2232 G.m.t., 7 January. At the request of mission control the Madrid Tracking Station uplinked in Mode I the required three Octal 076 commands to return the experiment to its normal Auto ON thermal control mode. This commanding was accomplished between 2310 and 2315 G.m.t., 7 January.

The Suprathermal Ion Detector/Cold Cathode Gauge Experiment was commanded to OPERATE ON 8 January. It is operating in the Reset SIDE Frame Counter at 39 with the channeltron high voltages ON. The instrument is commanded to full sequencing (0-127 Frames) briefly during each real-time support period. The CCGE high voltage (+ 4.5 Kvdc) remains OFF.

The Heat Flow Experiment was commanded to STANDBY 9 January. From OPERATE ON 29 December 1976 until 5 January, the science data and ring bridge surveys gave valid outputs, however on 6 January (sun angle 111.0°) a degradation of the absolute temperature measurements was observed. This anomaly was the same as had occurred back in December 1975. The experiment will remain in STANDBY for the lunar night.

# Apollo 14 ALSEP

Acquisition of Signal of the Apollo 14 ALSEP has continued since 12 November, 1976.

The external 7 and 14 watt power dissipation resistors were commanded OFF during real-time support on 11 January, with the approach of lunar sunset.

The Passive Seismic Experiment is ON with the thermal control, AUTO ON; component gain O db; and feedback loop filter, OUT. The heater was commanded to AUTO ON for lunar night operation 11 January. The instrument assembly temperature (DL-07) was offscale High from 8 to 10 January between the sun angles of 114.7° to 139.3°.

The Charged Particle Lunar Environment Experiment was commanded from STANDBY to ON 11 January. It is operating in the manual mode at the -35 vdc range and automatic thermal control mode for the lunar night.

# Apollo 12 ALSEP

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20

12 January 1977 G.m.t.: 1700

# Apollo 12 ALSEP (continued)

db (Ref. 5 Dec 75 ALSEP Performance Summary Report). The instrument assembly temperature (DL-07) was offscale HIGH on 6 January at a sun angle of  $85.0^{\circ}$  and is expected to return onscale 14 January.

The Solar Wind Spectrometer Experiment is ON and in the normal gain mode.

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

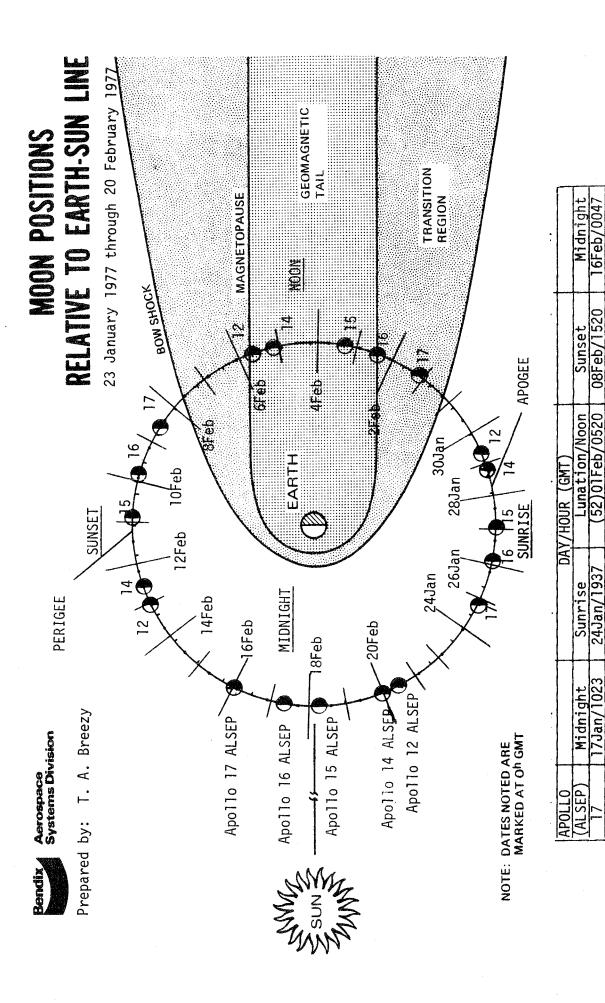
	The state of the s					
, ALSEP	.cot−	sek ending 17	-	12 January 1977		
STATUS		12 ALSEP 1		Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	0 17 A
Deployed		69/61/11	, 27	1805Z, 7/31/71	19387. 4/21/72	02532, 12/12/72
Lunar Location		23.5°W, 3.0°S	,	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days	s Ops	89/2611	74/2035	68/1992	59/1727	51/1492
Phase, Sun An	Angle	Noon, 158.3°	Noon, 164.3°	Sunset, 185.4°	Sunset, 197.3°	Sunset, 212.5°
Omds - Total/Week		51420/43	17169/167	38873/167	23835	36303/12
Sourious Changes	ıges	116	98	122		0
		1 49.0w	72.5w/ 60.3w	74.7w/49.7w	70.9w/ 64.0w	75.4w/ 64.8w
Reserve Por	_	24.3w		11.1w		15.6w
Z Avg. Therm.	Plate	85.5°F	40°.30F	7.6°F	30.4°F	9.7°F
		7/8/74	В,	B, 8/20/76	B, 3/26/73	A, 12/9/74
		Y, 8/25/76	Y, 8/24/76	۲, 10/19/76	X, 1/2/77	X.R.S.W.DCDR B 8774
S Peu						2
TRAL F	-	Inoperative	Inoperative	Operative Reset:12/27/7 <b>6</b> .	Inhibited 5/72 Reset: 12/27/76	Operative Inhibited: 1/12/77
CE Yeaters		USS-12/30/1/6-0FF	DSS-1 (10M) OFF12/39	DSS-1 (10w)	$(10y)_{7_i}$	APM STATUS:
LPX//Y, Z,	ZdS	0,0,-20db 11/75		0,0,0db	0.0.0db	LSPE -HBR 8/15/76
Heaters		Auto On	Auto ON, 1/11/77	Auto On	Auto OW,	NBR Real Time
Z motor		(Alkoff, 12/30/76			1/10/77	Mon, Wed, Fri
M Filter			OUT - 11/17/76	IN - 6/29/75	IN - 6/29/75	HFE - ON, NBR
2 DL-07 Ter	Temp.	HIGH, 1/6/77	. Ao8.22I	124.9°F		Data Mon, Wed, Fri,
Uncage Cl		Uncaged .	Uncaged	Uncaged	Uncaged, 12/29/76	RBS weekly
	· · · · · ·	SWS - 0N, 12/30/76	CPLEE-ON, 1/11/77	SIDE - ON, Cycle	LSM -ON	LEAM-STBY, 1/8/77
,		Range: Norm. 1/1/77 Ext. 1/2/77	Anal B Failed 4/71	OFF 12 > 85°C   X Y L POS. CCGE-Failed 7/18/75Flip Cals12554 2 Failed 3/37	X, Y, Z, Pos, 180° Flip Cals <i>1254</i> Z Failed 3/3/75	static @ night since 7/16/76
HCHTS TIVE/ ERABL	<del>Personal is analysis is analysis</del>	•		<u>HFE</u> - <i>STBY</i> , 1/9/77 Degraded 12/75		LSG-STBY 8/15/76 Auto Htr Failed No Enco Modes of
JA.		Dust Detector - ON	DTREM - ON	ON		rio ilee nodes ur closed Loop Ops
ίε\ '	. Ada Ababa ah	76 rve heat	<u>SIDE</u> -0FF 1/5/75 Failed	SWS-OFF 6/74 Failed	HFE-OFF Since deployment, cable severed.	LACE-STBY 7/22/76 HV failed 10/73
INACTI/ (ЯЗЧОИІ		SN-OFF 6/74 Failed	ASE-STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	LSM-OFF 6/74 Failed	ASE-OFF 12/23/74 Mortar #1 unfired. Sensors failed.	
P:EP - Apollo	7	Deployed 7/21/69, 23	23.4°E, 0.7°N- Lost Uplink 8/25/69,	Jink 8/25/69, Lost	Downlink 12/14/69	

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# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 1/12/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
			LOS 07/0300		
07 January	ROS/MIL	Higher Priority	AOS 07/0330	ALL	30 <sup>m</sup>
		·	LOS 08/2149		
08 January	ORR/ACN	Antenna masking	AOS 08/2155	ALL	06 <sup>m</sup>
			LOS 10/1301		
10 January	HAW/GWM	Schedule	AOS 10/1305	ALL	04 <sup>m</sup>
			LOS		
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7Feb/0646

**J9Feb/2124** 0Feb/2049 2Feb/143

9Feb/2 |8Feb/

05Feb/0445

29Jan/0658

28Jan/1848 27Jan/0102

21Jan/0920

21Jan/210

69)03Feb/1055

60)02Feb/1

26Jan/0139

24Jan/1937

7Jan/1023

8Jan/1622 9Jan/1542

6Feb/004

#### ALSEP PERFORMANCE SUMMARY REPORT

19 January 1977 G.m.t.: 1700

#### Apollo 17 ALSEP

The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second) and engineering data from the central station and the other experiments is checked.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic work.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 14 January the lunar surface temperature, as measured by the HFE thermocouples, was  $111 \pm 8$ °K. At a depth of 230 cm the subsurface temperatures were 256.8°K at probe #1 and 257.0°K at probe #2.

The Lunar Ejecta and Meteorites Experiment is in STANDBY for lunar night.

## Apollo 16 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night. Operation is normal since X processor selected on 2 January.

The Passive Seismic Experiment is configured for seismic network congruity (thermal control, AUTO ON; component gain O db; and feedback loop filter IN). The operation of the PSE with the heater Forced OFF and uncaged status during lunar day has shown a decrease in the sensor temperature and a reduction in the frequency of levelling normally required.

The Lunar Surface Magnetometer is ON. Flip calibrations have been discontinued for this lunar night due to the low temperature of the Z-axis sensor head.

#### Apollo 15 ALSEP

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP).

The Suprathermal Ion Detector/Cold Cathode Gauge Experiment is ON and is operating in the Reset SIDE Frame Counter at 39 with the channeltron high voltages ON. The instrument is commanded to full sequencing (0-127 Frames) briefly during each real-time support period. The CCGE high voltage (+ 4.5 Kvdc) remains OFF.

19 January 1977 G.m.t.: 1700

#### Apollo 15 ALSEP (continued)

The Heat Flow Experiment was commanded OFF permanently on 13 January. This action was taken to provide an adequate margin of reserve power during lunar night. The reserve power had dropped to a minimum of 4 watts. If a spurious functional command (10 watt heater or 14 watt power dissipation resistor ON) were to occur the power system would be overloaded and cause the loss of the central station. The HFE had been operated intermittently since 28 April 1976 and science data had been anamolous since December 1975.

## Apollo 14 ALSEP

Acquisition of Signal of the Apollo 14 ALSEP has continued since 12 November.

The DSS-1 (10 watt) heater was turned ON for lunar night on 14 January. The external 7 and 14 power dissipation resistors are OFF for lunar night.

The Passive Seismic Experiment is ON with the thermal control, AUTO ON: component gain O db; and feedback loop filter, OUT.

The Charged Particle Lunar Environment Experiment is ON and operating in the manual mode at the -35 vdc range and automatic thermal control mode for the lunar night.

#### Apollo 12 ALSEP

The DSS-1 (10 watt) heater was turned ON for lunar night on 14 January.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 5 Dec 75 ALSEP Performance Summary Report). The instrument assembly temperature (DL-07) was onscale at a temperature of 140.48°F and a sun angle of 169.7° on 13 January. The temperature was offscale LOW on 19 January at a sun angle of 243.1°. The Z-motor is ON to maximize heating in the instrument during lunar night.

The Solar Wind Spectrometer Experiment was commanded OFF on 15 January. This action was necessary to maintain the central station average thermal plate temperature above 1°F during lunar night. Below this temperature the PSE electronics do not operate correctly. The additional reserve power (4 watts) will provide the needed heat and extend acquisition of useful PSE data for another 5 or 6 months.

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

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. ALSEP	ro	as of week ending	1700 Z (G.m.t.)	19 January 1977		
STATUS		0110 12	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	17
Deployed		141.22, 11/19/69	, 2/5/71	7/31/71	19387. 4/21/72	02532, 12/12/72
Lunar Loc	Location	က	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20,2°N
Lunation/Days	Days Ops	89/2618	74/2042	68/1999	59/1734	51/1499
Phase, Su	Sun Angle	Sunset, 243.6°	Sunset, 249.5°	Midnight, 270.7°	Widnight, 306.6°	Midnight, 321.6°
ı	Total/Week	0	140	38997/124	23883/48	36328/25
Sourious Changes	Changes	116	86	119		0
ļ	Initial/Present	73.6W/47.1w	72.5W/59.4w	74.7w/49.0w	70.9w/62.2w	75.4w/ 64.4w
Reserve	re Power	13.0w	14.5 $\omega$	9.9w	13.7w	15.6w
Avg.	Therm. Plate	9.70E	24.5°F	-7.1°F	27.6°F	7.8ºF
Trail		B, 7/8/74	8,11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
A Processor		Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/2/77	X. R. S. W. DCDR B 8/74
-						2
TRAL Time		Inoperative	Inoperative	Operative Reset:12/27/76	Inhibited 5/72 Reset: 12/27/76	Operative Inhibited:1/17/72
E Heaters		USS-1 (104)-40N4	DSS-1 (10w) - OW,	DSS-1 (10w) - OFF	DSS-1 (10W)T/18077	APM STATUS:
LPX/	Y.Z.SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0.0.0db	LSPE -HBR 8/15/76
Heaters	,	1	Auto On, 1/11/77	Auto On	Auto On	Real T
2	Z motor (AI)	ON, 1/14/77			1/10//7	, wed,
'n.	Iter	IN - 6/29/75	OUT - 11/17/76	IN - 6/29/75	IN - 6/29/75	BR
PS 01-07	7 Temp.	LOW, 1/19/77	124.1°F	124.6°F	125.8°F	Data Mon, Wed, Fri,
Uncage		Uncaged	Uncaged	<i>OŢ</i>	Uncaged, 12/29/76	RBS weekly
		SWS - OFF, 1/15/77	CPLEE-ON, 1/11/77	SIDE - ON, Cycle	LSM -0N X Y 7 Dos 180°	LEAM-STBY1/8/77
		Range: Norm.	Anal B Failed 4/71	CCGE-Failed 7/18/75 Fip Cals 3/3/	75	since 7/16/76
ΛE\				HFE -OFF, 1/13/77		LSG-STBY 8/15/76
STWE			DTDEM ON	Degraded 12/75		No Free Modes or
<sup>†</sup>		pust Detector - UN Ribe nee 8/2/76	<u>ا</u> لِنا ا	ı İ	HFF_OFF Since	ACE_STRY 7/22/76
			Failed		deployment, cable	HV failed 10/73
VE\		. C/S heat			severed.	
INACTI INOPER		LSM-OFF 6/74 Failed	ASE-STBY 12/23/74 Mortars unfired Geophones 2 & 3 had	LSM-OFF 6/74 Failed	ASE-OFF 12/23/74 Mortar #1 unfired. Sensors failed	
١,	Anollo 11	Denloved 7/21/69, 23	4°E. 0.7°N- Lost	Uplink 8/25/69, Lost	Downlin	
	20110	11 = 11 = 2		- 1		

# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 1/19/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
			LOS 14/0112		
14 January	GWM/ACN	Higher Priority	AOS 14/0156	ALL	44 <sup>m</sup>
		·	LOS 16/2315		
16/17 January	HAW/GWM	Higher Priority	AOS 17/0010	ALL	55 <sup>m</sup>
			LOS 17/0414		
17 January	GWM/ACN	Schedule	AOS 17/0446	ALL	32 <sup>m</sup>
			LOS 17/0820		
17 January	ACN/AGO	Higher Priority	AOS 17/0849	ALL	29 <sup>m</sup>
			LOS 18/0939		
18 January	ACN/AGO	Higher Priority	AOS 18/0945	ALL	06 <sup>m</sup>
			LOS 18/1630		A PROPERTY OF THE PROPERTY OF
18 January	BDA/MIL	Higher Priority	AOS 18/1730	ALL	1 <sup>h</sup> 00 <sup>m</sup>
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#### ALSEP PERFORMANCE SUMMARY REPORT

26 January 1977 G.m.t.: 1700

#### Apollo 17 ALSEP

Sunrise of the 52nd lunation occurred on 24 January at the Taurus Littrow site. The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second) and engineering data from the central station and the other experiments is checked.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic work.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 26 January the lunar surface temperature, as measured by the HFE thermocouples, was  $295 \pm 8$ °K. At a depth of 230 cm the subsurface temperatures were 256.8°K at probe #1 and 257.0°K at probe #2.

The Lunar Ejecta and Meteorites Experiment is in STANDBY.

## Apollo 16 ALSEP

Sunrise at the Descartes site occurred on 26 January for the 60th lunation. The Central Station DSS-1 (10w) Heater is OFF for lunar day.

The Passive Seismic Experiment is configured for seismic network congruity (thermal control, AUTO ON; component gain O db; and feedback loop filter IN).

The Lunar Surface Magnetometer is ON. The science data from the Z-axis sensor continues to remain static. Flip calibrations that were discontinued due to lunar night low temperatures will be resumed this lunar day during the real-time support period on 28 January.

#### Apollo 15 ALSEP

On 24 January the Merritt Island Tracking Station reported telemetry data point AB-05 out of limits. A special real-time support was called and data indicated that the Power Conditioning Units (PCU) had switched from 1 to 2, the SIDE was in standby power ON, and an 18 hour timer pulse had occurred. At 0516 G.m.t., 24 January, mission control reselected PCU 1 (octal 060). Following the return to PCU 1 the Passive Seismic Experiment (PSE) changed to feedback loop filter OUT (octal 101), level mode forced (octal 103), and the uncaged status (octal 073). The PSE was commanded to its normal operational mode and the SIDE was commanded to ON (octal 153). This returned

26 January 1977 G.m.t.: 1700

# Apollo 15 ALSEP (continued)

the station to the normal configuration again. The switch of the PCU from 1 to 2 happened approximately one month ago on 27 December during late lunar night and is believed to have been caused by a spurious command (octal 062, PCU 2 select). A CVW would not be seen nor reported by the tracking stations.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP).

The Suprathermal Ion Detector/Cold Cathode Gauge Experiment is ON and is operating in the Reset SIDE Frame Counter at 39 with the channeltron high voltages ON. The instrument is commanded to full sequencing (0-127 Frames) briefly during each real-time support period. The CCGE high voltage (+ 4.5 KVDC) remains OFF.

The Heat Flow Experiment was commanded OFF permanently on 13 January.

# Apollo 14 ALSEP

Acquisition of Signal of the Apollo 14 ALSEP has continued since 12 November.

The DSS-1 (10 watt) heater is ON for lunar night.

The Passive Seismic Experiment is ON with the thermal control, AUTO ON; component gain O db; and feedback loop filter, OUT.

The Charged Particle Lunar Environment Experiment is ON and operating in the manual mode at the -35 vdc range and automatic thermal control mode for the lunar night.

# Apollo 12 ALSEP

The DSS-1 (10 watt) heater is ON for lunar night.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 5 Dec 75 ALSEP Performance Summary Report). The Z-motor is ON to maximize heating in the instrument during lunar night. The instrument assembly temperature (DL-07) has remained offscale LOW since 19 January and is expected to return onscale 29 January. At 0816 G.m.t., 22 January, the PSE responded to a spurious functional change (Long Period Z gain change - 10 db, octal 064) as reported by the Guam Tracking Station. The change was confirmed by mission control during a special real-time support period. The LP Z gain was commanded to 0 db (3 octal 064s) by mission control at 0522 G.m.t., 24 January.

26 January 1977 G.m.t.: 1700

# Apollo 12 ALSEP (continued)

The Solar Wind Spectrometer was commanded OFF on 15 January to increase central station heating during lunar night.

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

	Weighter Varieties Controlled			D D O T		
H.	ALSE	eek ending		26 January 1977		
STA	STATUS	Apollo 12 ALSEP 1		Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed	yed	11412Z, 11/19/69		7/3	1938Z, 4/21/72	02532, 12/12/72
Lunar	. Location	23.5°W, 3.0°S		,	-	30.8°E, 20.2°N
Lunat	Lunation/Days Ops	89/2625	74/2049	68/2006	1	
Phase	, Sun Angle	Midnight, 328.8°	Midnight, 334.8°	Midnight, 355.90	Sunrise, 7.8°	Sunrise, 23.0°
Cmds	- Total/Week	31495/9	ĺ	1	SS des establishes han die versteren der	1 -
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913 913	Initial/Present Reserve Power	73.6w/46.8w 12.5w	72.5w/59.1w 13.9w	74.7w/ 48.0w 13.3w	70.9w/62.8w 79.8w	75.4w/62.9w
J≤	Ther	7.5°F	23.2°F		46.6°E	59.4°E
<u> U</u>	smitter	B, 7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A. 12/9/74
TAT Program	Processor	Y, 8/25/76	8/2	3	1	٠,
133 S	. Nekskylanderski karaliste promi salte in sven erver karaliste meg en er	The state of the s				
TRAIT	۲. د	Inoperative	Inoperative	Operative Reset:1/26/77	Inhibited 5/72 Reset:1/28/72	Operative Inhibited: 1/26/77
Account to the second	leaters	1,14,14,1-280	DSS-1 (10w)-	DSS-1 (10w) - OFF	1PW26-19FF	1
	LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0.0.0db	LSPE -HBR 8/15/76
	S.	Auto On	Auto On, 1/11/77	Auto On	Auto On	NBR Real Time
	200	1/		-	///01/	MOIL WELL, FPI
E 2E	Filter	IN - 6/29/75	0UT - 11/17/76	IN - 6/29/75	IN - 6/29/75	HFE - ON, NBR
must of	OL-07 Temp.	LOW, 1/19/77	124.1°F	124.4°F	126.1°F	Data Mon, Wed, Fri,
	Uncage Ckt.		Uncaged	. OI	มกตลตูอd, 12/29/76	RBS weekly
er dankster zen, a		SWS - 0FF, 1/15/77	CPLEE- ON 1/11/77	SIDE - ON, Cycle	LSM -0N	LEAM-STBY 8/15/76
		Range:Norm. Ext.	Anal B Failed 4/71	CCGE-Failed 7/18/79F1ip Cals	Flip Cals 7 Failed 3/3/75	since 7/16/76
TIME	EKASI			<u>HFE</u> -OFF, 1/13/77 Degraded 12/75		LSG-STBY 8/15/76 Auto Htr Failed
		Dust Detector - ON	DTREM - ON	S		no rree modes or closed Loop Ops
		SIDE-OFF 5/3/76 Increase reserve bower for C/S heat	<u>SIDE</u> -0FF 1/5/75 Failed	SWS-OFF 6/74 Failed	HFE-OFF Since deployment, cable severed	LACE-STBY 7/22/75 HV failed 10/73
CLI	beek\	LSM-0FF 6/74	ASE-STBY 12/23/74	LSM-0FF 6/74	ASE-0FF 12/23/74	CONTRACTOR OF THE PROPERTY OF
			s unined ones 2 & 3 bad	Lalleu	vortar #1 untired. Sensors failed.	
4	SEP - Apollo 11	Deployed 7/21/69, 23	23.4°E, 0.7°N- Lost Up	Lost Uplink 8/25/69, Lost	Downlink 12/14/69	
No. of Contract of						

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# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 1/26/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
			LOS 19/1001		
19 January	MAD/ACN	Higher Priority	AOS 19/1028	ALL	27 <sup>m</sup>
			LOS 20/0923		
20 January	ACN/MAD	Higher Priority	AOS 20/1050	ALL	1 <sup>h</sup> 27 <sup>m</sup>
			LOS 21/0920		
21 January	GWM/ACN	Higher Priority	AOS 21/1020	ALL	1 <sup>h</sup> 00 <sup>m</sup>
			LOS 21/1050		
21 January	ACN	Higher Priority	AOS 21/1155	ALL	1 <sup>h</sup> 05 <sup>m</sup>
			LOS 22/0407		
22 January	HAW/GWM	Higher Priority	AOS 22/0440	ALL	33 <sup>m</sup>
			LOS 22/1042		
22 January	GWM/MAD	Higher Priority	AOS 22/1044	ALL	02 <sup>m</sup>
			LOS 23/1031		
23 January	ORR/GWM	Higher Priority	AOS 23/1049	ALL	18 <sup>m</sup>
			LOS 25/1000	·	
<u>:</u> January	ORR/GWM	Higher Priority	AOS 25/1021	ALL	21 <sup>m</sup>
			LOS		
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#### ALSEP PERFORMANCE SUMMARY REPORT

2 February 1977 G.m.t.: 1700

#### Apollo 17 ALSEP

Noon of the 52nd lunation occurred on 1 February at the Taurus Littrow Site. The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second) and engineering data from the central station and the other experiments is checked. Also during these periods the 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain.

The Lunar Surface Gravimeter Experiment is in STANDBY.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic work.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 2 February the lunar surface temperature, as measured by the HFE thermocouples, was  $380 \pm 8^{\circ}\text{K}$ . At a depth of 230 cm the subsurface temperatures were  $256.8^{\circ}\text{K}$  at probe #1 and  $257.0^{\circ}\text{K}$  at probe #2.

The Lunar Atmospheric Composition Experiment is in STANDBY.

The Lunar Ejecta and Meteorites Experiment was commanded from STANDBY to OFF for lunar day on 27 January.

#### Apollo 16 ALSEP

Noon at the Descartes Site occurred today for the 60th lunation. The Central Station 18-hour timer output pulses continue to be inhibited per the agreed operation plan initiated 6 May 1972.

The Passive Seismic Experiment is ON with thermal control Forced OFF, component gains 0 db, and feedback loop filter IN. The thermal control was commanded to Forced OFF on 30 January and the uncage-arm fire circuitry to UNCAGED on 31 January in an attempt to minimize heating in the experiment during lunar day. Operation in this configuration during the previous lunation had shown a decrease in the sensor temperature and a reduction in the frequency of levelling normally required. The sensor temperature was offscale HIGH on 2 February at a sun angle of 87.7°.

The Lunar Surface Magnetometer Experiment is ON and recording data. Science data from the Z-axis remained static this report period. Flip calibration sequences are being conducted during the lunar day and a total of 1260 have been executed and verified by the experiment engineering data since deployment.

The Active Seismic Experiment is OFF (Apollo 16 ALSEP, SMEAR 27).

2 February 1977 G.m.t.: 1700

## Apollo 15 ALSEP

Sunrise of the 69th lunation at the Hadley Rille Site occurred on 27 January.

The Passive Seismic Experiment is ON with the thermal control Auto ON, component gains O db, and feedback loop filter IN. On 28 January the sensor was saturating with the filter in, so the filter was left out. On 30 January, filter in operation was resumed since onscale operation had returned. The uncage-arm fire circuitry switched from OT to UNCAGED between support periods of 28 and 29 January. The functional change is believed to have been caused by a spurious command (octal 073, uncage-arm/fire), but a command verification word (CVW) was not observed by the tracking stations. On 31 January the PSE was reset to UNCAGED (octal 073). The sensor temperature (DL-07) was offscale HIGH on 1 February at a sun angle of 67.8°.

The Suprathermal Ion Detector Experiment is in STANDBY. The experiment is presently being cycled from STANDBY to ON during real-time support periods to avoid exceeding an internal temperature of 85°C (Apollo 15 ALSEP, SMEAR 47). During these periods the instrument is operated in the Reset SIDE Frame Counter at 39 with Channeltron high voltages ON. The CCGE high voltage (+ 4.5 Kvdc) remains OFF. Between real-time support periods of 29 and 30 January the SIDE experienced a change from Reset Frame Counter at 39 to Master Reset (0-127 frames). As the Master Reset (Load 008) requires two separate commands to occur, the change is attributed to an internal instrument change and not to any spurious commands. The SIDE was commanded back to Reset Frame Counter at 39 on 30 January at 1541 G.m.t.

The Solar Wind Spectrometer Experiment was commanded OFF 14 June 1974.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

# Apollo 14 ALSEP

Sunrise of the 75th lunation at the Apollo 14 site occurred on 28 January. The central station DSS-1 (10 watt) heater is OFF for lunar day operation. The external 14 and 7-watt power dump resistors were commanded ON, 30 January.

The Passive Seismic Experiment is ON with the thermal control, Forced OFF; component gain O db; and feedback loop filter, OUT. The heater was commanded to Forced OFF for lunar day operation on 1 February.

The Active Seismic Experiment is in STANDBY (Apollo 14 ALSEP, SMEAR 86).

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments were commanded OFF on 21 May 1976.

2 February 1977 G.m.t.: 1700

# Apollo 14 ALSEP (continued)

The Charged Particle Lunar Environment Experiment was commanded to STANDBY on 30 January. At 2243 G.m.t., 29 January, the instrument experienced a functional change (operational heater ON) as reported by the Merritt Island Tracking Station that observed the CVW (octal 111) in the downlink. This was confirmed by mission control during real time support on 30 January. The heater was commanded OFF (octal 112) at 1600 G.m.t., 30 January.

### Apollo 12 ALSEP

Sunrise of the 90th lunation occurred on 29 January. The central station DSS-1 (10 watt) heater is OFF for lunar day operation.

The Passive Seismic Experiment is ON with the thermal control Auto ON, long period XY and Z-axes component gains 0 db, short period z axis component gain -20 db, and feedback loop filter IN. The instrument assembly temperature (DL-07, 125.0°F) returned onscale at a sun angle of 2.7° on 29 January. The Z-motor was commanded OFF for lunar day operation on 29 January.

The Solar Wind Spectrometer Experiment was commanded from OFF to STANDBY 29 January. At 1528 G.m.t., 31 January, the SWS was commanded ON for an operational check and it was observed that the instrument was not sequencing. Detailed data analysis showed that the sequencer would not stop and was outputting proton science data at level 7 ± 1 from cups 1/2 or 6/7. During real time support on 1 February the same condition was observed and at the completion of support the instrument was commanded back to STANDBY. The SWS will remain in STANDBY during the lunar day time to reduce central station heating.

The Suprathermal Ion Detector Experiment was commanded OFF 3 May 1976.

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

			77 - 77		
	as of week ending	/ (G.m.t.)	2 February 197	,	
STATUS	Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	17
Deployed	1	2/5/71		19387, 4/21/72	02532, 12/12/72
Lunar Location	23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops	90/2632	75/2056	69/2013	60/1748	52/1513
Phase, Sun Angle	Surrise, 53.70	Sunrise, 60.8°	Sunrise, 82.0°	Noon, 93.8°	Noon, 109.0°
Cmds - Total/Week	31557/62	17291/70	39227/168	24067/153	36417/39
Sourious Changes	117	0	121		0
ت Initial/Present Reserve Power	73.6w/48.7w 23.0w	72.5w/ 60.9w 14.3w	74.7w/50.3w 19.2w	70.9w/62.8w 31.8w	75.4w/62.5w 23.3w
Shvq. Therm. Plate	92.8°E	104.8°E	109.8°E	105.5°F	94.7°F
Transmitter	B, 7/8/74	8,11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/2/77	X.R.S.W.DCDR B 8/74
pcu	,	<b></b>			2
TAST Tall: Tall:	Inoperative	Inoperative	Operative Reset:1/26/77	Inhibited 5/72 Reset:1/26/77	Operative Inhibited: 2/2/77
Peaters	0.85-1 (10W) = 0FF	DSS-1 (10w) $\frac{OFF}{29/77}$	OFF	<u>8</u> 557	APM STATUS: ON
LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0.0.0db	LSPE -HBR 8/15/76
Heaters Z motor (A1)	Auto On <i>OFF</i> , 1/29/77	Forced OFF, 2/1/77	Auto On	OFF 7	NBR Real Time Mon, Wed, Fri
Filter	IN - 6/29/75	0UT - 11/17/76	IN - 1/30/77	IN - 6/29/75	HFE - ON, NBR
© 0L-07 Temp.	127.8°F		30%	Offscale HIGH 2/2,	7 Data Mon, Wed, Fri,
Uncage Ckt.	Uncaged .	Uncaged	0T	9/,	RBS weekly
	1/29/77	\ • •	SIDE - 0N, Cycle LSM - 0N OFF T2 > 85°C   X, Y, Z, Pos. 180	٥	LEAM-OFF 1/27/77 Static @ night
37	kange: norm. Ext.	Anal B Failed 4/71	CCGE-Failed 7/18/75		since 7/16/76
MENT:			HFE Degraded 12/75		LSG-STBY 8/15/76 Auto Htr Failed No Free Modes or
DA	Dust Detector - ON	·	DTREM - ON		closed Loop Ops
VBI'E VE\	76 rve heat	SIDE-OFF 1/5/75 Failed	SWS-OFF 6/74 Failed	HFE-OFF Since deployment, cable severed.	LACE-STBY 7/22/76 HV failed 10/73
INACTI INOPER	LSM-0FF 6/74 Failed		LSM-OFF 6/74 Failed	ASE-OFF 12/23/74 Mortar #1 unfired. Sensors failed.	
PSEP - Apollo 11	Deployed 7/21/69, 23	23.4°E, 0.7°N- Lost Up	Lost Uplink 8/25/69, Lost	Downlink 12/14/69	

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NOON and NIGHT DATA (Latest Lunation)

APOLLO 15 ALSEP	Noon Night	Lunation 68 68 270.2° Sun Angle 87.2° 270.2° Sig Strth (9m) -135.0 dbm -140.0 dbm Input Power 14.8w 10.0w Av Ther Pl T. 111.2°F -7.1°F PSE T. (DL-07) HIGH 124.6°F SIDE T. (DI-05) 67.8°C 7.2°C CCGE T. (DI-04) 372.6°K 110.3°K HFE T. (DH-13) 331.2°K 0FF
	Night	
APOLLO 14 ALSEP	Noon	74 74 74 91.0° 272.8° -141.0 dbm 60.6w 59.4w 14.2w 114.3°F 24.5°F 138.2°F 124.1°F STBY -22.7°C
APOLLO		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. PSE T. (DL-07) CPLEE T. (AC-06)
APOLLO 12 ALSEP	Night	89 267.0° -137.0 dbm 46.8w 13.0w 8.5°F LOW 0FF
	Noon	89 85.0° -142.0 dbm 49.4w 23.8w 94.8°F HIGH 68.0°C
APOLLC		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. PSE T. (DL-07) SWS T. (DW-13)

	Night	51 276.7° -136.0 dbm 64.4w 15.6w 7.8°F -16.1°F -58.0°F 285.8°K STBY
POLLO 17 ALSEP	Noon	51 103.9° -140.0 dbm 62.9w 23.9w 94.8°F 163.2°F 202.0°F 330.5°K STBY 98.0°F
APOLL		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. LACE T. (AM-41) LEAM T. (AJ-11) HFE T. (DH-13) LSG T. (AP-01)
	Night	59 282.3° -133.0 dbm 62.2w 13.7w 27.6°F 125.8°F
PULLU 16 ALSEP	Noon	59 87.0° -140.0 dbm 62.8w 32.1w 105.8°F HIGH 49.5°C
APULL		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. PSE T. (DL-07) LSM T. (DM-05)

# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 2/02/77

ATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
-		,	LOS 28/1145		
28 January	HAW/MAD	Higher Priority	AOS 28/1246	ALL	1 <sup>h</sup> 01 <sup>m</sup>
		·	LOS 28/0325		
30 January	ROS	Station Problem	AOS 28/0328	ALL	o3 <sup>m</sup>
			LOS 01/2226		
01 February	ACN/MIL	Higher Priority	AOS 01/2231	ALL	05 <sup>m</sup>
			LOS 01/2308		
01 February	MIL/ACN	Higher Priority	AOS 01/2335	ALL	27 <sup>m</sup>
			LOS	estations.	
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			AOS		

PSE CALS DAILY	29/029	0600-0800 ALSEP 12 C/S HTR OFF PSE Z MTR OFF SWS ON ALSEP 14 C/S HTR OFF 1700-1800	05/036	0900-1100 ALSEP 15 CYCLE SIDE ALSEP 17 LEAM STBY	12/043	0900-1100 ALSEP 14 C/S HTR ON 2200-2400 ALSEP 12 C/S HTR ON C/S HTR ON PSE Z MTR ON	NASA-JSC
	28/028	0900-1100 ALSEP 14 ALSEP 16 LSM FLIP CAL ALSEP 17 NBR - 21 m	04/035	0900-1100 ALSEP 15 CYCLE SIDE ALSEP 16 LSM FLIP CAL ALSEP 17 NBR	11/042	0900-1100 ALSEP 17 NBR -	
VENTS	27/027	0900-1100 ALSEP 17 LEAM OFF NBR - 13 <sup>m</sup>	03/034	0900-1100 ALSEP 15 CYCLE SIDE	10/041	0900-1100 ALSEP 15 ALSEP 14 CPLEE 0N	
ALSEP SUPPORT SCHEDULEZEVENTS	26/026	0900-1100 ALSEP 15 TIMER RESET ALSEP 16 C/S HTR OFF TIMER RESET ALSEP 17 NBR -56 HFE RBS	02/033	0000-0400 ALSEP 15 SIDE SUPPORT ALSEP 16 LSM FLIP CAL ALSEP 17 NBR - 56 <sup>m</sup> HFE RBS	09/040	0700-0800 1600-1700 ALSEP 16 C/S HTR ON LSM FLIP CAL ALSEP 17 NBR - ALSEP 14 PSE HTR ON	
ALSEP S	25/025	NO SUPPORT ALSEP 16	FEB 01/032	i Ι iΩ Ω	68/039	0400-0500 ALSEP 17 1400-1500 2300-2400	
	24/024	0900-1100 ALSEP 17 <sup>m</sup> NBR - 12 <sup>m</sup>	31/031	0900-1100 ALSEP 15 SIDE STBY ALSEP 16 LSM FLIP CAL ALSEP 17m NBR - 18m	07/038	0900-1100 ALSEP 15 SIDE ON ALSEP 16 LSM FLIP CAL ALSEP 17 NBR -	
TIMES - CST	14N 23/023	NO SUPPORT	JAN 30/030	0900-1100 ALSEP 14 CPLEE STBY	FEB 06/037	0900-1100 ALSEP 15 CYCLE SIDE	BEN-20

020/01	SUPPORT	26/057	0900-1100 ALSEP 17 LEAM OFF	05/064	-1100 P 15 LE SIDE	NASA-JSC
TR/OAG	ON	25/056	0900-1100 ALSEP 15 ALSEP 17 NBR - ALSEP 16 LSM FLIP CAL	04/063	0900-1100 ALSEP 15 CYCLE SIDE CYCLE ALSEP 16 LSM FLIP CAL ALSEP 17 NBR -	
VENTS 17/048		24/055	1900-2100 ALSEP 16 C/S HTR OFF TIMER RESET ALSEP 15 TIMER RESET	03/062	1300-1700 ALSEP 15 SIDE SUPPORT	
SUPPORT SCHEDULE/EVENTS	0900-1100 ALSEP 17 NBR - HFE RBS	23/054	0900-1100 ALSEP 17 NBR - HFE RBS	02/061	0900-1100 ALSEP 14 PSE HTR OFF ALSEP 15 CYCLE SIDE ALSEP 16 LSM FLIP CAL ALSEP 17 NBR - HFE RBS	
ALSEP 6	0900-1100	- 22/053	NO SUPPORT	MAR 01/060	0900-1100 ALSEP 14 CPLEE STBY ALSEP 15 SIDE STBY	
14/045	0900-1100 ALSEP 17 NBR - ALSEP 12 SWS STBY	21/052	0900-1100 ALSEP 17 NBR -	28/059	0000-0300 ALSEP 17 NBR - ALSEP 16 LSM FLIP CAL 1500-1600	
TIMES - CST	0000-0200 1400-1600	FEB 20/051	NO SUPPORT	FEB 27/058	0900-1100 ALSEP 14 C/S HTR OFF 1 ALSEP 12 C/S HTR OFF 1 PSE Z MTR OFF 1 SWS ON	BEN-20

18Mar/2026 22Mar/0058 9Mar/1945 Midnight 7Mar/1430 21Mar/1317 0Mar/0954 1Mar/1119 4Mar/0420 4Mar/1459 2Mar/1041 Sunset .unation/Noon 53)02Mar/1926 06Mar/1846 105Mar/0059 04Mar/0132 )07Mar/063 DAY/HOUR (GMT 6 6 27Feb/0859 27Feb/2104 23Feb/0954 24Feb/1554 25Feb/151 Sunrise 7Feb/0646 8Feb/0606 20Feb/1123 9Feb/234 6Feb/0047 Midniaht

NASA-JSC

9 February 1977 G.m.t.: 1900

### Apollo 17 ALSEP

The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second) and engineering data from the central station and the other experiments is checked.

The Lunar Surface Gravimeter Experiment was commanded from STANDBY to ON at 1931 G.m.t., 4 February, for a trouble shooting test. This is an attempt to center the beam at low temperatures during lunar night. The instrument is presently configured: all masses on, backlash out, seismic low gain, integrator shorted, bias out, post amplifier gain step 2, and slave heater off.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic work.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 9 February the lunar surface temperature, as measured by the HFE thermocouples, was 122 ± 8°K. At a depth of 230 cm the subsurface temperatures were 256.8°K at probe #1 and 257.0°K at probe #2.

The Lunar Ejecta and Meteorites Experiment was commanded from OFF to STAND-BY for lunar night 6 February.

### Apollo 16 ALSEP

The Central Station DSS-1 (10w) Heater was commanded ON for lunar night  $\it 9$  February.

The Passive Seismic Experiment is configured for network congruity (thermal control, AUTO ON; component gain 0 db; and feedback loop filter IN). The heater was commanded from Forced OFF to AUTO ON for lunar night operation on 9 February. The instrument assembly temperature (DL-07) was off-scale HIGH from 1 to 9 February between the sun angles of 87.2° to 171.1°.

The Lunar Surface Magnetometer Experiment is ON and recording data. Science data from the Z-axis remained static this report period. Flip calibration sequences are being conducted during the lunar day and a total of 1264 have been executed and verified by the experiment engineering data since deployment.

9 February 1977 G.m.t.: 1900

### Apollo 15 ALSEP

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP). The instrument assembly temperature (DL-07) was offscale HIGH from 1 to 7 February between the sun angles of 67.8° to 143.5°. The experiment received a spurious functional command (PSE, calibration SP OFF, octal 065) as observed by the Goldstone Tracking Station at 0909 G.m.t., 6 February. Between real time support periods of 6 and 7 February a spurious functional command (18 hour timer reset, octal 150) was apparent from the data readouts at mission control. No command verification word (CVW) was noted in the downlink. At 0400 G.m.t., 9 February, the 18 hour timer was reset (octal 150) by mission control.

The Suprathermal Ion Detector/Cold Cathode Gauge Experiment was commanded to OPERATE ON 6 February. It is operating in the Reset SIDE Frame Counter at 39 with the channeltron high voltages ON. The instrument is commanded to full sequencing (0-127 Frames) briefly during each real-time support period. The CCGE high voltage (+ 4.5 Kvdc) remains OFF.

### Apollo 14 ALSEP

At the start of real time support on 6 February the data showed that the Power Conditioning Unit (PCU) had switched from 1 to 2. During the real time support period at 1506 G.m.t., PCU 1 (octal 060) was reselected returning the station to its normal configuration.

The Passive Seismic Experiment is ON with the thermal control, AUTO ON; component gain O db; and feedback loop filter, OUT. The heater was commanded from Forced OFF to AUTO ON for lunar night operation 9 February.

The Active Seismic Experiment is in STANDBY (Apollo 14 ALSEP, SMEAR 86). At 1331 G.m.t., 4 February the Hawaii Tracking Station reported telemetry data point AB-04 out of limits. Telemetry readout by the station verified that a spurious functional change had occurred, ASE OFF (octal 044). At 1851 G.m.t., 4 February, during real time support the experiment was commanded back to STANDBY (octal 043).

The Charged Particle Lunar Environment Experiment is in STANDBY.

### Apollo 12 ALSEP

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 5 Dec 75 ALSEP Performance Summary Report. The experiment re-

9 February 1977 G.m.t.: 1900

### Apollo 12 ALSEP (continued)

ceived a spurious functional command (PSE Gain change LPX, LPY - 10 db, octal 063) as observed by the Merritt Island Tracking Station at 1017 G.m.t., 4 February. At the request of mission control the Goldstone Tracking Station uplinked in mode I the required three octal 063 commands to return the experiment to its normal 0 db range at 1105 G.m.t., 4 February. The instrument assembly temperature (DL-07) has remained offscale HIGH since 6 February (sun angle 101.2°) and is expected to return onscale 11 February.

The Solar Wind Spectrometer Experiment is currently in STANDBY.

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

	Apollo 17 ALSEP 5	-1	30.8°E, 20.2°N	52/1520	Sunset, 194,0°	36733/316	0	75.4w/ 64.1w 22.8w	15.2°F	A, 12/9/74	X.R.S.W.DCDR B et Z	2	Operative Inhibited: 2/9/77	APM STATUS:	LSPE -HBR 8/15/76	NBR Real Time Mon, Wed, Fri.	HFE - ON, NBR	Data Mon, Wed, Fri	RBS weekly	LEAM-STBY, 2/06/77	since 7/16/76	LSG- ON, 2/04/77 Auto Htr Failed No Free Modes or	closed Loop Ops	LACE-STBY 7/22/76	HV failed 10//3		
		387. 4	15.5 4, 9.0 5	60/1755	Noon, 178.8°	24184/117		70.9w/63.0w 31.8w	41.9°F	B, 3/26/73	X, 1/2/77		Inhibited 5/72 Reset:1/2 <b>6/77</b>		0.0.0db	Auto On, 2/05/77	IN - 6/29/75	126,4°F	Uncaged, 12/29/76	LSM -0N X Y 7 Pas 180				HFE-OFF Since	deployment, cable severed.	ASE-OFF 12/23/74 Mortar #1 unfired. Sensors failed.	Downlink 12/14/69
9 February 1976	1	7	3./ E, 26.1 N	69/2070	Noon, 166.9°	39340/113	123	74.7w/49.3w 13.9w	68.7°F	B, 8/20/76	Y, 10/19/76		Operative Reset: 2/9/77	790SS-1 (10w) - OFF	db0,0,0	Auto On	IN - 6/29/75	125.8°F	0T	SIDE - ON, Cycle	CCGE-Failed 7/18/75Flip Cals 3/3/75	HFE - OFF Degraded 12/75	DTREM - ON	SWS-0FF 6/74	Falled	LSM-OFF 6/74 Failed	23.4°E, 0.7°N- Lost Uplink 8/25/69, Lost Downlink 12/14/69
1900 Z (G.m.t.)		5/2 5/2	17.5°W, 3.7°S	75/2063	Noon, 145.8°	17324/33	101	72.5w/60.6w 15.0w	83.3°F	8,11/12/76	Y, 8/24/76		Inoperative	DSS-1 (10w)-0FF 1/2 21PDR ON - 1/30/77	0,0,0db	luto On, 2/09/77	OUT - 11/17/76	132.4°F	Uncaged	CPLEE-STBY, 1/30/77	Anal B Failed 4/71		DTREM - ON	SIDE-0FF 1/5/75	Farled	ASE-STBY 2/4/77 Mortars unfired Geophones 2 & 3 bad	3.4°E, 0.7°N- Lost U
as of week ending	0 12	$\exists$	23.5°W, 3,0°S	90/2639	Noon, 139.8°	31582/25	118	73.6w/ 48.7w 23.0w	82.1°F	B, 7/8/74			Inoperative	USS-1 (10w) - OFF	0,0,-20db 11/75	Auto On OFF	IN - 6/29/75	Offseale HIGH 2/6/77	Uncaged	SWS - STBY, 1/29/77	Range:Norm. Ext.		Dust Detector - ON	OFF 5/3/76	Increase reserve power for C/S heat	LSM-OFF 6/74 Failed	Deployed 7/21/69, 23
, ALSEP		1	Lunar Location	Lunation/Days Ops	Phase, Sun Angle	Cmds - Total/Week	Spurious Changes	☐ Initial/Present ☐ Reserve Power	Ava, Therm, Plate	smitter		PCU	TRAL Timer	Heaters	LPX/Y,Z,SPZ	Heaters Z motor (A1)	Filter	Temp.			'E	MENTS TIVE/ ERABL	40 ∀C		/BFE /E\	IMACTI/ INOPERA	한EP - Apollo 11

# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 2/09/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
			LOS 03/0307		
03 February	MAD/ACN	Higher Priority	AOS 03/0327	ALL	20 <sup>m</sup>
		·	LOS 03/1306		
03 February	GDS/ORR	Antenna Masking	AOS 03/1315	ALL	09 <sup>m</sup>
			LOS 05/0130		
05 February	MIL/ACN	Higher Priority	AOS 05/0150	ALL	20 <sup>m</sup>
			LOS 06/0105		
06 February	MAD	Higher Priority	AOS 06/0138	ALL	33 <sup>m</sup>
			LOS 07/0057		
07 February	MAD/ACN	Higher Priority	AOS 07/0137	ALL	40 <sup>m</sup>
			LOS 08/0049		
08 February	MAD	Higher Priority	AOS 08/0141	ALL	52 <sup>m</sup>
			LOS 08/2049		
08 February	GWM/ORR	Higher Priority	AOS 08/2051	ALL	02 <sup>m</sup>
		A BOARD MATERIAL AND A STATE OF THE STATE OF	LOS 08/2335	-	
' ebruary	ORR/MAD	Higher Priority	AOS 08/2347	ALL	12 <sup>m</sup>
			LOS		To be a second s
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		A Carlos	AOS	-	

16 February 1977 G.m.t.: 1700

### Apollo 17 ALSEP

The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second) and engineering data from the central station and the other experiments is checked.

The Lunar Surface Gravimeter Experiment was commanded to STANDBY at 1600 G.m.t., 14 February. During the trouble shooting test conducted from 4 to 14 February it is estimated the instrument temperature dropped to -15°C. However, the beam remained at the top stop. In future testing the experiment will be commanded OFF at lunar night in an attempt to remove the beam from the top stop by reducing the temperature below -15°C.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic work.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 16 February the lunar surface temperature, as measured by the HFE thermocouples, was  $108 \pm 8$ °K. At a depth of 230 cm the subsurface temperatures were 256.8°K at probe #1 and 257.0°K at probe #2.

The Lunar Atmospheric and Composition Experiment is in STANDBY. An operational check of the instrument was performed from 1549 to 1621 G.m.t., 14 February. No change was observed in the high voltage and sweep lock anomalies. The command register again contained a load of octal 132. The experiment had been previously checked on 22 July 1976. On 14 February the bake out heater was inadvertently left ON. The heater was turned OFF on 16 February.

The Lunar Ejecta and Meteorites Experiment is in STANDBY for lunar night.

### Apollo 16 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night.

The Passive Seismic Experiment is configured for network congruity (thermal control, AUTO ON; component gain O db; and feedback loop filter IN).

The Lunar Surface Magnetometer Experiment is ON and recording data. Flip calibration sequences have been discontinued for this lunar night due to the low temperature of the Z-axis sensor head.

16 February 1977 G.m.t.: 1700

### Apollo 15 ALSEP

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP). The experiment received a spurious functional command (PSE, calibration SP OFF, octal 065) between the support periods of 12 and 13 February. As this change does not affect the operation of the instrument no corrective command was executed by mission control. A CVW was not reported in the downlink by the remote tracking stations.

The Suprathermal Ion Detector/Cold Cathode Gauge Experiment is ON. It was commanded to full sequencing (0-127 frames) on 10 February for this lunation. It is expected that the SIDE will be turned OFF permanently the next lunar night as the reserve power will become critically low. The CCGE high voltage (+ 4.5 Kvdc) remains OFF.

### Apollo 14 ALSEP

The Central Station DSS-1 (10w) Heater was commanded ON for lunar night, 13 February. The external 14 and 7-watt power dump resistors were commanded OFF, 10 February, for lunar night operation.

The Passive Seismic Experiment is ON with the thermal control, AUTO ON; component gain O db; and feedback loop filter, OUT. The heater is in thermal control AUTO ON for lunar night operation.

The Active Seismic Experiment is in STANDBY (Apollo 14 ALSEP, SMEAR 86).

The Charged Particle Lunar Environment Experiment was commanded to ON, 10 February, and is operating in the normal mode at the -35 vdc range and automatic thermal control mode for the lunar night.

### Apollo 12 ALSEP

The Central Station DSS-1 (10w) Heater was turned ON for lunar night on 13 February.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 5 Dec 75 ALSEP Performance Summary Report. The Z-motor was commanded to ON, 13 February, to maximize heating in the instrument for lunar night operation. The sensor temperature returned onscale (DL-07 = 137.6°F, sun angle 143.5°), 7 February, and had been offscale HIGH since 6 February.

The Solar Wind Spectrometer Experiment was commanded from STANDBY to OFF, 13 February, to maintain the central station average thermal plate temperature above 1°F during lunar night. The PSE electronics do not operate correctly below this temperature. The additional reserve power provides the additional heat and will extend the acquisition of useful PSE data for 5 or 6 months.

16 February 1977 G.m.t.: 1700

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

		3 Apollo 17 ALSEP	02537, 12/12/72	30.8°E, 20,2°N	52/1527	o Midnight, 277.4º	36912/179	0	75.4w/64.0w	12.4w	-1.4°F	A, 12/9/74	X.R.S.W.DCDR B 8/74	2	0pe Inh	gn APM STATUS:	LSPE -HBR 8/15/76	NBR Real	Mon, wed, Fr1.	HFE - ON, NBR	Data Mon, Wed, Fri,		LEAM - STBY 2/6/77		LSG-STBY, 2/14/77 Auto Htr Failed	No Free Modes or closed Loop Ops	LACE-STBY 7/22/76	ble HV failed 10/73	74 red.	
		Apollo 16 ALSEP	19387, 4/21/72	15.5°E, 9.0°S	60/1762	Sunset, 261.1°	24257/73		70.9w/ 62.6w	14.0w	27.6°F	B, 3/26/73	Y, 1/2/77		Inhibited 5/72 Reset: 1/26/77	$106^{2}/9611 = 100$	0.0.0db	Auto On, 2/9/77		IN - 6/29/75	124.8°F	Uncaged 1/31/77	LSM - ON	Fit Cals 73/7/			HFE-OFF Since	deployment, cable severed.	ASE-OFF 12/23/74 Mortar #1 unfired	201101 C 1001100
	16 February 1976	Apollo 15 Al SFP 2	7/31/71	3.7°E, 26.1°N	2202/69	Sunset, 250.1°	39418/78	127	74.7W/ 47.7w	13.8w	-10.5°F	B, 8/20/76	Y, 10/19/76		Operative Reset: 2/9/77	1	0,0,0db	Auto On		IN - 6/29/75	124.6°F	Uncaged	SIDE - ON, Full Seq.	UFF 12	HFE - OFF, 1/13/77 Degraded 12/75	]=	SWS-0FF 6/74	Failed	LSM-OFF 6/74 Failed	מוכז ב מ מתח מים ביני
*	1700 Z (G.m.t.)	14/	2/5/71	17.5°W, 3.7°S	75/2070	Sunset, 229.1°	17370/46	101	72.5W/59.8w	14.2w	24.5°F	B, 11/12/76	Y, 8/24/76		Inoperative	DSS-1 (19M-2-93,2413	0,0,0db	Auto On, 2/9/77		OUT - 11/17/76	124.6°F	Uncaged	CPLEE- ON, 2/10/77	Anal B Failed 4/71		DTREM - ON		Failed	ASE-STBY 12/23/74 Mortars unfired Geonbones 2 & 3 had	ביים ביים ביים ביים ביים ביים ביים ביים
	as of week ending	lo 12 ALSEP 1	11/19/69	3.0°5	90/2646	Sunset, 222.9°	)	118	/46.5w	7w	<i>4°1°8</i>	B, 7/8/74	Υ, 8/25/76		Inoperative	USS-1 (10W) - OW	0,0,-20db 11/75		ON, 2/13/77	IN - 6/29/75	126.2°F	•	SWS - OFF, 2/13/77	Range: Norm. Fxt.		Dust Detector - ON	92	Increase reserve power for C/S heat	SM-OFF 6/74 Failed	
•	, ALSEP a		Deployed	Lunar Location	Lunation/Days Ops	Phase, Sun Angle	Onds - Total/Week	Spurious Changes	Initial/	🔀 Reserve Power	Avg. Therm. Plate		A Processor	DDd S	TRAT Timer	CE Heaters	LPX/Y,Z,SPZ	Heaters (1)	ے		DL07 Temp.	e Ckt.			TIVE/ FRABL	YC.	idă:	/BFE /E/	INOPER,	

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# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 2/16/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
			LOS 09/2045		
9 February	GWM/ORR	Higher Priority	AOS 09/2140	ALL	55 <sup>m</sup>
		a Caracteristic Control of the Contr	LOS 10/1720		
10 February	GWM	Station Problem	AOS 10/1810	ALL	50 <sup>m</sup>
			LOS 10/2109		***************************************
10 February	GWM	Higher Priority	AOS 10/2208	ALL	59 <sup>m</sup>
The state of the s			LOS 10/2318		
10/11 February	GWM/ACN .	Higher Priority	AOS 11/0045	ALL	1 <sup>h</sup> 27 <sup>m</sup>
			LOS 11/1952		
11 February	GWM/ORR	Higher Priority	AOS 11/2033	ALL	41 <sup>m</sup>
			LOS 12/0115		
12 February	ORR/ACN	Antenna Masking	AOS 12/0142	ALL	27 <sup>m</sup>
			LOS 13/0056		
13 February	ORR/GWM	Higher Priority	AOS 13/0125	ALL	29 <sup>m</sup>
			LOS 13/0156		
13 February	ORR/ACN	Antenna Masking	AOS 13/0237	ALL	o4 <sup>m</sup>
			LOS 13/1514		
13 February	AGO/ROS	Higher Priority	AOS 13/1609	ALL	55 <sup>m</sup>
			LOS 14/0431		
14 February	ORR/MAD	Schedule	AOS 14/0440	ALL	09 <sup>m</sup>
Advision in mile of the same and confinence also are least of quality of the sign light (gapter propriets of the first indicate)			LOS 14/2315		
14 February	ORR/GWM	Higher Priority	AOS 14/2333	ALL	18 <sup>m</sup>
			LOS 15/0022		
15 February	GWM	Higher Priority	AOS 15/0117	ALL	55 <sup>m</sup>
			LOS 15/1725		
15 February	ROS/MIL	Higher Priority	AOS 15/1748	ALL	23 <sup>m</sup>
			LOS		
			AOS		
			LOS		
			AOS		
			LOS		
			AOS		
			LOS		
			AOS		
			LOS		
			AOS		

23 February 1977 G.m.t.: 1700

### Apollo 17 ALSEP

The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second and engineering data from the central station and the other experiments is checked.

The Lunar Surface Gravimeter Experiment is in STANDBY.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic work.

The Heat Flow experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 23 February the lunar surface temperature, as measured by the HFE thermocouples, was  $147 \pm 8$ °K. At a depth of 230 cm the subsurface temperatures were 256.9°K at probe #1 and 257.0°K at probe #2.

The Lunar Atmospheric and Composition Experiment is in STANDBY.

The Lunar Ejecta and Meteorites Experiment is in STANDBY for lunar night.

### Apollo 16 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night.

The Passive Seismic Experiment is configured for network congruity (thermal control, AUTO ON; component gain O db; and feedback loop filter IN).

The Lunar Surface Magnetometer Experiment is ON and recording data. Flip calibration sequences have been discontinued for this lunar night due to the low temperature of the Z-axis sensor head.

### Apollo 15 ALSEP

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP).

The Suprathermal Ion Detector/Cold Cathode Gauge Experiment is ON and operating in full sequence (0-127 frames) for this lunation. The CCGE high voltage (+ 4.5 Kvdc) remains OFF.

### Apollo 14 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night operation. The external 14 and 7-watt power dump resistors are OFF.

23 February 1977 G.m.t.: 1700

### Apollo 14 ALSEP (continued)

The Passive Seismic Experiment is ON with the thermal control, AUTO ON; component gain O db; and feedback loop filter, OUT. The heater is in thermal control AUTO ON for lunar night operation.

The Active Seismic Experiment is in STANDBY (Apollo 14 ALSEP, SMEAR 86).

The Charged Particle Lunar Environment Experiment is ON and is operating in the normal mode at the -35 vdc range and automatic thermal control mode.

### Apollo 12 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night operation.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 5 Dec 75 ALSEP Performance Summary Report). The Z-motor is ON to maximize heating in the instrument for lunar night operation. The sensor temperature was offscale LOW at a sun angle of 247.5° on 12 February.

The Solar Wind Spectrometer Experiment is in STANDBY to maintain the central station average thermal plate temperature above 1°F during lunar night. The PSE electronics do not operate correctly below this temperature. The added reserve power provides additional heat and will extend the acquisition of useful PSE data for 5 or 6 months.

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

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	71011 714115	Apollo 19 ALCED 1	[ ]	010 10 JE	anollo 16 AI SED 3	Anollo 17 ALCED E
Dep	Jeploved	4	17287. 2/5/7]	18057, 7/31/71	4/21/72	12/
Lunar	ar Location	5°W. 3.	17.5°W, 3.7°S			30.8°E, 20,2°N
		90/2653	75/2027	69/2034	$\sim$	j
Phase,	se, Sun Angle	Midnisht, 308.3°	Midnight, 314.5°	Midnight, 334.5°	Midnight, 347.5°	Surrise, 2.9°
Onds	s - Total/Week	i i		39430/12	24269/12	
S	urious Changes	118	101	127		0
	_	73	72.5w/59.⊈w	/47.0w	70.9W/ 62.40	75.4W/ 33.6W
13	Reserve Power	11.0	13.6w	13.3w	13.5w	14.5w
	sig. Therm. Plate	.e 6.5°F	22.9°F	-13.6°F	50.00E	5.2°F
<u>l : -</u> () [ .	(/)	B, 7/8/74	B, 11/12/76	8/20/76	B, 3/26/73	A, 12/9/74
	rocessor	Y, 8/25/76	Y, 8/24/76	10/19/76	Y, 1/2/77	X.R.S.W.DCDR B 8/7.
$L \cap L$	20			,		2
16A1	Jack	Inoperative	Inoperative	Operative Reset: 2/9/77	Inhibited 5/72 Reset: 1/26/77	Operative Inhibited: 2/23/27
I	eaters	$0.55 - 1 (10/4)^{2} - 77$	DSS-bR (104) -013/13	DSS-1 (10w) - OFF	DSS-1 (19W); ON	APM STATUS:
	LPX/Y,Z,SPZ	0,0,-20db 11/75		0,0,0db	0.0.0db	LSPE -HBR 8/15/76
	Heaters [A]	-	Auto On, 2/9/77		Auto On	Mon Mod Fri
n Temperatur	Z 1110 COT	111 (10)	71/11		Ì	
2E	ri, ter	767/9	001 - 11/1/76	IN - 6/29/75	1 5	ב י
<u>d</u>	01-07	LOW, 2/18/77	124.6°F	124.5°F	125.8°F	Data Mon, Wed, Fri
	Uncage Ckt.	a ge	Uncaged	Uncageá	01	RbS weekly
		SWS - 0FF, 2/13/77	CPLEE-0N, 2/10/77	SIDE - ON, Full Seq	SeqLSM -0N	LEAM-STBY 2/6/77
		Increase reserve power for C/S heat Anal	Anal B Failed 4/71	CCGE-Failed 7/18/75/Flip Cals 1264	Flip Cals 1264 Frip Cals 3/3/75	since 7/16/76
ا وزار در اللا در الل	TIVE. ERABL			HFE - OFF, 1/13/77 Degraded 12/75		159-STBY 2/14/77 Auto Htr Failed
ilu.		Dust Detector - Of	DTREM - ON	DTREM - ON		closed Loop Ocs
lux3			SIDE-OFF 1/5/75	/74	HFE-OFF Since	7/28
		increase reserve power for C/S heat	ralled	ralled	deployment, cable severed.	HV falled 10/73
and the state of t	иоьев 1100рев	LSM-0FF 6/74 Failed	ASE-STBY 12/23/74 Mortars unfired	<u>LSM-OFF 6/74</u> Failed	MSE-OFF 12/23/74 Mortar #1 unfired.	
		DenToved 7/21/69, 2	5 <b>.</b>	J Bad Lost Uplink 8/25/69, Lost	Downlink 12/14/69	
100	011000					

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# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 2/23/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
			LOS 16/2030		
16 February	ORR	Station Problem	AOS 16/2042	A-12	12 <sup>m</sup>
		·	LOS 17/2309		
17 February	GDS/GWM	Scheduling	AOS 17/2313	ALL	o4 <sup>m</sup>
			LOS 18/0305		***************************************
18 February	GWM	Higher Priority	AOS 18/0403	ALL	58 <sup>m</sup>
			LOS 18/0443		
18 February	GWM/ORR	Higher Priority	AOS 18/0520	ALL	37 <sup>m</sup>
			LOS 19/0505		
19 February	ORR/GWM	Higher Priority	AOS 19/0729	ALL	2 <sup>h</sup> 24 <sup>m</sup>
19 B			LOS 19/2150	AT O MAD OF CAMPACAL AND A SECOND SEC	
19 February	GDS/MIL	Scheduling	AOS 19/2207	ALL	17 <sup>m</sup>
			LOS 21/0649		
21 February	ORR/GWM	Higher Priority	AOS 21/0749	ALL	h
			LOS 22/0720		
22 Thruary	ORR/GWM	Higher Priority	AOS 22/0731	ÁLL	l II m
			LOS 22/1308		
22 February	MAD	Higher Priority	AOS 22/1351	ALL	43 <sup>m</sup>
			LOS 22/2118		
22 February	MAD/GDS	Scheduling	AOS 22/2133	ALL	15 <sup>m</sup>
			LOS		
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PSE CAL " "AILY	19/05	NO SUPPORT	26/057	0900-1100 ALSEP 17 LEAM OFF NBR - 21 <sup>m</sup>	05/064	0900-1100 ALSEP 15	NASA-JSC
	18/049	0900-1100 ALSEP 17 NBR -11 <sup>m</sup>	25/056	0900-1100 ALSEP 15 ALSEP 17 NBR -36 <sup>m</sup> ALSEP 16 LSM FLIP CAL	04/063	0900-1100 ALSEP 15 ALSEP 16 LSM FLIP CAL ALSEP 17 NBR -	
~ ZEVENTS	17/048	NO SUPPORT	24/055	1900-2100 ALSEP 16 C/S HTR OFF TIMER RESET ALSEP 15 TIMER RESET	03/062	1300-1700 ALSEP 15 SIDE SUPPORT	
SUPPORT SCHE	16/04,	0900-1100 ALSEP 17 NBR - 1 <sup>h</sup> 10 <sup>m</sup> HFE RBS LMS ON/STBY	23/054	0900-1100 ALSEP 17 NBR -1 103 <sup>m</sup> HFE RBS	02/061	0900-1100 ALSEP 14 PSE HTR OFF 14)ALSEP 15 CYCLE SIDE ALSEP 16 LSM FLIP CAL ALSEP 17 NBR - NBR -	
ALSEP S	15/046	0900-1100	22/053	NO SUPPORT	MAR 01/060	0900-1100 ALSEP 14 CPLEE STBY PDRS ON (7 & 14) ALSEP 15 SWS STBY ALSEP 16 PSE HTR FRCD OFF	
	14/045	0900-1100 ALSEP 17 NBR - 43 <sup>M</sup> LSG - STBY LSM - ON/STBY	21/052	0900-1100 ALSEP 17 NBR - 16 <sup>m</sup>	28/059	0000-0300 ALSEP 17 NBR - 47 <sup>m</sup> ALSEP 16 LSM FLIP CAL 1500-1600	
TIMES - CST	FEB 13/044	0000-0200 1200-1400 ALSEP 17 NBR - 13 <sup>m</sup>	FEB 20/051	NO SUPPORT	FEB 27/058	0900-1100 ALSEP 14 C/S HTR OFF C/S HTR OFF C/S HTR OFF PSE Z MTR OFF	BEN-20

2 March 1977 G.m.t.: 1700

### Apollo 17 ALSEP

Sunrise of the 53rd lunation occurred on 23 February at the Taurus Littrow Site. The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second) and engineering data from the central station and the other experiments is checked. Also during these periods the 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain.

The Lunar Surface Gravimeter Experiment is in STANDBY.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic work.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 2 March the lunar surface temperature as measured by the HFE thermocouples, was 380 ± 8°K. At a depth of 230 cm the subsurface temperature was 256.8°K at probe #1. Between the real-time support periods of 18 and 21 February an anomaly occurred in probe #2 at the 230 cm level. DTH 22 bridge reference currents and voltages are reading full scale. In the subsurface reference currents are normal. DTL 22 bridge reference voltages and currents appear normal. As a result the subsurface temperatures at a depth of 230 cm cannot be determined. Further analysis of this anomaly is being conducted.

The Lunar Atmospheric Composition Experiment is in STANDBY.

The Lunar Ejecta and Meteorites Experiment is OFF for lunar day.

### Apollo 16 ALSEP

Sunrise at the Descartes Site occurred on 24 February for the 61st lunation. The Central Station 18-hour timer output pulses continue to be inhibited per the agreed operation plan initiated 6 May 1972. The DSS-1 (10w) heater was commanded OFF, 25 February, for lunar day operation.

The Passive Seismic Experiment is ON with thermal control Forced OFF, component gains 0 db, and feedback loop filter IN. The thermal control was commanded to Forced OFF on 1 March and the uncage-arm fire circuitry to UNCAGED on 25 February in an attempt to minimize heating in the experiment during lunar day. Operation in this configuration during the previous lunations had shown a decrease in the sensor temperature and a reduction in the frequence of levelling required.

2 March 1977 G.m.t.: 1700

### Apollo 16 ALSEP (continued)

The Lunar Surface Magnetometer Experiment is ON and recording data. Flip calibration sequences have been resumed for this lunar day and a total of 1271 have been executed and verified by the experiment engineering data since deployment. The LSM was commanded to STANDBY on 24 February for a short period of cool-down prior to lunar sunrise and then commanded ON during real-time support on 27 February. The cool-down and a reinitialization of the LSM were an attempt to regain science data from the Z-axis sensor which had been static since March 1975. The attempt was unsuccessful as the science data remains static from the Z-axis sensor. This operation was accomplished at the request of the Principal Investigator.

The Active Seismic Experiment is OFF (Apollo 16 ALSEP, SMEAR 27).

### Apollo 15 ALSEP

Sunrise of the 70th lunation at the Hadley Rille Site occurred on 25 February.

The Passive Seismic Experiment is ON with the thermal control Auto ON, component gains O db, and feedback loop filter IN.

The Suprathermal Ion Detector/Cold Cathode Gauge Experiment is ON. It was commanded to full sequencing (0-127 frames) on 10 February for this lunation. It is expected that the SIDE will be turned OFF permanently the next lunar night as the reserve power will become critically low. The CCGE high voltage (+ 4.5 Kvdc) remains OFF. The SIDE is being operated throughout this lunar day in an attempt to obtain a full lunar day of data. The last effort for this was in May 1976. This operation is being accomplished at the request of the Principal Investigator.

The Solar Wind Spectrometer Experiment was commanded OFF 14 June 1974.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

The Heat Flow Experiment was commanded OFF 13 January 1977.

### Apollo 14 ALSEP

Sunrise of the 76th lunation at the Apollo 14 site occurred on 27 February. The central station DSS-1 (10 watt) heater is OFF for lunar day operation. The external 14 and 7-watt power dump resistors were commanded ON, 1 March.

The Passive Seismic Experiment is ON with the thermal control, Auto ON; component gain O db; and feedback loop filter, OUT.

2 March 1977 G.m.t.: 1700

### Apollo 14 ALSEP (continued)

The Active Seismic Experiment is in STANDBY (Apollo 14 ALSEP, SMEAR 86).

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments were commanded OFF on 21 May 1976.

The Charged Particle Lunar Environment Experiment was commanded to STANDBY on 1 March.

### Apollo 12 ALSEP

Sunrise of the 91st lunation occurred on 27 February. The central station DSS-1 (10 watt) heater is OFF for lunar day operation.

The Passive Seismic Experiment is ON with the thermal control Auto ON, long period XY and Z-axes component gains 0 db, short period z axis component gain -20 db, and feedback loop filter IN. The instrument assembly temperature (DL-07, 126.4°F) returned onscale at a sun angle of 4.1° on 28 February. The Z-motor was commanded OFF for lunar day operation on 28 February.

The Solar Wind Spectrometer Experiment was commanded from OFF to STANDBY on 1 March. The SWS will remain in STANDBY during the lunar day time to reduce central station heating.

The Suprathermal Ion Detector Experiment was commanded OFF 3 May 1976.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

ALSEP		as of week ending	1700 Z (G.m.t.)	2 March 1977	ſ	
STATUS		Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	
Deployed	ed		2/5/71	7/31/71	19387. 4/21/72	12/12/72
Lunar	unar Location	23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunatio	.unation/Days Ops	)	76/2084	70/2041	61/1776	53/1541
Phase,	Sun Angle	Surrise, 33.4°	Sunrise, 39.7º	Sunrise, 60.8°	Sunrise, 72.4°	Surrise, 88.2°
Cmds -	Total/Week		1	39501/71	24433/174	36991/48
Spurio	ious Changes	118	101	127		0
	Initial/Present	73.6w/47.7w	72.5w/60.5w	74.7w/48.9w	70.9W/ 62.4w	75.4w/62.1w
Res (	erve Power	21.60	13.7w	13.6w	$31.6\omega$	23.3w
- Avg.	Therm. Plate	86.4°F	4º1.0e	38.3ºF	408.80I	93.9°F
سسلا	Fransmitter	B, 7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
TAT Proce	essor	Y, 8/25/76	Y, 8/24/76	10/19/76	X, 1/2/77	X.R.S.W.DCDR B 8/74
						2
TRAIT FE F	<u> </u>	Inoperative	Inoperative	Operative Reset: 2/25/77	Inhibited 5/72 Reset: 2/25/77	Operative Inhibited: 3/2/77
E Heaters	ers	USS-1 (10W) - OFF,	DSS-1 (10W) OFF 2/28	DSS-1 (10w) - OFF	$(10)$ $\overline{2}$ $5/7$ $\overline{7}$ $7$	
	LPX/Y,Z,SPZ	/75	0.0.0db	0.0.0db	0.0.0db	LSPE -HBR 8/15/76
LĚ	rs	Auto On	Auto On 2/9/77	Auto On	OFF 3/1/77	NBR Real Time
14.300 (0-0 <sub>0</sub> -0 <sub></sub>	Z motor (Al	OFF, 2/28/77				Mon, Wed, Fri
33	Filter	IN - 6/29/75	OUT - 11/17/76	IN - 6/29/75	IN - 6/29/75	HFE - ON, NBR
	DL-07 Temp.	126.7°F	126.2°F	140.70F	139.0°F	Data Mon, Wed, Fri,
= <u>-</u>	Uncage Ckt.	Uncaged	Uncaged	Uncaged	Uncaged	RBS weekly
		SWS - STBY, 3/1/77	CPLEE - STBY, 3/1/77	SIDE - ON, Full	LSM - ON	LEAM-OFF, 2/26/77
	Ε	decrease reserve power for C/S cool	Anal B Failed 4/71	Sequence (15. 15. 15. 15. 15. 15. 15. 15. 15. 15.	Fip Cals 1271 7 Failed 3/3/75	static e fight since 7/16/76
TIVE/	EKABL			HFE - OFF, 1/13/77 Degraded 12/75		LSG-STBY 2/14/77 Auto Htr Failed
ЭA	д0	Dust Detector - ON	DTREM - ON	DTREM - ON		closed Loop Ops
IUX:		9/	SIDE-0FF 1/5/75	SWS-0FF 6/74	HFE-OFF Since	LACE-STBY 7/22/76
NE/	ABLE.	Increase reserve power for C/S heat	Failed	Failed	deployment, cable severed.	HV failed 10/73
CLI		LSIA-0FF 6/74	ASE-STBY 12/23/74	74	ASE-0FF 12/23/74	
		ralled	Mortars unifred Geophones 2 & 3 bad	Falled	Mortar #1 untired. Sensors failed.	
d. Eb	- Apollo li	Deployed 7/21/69, 23	23.4°E, 0.7°N- Lost Up	0.7°N- Lost Uplink 8/25/69, Lost Downlink 12/14/69	Downlink 12/14/69	
		#				

# NOON and NIGHT DATA (Latest Lunation)

APOLLO 12 ALSEP

### 274.7° 1-142.0 dbm 47.3w 9.9w -11.8°F 124.6°F 7.2°C Night 69 91.9° 1 -136.0 dbm -49.6w 18.9w 113.5°F 113.5°F 37) HIGH 5.05 STBY 5.05 STBY APOLLO 15 ALSEP Noon Reserve Power Av Ther Pl T. PSE T. (DL-07) Sun Angle Sig Strth (9m) Input Power Lunation 75 290.1° -140.0 dbm 59.5w 13.8w 23.2°F 124.6°F -22.7°C Night 75 85.0° -139.0 dbm APOLLO 14 ALSEP 60.9w 14.3w 113.4°F 133.2°F STBY Noon Av Ther Pl T. PSE T. (DL-07) CPLEE T. (AC-06) Sun Angle Sig Strth (9m) Input Power Reserve Power Lunation 90 283.9° -140.0dbm 46.2w 12.2w 6.9°F LOW Night 90 101.2° 2' ) -145.0 dbm --48.7w 3r 22.7w T. 90.7°F HIGH Noon Sun Angle Sig Strth (9m) Reserve Power Av Ther Pl T. PSE T. (DL-07) Input Power Lunation

# APOLLO 16 ALSEP

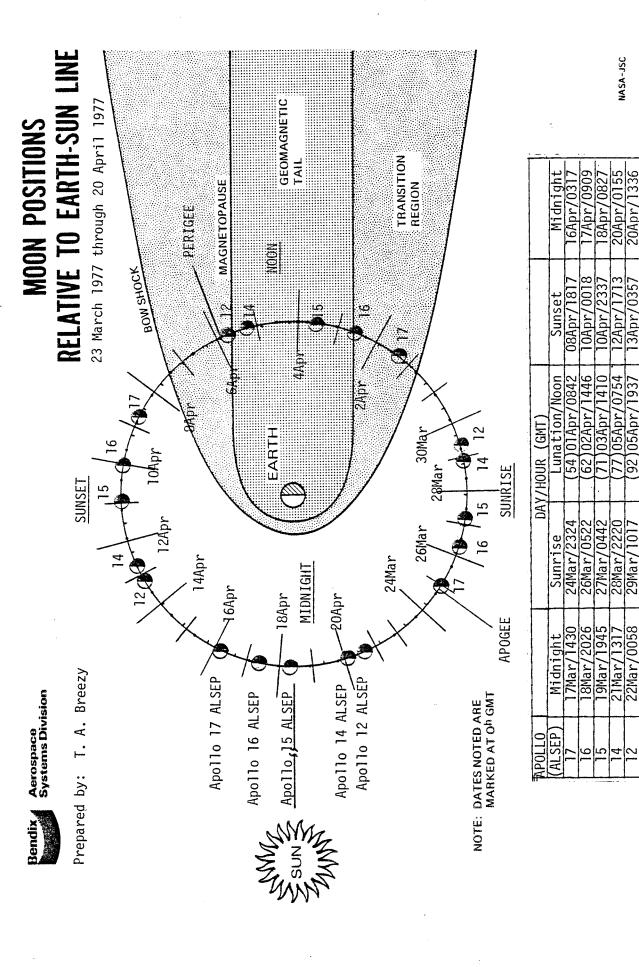
APOLLO 17 ALSEP

# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 3/02/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
·			LOS 23/1410		
23 February	ACN/BDA	Scheduling	AOS 23/1428	ALL	18 <sup>m</sup>
			LOS 24/0141		
24 February	GWM	Station Problem	AOS 24/0144	A15	03 <sub>m</sub>
			LOS 24/0251		
24 February	GWM	Station Problem	AOS 24/0253	A15	o2 <sup>m</sup>
			LOS 25/0004		
25 February	MAD/GDS .	Higher Priority	AOS 25/0017	ALL	13 <sup>m</sup>
χ.			LOS 25/0353		
25 February	GDS/GWM	Higher Priority	AOS 25/0541	ALL	1 <sup>h</sup> 58 <sup>m</sup>
			LOS 27/1129		
27 February	GWM/MAD	Higher Priority	AOS 27/1251	ALL	1 <sup>h</sup> 22 <sup>m</sup>
			LOS 28/1334	:	
28 February	ULA/ORR	Higher Priority	AOS 28/1348	ALL	14 <sup>m</sup>
			LOS 01/1255		•
01 March	GWM/ORR	Higher Priority	AOS 01/1330	ALL	35 <sup>m</sup>
			LOS		
			AOS		
			LOS		<b>:</b>
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	330770	SEP	SUPPORT SCHEDULE/EVENTS	SINS	020/11	PSE CALS DAILY
07/066 0900-1100 ALSEP 16 LSM FLIP ( ALSEP 17 NBR LEAM STBY	CAL	08/06/	09/068 0900-1100 ALSEP 17 NBR - HFE RBS ALSEP 16 LSM FLIP CAL 2200-2300	0700-0800 1600-1700	0100-0200 0900-1100 ALSEP 16 C/S HTR ON LSM FLIP CAL ALSEP 17 NBR -	0900-1100 ALSEP 15
14/073	73	15/074	16/075	17/076	18/077	19/078
1600-2000 ALSEP 12 C/S HTR ON PSE Z MTR O SWS OFF ALSEP 14 C/S HTR ON ALSEP 17 NBR -	ON ON C	0900-1100	0900-1100 ALSEP 17 NBR - HFE RBS	NO SUPPORT	0900-1100 ALSEP 17 NBR -	NO SUPPORT
21/080	30	22/081	23/082	24/083	25/084	26/085
0900-1100 ALSEP 17 NBR -	QL.	NO SUPPORT	0900-1100 ALSEP 17 NBR - HFE RBS	NO SUPPORT ALSEP 17	0900-1100 ALSEP 16 ALSEP 17 NBR -	0900-1100 ALSEP 15 TIMER RESET ALSEP 16 C/S HTR ON TIMER RESET
						NASA-JSC

Z TI				pundantaber; menan men ar seranta hate	***************************************		-JSC
PSE CALS DAIL	02/092	0300-0700	660/60	0100-0200 1000-1100 1900-2100 ALSEP 16 C/S HTR ON	16/106	NO SUPPORT	NASA-JSC
	APR 01/091	0900-1100 ALSEP 16 LSM FLIP CAL ALSEP 17 NBR - ALSEP 14 PSE HTR OFF	860/80	0900-1100 ALSEP 17 NBR - ALSEP 16 LSM FLIP CAL	15/105	0900-1100 ALSEP 17 NBR -	
/ENTS	31/090	0900-1100 ALSEP 12 SWS STBY	760//0	0900-1100	14/104	0900-1100	
SUPPORT SCHEDIL E/EVENTS	30/08	0900-1100 ALSEP 14 CPLEE STBY PDRS ON ALSEP 16 LSM FLIP CAL ALSEP 17 NBR - HFE RBS	960/90	0900-1100 ALSEP 16 LSM FLIP CAL	13/103	0100-0500 ALSEP 14 C/S HTR ON ALSEP 12 C/S HTR ON PSE Z MTR ON PSE Z MTR ON SWS OFF ALSEP 17 NBR - HFE RBS	
ALSEP SI	29/088	1000-1200 ALSEP 12 C/S HTR OFF PSE Z MTR OFF C/S HTR OFF 2000-2100	05/095	0900-1100 ALSEP 17 NBR - LEAM STBY	12/102	0900-1100 ALSEP 14 ALSEP 12	
	28/087	0900-1100 ALSEP 14 ALSEP 16 LSM FLIP CAL	04/094	0900-1100 ALSEP 16 LSM FLIP CAL ALSEP 17 NBR -	101/11	0900-1100 ALSEP 14 CPLEE ON PDRS OFF ALSEP 17 NBR -	
TIMES _ CST	80/	AR P - 1.	APR 03/093	0900-1100	APR 10/100	10III	BEN-20



9 March 1977 G.m.t.: 2000

### Apollo 17 ALSEP

The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second) and engineering data from the central station and the other experiments is checked.

The Lunar Surface Gravimeter Experiment was commanded from STANDBY to ON at 1923 G.m.t., 9 March, for a trouble shooting test. This is an attempt to center the beam at low temperatures during lunar night. The instrument is presently configured: all masses on, backlash out, seismic low gain, integrator shorted, bias out, post amplifier gain step 3, and slave heater off. This is a continuation of the cold soak that was performed during the last lunar night.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic network.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 9 March the lunar surface temperature, as measured by the HFE thermocouples, was  $275 \pm 8$ °K. At a depth of 230 cm the subsurface temperatures were 256.8°K at probe #1 and 257.0°K at probe #2. Between support periods of 2 and 4 March (sun angles 88° to 112°) the HFE readings DTH 22, DTL 22, and T 22 returned to normal. The temperature can again be determined at the 230 cm level of probe 2.

The Lunar Ejecta and Meteorites Experiment was commanded from OFF to ON and to STANDBY for lunar night 7 March. The science data was static at turn ON. When the 90 Frame pulse occurred the data went to all "O"s and remained at "O" until the experiment was commanded to STANDBY. This problem had been previously encountered only at lunar night. The sun angle at this time was approximately 150°.

### Apollo 16 ALSEP

The Passive Seismic Experiment is configured thermal control, Forced OFF; component gain 0 db; and feedback loop filter IN. The heater is being operated in Forced OFF and Uncaged for lunar day operation to minimize heating in the experiment. The instrument assembly temperature (DL-07) has been offscale HIGH since 3 March at a sun angle of 87.0 and is expected to return onscale 10 March.

9 March 1977 G.m.t.: 2000

### Apollo 16 ALSEP (continued)

The Lunar Surface Magnetometer Experiment is ON and recording data. Science data from the Z-axis remained static this report period. Flip calibration sequences are being conducted during the lunar day and a total of 1277 have been executed and verified by the experiment engineering data since deployment.

### Apollo 15 ALSEP

The Passive Seismic Experiment is configured thermal control, Auto ON; component gain O db and feedback loop filter IN. The instrument assembly temperature (DL-07) was offscale HIGH from 3 to 8 March between the sun angles of 74.9° to 132.9°. The experiment received a spurious functional command between support periods of 4 and 5 March (PSE, Long Period Z gain change to -10 db, octal 064) with no command verification word (CVW) being observed in the downlink signal. During real time support at 1902 G.m.t., 5 March the required three octal 064 commands were sent to return the experiment to its normal 0 db range.

The Suprathermal Ion Detector/Cold Cathode Gauge Experiment has been operating in the full sequence mode (0-127 frames) throughout this lunar day at the request of the Principal Investigator. Between real time support periods of 5 to 7 March the channeltron high voltage (-3.5 Kvdc) arced OFF. During this time period the internal temperature T-2 was reading between 93.6°C to 92.2°C and sun angles between 99.1° to 121.2° respectively. At 1632 G.m.t., 7 March, the channeltron high voltage (-3.4 Kvdc) was commanded back ON for the remainder of the lunar day. The CCGE high voltage (+4.5 Kvdc) remains OFF.

### Apollo 14 ALSEP

At the start of real time support on 3 March the data showed that the transmitters had switched from B to A. No reported drop or degradation of signal was noted by the tracking stations. During the real time support period at 2026 G.m.t., 3 March, transmitter B (octal 015) was reselected returning the station to its normal configuration.

The Passive Seismic Experiment is ON with the thermal control, Forced OFF; component gain O db; and feedback loop filter, OUT. The heater is being operated in the Forced OFF mode to minimize experiment heating during lunar day.

### Apollo 12 ALSEP

The Passive Seismic Experiment is configured thermal control Auto ON; component gain O db and feedback loop filter IN, except the short period Z-axis gain is set at -20 db (Ref. 5 Dec 75 ALSEP Performance Summary

9 March 1977 G.m.t.: 2000

### Apollo 12 ALSEP (continued)

Report. The instrument assembly temperature (DL-07) has remained off-scale HIGH since 7 March (sun angle 95.2°) and is expected to return onscale 12 March.

The Solar Wind Spectrometer Experiment is in STANDBY to reduce heating in the central station.

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

	as of week ending	2000 Z (G.m.t.)	9 March 1922		
STATUS	ALSEP 1	10 14 A	S	Apollo 16 ALSEP 3	-
Deployed	14122, 11/19/69	2/5	77	472	02532, 12/12/72
Lunar Location	23.5°W, 3.0°S		3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
•	91/2667	76/2091	70/2048	61/1783	53/1548
Phase, Sun Angle	Noon, 121.1º	Noon, 127.1°	Noon, 148.2°	Noon, 160.1°	Noon, 175,3°
Gnds - Total/Week	31083/41	17469/31	39565/64	24514/81	37034/43
Spurious Changes	overnovegete de seconda de second	102	128		0
Initial/	73.6w/ 48.0w	72.5w/60.5w	74.7w/48.6w	70.9w/62.8u	75.4W/ 62.9w
문 Reserve Power	28.40	14.3w	14.2v	32. Iw	22.2w
Avg. Therm. Plate	30.10E	38.0°E	89.8°F	73.1°F	302.89
i	8, 7/8/74	8,3/3/77	B, 8/20/76	B, 3/26/73	A, 12/9/74
₹ Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/2/7/	X.R.S.M.DCDR B 8/74
s Pour	<b> </b>	<b>F</b>	,		2
IANT Timer	Inoperative	Inoperative	Operative Reset: 2/25/77	Inhibited 5/72 Reset: 2/25/77	Operative Inhibited: 3/9/77
C Heaters	USS-1 (10w) - 0FF 2/28/77	255- bok 18M3/9F7-2/28	1	DSS-1 (184) <sub>-/7</sub> 9FF	APM STATUS:
LPX/Y,Z,SPZ	10,0,-20db 11/75	0,0,0db	0,0,0db	0.0.0db	LSPE -HBR 8/15/76
ror r		Forced OFF 3/3/76	Auto On	Forced OFF 3/1/77	MBR Real Time Mon, Wed, Fri.
Filter		OUT - 11/17/76	IN - 6/29/75	IN - 6/29/75	HFE - ON, NBR
10 - 07 Temn	scale	1 .	133.0°F	sc	Data Mon, Wed, Fri,
Uncage Ckt.	Uncaged	Uncaged	IO	Uncaged	RBS weekly
1	SWS - STBY, 3/1/77	CPLEE- STBY, 3/1/77	SIDE - ON, Cycle	LSM -ON	LEM1- STRY 3, 72
3	rease res er for C/		OFF T2 > 85°C X, Y, Z Pos. 180° CGE-Failed 7/18/75/Fijp Cals 1277 Failed 3/3/75	X, Y, Z Pos. 180° Flip Cals 1277 7 Failed 3/3/75	Static @ Night since 7/16/76
MENTS TIVE/			<u>HFE</u> Degraded 12/75		LSG- ON, 3/9/77 Auto Htr Failed No Free Modes on
ЭА	Dust Detector - ON	DTREM - ON	DTREM - ON		closed Loop Ops
	OFF 5/3/76	SIDE-0FF 1/5/75 ·	SWS-0FF 6/74	HFE-OFF Since	
	uncrease reserve power for C/S heat	ralled	Falled	deployment, cable severed.	HV Talled 10/73
ACTI 0PER	LSM-OFF 6/74 FaileJ	ASE-STBY 12/23/74 Mortars unfired	LSM-OFF 6/74 Failed	ASE-0FF 12/23/74 Nortar #1 unfired.	
		Geophones 2 & 3 bad		Sensors failed.	
PUEP - Apollo 11	Deployed 7/21/69, 23	23.4°E, 0.7°N- Lost Up	. 0.7°N- Lost Uplink 8/25/69, Lost Downlink 12/14/69	Downlink 12/14/69	
Market Street					

# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 3/09/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
			LOS 01/1430		
01 March	ORR/MAD	Higher Priority	AOS 01/1445	ALL	15 <sup>m</sup>
		,	LOS 02/1427		
02 March	GWM/ORR	Higher Priority	AOS 02/1435	ALL	08 <sup>m</sup>
			LOS 04/1900		
04 March	GWM/ACN	Higher Priority	AOS 04/1915	ALL	15 <sup>m</sup>
			LOS 05/0531		
05 March	ACN/AGO	Higher Priority	AOS 05/0553	ALL	22 <sup>m</sup>
06 841	000 1000		LOS 06/1325		
06 March	GDS/ORR	Higher Priority	AOS 06/1400	ALL	35 <sup>m</sup>
			LOS		
			AOS		
			LOS		
			AOS		
			LOS		
			AOS	and the Princip Control Contro	No Carlo Hall (No Carlo Anno Hacilla (No Carlo Anno Anno Anno Anno Anno Anno Anno An
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			LOS	MATA	
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16 March 1977 G.m.t.: 1700

### Apollo 17 ALSEP

The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second) and engineering data from the central station and the other experiments is checked.

The Lunar Surface Gravimeter Experiment was commanded OFF for cool-down between the support periods of 13 to 14, 14 to 15, and 15 to 16 March. It is estimated the instrument temperature dropped to -75°C following these periods. The LSG was commanded ON during support periods on 13, 14, 15, and 16 March. The digital data from the digital multiplexer is scrambled, but the analog data remains valid at these low temperatures. Attempts to move the beam from the top stop position have been unsuccessful. On 16 March the decoder would not execute commands transmitted by ground control.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic network.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 16 March the lunar surface temperature, as measured by the HFE thermocouples, was  $109 \pm 8$  K. At a depth of 230 cm the subsurface temperatures were 256.8 K at probe #1 and 257.0 K at probe #2.

### Apollo 16 ALSEP

The Central Station DSS-1 (10w) Heater was commanded ON for lunar night on 11 March.

The Passive Seismic Experiment is configured for network congruity (thermal control, AUTO ON; component gain 0 db; and feedback loop filter IN). The heater was commanded from Forced OFF to AUTO ON for lunar night operation on 10 March. The instrument assembly temperature (DL-07) was offscale HIGH from 3 to 10 March between the sun angles of 87.0° and 172.2°.

The lunar Surface Magnetometer was commanded OFF at 1857 G.m.t., 14 March, and commanded back ON at 2202 G.m.t., 14 March, for a brief cool-down period. The cool-down and reinitialization of the LSM were an attempt to regain science data from the Z-axis sensor which has been static since March 1975. The attempt was unsuccessful. This operation was accomplished at the request of the Principal Investigator.

16 March 1977 G.m.t.: 1700

### Apollo 15 ALSEP

On 14 March the LSM, SIDE, SWS, and HFE were individually commanded to STANDBY briefly and then to OFF. Reserve power deltas for the experiments were Ow, -5.18w, -3.79w, and -4.34w, respectively. The cause of the reserve power drops is that the standby heaters are still operable in the SIDE, SWS, and HFE. The LSM does not have a standby heater.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP).

The Suprathermal Ion Detector/Cold Cathode Gauge Experiment was commanded OFF, permanently, on 12 March as the reserve power has become critically low. The execution of a spurious command, requiring high power, could cause the experiment ripple sequence (OFF to STANDBY) to commence and possibly shutdown the central station.

### Apollo 14 ALSEP

The Central Station DSS-1 (10w) Heater was commanded ON for lunar night, 14 March. The external 14 and 7-watt power dump resistors were commanded OFF, 12 March, for lunar night operation.

The Passive Seismic Experiment is ON with the thermal control, AUTO ON; component gain 0 db; and feedback loop filter, OUT. The heater was commanded to AUTO ON for lunar night operation on 11 March.

The Charged Particle Lunar Environment Experiment was commanded ON, 12 March, and is operating in the normal mode at the -35 vdc range and automatic thermal control mode for the lunar night.

### Apollo 12 ALSEP

The Central Station DSS-1 (10w) Heater was turned ON for lunar night on 14 March.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 5 Dec 75 ALSEP Performance Summary Report). The Z-motor was commanded ON, 14 March, to maximize heating in the instrument for lunar night operation. The sensor temperature returned onscale (DL-07=140.2°F, sun angle 168.0°), 13 March, and had been offscale offscale HIGH since 7 March.

The Solar Wind Spectrometer Experiment was commanded from STANDBY TO OFF,

16 March 1977 G.m.t., 1700

### Apollo 12 ALSEP (continued)

12 March, to maintain the central station average thermal plate temperature above 1°F during lunar night. The PSE electronics do not operate correctly below this temperature. The additional reserve power provides the additional heat and will extend the acquisition of useful PSE data for 5 or 6 months.

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

	eek ending		16 March 1971	0 010 10 01	
STATUS	12 AL		d	o 16 ALSEP 3	
Deployed	14122, 11/19/69	2/5	18052, 7/31/71	19387, 4/21/72	02532, 12/12/72
Lunar Location	23.5°W, 3,0°S		3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops	12674	76/2098	70/2055	0621/19	53/1555
101		Sunset, 209.9°	Sunset, 230.9°	Susnet, 242.9°	Sunset, 258.3°
١.	1 02	82	$\sim$	24637/123	37140/106
iou	118	ı	128		0
Initia		72.5w/59.5w	74.7W/46.4W	70.9w, 62.3w	75.4WL 63.3W
Reserve Power	12.5w	14. Tw	17.9w	19.0w	18.7w
- Avg. Therm. Plate	6 7.8°E	24.5°E	0.8°F	27.6°F	17.0°F
Transmitter	B, 7	B, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
< Processor	i i	Y, 8/24/76	۲, 10/19/76	Y, 1/2/77	X.R.S.M.DCDR B 87
					2
TRAL Tiner	Inoperative	Inoperative	Operative Reset: 2/25/77	Inhibited 5/72 Reset: 2/25/77	Operative Inhibited:3/14/77
E leaters	USS-1 $(10w) - ON$	DSS-1 (10w) - ON 3/14   2/12/27	JSS-1 (10	DSS-1 $(10^{\mu}) - \frac{ON}{3/11/22}$	APM STATUS:
LPX/Y.Z.SPZ	0.020db 11/75		0,0,0db	0.0.0db	LSPE -HBR 8/15/76
rs oto	Auto On ON, 3/14	Auto ON 3/11/77	Auto On	Auto On 3/10/77	NBR Real Time Mon, Wed, Fri.
F: 1	IN - 6/29/75	0111 - 11/17/76	IN - 6/29/75	IN - 6/29/75	HFE - ON, NBR
DL-07 Temp.	126.4°F	12	124.7°F	125.9°F	Data Mon, Wed, Fri,
Uncage Ckt.	Uncaged	Uncaged	Uncaged	0T	RBS weekly
	SWS - OFF, 3/12/77	CPLEE- ON, 3/12/77	SIDE OFF, 3/12/77	LSM-ON 7 Dos 1800	LEAM-STBY 3/7/77
	Increase reserve power for C/S heat	Anal B Failed 4/71	CCGE-Failed 7/18/75/2 Failed 37377	Flip Cals 1277 Z Failed 373775	since 7/16/76
AENTS TIVE/ ERABL			HFE0FF 1/13/77		1.SG-STBY 3/16/77 Auto Htr Falled No Free Modes or
AC.	Dust Detector - ON	DTREM - ON	DTREM - ON	,	closed Loop Ops
347	OFF 5/3/76	SIDE-0FF 1/5/75	SWS-0FF 6/74	HFE-OFF Since	LACE-STBY 7/22/76
/3/	Increase reserve power for C/S heat	Failed	Failed	deployment, cable severed.	HV failed 10/73
INACTI/ INOPERA	<u>LSM-OFF 6/74</u> Failed	ASE-STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	LSM-OFF 6/74 Failed	ASE-OFF 12/23/74 Mortar #1 unfired. Sensors failed.	
PSEP - Apollo 11	Deployed 7/21/69, 2	23.4°E, 0.7°N- Lost Up	0.7°N- Lost Uplink 8/25/69, Lost	Downlink 12/14/69	

# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 3/16/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
14 March	CLIM (ODD	Highan Durant	LOS 14/0027		
14 March	GWM/ORR	Higher Priority	AOS14/0100	ALL	33m
14 March	GWM/ORR	Higher Priority	LOS14/0217	AL I	o om
	GWI I/ OKK	in gile. The for the	AOS14/0239	ALL	22 <sup>m</sup>
14 March	GDS/BDA	Higher Priority	LOS14/1506		m
			AOS 14/1512	ALL	06 <sup>m</sup>
15March	ORR/GWM	Higher Priority	LOS 15/0245	ALL	16 <sup>m</sup>
			AOS 15/0301	ALL	10
15 March	GWM/ACN	Higher Priority	L0S15/0334	ALL	26 <sup>m</sup>
	Gill y XGI	inglier relative	AOS 15/0400	766	2.0
16 March	ORR/GWM	Higher Priority	LOS 16/0203	ALL	4.4m
Annual State of the special st			AOS16/0247		7 7 7
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		Market and the second s	AOS		
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23 March 1977 G.m.t.: 1700

### Apollo 17 ALSEP

The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second and engineering data from the central station and the other experiments is checked.

The Lunar Surface Gravimeter Experiment is currently in STANDBY. During the cool down test performed last reporting period it was observed that the buss voltages were operating at approximately 30% lower (max cool down period on 16 March) than normal, causing scrambled digital multiplexer data and the decoder not to accept commands. With the experiment commanded to STANDBY (Heater ON) the temperature increased and on 18 March both problems cleared, however, the beam remained at the top stop. The experiment is presently being commanded from STANDBY to ON to obtain data points for analysis.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic network.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 23 March the lunar surface temperature, as measured by the HFE thermocouples, was  $106\pm8^{\circ}\text{K}$ . At a depth of 230 cm the subsurface temperatures were  $256.8^{\circ}\text{K}$  at probe #1 and  $257.0^{\circ}\text{K}$  at probe #2.

The Lunar Atmospheric and Composition Experiment is in STANDBY.

The Lunar Ejecta and Meteorites Experiment is in STANDBY for lunar night.

### Apollo 16 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night.

The Passive Seismic Experiment is configured for network congruity (thermal control, AUTO ON; component gain O db; and feedback loop filter IN).

The Lunar Surface Magnetometer Experiment is ON and recording data. Flip calibration sequences have been discontinued for this lunar night due to the low temperature of the Z-axis sensor head.

### Apollo 15 ALSEP

The Passive Seismic Experiment is configured for seismic network contruity (Ref. Apollo 16 ALSEP).

The Suprathermal Ion Detector/Cold Cathode Gauge Experiment is OFF.

23 March G.m.t.: 1700

### Apollo 14 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night operation. The external 14 and 7-watt power dump resistors are OFF.

The Passive Seismic Experiment is ON with the thermal control, AUTO ON; component gain 0 db; and feedback loop filter, OUT. The heater is in thermal control AUTO ON for lunar night operation. At the beginning of real time support, 23 March, it was noted that the long period Z-axis (vertical) was oscillating with an amplitude of 5 microradians. The gain was commanded to -30 db and the amplitude of the oscillations was reduced to zero. The Z-axis was leveled to determine that these oscillations were not caused by the axis being off center. The experiment was commanded to STANDBY and back to ON with the db gain set to 0 and the Z-axis data was static. This problem has previously been observed in the instrument.

The Active Seismic Experiment is in STANDBY (Apollo 14 ALSEP, SMEAR 86). At 0039 G.m.t., 17 March, the Orroral Valley Tracking Station observed parameter AB-04 out of limits (ASE OFF), without a command verification word (CVW) in the downlink. At 0229 G.m.t., 17 March, the Guam Tracking Station uplinked by Mode I command ASE STANDBY (octal 043) at the request of mission control.

The Charged Particle Lunar Environment Experiment is ON and is operating in the normal mode at the -35 vdc range and automatic thermal control mode.

### Apollo 12 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night operation.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 5 Dec 75 ALSEP Performance Summary Report). The Z-motor is ON to maximize heating in the instrument for lunar night operation. The sensor temperature remains offscale LOW since 12 March.

The Solar Wind Spectrometer Experiment is OFF during the lunar night.

The Suprathermal Ion Detector Experiment is OFF. At 1658 G.m.t., 20 March, the Ascension Island Tracking Station observed a spurious command verification word (CVW) SIDE to STANDBY (octal 053). At the request of mission control at 1922 G.m.t., 20 March, the Goldstone Tracking Station in mode I commanded the SIDE to OFF (octal 054).

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

AI SFD		as of week ending	1200 Z (G.m.t.)	23 March 1976		
STATUS		Apollo 12 ALSEP 1	14	ALSEP 2	Apollo 16 ALSEP 3	17
Deployed		69/61/11	2/5/71	7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar	unar Location	3,0°S	3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunati	unation/Days Ops	12681		70/2062	61/1797	
Phase,	1 1	anight, 290.4°	Midnight, 296.30	Midnight, 317.5°	Midnight, 329.2°	Midnight, 344.5°
Cmds -	Total/Week	31914/21	17558/27	39673/18	24687/50	37184/44
Spurious	us Changes	212	103	128		0
TG	Initial/Present Reserve Power	73.6w/45.5w	72.5w/58.3w 13.4v	74.7w/ 46.1w 17.4w	70.9w/ 62.4w 13.5w	75.4W/62.9w 20.2w
	Ther	E O O	22.7°F	-1.8°F	26.4°F	3.1°F
101 Tran	smitter	B, 7/8/74	В,	8/20/76	B, 3/26/73	A, 12/9/74
TA Proc	Processor	1	8/24/76	10/19/76	1 1	X.R.S. W. DCDR B 8/74
13 <u>a</u> 1.S			-			2
TRAL Timer	<u> </u>	Inoperative	Inoperative	Operative Reset: 2/25/77	72 77	Operative Inhibited: 3/23/77
M. Meaters	ers	$0.85-1 (10\text{W}) \frac{3}{3} / 94/77$	2955 DR(1847-3/13/74	OFF	055-1 (10½ <u>/-</u> 119¼7	APM STATUS:
	LPX/Y.Z.SPZ	0.020db 11/75	0.0.0db	0.0.0db	0.0.0db	LSPE -HBR 8/15/76
	rs otor (Al	, , ,	Auto ON 3/11/77		Auto On 3/10/77	NBR Real Time Mon, Wed, Fri.
<u> </u>	Filter	IN - 6/29/75	IN - 9/18/76	IN - 6/29/75	IN - 6/29/75	HFE - ON, NBR
Sq □	DL-07 Temp.	Offscale LOW	124.1°F		125.8°F	Data Mon, Wed, Fri,
	Uncage Ckt.	Uncaged	Uncaged		10	RBS weekly
]		SWS - 0FF, 3/12/77	CPLEE-0N, 3/12/77	SIDE -0FF, 3/12/77	_	LEAM-STBY 3/7/77 Static @ night
		Increase reserve power for C.S heat	Anal B Failed 4/71	CCGE-Failed 7/18/75/Flip Cals	1277	since 7/16/75
MENTS TIVE/	Евавг			HFE OFF, 1/13/77		LSG-STBY 3/16/77 Auto Htr Failed No Free Modes or
		Dust Detector - ON	DTREM - ON	DTREM - ON		closed Loop Ops
		SIDE-OFF 5/3/76 Increase reserve bower for C/S heat	SIDE-OFF 1/5/75 Failed	SWS-OFF 6/74 Failed	HFE-OFF Since deployment, cable severed.	LACE-STBY 7/22/76 HV failed 10/73
INACTIV	INOPERA	LSM-OFF 6/74 Failed	ASE-STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	LSM-OFF 6/74 Failed	ASE-OFF 12/23/74 Mortar #1 unfired. Sensors failed.	
PSEP	- Apollo 11	Deployed 7/21/69, 23	23.4°E, 0.7°N- Lost Up	0.7°N- Lost Uplink 8/25/69, Lost Downlink 12/14/69	Downlink 12/14/69	

# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 3/23/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
		,	LOS 17/0134		
17 March	GWM/ORR	Higher Priority	AOS 17/0212	ALL	38 <sup>m</sup>
			LOS 17/2257		
17 March	GDS/GWM	Station Problem	AOS 17/2306	ALL	09 <sup>m</sup>
	·		LOS 18/0336		
18 March	GWM	Higher Priority	AOS 18/0545	ALL	2 <sup>h</sup> 09 <sup>m</sup>
			LOS 18/0724		
18 March	MAD/ACN -	Higher Priority	AOS 18/0823	ALL	59 <sup>m</sup>
			LOS 18/2150		
18 March	GWM	Station Problem	AOS 18/2155	A5	05 <sup>m</sup>
19 March	GWM/ACN	Highan Duignitu	LOS 19/0607		
19 Parch	GWM/ ACM	Higher Priority	AOS 19/0644	ALL	37 <sup>m</sup>
			LOS 19/0835		h m
19 March	ACN	Higher Priority	AOS 19/0940	ALL	1 <sup>h</sup> 05 <sup>m</sup>
20.14			LOS 20/0325		
20 March	ULA/GWM	Higher Priority	AOS 20/0343	ALL	18 <sup>m</sup>
20.14	0.0.4.5.0		LOS 20/0732	_	h m
20 March	GWM/ACN	Higher Priority	AOS 20/0906	ALL	1 <sup>h</sup> 34 <sup>m</sup>
27 Marcal	000 1000		LOS 21/0103		m
21 March	GDS/ORR	Station Problem	AOS 21/0120	ALL	17 <sup>m</sup>
			LOS 22/0730	1	
22 March	GWM/ORR	Higher Priority	AOS 22/0749	ALL	19 <sup>m</sup>
	·		LOS	_	
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30 March 1977 G.m.t.: 1700

All Passive Seismometer Experiments feedback loop filters were commanded OUT during the past report period. This configuration returned the seismic network to the high response mode at the request of the Principal Investigator.

### Apollo 17 ALSEP

Sunrise of the 54th lunation occurred on 24 March at the Taurus Littrow Site. The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second) and engineering data from the central station and the other experiments is checked. Also during these periods the 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain. The timer pulse was verified during real time support on 27 March.

The Lunar Surface Gravimeter Experiment is currently ON and operating with the slave heater OFF, seismic low gain, and power amplifier at step #2. During real time support at 0053 G.m.t., 30 March, the slave heater was commanded OFF because the sensor temperature (DG-04) had exceeded the regulation temperature. This problem was last encountered 9 September 1975.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic network.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 30 March the lunar surface temperature as measured by the HFE thermocouples, was  $356 \pm 8^{\circ}$ K. At a depth of 230 cm the subsurface temperatures were  $256.8^{\circ}$ K at probe #1 and  $257.0^{\circ}$ K at probe #2.

The Lunar Atmospheric Composition Experiment is in STANDBY.

The Lunar Ejecta and Meteorites Experiment was commanded from STANDBY to OFF for lunar day 27 March.

### Apollo 16 ALSEP

Sunrise at the Descartes Site occurred on 26 March for the 62nd lunation. The Central Station 18-hour timer output pulses continue to be inhibited per the agreed operation plan initiated 6 May 1972. The DSS-1 (10w) heater was commanded OFF, 26 March, for lunar day operation.

30 March 1977 G.m.t.: 1700

### Apollo 16 ALSEP (continued)

The Passive Seismic Experiment is ON and configured for seismic network congruity (thermal control Forced OFF, component gains 0 db, and feedback loop filter OUT.) The thermal control was commanded to Forced OFF on 30 March and the uncage-arm fire circuitry to UNCAGED on 26 March in an attempt to minimize heating in the experiment during lunar day. Operation in this configuration during the previous lunations had shown a decrease in the sensor temperature and a reduction in the frequency of levelling required.

The Lunar Surface Magnetometer Experiment is ON and recording data. Flip calibration sequences have been resumed for this lunar day and a total of 1282 have been executed and verified by the experiment engineering data since deployment.

The Active Seismic Experiment is OFF (Apollo 16 ALSEP, SMEAR 27).

### Apollo 15 ALSEP

Sunrise of the 71st lunation at the Hadley Rille Site occurred on 27 March.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the thermal control is AUTO ON. Between real time supports of 24 and 25 March an apparent command verification word (CVW) occurred reversing the UNCAGED/OUT OF TOLERANCE (OT) state (octal 073). A normal reversal occurs as an 18 hour timer function, therefore no corrective action is required.

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments are OFF. At 1511 G.m.t., 28 March the SIDE was commanded ON. The initial indication was that the analog data was invalid due to low temperature, however the digital data was valid and indicating intermittent high voltage arcing. The SIDE was commanded to STANDBY after 12 minutes of operation to allow for a warm up period. At 1032 G.m.t., 29 March, the SIDE was commanded ON and the analog and digital data were valid. The digital data indicated intermittent arcing. After approximately 2 minutes the instrument started drawing excessive current and approximately 2 minutes later the channeltron (-3.5 kv) high voltage arced off. The Cold Cathode Ion Gauge (+ 4.5 kv) high voltage was commanded OFF, however the SIDE continued to draw excessive current, so the experiment was commanded to STANDBY at 1035 G.m.t., 29 March. At 1553 G.m.t., 30 March, the experiment was commanded ON and it immediately went to STANDBY. Another ON command was sent approximately 1 minute later and the experiment came on for about 20 seconds but due to excessive current the STANDBY circuit breaker was automatically activated and the SIDE went to STANDBY. The instrument was commanded OFF at 1558 G.m.t., 30 March, and no further attempts will be made this lunation to turn the SIDE ON.

30 March 1977 G.m.t.: 1700

### Apollo 15 ALSEP (continued)

The Solar Wind Spectrometer Experiment was commanded OFF 14 June 1974.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

The Heat Flow Experiment was commanded OFF 13 January 1977.

### Apollo 14 ALSEP

Sunrise of the 77th lunation at the Apollo 14 site occurred on 28 March. The central station DSS-1 (10 watt) heater is OFF for lunar day operation. The external 14 and 7-watt power dump resistors were commanded ON, 30 March.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the thermal control is Auto ON.

The Active Seismic Experiment is in STANDBY (Apollo 14 ALSEP, SMEAR 86).

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments were commanded OFF on 21 May 1976.

The Charged Particle Lunar Environment Experiment was commanded to STANDBY on 30 March. Between real time support periods of 26 and 27 March a spurious functional change occurred, CPLEE to Automatic Voltage Sequence, (octal 114) without a command verification word (CVW) being observed in the downlink signal. During support on 27 March the CPLEE was commanded back to the -35 volt range.

### Apollo 12 ALSEP

Sunrise of the 92nd lunation occurred on 29 March. The RTG (Radioisotope Thermoelectric Generator) power was checked and 45 minutes after sunrise the total output power had decreased by 2.77 watts. Recovery to normal RTG output occurred 1 hour later. The central station DSS-1 (10 watt) heater is OFF for lunar day operation.

The Passive Seismic Experiment is ON with the thermal control Auto ON, long period XY and Z-axes component gains 0 db, short period Z-axis component gain -20 db, and feedback loop filter OUT. The instrument assembly temperature (DL-07 =  $125.4^{\circ}$ F) returned onscale at a sun angle of  $7.0^{\circ}$  on 29 March. The Z-motor was commanded OFF for lunar day operation on 29 March.

The Solar Wind Spectrometer Experiment was commanded form OFF to STANDBY on 30 March. The SWS will remain in STANDBY during the lunar day time to reduce central station heating.

30 March 1977 G.m.t.: 1700

### Apollo 12 ALSEP (continued)

The Suprathermal Ion Detector Experiment was commanded OFF 3 May 1976.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

## Soft week ending   1700   Z (G.m.t.)   30 March 1977    Used   Apollo 12 ALSEP   Apollo 14 ALSEP   Apollo 15 ALSE    Used   Apollo 12 ALSEP   Apollo 14 ALSEP   Apollo 15 ALSE    Used   Apollo 12 ALSEP   Apollo 14 ALSEP   Apollo 15 ALSE    Used   Apollo 12 ALSEP   Apollo 14 ALSEP   Apollo 15 ALSE    Used   Apollo 12 ALSEP   Apollo 15 ALSE    Sun Angle   Signification   Signification    Used   Apollo 15 ALSEP   Apollo 15 ALSEP    Used   Apollo 17 ALSEP   Apollo 17 ALSEP    Used   Apollo 17 ALSEP   Apollo 17 ALSEP    Used   Apollo 17 ALSEP   Apollo 17 ALSEP    Used   Apollo 17 ALSEP   Apollo 15 ALSEP    Used   Apollo 17 ALSEP    Used	24766/79  Apollo 16 ALSEP 3 A 1938Z, 4/21/72 0 15.5°E, 9.0°S 3 62/1804 54.6° 5	0 17
STATUS	Apollo 16 ALSEP 3 1938Z, 4/21/72 15.5°E, 9.0°S 62/1804 Sunrise, 54.6° 24766/79	17 ALSEP
14122, 11/19/69   17282, 2/5/71   17   19/09cd   14122, 11/19/69   17.5°W, 3.7°S   17.5°W, 3	4/21/72 ., 9.0°S .4 .e. 54.6°	
nation/Days Ops 32/2638 17.5°W, 3.7°S nation/Days Ops 32/2638 77/2112	., 9.0°S 14 18. 54.6° 739	02532, 12/12/72
ase, Sun Angle Sunrise, 15.7° Sunrise, 21.6° ds - Total/Week 51978/64 17584/46  urious Changes 118 109  Initial/Present 73.6w/ 46.5w 72.5w/59.1w  Reserve Power 23.7w 72.5w/59.1w  Reserve Power 23.7w 72.5w/59.1w  Avg. Therm. Plate62.2°F 71.5°F 71.5°F  Transmitter B, 7/8/74 B, 30.7w  Processor Y, 8/25/76 Y, 8/24/76  Processor Y, 8/25/76 Y, 8/24/76  Processor Y, 8/25/76 Y, 8/24/76  Inoperative Inoperative Inoperative Inoperative 23.28/77  Reaters Auto On Auto On 2124.8°F 11/77  Prince CKt. Uncaged Uncaged Uncaged 126.0° Uncaged	79 79	30.8°E, 20.2°N
ds. Sun Angle Szarése, 15.7° Suarise, 21.6°  ds Total/Week 21972/64 17594/46  urious Changes 118 104  Initial/Present 73.6w/ 46.5w 72.5w/59.1w  Reserve Power 25.2w 72.5w/59.1w  Avg. Therm. Plate2.2°F 71.5°F 72.5w/59.1w  Transmitter B, 7/8/74 B, 4.8/24/76  Processor Y, 8/25/76 Y, 8/24/76  Processor Y, 8/25/76 Y, 8/24/76  Processor Y, 8/25/76 Y, 8/24/76  Inoperative Inoperat	se, 54,6°	
ds - Total/Week \$1972/64  urious Changes 179  Initial/Present 73.6w/ 46.5w 72.5w/59.1w  Reserve Power \$2.7\tilde{2.2}\tilde{7}  Transmitter \$3.7\tilde{7.5}7.5	62,	
Initial/Present 73.6w/ 46.5w   104   104   104   105   104   104   105   104   104   105   104   105   104   105   104   105   106	2	
Initial/Present 73.6W/46.5W   72.5W/59.1W     Reserve Power   23.7W   72.5W/59.1W     Reserve Power   23.7W   72.5W/59.1W     Processor   Y, 8/25/76   Y, 8/24/76     Processor   Y, 8/25/76   DSS-1 (10W) PFF 3/29/77     Processor   Auto On   Auto ON 3/11/77     Processor   Auto On   Auto ON 3/11/77     Processor   226.0°   124.8°F     Processor   226.0°   124.8°F     Uncage Ckt.   Uncaged   Uncaged     SMS - STBY, 3/30/77     Processor   SMS - STBY, 3/30/77		3/2/0/30
Initial/Present 73.6w/ 46.5w 72.5w/69.1w Reserve Power 23.7w Reserve Power 23.7w Avg. Therm. Plate2.2°F Transmitter B, 7/8/74 B, Processor Y, 8/25/76 Y, 8/24/76 PCU Timer Inoperative Inoperative Timer DSS-1 (10w) PFF 3/29/77 LPX/Y, Z, SPZ 0.0, -20db 11/75 0.0, 0db Heaters Auto On Auto ON 3/11/77 Z motor (A1) PFF, 3/29/77 DL-07 Temp. 126.0° DL-07 Temp. 126.0° Uncage Ckt. Uncaged SWS - STBY, 3/30/77 CPLEE-STBY, 3/30/77 Range: Norm. Anal B Failed 4/71  Range: Norm. Anal B Failed 4/71  SIDE-OFF 5/3/76 SIDE-OFF 1/5/75 Timer ON SIDE-OFF 1/5/75		
Avg. Therm. Plate2.2°F  Avg. Therm. Plate2.2°F  Transmitter  B, 7/8/74  B,  Processor  Y, 8/25/76  Y, 8/24/76  PCU  Timer  I noperative  I nop	9w/62.4w	75.4w/61.7w
Avg. Therm. Plate 62.2°F  Transmitter B, 7/8/74 B,  Processor Y, 8/25/76 Y, 8/24/76 PCU  Timer  I noperative	31.0w 2	24.2w
Transmitter	94.9°F	88.9°F
Processor   Y, 8/25/76   Y, 8/24/76     Timer   Inoperative   Inoperative     Timer   Inoperative   Inoperative     LPX/Y,Z,SPZ   0.0, -20db   11/75   0.0, 0db     Leaters   Auto On   Auto On 3/11/77     Z motor (A1)	B, 3/26/73	A, 12/9/74
Timer Inoperative	1/2/77	X.R.S.W.DCDR B 8/74
Inoperative   Inoperative   Inoperative     Inoperative   Inoperative   Inoperative     USS-1 (10W) - OFF   21UPDRS ON 3/30/77     LPX/Y,Z,SPZ   0,0,-20db   11/75   0,0,0db     Heaters   Auto On   Auto ON 3/11/77     Z motor (A1) DEF, 3/29/77   OUT - 9/18/76     DL-07 Temp.		2
LPX/Y,Z,SPZ	Inhibited 5/72 0 Reset: 3/26/77 I	Operative Inhibited:3/30/77
LPX/Y,Z,SPZ 0,0,-20db 11/75 0,0,0db     Heaters	(1gy) = OFF	APM STATUS:
Heaters Auto On Z motor (A1) OFF, 3/29/77 Auto ON 3/11/77  Filter OUT - 3/27/77 OUT - 9/18/76  DL-07 Temp. 126.0° 124.8°F  Uncage Ckt. Uncaged  SWS - STBY, 3/30/77 CPLEE-STBY, 3/30/77  Range: Norm. Anal B Failed 4/71  Range: Norm. Anal B Failed 4/71  SIDE-OFF 5/3/76 SIDE-OFF 1/5/75  Increase reserve Failed	0.0.0db	LSPE -HBR 8/15/76
Filter   0UT - 3/27/77   0UT - 9/18/76   0UL-07 Temp.   126.0°   124.8°F   124.8°F   0Uncage d   0Uncage d   0Uncage d   0Uncage Ckt.   Uncaged   0Uncage d   0Uncage d   0Uncage Ckt.   0Uncage Ckt.   0Uncage Ckt.   0Uncage   0Uncage Ckt.   0Unc	Forced OFF 3/30/77 N	NBR Real Time Mon, Wed, Fri.
Uncage Ckt. Uncaged Uncage Ckt. Uncaged  SWS - STBY, 3/30/77 CPLEE-STBY, 3/30/77 Range: Norm. Anal B Failed 4/71  Exten. Anal B Failed 4/71  SIDE-OFF 5/3/76  SIDE-OFF 5/3/76  Increase reserve Failed	H 2/26/77	HFE - ON, NBR
Uncage Ckt. Uncaged  SWS - STBY, 3/30/77 CPLEE-STBY, 3/30/77 Range: Norm. Range: Norm. Range texten. Anal B Failed 4/71 Exten. Anal B Failed 4/71 SIDE-OFF 5/3/76 SIDE-OFF 5/3/76 Increase reserve Failed	130.6°F	Data Mon, Wed, Fri,
Range: Norm.  Range: Norm.  Range: Norm.  Anal B Failed 4/71  Exten.  Dust Detector - ON DTREM - ON  SIDE-OFF 5/3/76  Increase reserve  Failed		
Range: Norm.  Anal B Failed 4/71  Exten.  Anal B Failed 4/71  Exten.  Dust Detector - ON DTREM - ON  SIDE-OFF 5/3/76  Increase reserve  Failed	30°	LEAM-OFF 3/27/77 Static @ might
A Sust Detector - ON DTREM - ON SIDE-OFF 5/3/76 SIDE-OFF 1/5/75 Increase reserve Failed		since 7/16/76
Dust Detector - ON DTREM - ON SIDE-OFF 5/3/76 SIDE-OFF 1/5/75 Increase reserve Failed		LSG-ON 3/28/77 Auto Htr Failed
SIDE-OFF 5/3/76 SIDE-OFF 1/5/75 Increase reserve Failed	20	lo Free Modes or Tosed Loop Ops
Increase reserve Failed	HFE-OFF Since	LACE-STBY 7/22/76
A P	deployment, cable HN severed.	HV failed 10/73
도요 LSM-OFF 6/74 ASE-STBY 12/23/74 LSM-OFF 6/74 Mortars unfired Failed	ASE-OFF 12/23/74 Mortar #1 unfired.	
Geophones	Sensors failed.	
PSEP - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N- Lost Uplink 8/25/69, Lost Downlink 12/14/69	st Downlink 12/14/69	

# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 3/30/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
			LOS 23/0730		
23 March	GWM/ORR	Higher Priority	AOS 23/0741	ALL	r r m
			LOS 25/0952		
25 March	GWM	Higher Priority	AOS 25/1052	ALL	1 <sup>h</sup> 00 <sup>m</sup>
			LOS 27/1030	arten (reg	
27 March	ULA/GWM	Higher Priority	AOS 27/1035	ALL	05 <sup>m</sup>
			LOS 29/1030		
29 March	GWM/MAD	Wx Problem	AOS 29/1054	ALL	24 <sup>m</sup>
			LOS		
			AOS		
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# NOON and NIGHT DATA (Latest Lunation)

20 March 1977

	Night	70 292.2° -137.0 dbm 45.6w 17.4w -1.2°F 124.6°F 0FF
APOLLO 15 ALSEP	Noon	70 35.5° 139.0 dbm 48.3w 13.4w 107.1°F HIGH 93.6°C 364.0°K
APOLLO		Lunation 35.5° Sun Angle 35.5° Sig Strth (9m)-139.0 dbm - Input Power 13.4w Reserve Power 13.4w Av Ther Pl T 107.1°F PSE T. (DL-07) HIGH SIDE T. (DI-05) 93.6°C CCGE T. (DI-04) 364.0°K HFE T. (DH-13)
	Night	76 270.7° -140.0 dbm 58.4w 13.4w 22.7°F 124.1°F -22.7°C
APOLLO 14 ALSEP	Noon	76.0° -134.0 dbm -60.6w 13.7w 111.2°F 131.1°F
APOLL		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. PSE T. (DL-07) CPLEE T. (AC-06)
	Night	91 289.4° 137.0 dbm 45.5w 11.4w 5.9°F LOW
APOLLO 12 ALSEP	Noon	91 95.2° -142.0 dbm ~ 48.0w 22.4w 90.5°F HIGH
APOLLO		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. PSE T. (DL-07) SWS T. (DW-13)

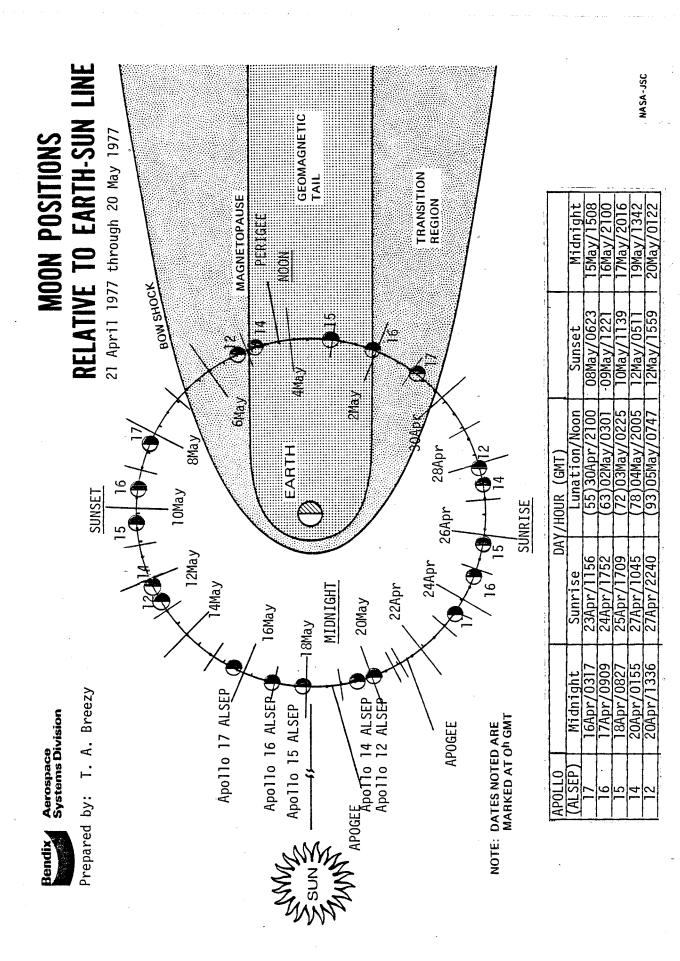
	Night	53 283.2° -138.0 dbm 63.2w 14.2w 3.8°F -16.1°F -58.0°K 285.7°K 285.7°K 7.8°F
APOLLO 17 ALSEP	Noon	53 88.2° 88.2° -141.0 dbm 62.1w 23.3w 93.9°F 161.4°F 185.0°F 329.7°K STBY 96.7°F
APOLL		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther P1 T. LACE T. (AM-41) LEAM T. (AJ-11) HFE T. (DH-13) LSG T. (AP-01)
	Night	61 267.6° -136.0 dbm 62.4w 13.7w 27.3°F 125.8°F -10.2°C
POLLO 16 ALSEP	Noon	61 87.0° -135.0 dbm 62.4w 31.8w 104.7°F HIGH 40.8°C
APOLLO		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. PSE T. (DL-07) LSM T. (DM-05)

PSE CALS DAILY	7.1	15° 15° 15° 15° 15° 15° 15° 15° 15° 15°	8/	JRT.	35	100 T5 RESET 16 TR ON RESET 17 09 m
PSE CA	12/07	0900-1100 ALSEP 15 SIDE OFF ALSEP 12 SWS OFF ALSEP 14 CPLEE ON PDRS OFF ALSEP 17 NBR - 15 <sup>II</sup>	19/078	NO SUPPORT	26/085	0900-1100 ALSEP 15 TIMER RESET ALSEP 16 C/S HTR ON TIMER RESET ALSEP 17 NBR - 09 <sup>m</sup>
	11/070	0900-1100 ALSEP 16 C/S HTR ON LSM FLIP CAL ALSEP 17 NBR - 49 <sup>m</sup> ALSEP 14 PSE HTR ON	18/077	0900-1100 ALSEP 17 NBR - 32 <sup>m</sup>	25/084	ALSEP 16 ALSEP 17 ALSEP 17 NBR - 54 <sup>m</sup> LSG 0N
FNTS	10/069	0100-0200 1400-1600	17/076	NO SUPPORT	24/083	NO SUPPORT ALSEP 17
SEP SUPPORT SCHEDULE/EVENTS	890/60	1200-1400 ALSEP 17 NBR -1 No2 <sup>m</sup> HFE RBS LSG ON ALSEP 16 LSM FLIP CAL	16/075	0900-1100 ALSEP 17 NBR -1 04 HFE RBS	23/082	0900-1100 ALSEP 17 NBR - 26 HFE RBS
ALSEP S	08/067	0900-1200	15/074	0900-1100 ALSEP 17 NBR - 35 <sup>m</sup> ALSEP 16 LSM OFF/ON OFF - 3 <sup>h</sup> 05 <sup>m</sup>	22/081	NO SUPPORT
	990/20	0900-1100 ALSEP 16 LSM FLIP CAL ALSEP 17 NBR - 20 <sup>m</sup> LEAM STBY	14/073	1600-2000	21/080	0900-1100 ALSEP 17 NBR - 20 <sup>m</sup>
TIMES - CST	MAR 06/065	0900-1100	MAR 13/072	0900-1100 ALSEP 17 NBR - 13 <sup>m</sup> LSG OFF	MAR 20/079	NO SUPPORT

BEN-20

걾	K  Telephone to the property of the property o		1350
PSE CALS DATLY	02/092 0300-0700	09/099 0100-0200 1000-1100 1900-2100 ALSEP 16 C/S HTR ON	16/106 NO SUPPORT
	APR 01/091 0900-1100 ALSEP 16 LSM FLIP CAL ALSEP 17 NBR - ALSEP 14 PSE HTR 0FF	08/098 0900-1100 ALSEP 17 NBR - ALSEP 16 LSM FLIP CAL	15/105 0900-1100 ALSEP 17 NBR -
(ENTS	31/090 0900-1100 ALSEP 12 SWS STBY	07/097 0900-1100	14/104 0900-1100
SEP SUPPORT SCHEDIII E/EVENTS	30/089 0900-1100 ALSEP 14 CPLEE STBY PDRS ON ALSEP 16 LSM FLIP CAL ALSEP 17 NBR - HFE RBS	06/096 0900-1100 ALSEP 16 LSM FLIP CAL	13/103 0000-0200 ALSEP 14 C/S HTR ON C/S HTR ON PSE Z MTR ON PSE Z
ALSEP SI	29/088 0400-0700 ALSEP 12 C/S HTR OFF PSE Z MTR OFF C/S HTR OFF C/S HTR OFF 1730-1900	05/095 0900-1100 ALSEP 17 NBR - LEAM STBY	12/102 0900-1100 ALSEP 14 ALSEP 12 2200-24
	28/087 0900-1100 ALSEP 14 ALSEP 16 LSM FLIP CAL ALSEP 17 NBR - 26 <sup>m</sup> LSG ON	04/094 0900-1100 ALSEP 16 LSM FLIP CAL ALSEP 17 NBR -	11/101 0900-1100 ALSEP 14 CPLEE ON PDRS OFF ALSEP 17 NBR -
TIMES _ CST	MAR 27/086 0900-1100 ALSEP 17 NBR - 1 <sup>h</sup> 35 <sup>m</sup> LEAM OFF LSG STBY	APR 03/093 0900-1100	APR 10/100 0900-1100 ALSEP 15 ALSEP 75

DAILY							NASA-JSC
PSE CALS DAJLY	23/113	NO SUPPORT	30/121	0900-1100	07/128	<u>0900-1100</u> <u>2200-2300</u>	NA
	22/112	0900-1100 ALSEP 17 NBR -	29/120	0900-1100 ALSEP 14 CPLEE STBY PDRS ON ALSEP 16 LSM FLIP CAL ALSEP 17 NBR -	06/127	0900-1100 ALSEP 17 LEAM STBY NBR -	
FNIS	21/111	NO SUPPORT	28/119	0200-0400 ALSEP 12 C/S HTR OFF PSE Z MTR OFF ALSEP 14 C/S HTR OFF 1200-1300	05/126	0900-1100	The publishes of the control of the
ALSEP SŲPPORT SCHEDIJI E/EYENTS	20/110	0900-1100 ALSEP 17 NBR - HFE RBS	27/118	0900-1100 ALSEP 12 ALSEP 14 ALSEP 17 NBR - HFE RBS	04/125	0900-1100 ALSEP 17 NBR - HFE RBS	
	19/109	NO SUPPORT	26/117	0900-1100 ALSEP 17 LEAM OFF	03/124	0900-1100	
CST THROUGH 23 APRIL 1977 CDT AFTER 23 APRIL 1977	. 18/108	0900-1100 ALSEP 17 NBR -	25/116	0900-1100 ALSEP 15 ALSEP 17 NBR -	02/123	0900-1100 ALSEP 17 NBR -	
CST THRO		NO SUPPORT	APR 24/115		MAY 01/122	0900-1100	BEN-20



6 April 1977 G.m.t.: 1700

A partial eclipse of the moon occurred from 0206 G.m.t. to 0632 G.m.t., 4 April. All ALSEP sites were affected by the eclipse. This is the sixteenth event which one or all of the ALSEPs have experienced.

### Apollo 17 ALSEP

The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second) and engineering data from the central station and the other experiments is checked.

The Lunar Surface Gravimeter Experiment is currently ON. An attempt was made to center the beam by partially caging the masses on 4 April. Detailed data analysis indicated that the beam pivot point was shifted. On 6 April the beam centering was exercised again. The data indicated that the beam was near center with the pivot point at the normal position. The experiment is presently configured as follows: seismic high gain, integrator shorted mode, bias out, post amplifier gain at increment 2, the coarse and fine screws driven to the extreme lower position, the tilt servo motors in an intermediate position, the sensor beam near center, and heater is OFF.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic network.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 6 April the lunar surface temperature, as measured by the HFE thermocouples, was  $276 \pm 8^{\circ}$ K. At a depth of 230 cm the subsurface temperatures were  $256.9^{\circ}$ K at probe #1 and  $257.0^{\circ}$ K at probe #2.

The Lunar Ejecta and Meteorites Experiment was commanded from OFF to ON and to STANDBY for lunar night 6 April. The science data was valid at turn ON for approximately one minute. When the 90 Frame pulse occurred the data went to all "1"s and remained at "1" until the experiment was commanded to STANDBY.

### Apollo 16 ALSEP

The Passive Seismic Experiment is configured thermal control Forced OFF; component gain 0 db; and feedback loop filter OUT. The heater is being operated in Forced OFF and Uncaged for lunar day operation to minimize heating in the experiment. The instrument assembly temperature (DL-07) has been offscale HIGH since 2 April at a sun angle of 90.1° and is expected to return onscale 9 April.

6 April 1977 G.m.t.: 1700

### Apollo 16 ALSEP (continued)

The Lunar Surface Magnetometer Experiment is ON and recording data. Science data from the Z-axis remained static this report period. Flip calibration sequences are being conducted during the lunar day and a total of 1288 have been executed and verified by the experiment engineering data since deployment.

### Apollo 15 ALSEP

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the thermal control is Auto ON. The sensor temperature returned onscale ( $DL-07=141.9^{\circ}F$ , sun angle 126.9°), 6 April, and had been offscale HIGH since 2 April.

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments are currently OFF.

### Apollo 14 ALSEP

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP). The thermal control was commanded to the Forced OFF mode for this lunar day on 2 April. The experiment received a spurious functional command (PSE to STANDBY, octal 037) as observed by the Madrid Tracking Station at 2350 G.m.t., 2 April. At the request of mission control the Ascension Island Tracking Station uplinked in Mode I PSE ON (octal 036) at 0146 G.m.t., 3 April, and reconfigured the experiment to its normal operational mode. During real time support at 1438 G.m.t., 3 April, the thermal control was again commanded from Auto ON to Forced OFF.

The Charged Particle Lunar Environment Experiment is in STANDBY.

### Apollo 12 ALSEP

The Passive Seismic Experiment is configured thermal control Auto ON; component gain O db and feedback loop filter OUT, and the short period Z-axis gain is set at -20 db (Ref. 5 Dec 75 ALSEP Performance Summary Report. The instrument assembly temperature (DL-07) was offscale HIGH on 6 April at a sun angle of 99.7° and is expected to return onscale 11 April.

The Solar Wind Spectrometer Experiment is in STANDBY to reduce heating in the central station.

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

, ALSEP	as of week ending $^{\it I}$	1700 Z (G.m.t.)	6 April 1977		
STATUS	0110 12	14 ALSEP	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed	1412Z, 11/19/69	28Z, 2/5/71	7/31/71		12/12/72
Lunar Location	23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°W	. 9.0°S	30.8°E, 20,2°N
	92/2695	77/2117	71/2076	62/1811	54/1576
Phase, Sun Angle	Noon, 100.6°	Noon, 106.8°	Noon, 127.9°	Noon, 139.8°	Noon, 155.00
Cmds - Total/Week	32024/46	17643/49	39807/57	24854/88	
Spurious Changes	119	105	129		0
Initial/Present	t 73.6w/48.7w 21.6w	72.5w/59.4w 13.7w	74.7w/46.3w 18.3w	70.9w/ 62.1w 31.3w	75.4w/ 62.1w 25.1w
Avg. Therm.	Plate 89.0°F	106.0°F	105.4°F	90.3°F	63.7°F
Transmitter	B, 7/8/74		B, 8/20/76	8, 3/26/73	A, 12/9/74
Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	Χ. 1/2/77	X.R.S.W.DCDR B 8/74
bcu					2
A Timer	Inoperative	Inoperative	Operative Reset: 3/26/77	Inhibited 5/72 Reset: 3/26/77	Operative Inhibited: 4/4/77
Heaters	USS-1, (194) - OFF	DSS-10(10W) 3/503/54	ł	DSS-1 $(10w)_{Z/2}^{0}_{Z/7}^{F}_{7}$	APM STATUS:
LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE -HBR 8/15/76
Heaters Z motor (A1		Forced OFF 3/2/77	Auto On	0FF 3/30/77	NBR Real Time Mon, Wed, Fri.
	OUT - 3/27/77	0UT - 9/18/76	0UT - 3/27/77	OUT - 3/26/77	HFE - ON, NBR
a 0L-07 Temp.		134.7°F	$g_{o}F$	g	Data Mon, Wed, Fri,
Uncage Ckt.	1 1	Uncaged	Uncaged	Uncaged	RBS weekly
	SWS - STBY, 3/30/77	CPLEE-STBY, 3/30/77	SIDE - 0FF, 3/30/77	3/30/77LSM -0N	LEAM-STBY, 4/6/77
/	Range:Norm. Ext.	Anal B Failed 4/71	CCGE-Failed 7/18/75 Fiip Cals 1288 Z Failed 3/3/75		static @ night since 7/16/76
TIVE,			HFE 1/13/77 Degraded 12/75		LSG- 3/28/77 Auto Htr Failed
ΟA	Dust Detector - ON	DTREM - ON	DTREM - ON		No Free Modes or closed Loop Ops
ABLE VE/	: 5/3/76 : reserve or C/S he	<u>SIDE</u> -0FF 1/5/75 · Failed	74	HFE-OFF Since deployment, cable severed.	LACE-STBY 7/22/76 HV failed 10/73
INGPER	1	ASE-STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad		ASE-OFF 12/23/74 Mortar #1 unfired. Sensors failed.	
PUEP - Anollo 11	Den 10,00d 7/21/69 25	23 10E 0 70N 10c+ 112111 B19E160	+30	00/01/01	

## REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 4/6/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
			LOS 29/1530		
29 March	GWM/MAD	Wx Problem	AOS 29/1554	ALL	24 <sup>m</sup>
			LOS 01/1706		
01 April	ORR/MAD	Antenna Masking	AOS 01/1720	ALL	14 <sup>m</sup>
·			LOS 02/2227		
02 April	ACN/MAD	Higher Priority	AOS 02/2251	ALL	24 <sup>m</sup>
			LOS 03/2224		
03 April	ACN/MAD	Higher Priority	AOS 03/2244	ALL	20 <sup>m</sup>
			LOS		
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13 April 1977 G.m.t.: 0800

### Apollo 17 ALSEP

The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second) and engineering data from the central station and the other experiments is checked.

The Lunar Surface Gravimeter Experiment is ON. During checks conducted on 11, 12, and 13 April it has been determined that the instrument heater box heater circuit (1/2 watt) has failed in the OFF position. The OFF condition causes the temperature to decrease and drift offscale LOW (transducer range is 48.2° to 52.0°C). The heater will not heat the instrument internally in this condition and thermal regulation is assumed to be lost. The only heating available to the instrument is the external heat activated by placing the LSG in STANDBY. Previous failures in this circuit have been in the full ON (loss of regulation) position. Temperature could be controlled by commanding the slave heater ON/OFF. This capability is not available in the OFF position failure.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic network.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 13 April the lunar surface temperature, as measured by the HFE thermocouples, was  $111 \pm 8$ °K. At a depth of 230 cm the subsurface temperatures were 256.9°K at probe #1 and 257.0°K at probe #2.

### Apollo 16 ALSEP

The Central Station DSS-1 (10w) Heater was commanded ON for lunar night on 9 April.

The Passive Seismic Experiment is configured for network congruity (thermal control, AUTO ON: component gain 0 db; and feedback loop filter OUT). The heater was commanded from Forced OFF to AUTO ON for lunar night operation on 9 April. The instrument assembly temperature (DL-07) was offscale HIGH from 2 to 9 April between the sun angles of 90.1° and 169.6°.

The Lunar Surface Magnetometer Experiment is ON. During real-time support on 8 April it was noted that the science data from the y-axis sensor was static. A flip calibration sequence indicated that the sensor head does respond to the commands. This failure is identical to the z-axis sensor failure of 3 March 1975. Flip calibration sequences have been discontinued for the lunar night. As of 8 April 1,290 calibration sequences have been executed by the sensor heads.

13 April 1977 G.m.t.: 0800

### Apollo 15 ALSEP

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP). The experiment received a spurious functional command between the support periods of 9 and 10 April (PSE, Short Period Z gain change to -10 db, octal 067) without a command verification word (CVW) being observed in the downlink signal. During real time support on 10 April the experiment was reset to 0 db gain (3 octal 067s) at 1913 G.m.t.

### Apollo 14 ALSEP

The Central Station DSS-1 (10w) Heater was commanded ON for lunar night, 13 April. The external 14 and 7-watt power dump resistors were commanded OFF, 10 April, for lunar night operation.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP). The heater was commanded to AUTO ON for lunar night operation on 9 April.

The Charged Particle Lunar Environment Experiment was commanded ON, 10 April, and is operating in the normal mode at the -35 vdc range and automatic thermal control mode for the lunar night.

### Apollo 12 ALSEP

The Central Station DSS-1 (10w) Heater was turned ON for lunar night on 13 April.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 5 Dec 75 ALSEP Performance Summary Report). The Z-motor was commanded ON, 13 April, to maximize heating in the instrument for lunar night operation. The sensor temperature returned onscale (DL-07=135.0°F, sun angle 172.7°), 12 April, and had been offscale HIGH since 6 April.

The Solar Wind Spectrometer Experiment was commanded from STANDBY to OFF, 10 April, to maintain the central station average thermal plate temperature above 1°F during lunar night. The PSE electronics do not operate correctly below this temperature. The additional reserve power should extend the acquisition of useful PSE data to June 1977.

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

	ALSE.	as of week ending O	0800 Z (G.m.t.)	13 April 1977		
**************************************		Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
ne O	Deployed	14122, 11/19/69	2/5/71	7/31/71	19382, 4/21/72	12/12/72
3	Lunar Location	23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°W	15.5°E, 9.0°S	30.8°E, 20,2°N
3	$\circ$		77/2126	71/2083	62/1818	3
Ĕ	a)	Sunset, 179.3°	Sunset, 185.3°	Sunset, 206.6°	Sunset, 218.5°	Sunset, 234.0°
Onds	ds - Total/Week	33092/68	17689/46	39892/85	24969/115	37676/83
<u></u>	ourious Changes	119		130		0
91		-	72.5w/58.7w	74.7w/45.1w	70.9w/ 62.4w	75.4W/63.6W
manage of a	Keserve rower	28.2W	24.7W	$17.1\omega$	$14.0\omega$	15.6w
- demonstrate	Avg. Therm. Plate	327.1ºF	13.4°F	-1.2°F	28.1°F	7.8°F
011	ra ismitter	8, 7/8/74	B,11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
THE WHITE	Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/12/77	X.R.S.W.DCDR B 8/74
	PCU		<b>-</b>			2
IASITI	Timer	Inoperative	Inoperative	Operative Reset: 3/26/77	Inhibited 5/72 Reset: 3/26/77	Operative Inhibited: 4/12/77
Acres 1850 Miles	lea ters	USS-1 (10W)- ON	DSS-1 (10w) ON 4/13		$10\text{w}$ $\frac{ON}{4/9/27}$	APM STATUS:
	LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE -HBR 8/15/76
ere are considerate and the constant of the co	Heaters 7 motor (Al)	Auto On	Auto ON 4/9/77	Auto On	4/9/77	NBR Real Time
· ANTINESPA	2	1/07/4				
		001 - 3/2////	0UT - 11/17/76	001 - 3/27/77	0UT - 3/27/77	HFE - ON, NBR
Pacinish	DE-07	127.8°E	124,2°F	124.7°F	125.9°F	Data Mon, Wed, Fri,
	Uncage Ckt.	Uncaged .	Uncaged	0T		RBS weekly
Ariigisis daga		SWS - OFF, 4/10/77	CPLEE-OW, 4/10/77	SIDE /CCGE -	LSM - ON	LEAM-STBY 4/6/77
		Increase reserve power for C/S heat	Anal B Failed 4/71			static @ night since 7/16/76
TIVITI TIVITI	EKABI			<u>HFE</u> - OFF 1/13/77 Degraded 12/75		LSG- ON 3/28/77 Auto Htr Failed No Eng Mader
101		Dust Detector - ON	DTREM - ON			closed Loop Ops
CAD		SIDE-0FF 5/3/76	SIDE-0FF 1/5/75 .	SWS-0FF 6/74	HFE-OFF Since	LACE-STBY 7/22/76
		Increase reserve power for C/S heat	Failed	Failed	deployment, cable severed.	HV failed 10/73
ani dimenin kancasa di Al-Mai da M Basa di Al-Mai di Al-Mai da Mai di Al-Mai di Mai	NOPER NACTI	<u>LSM-OFF 6/74</u> Failed		LSM-OFF 6/74 Failed	ASE-OFF 12/23/74 Mortar #1 unfired.	
		××	ō		Sensors failed.	
	P - Apollo 11	Deployed //21/69, 23	23.4°E, O.7°N- Lost Uplink 8/25/69,	Lost	Downlink 12/14/69	

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### REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 4/13/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
			LOS 07/2200		
April	ORR/ACN	Higher Priority	AOS 07/2223	ALL	23 <sup>m</sup>
		·	LOS		
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			AOS	WANG	

20 April 1977 G.m.t.: 1700

### Apollo 17 ALSEP

The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second) and engineering data from the central station and the other experiments is checked.

The Lunar Surface Gravimeter Experiment is currently ON. The experiment is presently configured as follows: seismic low gain, integrator shorted mode, bias out, post amplifier gain at increment 2, the coarse and fine screws driven to the extreme lower position, the tilt servo motors in an intermediate position, the sensor beam near center, and heater is ON. The Decoder was commanded ON, 14 April, to add 0.4 watts of heat for temperature stabilization during the lunar night. On 20 April during real time support it was noted that the internal heater was functioning normally and the experiment temperature was increasing.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic network.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 20 April the lunar surface temperature, as measured by the HFE thermocouples, was  $107 \pm 8^{\circ}$ K. At a depth of 230 cm the subsurface temperatures were 256.8°K at probe #1 and 257.0°K at probe #2.

### Apollo 16 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night.

The Passive Seismic Experiment is configured for network congruity (thermal control, AUTO ON; component gain O db; and feedback loop filter OUT).

The Lunar Surface Magnetometer Experiment is ON and recording data. Flip calibration sequences have been discontinued for this lunar night due to the low temperature of the Z-axis sensor head. The Y and Z-axes science data remained static this reporting period.

### Apollo 15 ALSEP

At 0724 G.m.t., 14 April, the Ascension Island Tracking Station reported a spurious command verification word, 18 hour Timer Inhibit (octal 033). On 14 April, during the real time support period, the timer pulse did not occur at the scheduled time. Three minutes later a Timer Output Accept command (octal 032) was sent and the timer responded normally.

20 April 1977 G.m.t.: 1700

### Apollo 15 ALSEP (continued)

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP).

### Apollo 14 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night operation. The external 14 and 7-watt power dump resistors are OFF.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP).

The Charged Particle Lunar Environment Experiment is ON and operating in the normal mode at the -35 vdc range and automatic thermal control mode.

### Apollo 12 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night operation.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 4 Dec 75 ALSEP Performance Summary Report). The Z-motor is ON to maximize heating in the instrument for lunar night operation. During real time support on 14 April it was observed that the long period Z-axis seismic data was static, however the tidal data was normal. LP-Z calibration commands (octal 066) were sent to the experiment and no response from this axis was observed. LP-Z seismic data has remained static throughout this reporting period. The sensor temperature remains offscale LOW since 18 April and it is expected to return onscale 27 April.

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

	4.	as of week ending	2700 Z (G.m.t.)	20 April 1977		
	STATUS	Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
	Deployed		2/5/71	7/31/71	19387, 4/21/72	12/12/72
	Lunar Location	23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
	S	ŀ	77/2134	71/2090		
	Phase, Sun Angle	Midnight, 271.70	Midnight, 277.7º	Midnight, 298.8°	Midnight, 310.7°	Midnight, 325.9°
	Cmds - Total/Week	33135/43	,26	į	25008/38	37744/68
	Spurious Changes	119	105	131		0
	[co Initial/Present	73.6w/44.9w	72.5w/57.9w	74.7w/ 44.4w	70.9w/62.4w	75.4w/62.5w
	Reserve Power		13.3w	16.3w	13.2w	21.30
	Avg. Therm.	Plate4.4°F	21.8°F	-3.6°F	<i>1₀</i> ₹ • ₹	7.8°F
	smitter	8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
	₹ Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/12/77	X.R.S.W.DCDR B 8/74
	nod s			,		2
	RAT Tamer	Inoperative	Inoperative	Operative Reset: 3/26/77	Inhibited 5/72 Reset: 3/26/77	Operative 3/20/77 Inhibited:
	E Heaters	USS-1/4364) - ON	DSS-1 (10m 9/10/13	DSS-1 (10w) - OFF	$05S-1 (10w_{4/9}/9)$	APM STATUS:
	LPX/Y,Z,SPZ	0,0,-20db 11/75	.qp0,0,0	db0,0,0	0.0.0db	LSPE -HBR 8/15/76
	Heaters	Auto On	Auto ON	Auto On	Auto On	eall
		Z Motor ON 4/13/77		•		Mon, Wed, Fri.
	Eilter Filter	100T - 3/27/77	OUT - 11/17/76	OUT - 3/27/77	0UT - 3/27/77	HFE - ON, NBR
	© DL-07 Temp.	Offscale LOW	124.1°F	124.1°F	125.8°F	Data Mon, Wed, Fri,
n newson	Uncage Ckt.		Uncaged	Ипсадеd	10	RBS weekly
		Dust Detector - ON	DTREM - ON	DTREM - ON	NO - WST	LSG-0N 3/28/77
and the second second	区 ACTIVE/ E OPERABLE		CPLEE - 0N 4/10/7/ Operate Night Only Anal B Failed 4/71		Z Failed 3/3/75 Y Failed 4/8/77	Auto Htr Failed No Free Modes or
	EXPERI	SWS - OFF 1/15/77 Increase Reserve Power for C/S heat		SIDE - OFF 3-12-77 FOR RESERVE POWER		
	INACTIVE/ INOPERABLE	SIDE - OFF 5/3/76 Increase Reserve	SIDE - OFF 1/5/75 Failed	HFE - OFF 1/13/77 For Reserve Power	HFE - Off Since deployment, cable	LEAM - STBY 8/15/76 Static @ night 7/76
		Heat		- 1	severed.	Static @ day 4///
		LSM - 0FF 6/74 Failed	ASE - STBY 12/23/74	SWS - 0FF 6/74 Failed	ASE - OFF 12/23/74 Mortar #1 infired	LACE - STBY 7/22/76
			Geophones 2 & 3 bad	bad LSM - OFF 6/74 Failed	Sensors failed.	
	PSEP - Apollo 11	Deployed 7/21/69, 23	23.4°E, 0.7°N - Lost Uplink	plink 8/25/69, Lost	Downlink 12/14/69	

# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 4/20/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
			LOS 15/0430		
15 April	GWM/ACN	Antenna Masking	AOS 15/0441	ALL	11 <sup>m</sup>
7.7 0			LOS 17/1022		
17 April	ACN/MIL	Schedule	AOS 17/1032	ALL	10 <sup>m</sup>
			LOS 18/0919		
18 April	MAD/ACN	Schedule	AOS 18/1027	ALL	1 <sup>h</sup> 08 <sup>m</sup>
			LOS 20/0243		
20 April	GWM	Station Problem	AOS 20/0245	ALL	02 <sup>m</sup>
			LOS 20/0813		
20 April	MAD	Higher Priority	AOS 20/1045	ALL	2 <sup>h</sup> 32 <sup>m</sup>
			LOS 20/1246	Pentract	
20 April	MAD/BDA	Higher Priority	AOS 20/1333	ALL	47 <sup>m</sup>
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27 April 1977 G.m.t.: 1700

Apollo 16 ALSEP, the fourth nuclear-powered scientific data station installed on the moon, completed the fifth year of uninterrupted operation on 21 April 1977.

### Apollo 17 ALSEP

Sunrise of the 55th lunation occurred on 23 April at the Taurus Littrow Site. The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). It was commanded to NBR on 25 April. The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain.

The Lunar Surface Gravimeter Experiment is currently ON and configured with the slave heater ON, seismic high gain, power amplifier (PA) at step #2, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, and the tilt servo motors in an intermediate position. The LSG had been operating in PA gain step #1, but on 27 April the beam had drifted nearer center allowing operation in PA gain step #2 with valid seismic data. The internal heater is still failed in the OFF position.

The Lunar Seismic Profiling Experiment was commanded to STANDBY on 25 April.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. Ring bridge surveys are being achieved on a periodic basis. On 27 April the lunar surface temperature as measured by the HE thermocouples, was 320 ± 8°K. At a depth of 230 cm the subsurface temperatures were 256.9°K at probe #1 and 257.0°K at probe #2.

The Lunar Atmospheric Composition Experiment is in STANDBY.

The Lunar Ejecta and Meteorites Experiment was commanded ON, 25 April. Initial data received was static. Later on 25 April all engineering and science data was normal. However, data was again invalid on 26 April. On 27 April the data appeared normal and the calibration was good. The LEAM is being operated to obtain science data throughout the lunar day.

### Apollo 16 ALSEP

Sunrise at the Descartes Site occurred on 24 April for the 63rd lunation. The Central Station 18-hour timer output pulses continue to be inhibited per the agreed operation plan initiated 6 May 1972. The DSS-1 (10w) heater was commanded OFF, 25 April. The central station was operated in high bit rate (HBR) for six minutes on 27 April and during this period a short period calibration was transmitted to and executed by the PSE.

27 April 1977 G.m.t.: 1700

### Apollo 16 ALSEP (continued)

The Passive Seismic Experiment is ON and configured for seismic network congruity (thermal control Auto ON, component gains O db, and feedback loop filter OUT.) The uncage-arm fire circuitry was commanded to UN-CAGED on 25 April in an attempt to minimize heating in the experiment during lunar day. Operation in this configuration and heater in Forced OFF during the previous lunations had shown a decrease in the sensor temperature and a reduction in the frequency of levelling required.

The Lunar Surface Magnetometer Experiment is ON and recording data. Flip calibration sequences have been resumed for this lunar day and a total of 1294 have been executed and verified by the experiment engineering data since deployment.

The Active Seismic Experiment is OFF (Apollo 16 ALSEP, SMEAR 27). The ASE was operated in ON for 32 minutes from 2354 G.m.t., 26 April to 0026 G.m.t., 27 April. The experiment was in HBR for 6 minutes from 0017 to 0023 G.m.t., 27 April. All geophones appeared normal and calibrations look good. A small event was observed on all geophones. This is the first operation of the ASE since 23 December 1974.

### Apollo 15 ALSEP

Sunrise of the 72nd lunation at the Hadley Rille Site occurred on 25 April.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP).

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments were commanded OFF 12 March 1977.

The Solar Wind Spectrometer Experiment was commanded OFF 14 June 1974.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

The Heat Flow Experiment was commanded OFF 13 January 1977.

### Apollo 14 ALSEP

Sunrise of the 78th lunation at the Apollo 14 site occurred on 27 April. The central station DSS-1 (10 watt) heater will be commanded OFF and the external 14 and 7-watt power dump resistors will be commanded ON for day operation on 28 April.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP).

27 April 1977 G.m.t.: 1700

### Apollo 14 ALSEP (continued)

The Active Seismic Experiment is in STANDBY (Apollo 14 ALSEP, SMEAR 86).

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments were commanded OFF on 21 May 1976.

The Charged Particle Lunar Environment Experiment is ON and operating in the normal mode at the -35 vdc range and automatic thermal control mode.

### Apollo 12 ALSEP

Sunrise of the 93rd lunation will occur later today, 27 April. The central station DSS-1 (10 watt) heater will be commanded OFF on 28 April.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis component gain is -20 db. The instrument assembly temperature (DL-07) has been offscale LOW since 18 April. The long period Z-axis seismic data returned to normal on 22 April and the axis responded to calibration commands. The Z-motor will be commanded OFF on 28 April.

The Solar Wind Spectrometer Experiment was commanded OFF 15 January 1977.

The Suprathermal Ion Detector Experiment was commanded OFF 3 May 1976.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

		12/12/72	30.8°E, 20.2°N	1587	Sunrise, 51.40	1	0	75.4w/ 61.3w	25.9w	64.9°F	A, 12/9/74	X.R.S.W.DCDR B 8/74	2	Operative Inhibited:4/27/77		LSPE - STBY 4/25/77		HFF - ON, NRR	•	RBS weekly	LSG-0N 3/28/77	Auto Htr Failed No Free Modes or		LEAM - ON 4/25/77 Static @ night 7/76 Data O.K. 4/25/77	LACE - STBY 7/22/76	•	
	Apollo 16 ALSEP 3	1938Z, 4/21/72	15.5°E, 9.0°S	63/1832	Sunrise, 36.2°	25085/116		70.9w/ 61.9w	30.8w	<i>À</i> <sub>0</sub> 6.82	B, 3/26/73	X, 1/2/77		Inhibited <b>5/72</b> Reset: 4/24/77	DSS-1 (10W)4728/57	0.0.0db	Auto On 4/7/77	77/70/6 TIIO	126.9°F	Uncaged 4/25/77	LSM - ON	Z Failed 3/3/75 Y Failed 4/8/77		HFE - Off Since deployment, cable severed.	ASE - ON 4/27/77	Geophones O.K.	Down 14nb 19/14/60
27 April 1977	Apollo 15 ALSEP 2	7/31/71	26	72/2097	Sunrise, 24.2°	39990/98	129	74.7w/ 44.7w	17.2w	£0.8.09	B, 8/20/76	Y, 10/19/76		Operative Reset: 4/24/77	DSS-1 (10w) - OFF	0.0.0db	Auto On	OHT - 3/27/77	00	<b>∵</b>	DTREM - ON		SIDE - OFF 3-12-77 For Reserve Power	HFE - OFF 1/13/77 For Reserve Power	SWS - OFF 6/74 Failed	LSM	70N -   Act
1200 Z (G.m.t.)	14	2/5/71	17.5°W, 3.7°S		Sunrise, 3.2º	17735/46	104	72.5w/ 57.6w	12.8w	21.3°F	B, 11/12/76	Y, 8/24/76	,	Inoperative	955-70/1842-91/18/13	0,0,0db	Auto ON 4/19/77	A7/71/11 - TIIO	124.0°F	Uncaged	NO -	CPLEE - ON 4/10/77 Operate Night Only Anal B Failed 4/71		SIDE - OFF 1/5/75 Failed	ASE - STBY 12/23/74	Geophones 2 & 3 bad	23 40F 0 70N = 10c+ 1
as of week ending	Apollo 12 ALSEP 1	][	23.5°W, 3,0°S		Midnight, 357.2°	33145/10	119	73.6w/44.6w			B, 7/8/74	Y, 8/25/76	•	Inoperative	USS-1/1394)- ON	0,0,-20db 11/75	Auto On Z Motor ON 4/13/77	OUT - 3/27/77	Offscale LOW	Uncaged .	Dust Detector - ON		SWS - OFF 1/15/77 Increase Reserve Power for C/S heat	SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	LSM - 0FF 6/74		Den Joved 7/91/60 93
	STATUS	Deployed	Lunar Location	Lunation/Days Ops	Phase, Sun Angle	Cmds - Total/Week	Spurious Changes		도 Reserve Power	Avg. Therm.	Transmitter	≥ Processor	nod 6	TRAT Timer	E Heaters	LPX/Y,Z,SPZ	Heaters	Filter	DL-07 Temp.	Uncage Ckt.	·	ACTIVE/ OPERABLE	ЕХЬЕВІ	INACTIVE/ INOPERABLE			DOED ANATIO 11 D
Traineral .					<del></del>	<del></del>																	<u>.</u>				

# NOON and NIGHT DATA (Latest Lunation)

# 27 April 1977

	Night	71 273.3° -144.0 dbm 44.8w 16.3w -3.1°F 124.5°F
APOLLO 15 ALSEP	Noon	71 90.4° -139.0 dbm 47.3w 18.6w 109.4°F HIGH
APOLLO		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T.
	Night	77 277.2° -140.0 dbm 57.9w 13.3w 21.8°F 124.1°F
APOLLO 14 ALSEP	Noon	77 81.4° -137.0 dbm 59.8w 13.7w 106.6°F 132.7°F
APOLLO		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. PSE T. (DL-07) CPLEE T. (AC-06)
	Night	92 271.0° -139.0 dbm 44.9w 10.9w 4.4°F LOW
APOLLO 12 ALSEP	Noon	92.7° -143.0 dbm -48.7w 21.6w 89.0°F HIGH
APOLL(		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. PSE T. (DL-07)

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APOLLO 17 ALSEP

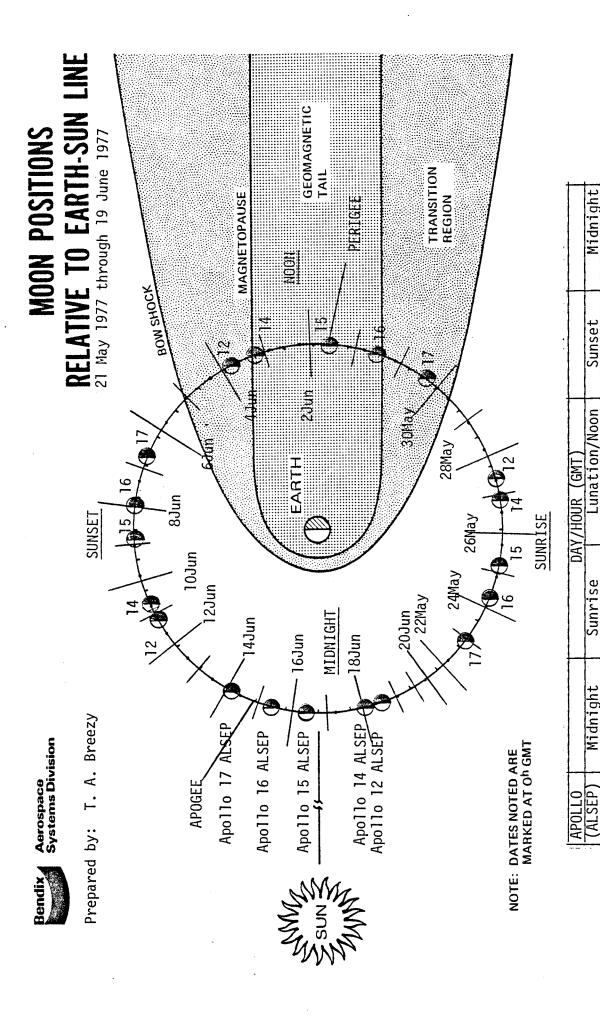
	Noon	Night		Noon	Night
Lunation Sun Angle Sig Strth (9m) - Input Power Reserve Power Av Ther Pl T. PSE T. (DL-07) LSM T. (DM-05)	62 90.1° -138.0 dbm 62.1w 31.6w 104.2°F HIGH 47.0°C	62 285.0° -134.0 dbm 62.4w 14.0w 26.6°F 125.8°F -10.2°C	Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther P1 T. LACE T. (AM-41) LEAM T. (AJ-11) HFE T. (DH-13) LSG T. (AP-01)	54 92.9° -144.0 dbm 61.7w 24.2w 93.3°F 160.5°F 186.5°F 328.6°K LOW 96.7°F	54.4° 264.4° -131.0 dbm 63.2w 15.9w 8.5°F -16.1°F -58.0°F 285.1°K LOW

# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 4/27/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
			LOS 21/0858		
21 April	GWM/ACN	Higher Priority	AOS 21/0926	ALL	28 <sup>m</sup>
		·	LOS 22/0308		
22 April	HAW/GWM	Higher Priority	AOS 22/0348	ALL	40 <sup>m</sup>
			LOS 22/0934		
22 April	ORR/MAD	Higher Priority	AOS 22/1121	ALL	1 <sup>h</sup> 47 <sup>m</sup>
			LOS 23/1021		
23 April	ORR/ACN	Higher Priority	AOS 23/1058	ALL	37 <sup>m</sup>
			LOS 23/1229		
23 April	ACN/MAD	Higher Priority	AOS 23/1310	ALL	41 <sup>m</sup>
			LOS 24/1111		
24 April	ORR/MAD	Higher Priority	AOS 24/1140	ALL	29 <sup>m</sup>
			LOS 25/1348		
25 April	ACN	Station Problem	AOS 25/1351	A17	o3 <sup>m</sup>
			LOS 26/1501		
26 April	ACN	Station Problem	AOS 26/1515	ALL	14 <sup>m</sup>
Carrier Control of Carrier Contr			LOS		
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TIMES - CDI		ALSEP SI	ALSEP SUPPORT SCHEDULE/EYENTS	ENTS	r, dere is , serme samming extility, me qui em se que qui della della segmenta della compressione della constitución della cons	PSE CALS DAILY
MAY 08/128	09/129	10/130	11/131	12/132	13/133	14/134
0900-1100 ALSEP 17	0900-1100 ALSEP 16 C/S HTR ON LSM FLIP CAL	ALSEP 15 ALSEP 14 PDRs ON CPLEE ON	0900-1100 ALSEP 17 HFE RBS	1400-1800 ALSEP 14 C/S HTR ON C/S HTR ON PSE Z MTR ON	0900-1100 .	0900-1100
MAY 15/135	16/136	17/137	18/138	19/139	20/140	21/141
NO SUPPORT	0900-1100	NO SUPPORT	0900-1100 ALSEP 17 HFE RBS	NO SUPPORT	1300-1500	NO SUPPORT
MAY 22/142	23/143	24/144	25/145	26/146	27/147	28/148
NO SUPPORT ALSEP 17 ALSEP 17	0900-1100 ALSEP 16	0800-1000   ALSEP 15   TIMER RST   ALSEP 16   C/S HTR OFF   TIMER RST	0900-1100 ALSEP 17 HFE RBS ALSEP 16' LSM FLIP CAL	0900-1100 ALSEP 14. ALSEP 17 LEAM OFF	1400-1600 ALSEP 12 C/S HTR OFF 1   PSE Z MTR OFF C/S HTR OFF C/S HTR OFF ALSEP 16 LSM FLIP CAL	0900-1100
BEN-20						NASA-JSC

BEN-20



NASA-JSC

8Jun/1230

1Jun/0319

8Jun/0052 6Jun/0728

08Jun/2258

0Jun/1628

03Jun/0730

27May/1006

26May/2220

01Jun/1

4Jun/022 5Jun/081

06Jun/1743

07Jun/2340

31May/1430 56)30May/0830

64)

2May/2336

5May/1508 6May/2100 7May/2016 9May/1342 20May/0122

9

7

24May/0530

25May/0447

4 May 1977 G.m.t.: 1600

### Apollo 17 ALSEP

The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain.

The Lunar Surface Gravimeter Experiment is currently ON and configured with the slave heater OFF, seismic high gain, power amplifier (PA) at step #2, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, and the tilt servo motors in an intermediate position. On 2 May the beam was tilted to maintain the instrument within the operating limits of the seismic high gain mode. After tilting the beam the experiment was commanded to PA gain Step #1 because the off set was great enough to saturate the amplifier in gain Step #2. On 3 May the off set had decreased sufficiently so that the instrument was commanded back to gain Step #2.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. Ring bridge surveys are being achieved on a periodic basis. On 4 May the lunar surface temperature as measured by the HFE thermocouples was 339 ± 8°K. At a depth of 230 cm the subsurface temperatures were 256.9°K at probe #1 and 257.0°K at probe #2.

The Lunar Ejecta and Meteorites Experiment is currently ON. Since 25 April the data has appeared intermittently good and bad. The LEAM is being operated to obtain science data throughout the lunar day. The instrument survival temperature (AJ-11) reached a maximum of 215.2°F during this period. The data appeared normal on 4 May.

### Apollo 16 ALSEP

The Passive Seismic Experiment is configured thermal control Forced OFF; component gain 0 db; and feedback loop filter OUT. The heater is being operated in Forced OFF and Uncaged for lunar day operation to minimize heating in the experiment. The instrument assembly temperature (DL-07) has been offscale HIGH since 2 May at a sun angle of 95.4° and is expected to return onscale 9 May.

The Lunar Surface Magnetometer Experiment is ON and recording data. On 28 April at the start of real time support (sun angle 48.6°) the experiment Y-axis had resumed normal operation. The Y-axis data had been invalid since 8 April. Science data from the Z-axis remained static this support period. Flip calibration sequences are being conducted during the lunar day and a total of 1302 have been executed and verified by the engineering data since deployment.

4 May 1977 G.m.t.: 1600

### Apollo 15 ALSEP

At 1516 G.m.t., 30 April, the Guam Tracking Station lost downlink modulation and observed a 6 db gain in signal strength. It was determined by mission control that a spurious command (octal 003) High Data Rate ON, had functioned. At 1614 G.m.t., 30 April, Guam uplinked (octal 005) High Data Rate OFF and the downlink signal returned to normal.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the thermal control is Auto ON. The instrument assembly temperature (DL-07) has been offscale HIGH since  $2\,\text{May}$  at a sun angle of  $83.7^{\circ}$  and is expected to return onscale  $6\,\text{May}$ .

### Apollo 14 ALSEP

The central station DSS-1 (10 watt) heater is OFF and the external 14 and 7-watt power dump resistors are ON for day operation. On 28 April the Y data processor was checked for normal configuration.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP).

The Active Seismic Experiment is in STANDBY. The ASE was commanded ON for 1 hour and 12 minutes from 0628 to 0740 G.m.t., 28 April. The experiment was operated in HBR for 8 minutes from 0725 to 0733 G.m.t., and it appeared that only geophone #1 is operational. Geophone #3 was offscale High and geophone #2 processed data in the positive direction only, the negative direction was truncated. This is the first attempt to operate the experiment since 22 January 1975 and the results were the same.

The Charged Particle Lunar Environment Experiment is currently in STAND-BY.

### Apollo 12 ALSEP

On 28 April the Y data processor was checked for normal configuration.

The Passive Seismic Experiment is configured thermal control Auto ON; component gain 0 db and feedback loop filter OUT, and the short period Z-axis gain is set at -20 db.

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

AISED	se of wood ordina	7 (C m + 1)	4 May 1977		
STATIIS	Anollo 10 ALCED 1	-		1	1 LU
Deployed	1412Z, 11/19/69	17287, 2/5/71	ADD 10 15 ALSEP 2	Applio 10 ALSEP 3	Apollo 17 - LSEP 5 02537 12/12/72
Lunar Location	~	Ί.		4	: 6
Lunation/Days Ops	93/2723		1		
Phase, Sun Angle	Surrise, 82.0°	Sunrise, 87.3°	Noon, 109.1°	30000 180.00	Noon, ISE. S
Cmds - Total/Week	52209/64	18018/83	40043/53	25.45.45.45.45.45.45.45.45.45.45.45.45.45	38070/181
Spurious Changes	119	104	130		0
Initial/	t 73.6w/46.7w	72.5w/59.3w	74.7w/ 45.3w	70.9ਅ/ ಕಿತ್ತ. ಶಿಬ	75.4w/61.32
도 Reserve Power	21. Iw	13.7w	16.6w	37 CB.	25.30
Avg. Therm.	Plate 87.8°F	* ₹o2.901	702.00F	်င် (၁ တွေ	58.1°E
Transmitter	B, 7/8/74	B, 11/12/76	B, 8/20/76	8, 3/26/73	A, 12/9/74
₹ Processor	Y, 8/25/76	Y, 8/24/76	۲, 10/19/76	X, 1/12/77	$\mathbf{m}$
م bcu	<b>,</b>		·		2
TRAI Timer	Inoperative	Inoperative	Operative Reset: 4/24/77	Inhibited 5/72 Reset: 4/24/77	Operative Inhibited: 5.3/77
C Heaters	USS-1 (10W) - 0ZE 2/28/27	DSS-1 (10w) - $\frac{OFF}{4/28/77}$	- 0FF	DSS-1 (10W) 4/28/57	APM STATUS:
LPX/Y,Z,SPZ	0,0,-20db 11/75	.qp0,0,0	0,0,0db	0.0.0db	LSPE - STBY 1/25/77
Heaters	to On	Forced 3FF 5/1/77	Auto On	Jorges OFF 4/28/77	:
	Z Motor OFF 4/28/77				
الله الله الله الله الله الله الله الله	0UT - 3/27/77	OUT - 11/17/76	OUT - 3/27/77	OUT - 3/27/77	HFE - ON, 113R
à DL-07 Temp.	139.4°F	129.3°F	Offscale HIGH	Offecale HIGH	
Uncage Ckt.		p,	Uncaged	01	RBS weekly
	Dust Detector - ON	NO	DTREM - ON		LSG- ON 3/28/77
ACIIVE/ COPERABLE		CPLEE - STBY 4/29/7 Operate Night Only Anal B Failed 4/71		3/3/75	Auto Hir Failed No Free Modes or Closed Long Ons
ЕХЬЕВ	SWS - OFF 1/15/77 Increase Reserve Power for C/S heat		SIDE - OFF 3-12-77 FOR RESERVE POWER		
INACTIVE/ INOPERABLE	SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	<u>SIDE</u> - 0FF 1/5/75 Failed	HFE - OFF 1/13/77 For Reserve Power	HFE - Off Since deployment, cable severed.	LEAM - ON 4/25/77 Static @ night 7/76 Data Intermit 4/25
	LSM - OFF 6/74 Failed	ASE - STBY 12/23/74 Mortars unfired Geophones 2 & 3 had	SWS - OFF 6/74 Failed LSM - OFF 6/74	ASE - OFF 12/23/74 Mortar #1 unfired.	LACE - STBY 7/22/76 HV Failed 10/73
PSEP - Apollo 11	Deployed 7/21/69, 23	23.4°E, 0.7°N - Lost Uplink	Tailed Failed In	Downlink 12/14/69	
			2 52 62 62 6		

# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 5/4/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
			LOS 30/0940		
30 April	GDS/GWM	Higher Priority	AOS 30/1025	ALL	45 <sup>m</sup>
		,	LOS 30/1204		
30 April	GWM	Unknown	AOS 30/1206	A14	o2 <sup>m</sup>
			LOS 30/1516		7.00
30 April	GWM	Spurious Command	AOS 30/1614	A15	58 <sup>m</sup>
			LOS 30/1633		
30 April	GWM	Station Problem	AOS 30/1640	ALL	o7 <sup>m</sup>
			LOS 30/1941		
30 April	ACN/MAD	Higher Priority	AOS 30/2001	ALL	20 <sup>m</sup>
			LOS 01/1941		
01 May	MAD/ACN	Higher Priority	AOS 01/2031	ALL	50 <sup>m</sup>
			LOS 02/1925		
02 May	ACN/MAD	Higher Priority	AOS 02/1939	ALL	14 <sup>m</sup>
		MONTH COMMENT OF THE PROPERTY	LOS 03/1951	/\L_L	
03 May	ORR/MAD	Higher Priority	AOS 03/2033	ALL	42 <sup>m</sup>
		de Tallande de Communicación de California de Communicación de Artificial de California de Californi	LOS 04/0440		
04 May	MAD/GDS	Higher Priority	AOS 04/0520	ALL	40 <sup>m</sup>
	,		LOS		
			AOS		
			LOS		
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11 May 1977 G.m.t.: 1700

## Apollo 17 ALSEP

The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain. The station was operated for six minutes in Low Bit Rate (530 bits per second) on 10 May. Also, the analog and digital data processors were switched from X to Y and back to X during Normal Bit Rate. These operations were done to further troubleshoot the LEAM static data problem. Analysis, thusfar, indicates that only one of the five 20 bit buffers is operating. Switching the data processors places the output of data in a different position in the operating buffer. On 11 May three sets from ON to STANDBY to ON commands to the LEAM were executed and the data from the experiment after the first set of commands remained unchanged. Further analysis is in progress.

The Lunar Surface Gravimeter Experiment is currently ON and configured with the slave heater ON, seismic high gain, power amplifier (PA) at step #1, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, the tilt servo motors in an intermediate position, and the decoder ON. On 9 May the experiment was commanded to PA gain Step #1, because of saturation of the amplifier in gain Step #2. On 11 May it was noted that the LSG has developed an analog to digital converter problem in that the eighth bit is setting intermittently at low temperatures. A similar problem was encountered previously at high temperatures only.

The Heat Flow Experiment is operating in the gradient mode and all sensors are being sampled in full sequence. Ring bridge surveys are being achieved on a periodic basis. On 11 May the lunar surface temperature as measured by the HFE thermocouples was  $107 \pm 8$  K. At a depth of 230 cm the subsurface temperatures were 256.8 K at probe #1 and 257.0 K at probe #2.

The Lunar Ejecta and Meteorites Experiment is currently ON. From 25 April to 5 May the data had appeared intermittently good and bad. The LEAM was operated to obtain science data throughout the lunar day. Since 6 May the data has been static.

# Apollo 16 ALSEP

The Central Station DSS-1 (10w) Heater was commanded ON for lunar night on 9 May.

The Passive Seismic Experiment is configured for network congruity (thermal control, AUTO ON; component gain 0 db; and feedback loop filter OUT). The heater was commanded from Forced OFF to AUTO ON for lunar night operation on 9 May. The instrument assembly temperature (DL-07) was offscale HIGH from 2 to 9 May between the sun angles of 95.4° and 175.1°.

11 May 1977 G.m.t.: 1700

#### Apollo 16 ALSEP (continued)

The Lunar Surface Magnetometer Experiment is ON. During real-time support on 7 May the science data from the Y-axis sensor was again static. This failure is identical to the Z-axis sensor failure of 3 March 1975. Flip calibration sequences have been discontinued for the lunar night. 1,304 calibration sequences have been executed by the sensor heads as of 6 May.

#### Apollo 15 ALSEP

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP). The sensor temperature returned onscale (DL-07 = 138.3°F, sun angle = 132.4°) on 6 May. It had been offscale HIGH since 2 May. The experiment received a spurious functional command (PSE, Long Period XY gain change to -10db, octal 063) at 0201 G.m.t., 10 May with a command verification word (CVW) being observed in the downlink signal by the Madrid Tracking Station. On 10 April the experiment was reset to 0 db gain (3 octal 063s) at 0312 G.m.t. by Madrid at the direction of mission control.

## Apollo 14 ALSEP

The external 14 and 7-watt power dump resistors were commanded OFF, 10 May, for lunar night operation.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP). The heater was commanded to AUTO ON for lunar night operation on 9 May.

The Charged Particle Lunar Environment Experiment was commanded ON, 10 May, and is operating in the normal mode at the -35 vdc range and automatic thermal control mode for the lunar night. The CPLEE recieved and executed a spurious functional command (Operational Power ON, octal 052) at 2323 G.m.t., 6 May, as reported by the Madrid Tracking Station. The experiment was commanded to STANDBY (octal 053) by Madrid at the direction of mission control at 0123 G.m.t., 7 May.

# Apollo 12 ALSEP

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 5 Dec 75 ALSEP Performance Summary Report). The sensor temperature returned onscale (DL-07=139.2°F, sun angle 166.9°), 11 May, and had been offscale HIGH since 5 May.

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

ALSEP	-	as of week ending	1700 Z (G.m.t.)	11 May 1977		
STATUS		Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
eployed			2/3	7/31/71	1938Z, 4/21/72	02532, 12/12/72
unar Location	ion	23.5°W, 3.0°S	17.5°W, 3.7°S	26	15.5°E, 9.0°S	30.8°E, 20,2°N
unation/Days	ys Ops		78/2154	72/2111		55/1611
hase, Sun	Sun Angle	36.20	72.80	Sunset, 193.3°	Sunset, 205.2°	Sunset, 221.1º
mds - Tota	Total/Week	/34	17857/46	40134/91	25279/99	33244/174
purious Ch	Changes	119	106	132		0
J Initial/Present	Present	73.6w/46.1w	72.5w/59.1w	74.7w/ 44.4w	70.9w/62.4w	75.4w/62.1w
Reserve	Power		31.20	16.3ú	18.7w	18.5w
Avg. Therm.	m. Plate 58.	458.4°F	Zo T 23	-1.2°F	28.80F	2.8°F
Trans	ł		B, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
Processor		8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/12/77	X.R.S.W.DCDR B 8/74
PCU						2
Z Timer		Inoperative	Inoperative	Operative Reset: 4/24/77	Inhibited 5/72 Reset: 4/24/77	Operative Inhibited: <i>5/10/77</i>
Heaters		$0.85-1 (104) - 8FF_7$	DSS-1 (10M)-0FF 4/28	DSS-1 (10w) - OFF	DSS-1 $(10\text{W}_{5/9}9\%)$	APW STATUS:
LPX/Y,	Z,SPZ	0,0,-20db 11/75		0,0,0db	0.0.0db	LSPE -STBY 4/25/77
Heaters	S	0u	Auto ON 5/9/77	Auto On	Auto ON 5/9/77	
		Z Motor OFF 4/28/77				
w Filter		0UT - 3/27/77	OUT - 11/17/76	OUT - 3/27/77	JUT - 3/27/77	HFE - ON
DL-07	Temp.	139.2°E		124.8°F	125.9°F	
Uncage Ckt	Ckt.	Uncaged	Uncaged	<i>DD</i>	07	RBS weekly
		Dust Detector ON	DTREM - ON	DTREM - ON		LSG- ON 3/28/77
ACTIVE/ OPERABLE	LE _		CPLEE - CN 5/10/77 Uperate Night Only Anal B Failed 4/71	`	Z Failed 3/3/75 Y Static 5/7/77	Auto Htr Failed No Free Modes or closed Loop Ops
XPEK!		SWS - OFF 1/15/77 Increase Reserve		SIDE - OFF 3-12-77 FOR RESERVE POWER		
<del>-</del>		Power for C/S heat				
INACTIVE/	VE/	SIDE - 0FF 5/3/76	SIDE - 0FF 1/5/75	HFE - 0FF 1/13/77	HFE - Off Since	LEAM - ON 4/25/77
	706	Increase Reserve Power for C/S Heat	3 2 8	ror Keserve rower	severed.	Intermit days 4/25/
		LSM - 0FF 6/74 Failed	ASE - STBY 12/23/74 Mortars unfired	SWS - OFF 6/74 Failed	ASE - OFF 12/23/74 Mortar #1 unfired	LACE - STBY 7/22/76 HV Failed 10/73
			Geophones 2 & 3 bad	LSM	Sensors failed.	
PSEP - Apo	- Apollo 11 [	Deployed 7/21/69, 23.	23.4°E, 0.7°N - Lost Up	9, Lost	Downlink 12/14/69	

# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 5/11/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
	NO DATA		LOS 04/0440		
64-May	MAB/GBS	Higher-Priority-	ĀŌS 0470520	ACC	40 <sup>m</sup>
			LOS 07/2200		
07 May	GWM/ORR	Higher Priority	AOS 07/2304	ALL	1 <sup>h</sup> 04 <sup>m</sup>
			LOS 08/0001		
08 May	ORR/GDS	Antenna Masking	AOS 08/0009	A12	08 <sup>m</sup>
			LOS 09/2253		
09 May	GWM/GWM	Higher Priority	AOS 09/2348	ALL.	55 <sup>m</sup>
			LOS 10/2316		
10 May	ORR/GWM	Higher Priority	AOS 10/2335	ALL	19 <sup>m</sup>
			LOS 11/0049		
11 May	GWM/ACN	Higher Priority	AOS 11/0150	ALL	1 <sup>h</sup> 01 <sup>m</sup>
			LOS		
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# APOLLO DATA ARCHIVING GROUP

GSFC 601/R. Vostreys (NSSDC)

# LUNAR SCIENCE INSTITUTE

Dr. L. Srnka

### BENDIX CORPORATION

B. J. Rusky

# PRINCIPAL INVESTIGATORS

Mr. O. Berg

Dr. D. Clay

Dr. P. Dyal

Dr. J. Freeman

Dr. J. Hoffman

Dr. R. Kovach

Mr. J. Kunselman

Dr. M. Langseth

Dr. G. Latham

Dr. D. Reasoner

AEC/W. C. Remini

18 May 1977 G.m.t.: 1600

#### Apollo 17 ALSEP

The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain.

The Lunar Surface Gravimeter Experiment is currently ON. The experiment is presently configured as follows: seismic high gain, integrator shorted mode, bias out, post amplifier gain at increment 1, the coarse and fine screws driven to the extreme lower position and the sensor beam near center. To increase the experiment internal temperature the North/South tilt servo motors are ON, pressure transducer ON, and the instrument housing heater is OFF.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 18 May the lunar surface temperature, as measured by the HFE thermocouples, was  $106\pm8^\circ\text{K}$ . At a depth of 230 cm the subsurface temperatures were  $256.8^\circ\text{K}$  at probe #1 and  $257.0^\circ\text{K}$  at probe #2.

## Apollo 16 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night.

The Passive Seismic Experiment is configured for network congruity (thermal control, AUTO ON; component gain O db; and feedback loop filter OUT).

The Lunar Surface Magnetometer Experiment is ON and recording data. Flip calibration sequences have been discontinued for this lunar night due to the low temperature of the Z-axis sensor head. The Y and Z-axes science data remained static this reporting period.

#### Apollo 15 ALSEP

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP). The experiment received a spurious functional command (PSE, Long Period XY gain change to -10 db, octal 063) at 0652 G.m.t., 18 May with a command verification (CVW) being observed in the downlink signal by the Guam Tracking Station. On 18 May the experiment was reset to 0 db gain (3 octal 063s) at 0811 G.m.t. by Madrid at the direction of mission control.

#### Apollo 14 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night operation. The external 14 and 7-watt power dump resistors are OFF.

18 May 1977 G.m.t.: 1600

# <u>Apollo 14 ALSEP</u> (continued)

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP).

The Charged Particle Lunar Environment Experiment is ON and operating in the normal mode at the -35 vdc range and automatic thermal control mode. Between real time support periods of 10 and 11 May a spurious change (CPLEE Operational Heater OFF, octal 112) occurred, without a command verification word being observed in the downlink signal. On 13 May, during real time support, mission control uplinked the Operational Heater ON command (octal 111) for normal experiment configuration.

### Apollo 12 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night operation.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at - 20 db (Ref. 4 Dec 75 ALSEP Performance Summary Report). The Z-motor is ON to maximize heating in the instrument for lunar night operation. The sensor temperature was offscale LOW on 16 May and it is expected to return onscale 27 May.

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

	Apollo 16 ALSEP 3   Apollo 17 ALSEP 5	02532, 12/12/72	9 N°S 30 8°E	55/1618	t. 291.90 Mic	742 38377/188	クモノ	7	75.4 61.7 $w$ 75.4 $w$ 61.7 $w$	2	173	×	2	ted 5/72 4/24/77	(10W)5/9/77 APM STATUS		5/9/77		3/27/77 HFE - 0N		RBS weekly	- ON 1.5G-ON 3/28/77	3/3/75		Off Since   EAM - ON 4/25/77	nt, cable	T	ASE - UPF 12/23/74   LACE - STBY 7/22/76   Mortar #1 unfired.   HV Failed 10/73	Sensors failed.
.,) 18 May 1977	Apollo 15 ALSFP 2	1805Z, 7/31/71	. 26.1°N	8	280.10		77 77	40 5.	70.9w/ 14.6w 13.2w	-6.6°F 26.6°F	B, 8/20/76 B, 3/	10/19/76 X,		Operative Inhibited Reset: 4/24/77	DSS-1 (10w) - OFF	0.0.0db			0UT - 3/27/77   OUT -	125	10T	DTREM - ON LSM	Z	SIDE - OFF 3-12-77 FOR RESERVE POWER	+	For Reserve Power	A T T T T T T T T T T T T T T T T T T T	Failed Failed	LSM = 0FF 6/74
1600 Z (G.m.t.	14	2/5/71	Ι΄΄,	78/2161	Sunset, 258.9°	17882/25	100 1	2	12.5W/5/.3W	21.3°E	B, 11/12/76	8/24/7		Inoperative	DSS-1 (10W)-0W 5/17	0.0.0db	Auto On 5/9/77		OUT - 11/17/76	124.1°F			CPLEE - ON 5/10/77 Operate Night Only Anal B Failed 4/71		SIDE		NOTE OF THE PROPERTY OF THE PR	Mortars unfired	Geophones 2 & 3 bad
as of week ending	110 12	11/	23.5°W, 3.0°S	93/2737	Sunset, 253.0°	32312/69	119	73 611/1/1		te 3.5°F	B, 7/8/74	Y, 8/25/76		Inoperative	USS-1 (10w)-ON 5/12/77	0,0,-20db 11/75	,	01	OUT - 3/27/77	Offscale LOW		Dust Detector - ON		SWS - OFF 1/15/77 Increase Reserve Power for C/S heat	SIDE - 0FF 5/3/76	Increase Reserve Power for C/S Heat	I CM OFF 6/7/	- orr Faile	
, ALSEP	STATUS	Deployed	Lunar Location		Phase, Sun Angle	Cmds - Total/Week	no	Initial/Duocont	G tilicial/Fresem 区 Reserve Power	Z Avg. Therm. Plate	mitter	∠ Processor	∽ PCU	MAI Timer	ت الالالالالالالالالالالالالالالالالالال	LPX/Y,Z,SPZ	Heaters		山 Filter	DL-07 1	Uncage Ckt.		ACTIVE/ MEMOPERABLE	EXbEB	INACTIVE/	INOPERABLE			-

# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 5/18/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
			LOS 11/1849		
11 May	ULA/HAW	Higher Priority	AOS 11/1921 LOS 13/0049	ALL	32 <sup>m</sup>
30.4			LOS 13/0049		
13 May	HAW/GWM	Higher Priority	AOS 13/0149	ALL	1 <sup>h</sup> 00 <sup>m</sup>
			LOS 13/0645		
13 May	MAD/MIL	Higher Priority	AOS 13/0758	ALL	1 <sup>h</sup> 13 <sup>m</sup>
7.4.44			LOS 14/0723		
14 May	MAD/ACN	Higher Priority	AOS 14/0823	ALL	1 <sup>h</sup> 00 <sup>m</sup>
J.E. Marri	MTI /800		LOS 15/1058	_	
15 May	MIL/AGO	Higher Priority	AOS 15/1100	ALL	02 <sup>m</sup>
JE May	400		LOS 15/1100		m
15 May	AGO	Station Problem	AOS 15/1129	A17	29 <sup>m</sup>
			LOS		
			AOS		
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25 May 1977 G.m.t.: 1600

#### Apollo 17 ALSEP

Sunrise of the 56th lunation occurred on 22 May at the Taurus Littrow Site. The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain. A real-time check of the timer was obtained on 20 May. The pulse was predicted to occur at 184100 G.m.t. but actually timed out at 180834 G.m.t. The timer has shifted another 32 minutes 36 seconds early. The shift is now 1 hour 4 minutes 53 seconds from initialization in December 1972. It is believed the timer still runs 61 hours 49 minutes 35 seconds before the next timing pulse and the time out is still predictable. Further checks will be made to establish that this is a shift in timer pulses and not a cumulative error.

The Lunar Surface Gravimeter Experiment is ON and configured with the slave heater ON, seismic high gain, power amplifier at step #2 (24 May), integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, the tilt servo motors in an intermediate position, and the pressure transducer OFF.

The Lunar Seismic Profiling Experiment is in STANDBY.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. Ring bridge surveys are achieved on a periodic basis. On 25 May the lunar surface temperature, as measured by the HFE thermocouples, was 204  $\pm$  8°K. At a depth of 230 cm the subsurface temperatures were 256.8°K at probe #1 and 257.0°K at probe #2.

The Lunar Atmospheric Composition Experiment is in STANDBY.

The Lunar Ejecta and Meteorites Experiment is ON. After numerous cycles from ON to STANDBY to ON and calibration commands on 25 May, the science data appeared completely invalid on the EAST and UP dual sensors. The WEST single sensor data was static at all zeros.

# Apollo 16 ALSEP

Sunrise at the Descartes Site occurred on 24 May for the 64th lunation. The Central Station 18-hour timer output pulses continue to be inhibited per the agreed operation plan initiated 6 May 1972. The DSS-1 (10w) heater was commanded OFF, 24 May.

The Passive Seismic Experiment is ON and configured for seismic network congruity (thermal control Auto ON, component gains O db, and feedback loop filter OUT.) The uncage-arm fire circuitry was commanded to UNCAGED

25 May 1977 G.m.t.: 1600

#### Apollo 16 ALSEP (continued)

on 24 May, in an attempt to minimize heating in the experiment during lunar day. Operation in this configuration with the heater in Forced OFF has shown a decrease in the sensor temperature and a reduction in the frequency of levelling required.

The Lunar Surface Magnetometer Experiment is ON and recording data. Flip calibration sequences have been resumed for this lunar day and a total of 1306 have been executed and verified by the experiment engineering data since deployment. The Y and Z-axes science data remained static this report period.

The Active Seismic Experiment was commanded to STANDBY on 23 May. This mode is necessary to read the Mortar Box (ASO2) and Grenade Launch Assembly (ASO3) temperatures. These readings will be used to establish a temperature profile to determine the position of the mortar box for a planned firing of the remaining mortar in the near future.

## Apollo 15 ALSEP

Sunrise of the 73rd lunation at the Hadley Rille Site occurred on 25 May.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP).

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments were commanded OFF 12 March 1977.

The Solar Wind Spectrometer Experiment was commanded OFF 14 June 1974.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

The Heat Flow Experiment was commanded OFF 13 January 1977.

#### Apollo 14 ALSEP

Sunrise of the 79th lunation at the Apollo 14 site will occur on 26 May. The central station DSS-1 (10 watt) heater will be commanded OFF and the external 14 and 7-watt power dump resistors will be commanded ON for day operation on 27 and 29 May, respectively.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP).

25 May 1977 G.m.t.: 1600

# Apollo 14 ALSEP (continued)

The Active Seismic Experiment is in STANDBY (Apollo 14 ALSEP, SMEAR 86).

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments were commanded OFF on 21 May 1976.

The Charged Particle Lunar Environment Experiment is ON and operating in the normal mode at the -35 vdc range and automatic thermal control mode.

#### Apollo 12 ALSEP

Sunrise of the 94th lunation will occur on 27 May. The central station DSS-1 (10w) heater will be commanded OFF on 27 May.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis component gain is -20 db. The instrument assembly temperature (DL-07) has been offscale LOW since 16 May. The Z-motor will be commanded OFF on 27 May.

The Solar Wind Spectrometer Experiment was commanded OFF 15 January 1977.

The Suprathermal Ion Detector Experiment was commanded OFF 3 May 1976.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

	Apollo 17 ALSEP 5	02532, 12/12/72	30.8°E, 20.2°N		Sunrise, 33.3°	38467/90	0	75.4w/ 60.9w	20.08 21 30E			2	Operative Inhibited:5/23/77	APM STATUS:	LSPE - STRY 4/25/77	5	HFE - ON		RBS weekly	LSG-ON 3/28/77 Auto Htr Failed No Free Modes or	san doo r pasors	LEAM - ON 4/25/77, Static @ night 7/76 Intrmt days 4/25/77	LACE - STBY 7/22/76 HV Failed 10/73	
	Apollo 16 ALSEP 3	8		1	Sunrise, 17.6°	25379/58		70.9w/61.6w	20.00 54 80F	B. 3/26/73	1		Inhibited 5/72 Reset: 5/24/77	DSS-1 $(10\text{W})_{5/24/77}$	0.0.0db	Auto On 5/9/77	77/26/5 THU	3°F	Uncaged 5/24/77	LSM - ON Z Failed 3/3/75 Y Static 5/7/77		HFE - Off Since deployment, cable severed.	ASE - STBY 5/23/77 Mortar #1 unfired. Sensors failed.	Downlink 12/14/69
25 May 1977	Apollo 15 ALSEP 2	7/31/71	3.7°E, 26.1°N	73/2125	Sumise, 5.8°	40178/17	134	74.7w/42.5w		B. 8/20/76	1	,	Operative, 2/24/77 Reset:	- 0FF	0,0,0db	Auto On	OUT - 3/27/77	124.5°F		DTREM - ON	SIDE - OFF 3-12-77 FOR RESERVE POWER	HFE - OFF 1/13/77 For Reserve Power		0.7°N - Lost Uplink 8/25/69, Lost Downlink 12/14/69
1600 Z (G.m.t.)	Apollo 14 ALSEP 4	, 2/5/71	17.5°W, 3.7°S	78/2168	Midnight, 344.6°	17904/22	107	72.5w/ 57.2w	# <b>0</b> 6 08	B. 11/12/76	8	_	Inoperative	055-4063001=08/56/3-055-1 (10W)	0,0,0db	Auto ON 5/9/77	0117 - 11/17/76	1.	Uncaged	OTREM - ON CPLEE - ON 5/10/77 OPERATE Night Only Anal R Failed 4/71		<u>SIDE</u> - 0FF 1/5/75 Failed	ASE - STBY 12/23/74 SWS - OFF 6/74 Mortars unfired Geophones 2 & 3 bad LSM - OFF 6/74	
as of week ending $^{I\mathscr{G}}$	Apollo 12 ALSEP 1	14122, 11/19/69	23.5°W, 3.0°S		Midnight, 338.6°	32320/8	119	73.6w/ 48.92			Y, 8/25/76		Inoperative	USS-1 (10M)-0N	0,0,-20db 11/75	Auto On 7 Motor ON 5/12/77		Offscale LOW		Dust Detector - ON	SWS - OFF 1/15/77 Increase Reserve Power for C/S heat	SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	LSM - 0FF 6/74 Faf1ed	11 Deployed 7/21/69, 23.4°E,
	STATUS	Deployed	Lunar Location	Lunation/Days Ops	Phase, Sun Angle	Cmds - Total/Week	Spurious Changes	G Initial/Present	Ava Ther	smitter	Processor	PCU	JAgr Timer	Heaters	LPX/Y,Z,SPZ	Heaters . /	Filter	Temp.		ACTIVE/ OPERABLE	Ехьеві	INACTIVE/ INOPERABLE		PSEP - Apollo 11 De

NOON and NIGHT DATA (Latest Lunation)

	Night	72 279.1° -144.0 dbm 42.5w 14.6w -6.6°F
APOLLO 15 ALSEP	Noon	72 95.2° -139.0 dbm 45.3w 16.6w 107.2°F HIGH
APOLLO		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. PSE T. (DL-07)
	Night	78 258.0° -137.0 dbm 57.9w 13.1w 21.3°F 124.1°F -22.7°C
APOLLO 14 ALSEP	Noon	78 86.9° -144.0 dbm - 59.3w 13.7w 106.5°F 129.3°F STBY
APOLL		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. PSE T. (DL-07) CPLEE T. (AC-06)
	Night	93 278.4° -139.0 dbm 44.2w 10.3w 2.3°F LOW
APOLLO 12 ALSEP	Noon	93.1° -139.1 dbm 46.7w 20.8w 88.3°F HIGH
APOLLC		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. PSE T. (DL-07)

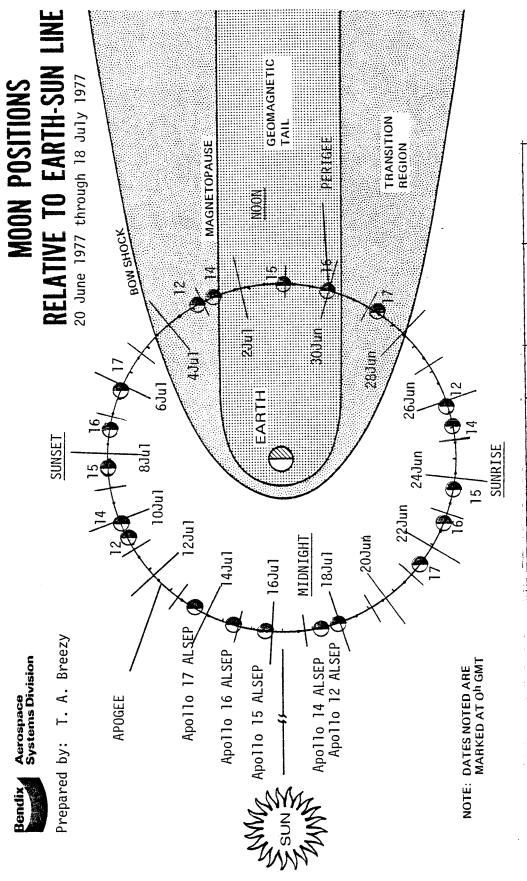
APOLLO 17 ALSEP	Noon Night	65 55 86.7° 281.7° h (9m) -141.0 dbm -142.0 dbm 61.3w 62.1w 61.3w 62.1w 23.9w 23.3w P1 T. 81.8°F -2.1°F (AM-41) 157.7°F -16.1°F (AJ-11) 202.0°F -17.4°F (AJ-13) 327.4°K 286.1°K BG-04) HIGH LOW AP-01) 81.6°F 0.3°F
		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther P1 T. LACE T. (AM-41) LEAM T. (AJ-11) HFE T. (DH-13) LSG T. (AP-01)
	Night	63 266.2° -136.0 dbm 61.9w 13.2w 26.8°F 125.8°F -10.2°C
APULLO 16 ALSEP	Noon	63 95.4° -138.0 dbm 63.1w 31.5w 103.0°F HIGH 45.8°C
APOLLO		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. PSE T. (DL-07) LSM T. (DM-05)

# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 5/25/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
			LOS 18/0844		
<b>1</b> 8 May	ACN	Unknown	AOS 18/0847	A15	o3 <sup>m</sup>
			LOS 18/0922		
18 May	ACN	Solar RFI	AOS 18/0937	ALL	15 <sup>m</sup>
			LOS 18/2331		
18 May	MIL/GWM	Schedule	AOS 18/2336	ALL	05 <sup>m</sup>
		ing desirable de the second control of the s	LOS 19/0933		
19 May	ACN	Higher Priority	AOS 19/1037	ALL	1 <sup>h</sup> 04 <sup>m</sup>
			LOS 20/0540		
20 May	GWM	Higher Priority	AOS 20/0635	ALL	55 <sup>m</sup>
			LOS 20/0915		
20 May	GWM/BDA	Higher Priority	AOS 20/1130	ALL	2 <sup>h</sup> 15 <sup>m</sup>
			LOS 20/2111		
20 May	MIL	Station Problem	AOS 20/2241	ALL	1 <sup>h</sup> 30 <sup>m</sup>
			LOS 24/0540		
24 May	GWM/HAW	Higher Priority	AOS 24/0610	ALL	30 <sup>m</sup>
	·		LOS 24/1407		
24 May	ACN	Station Problem	AOS 24/1412	A14	05 <sup>m</sup>
			LOS 25/0532		
25 May	GDS	Antenna Masking	AOS 25/0537	ALL	05 <sup>m</sup>
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ATTEN STEN TSA	04/155	<u>0900-1100</u>		11/162	0200-0600 ALSEP 14 C/S HTR ON C/S HTR ON PSE Z MTR ON 1400-1500	18/169	NO SUPPORT
	03/154	0900-1100 ALSEP 16 LSM FLIP CAL		10/161	0900-1100 ALSEP 14 ALSEP 12	17/168	0000-1100
SINE	02/153	0900-1100		09/160	0900-1100	16/167	NO SUPPORT
ALSEP SURPORT SCHEDULE/EVENTS	JUN 01/152	0900-1100 ALSEP 17 HFE - RBS ALSEP 16 LSM FLIP CAL		08/159	0900-1100 ALSEP 15 ALSEP 14 CPLEE ON PDRS OFF	15/166	0900-1100 ALSEP 17 HFE - RBS
ALSEP SI	31/151	0000-1100		07/158	0900-1100 ALSEP 16 C/S HTR ON ALSEP 14 PSE HTR ON	14/165	NO SUPPORT
	30/150	0900-1100 ALSEP 16 LSM FLIP CAL ALSEP 14 PSE HTR OFF		06/157	0900-1100 ALSEP 17 ALSEP 16 LSM FLIP CAL 2200/2300 ALSEP 16 PSE HTR ON	13/164	0900-1100
IUJ - SEWII	MAY 29/149	0900-1100 ALSEP 14 CPLEE STBY PDRS ON ALSEP 16	PSE HIR OT	JUN 05/156	0900-1100 2200-2300	JUN 12/163	0900-1100

	TIMES = CDT	The second secon	ALSEP SU	ALSEP SYPPORT SCHEDULE/EYENTS	ENTS		PSE CALS DA
	JUN 19/170 NO SUPPORT	20/171 0900-1100	ALSEP 17	22/173 1800-2000 ALSEP 16 C/S HTR OFF TIMER RST ALSEP 15 TIMER RST ALSEP 17 HFE-RBS	23/174. 0900-1100 ALSEP 15	24/175	25/176 0900-1100 ALSEP 14 ALSEP 12
	771/92 NIII.	27/178	28/179	29/180	30/181	JUL 01/182	02/183
		0900-1100 ALSEP 16 LSM FLIP CAL PSE HTR OFF ALSEP 14 CPLEE STBY PDRS ON	0900-1100	0900-1100 ALSEP 17 HFE RBS ALSEP 16 LSM FLIP CAL ALSEP 14 PSE HTR OFF	0900-1100	0900-1100 ALSEP 16 LSM FLIP CAL	0900-1100
	JUL 03/184	04/185	05/186	06/187	07/188	08/189	09/190
	0011-0060	0900-1100 ALSEP 16 LSM FLIP CAL	0011-0060	0011-0060	ALSEP 16	ALSEP 15	0300-1100 ALSEP 14
1 			2200-2300 ALSEP 17	2200-2300		•	
970							



APOI I O		DA	(/HOUR (GMT)		
TAI SEDI	Midnight	Sunrise	Lunation/Noon	Sunset	Midnight
11121	14.1un/0223	21Jun/1043	(57)28Jun/1932	06Ju1/0441	13Ju1/1319
9	15.1m/0813	22.lun/16.36	(65)30Jun/0131	07Ju1/1038	14Ju1/1908
15	16.111n/0728	23,1un/1553	74 01 Jul / 0053	08Ju1/0955	15Ju1/1823
	18.1un/0052	25,1un/0924	(80)02Ju1/1830	10Ju1/0325	17Ju1/1147
12	18Jun/1230	25Jun/2108	(95)03Ju1/0612	10Ju1/1418	17Ju1/2326
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NASA-JSC

l June 1977 G.m.t.: 1600

The Apollo 15 and 16 ALSEP Central Station 18 hour timers are being allowed to time out 96 ± 4 days from their last reset on 24 May 1977. This one time function will turn the transmitters off sometime during the last week of August. Afterward, the transmitters will be commanded back on. This action will preclude the resetting of these timers every lunar sunrise after the termination of ALSEP support operations on 1 October 1977. The expiration of these one-time automatic timer functions to turn the Apollo 15 and 16 ALSEP transmitters off means that any future transmitter turn-offs must be by ground command.

## Apollo 17 ALSEP

The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain. A real-time check of the timer was obtained on 28 May. This check verified that the timer had permanently shifted another 32 minutes early, so that the timer is now 1 hour 4 minutes 53 seconds from initialization in December 1972. The timer interval is still 61 hours 49 minutes 35 seconds between pulses, and the time out is still predictable except for the 32 minute permanent shifts. Another check is planned during real-time support period on 2 June.

The Lunar Surface Gravimeter Experiment is currently ON and configured with the slave heater ON, seismic high gain, power amplifier at step #2, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, and the tilt servo motors in an intermediate position.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. Ring bridge surveys are being achieved on a periodic basis. On 1 June the lunar surface temperature, as measured by the HFE thermocouples, was  $360 \pm 8^{\circ}$ K. At a depth of 230 cm the subsurface temperatures were 256.9°K at probe #1 and 257.0°K at probe #2.

The Lunar Ejecta and Meteorites Experiment is currently ON. Science data has been static since 6 May. The analog engineering data is useable. The instrument survival temperature (AJ-11) reached a maximum of 215.2°F during this period.

# Apollo 16 ALSEP

The Passive Seismic Experiment is configured thermal control Forced OFF; component gain 0 db; and feedback loop filter OUT. The heater is being operated in Forced OFF and Uncaged for lunar day operation to minimize heating in the experiment. The instrument assembly temperature (DL-07) was offscale HIGH today at a sun angle of 101.8° and is expected to return onscale 7 June.

1 June 1977
G.m.t.: 1600

#### Apollo 16 ALSEP (continued)

The Lunar Surface Magnetometer Experiment is ON and recording data. On 27 May at the start of real time support (sun angle  $43.6^{\circ}$ ) the experiment Y-axis had resumed normal operation. The Y-axis data had been invalid since 7 May. Science data from the Z-axis remained static this report period. Flip calibration sequences are being conducted during the lunar day and a total of 1312 have been executed and verified by the engineering data since deployment.

The Active Seismic Experiment is currently in STANDBY. This mode is necessary to read the Mortar Box (ASO2) and Grenade Launch Assembly (ASO3) temperatures. These readings will be used to establish a temperature profile to determine the position of the mortar box for a planned firing of the remaining mortar in the near future.

## Apollo 15 ALSEP

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the thermal control is Auto ON. The instrument assembly temperature (DL-07) was offscale HIGH today at a sun angle of 90.8° and is expected to return onscale 5 June.

## Apollo 14 ALSEP

The central station DSS-1 (10 watt) heater is OFF and the external 14 and 7-watt power dump resistors are ON for day operation.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP).

The Charged Particle Lunar Environment Experiment was commanded to STANDBY on 28 May for this lunar day time.

#### Apollo 12 ALSEP

The central station DSS-1 (10 watt) heater is OFF for lunar day time.

The Passive Seismic Experiment is configured thermal control Auto ON; component gain 0 db and feedback loop filter OUT, and the short period Z-axis gain is set at -20 db. The sensor temperature (DL-07) returned onscale 27 May at a sun angle of 4.4°.

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

.,		eek	1000 Z (G.m.t.)	the 1977		
	SIAIUS	Apollo 12 ALSEP 1	1	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 , JEP 5
De	Deployed	14122, 11/19/69	2/5/71	7/31/71	1	12/12/72
	Lunar Location	23.5°W, 3.0°S	(,,	3.7°E, 26.1°N		30.8°F. 20.2°N
n	unation/Days Ops	94/2751	79/2175	73/2132	I .	
Ph	Phase, Sun Angle	Sunrise, 64.0°	Sunrise, 69.4°	Noon, 91.1º	Noon, 102.9°	Noon, 118.2º
Cmds	ds - Total/Week	32412/92	17955/51	40259/81	25475/96	1117
Spi	Spurious Changes	119	107	134		0
9			72.5w/ 59.0w	74.7w/43.7w	70.9w/61.9w	75.4w/ 60.9w
TЯ	Reserve Power	20.3w	13.5w	15.2w	30.5w	24.8w
	Avg. Therm. Plate	Plate $86.2^{oF}$	101.3°F	103.7°E	101.5°F	408.92
LIO	Transmitter	B, 7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A. 12/9/74
AT	Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	ł	$\simeq$
	PCU			-		2
AATI	Timer	Inoperative	Inoperative	Operative Reset: 5/24/77	Inhibited 5/72 Reset: 5/24/77	Operative Inhibited: 5/31/77
	Heaters	USS-1 (10W) - 9FF	DSS-1 (10w) - OFF	DSS-1 (10w) - OFF	DSS-1 (10 <u>%)</u> 24/F7	APM STATUS:
<del>                                     </del>	'LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0.0.0db	0.0.0db	LSPE -STRY 4/25/77
<del></del>	Heaters	Auto On Z Motor <i>OFF 5/27/77</i>	Forced OFF 5/31/77 21w PDRs ON 5/28/77	Auto On	Auto On Forced OFF 5/28/77	
٠٠,	بر Filter	OUT - 3/27/77	OUT - 11/17/76	OUT - 3/27/77	011T - 3/27/77	HFE - ON.
, <u>u</u>	DL-07 Temp.	130.9°F	127.20F	Offscale HIGH	000	
			g,	1		RBS weekly
-		Dust Detector - ON	DTREM - ON	DTREM - ON	LSM - ON	LSG- ON 3/28/77
I MIZIMI	AUINE/ OPERABLE		CPLEE - STBY 4/28/77 Operate Night Only Anal B Failed 4/71		Z Failed 3/3/75 Y Good 5/27/77	Htr
EXPER		SWS - OFF 1/15/77 Increase Reserve Power for C/S heat		SIDE - OFF 3-12-77 FOR RESERVE POWER		
<del></del>	INOPERABLE	SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	<u>SIDE</u> - 0FF 1/5/75 Failed	HFE - OFF 1/13/77 For Reserve Power	HFE - Off Since deployment, cable severed.	LEAM - ON 4/25/77 Static @ night 7/76 Intrmt days 4/25/77
		LSM - OFF 6/74 Failed	ASE - STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	SWS - OFF 6/74  Eailed LSM - OFF 6/74  Failed	ASE -STBY 5/23/77 Mortar #1 unfired. Sensors failed.	LACE - STBY 7/22/76 HV Failed 10/73
PS	PSEP - Apollo 11 D	Deployed 7/21/69, 23	23.4°E, 0.7°N - Lost Up	Uplink 8/25/69, Lost	Downlink 12/14/69	

# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 6/01/77

TATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
			LOS 26/1806		
26 May	MAD/QUI	Higher Priority	AOS 26/1811	ALL	05 <sup>m</sup>
		·	LOS 27/1429		
27 May	GWM/MAD	Antenna Masking	AOS 27/1433	ALL	o4 <sup>m</sup>
			LOS 28/0124		
28 May	ACN	Station Problem	AOS 28/0130	A12	06 <sup>m</sup>
			LOS 28/0812		
28 May	GDS/ULA	Schedule	AOS 28/0820	ALL	o8 <sup>m</sup>
			LOS 28/1249		
28 May	GWM	Higher Priority	AOS 28/1357	ALL	1 <sup>h</sup> 08 <sup>m</sup>
•			LOS 28/1425		and the second s
28 May 	GWM/MAD	Higher Priority	AOS 28/1520	ALL	55 <sup>m</sup>
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	-	A STATE OF THE PROPERTY OF THE	LOS		arkentill til 1986 omde till till til det en stå vinde folked til til stæret vid til stæret i stæret vid til s
			AOS		

8 June 1977 G.m.t.: 1600

### Apollo 17 ALSEP

The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain.

The Lunar Surface Gravimeter Experiment is ON and configured with the slave heater OFF, seismic high gain, power amplifier (PA) at step #2, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, the tilt servo motors in an intermediate position, the decoder ON, and the pressure transducer ON. Additional heat is added to the instrument at lunar night by operation with the heater OFF, decoder ON, and pressure transducer ON. On 3 June, the beam was repositioned with the EAST/WEST tilt servo motors to avoid saturation of the power amplifier at step #2 during lunar night.

The Heat Flow Experiment is operating in the gradient mode and all sensors are being sampled in full sequence. Ring bridge surveys are being achieved on a periodic basis. On 8 June the lunar surface temperature as measured by the HFE thermocouples was  $117 \pm 8$ °k. At a depth of 230 cm the subsurface temperatures were 256.9°K at probe #1 and 257.0°K at probe #2.

The Lunar Ejecta and Meteorites Experiment is ON. The LEAM data has been almost totally invalid during this lunar day (22 May - 6 June).

# Apollo 16 ALSEP

The Central Station DSS-1 (10w) Heater was commanded ON for lunar night on  $7 \, \mathrm{June.}$ 

The Passive Seismic Experiment is configured for network congruity (thermal control, AUTO ON; component gain 0 db; and feedback loop filter OUT). The heater was commanded from Forced OFF to AUTO ON for lunar night operation on 7 June. The instrument assembly temperature (DL-07) was offscale HIGH from 1 to 7 June between the sun angles of 101.8° and 169.4°. The PSE recorded a significant seismic event during real time support on 2 June. The event started at 1426 G.m.t. and was still discernible on the Y-axis at 1512 G.m.t. when support ended. The other ALSEP stations were monitored during this time period with no apparent indications of the event.

The Lunar Surface Magnetometer Experiment is ON. During real-time support on 6 June the science data from the Y-axis sensor became static at a sun angle of 157.2°. It is expected to return to normal operation on 26 Jun at a sun angle near 43° after lunar sunrise. Flip calibration sequences have been discontinued for the lunar night. 1,318 calibration sequences have been executed by the sensor heads as of 8 June.

8 June 1977 G.m.t.: 1600

# Apollo 16 ALSEP (continued)

The Active Seismic Experiment was commanded OFF on 7 June. It had been in STANDBY since 23 May so that the Mortar Box (ASO2) and Grenade Launch Assembly (ASO3) temperatures could be read to determine the position of the mortar box. The data has been gathered and analysed and the STANDBY operation has been terminated.

#### Apollo 15 ALSEP

Between 0039 and 1340 G.m.t., a spurious command (Timer Output Inhibit, octal 033) was received and executed by the 18-hour timer. A command verification word was not observed in the downlink signal. During real-time support at 1528 G.m.t., 8 June, a Timer Output Accept (octal 032) command was transmitted by mission control to allow the timer to resume normal operation. This in no way affects the planned timing out of the timer begun on 24 May.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP). The sensor temperature returned onscale (DL-07 =  $142.5^{\circ}F$ , sun angle =  $114.9^{\circ}$ ) on 3 June. It had been offscale HIGH since 1 June.

## Apollo 14 ALSEP

The external 14 and 7-watt power dump resistors were commanded OFF, 8 June, for lunar night operation.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP). The heater was commanded to AUTO ON for lunar night operation on 7 June.

The Charged Particle Lunar Environment Experiment was commanded ON, 8 June, and is operating in the normal mode at the -35 vdc range and automatic thermal control mode for the lunar night.

The Active Seismic Experiment is in STANDBY (Apollo 14 ALSEP, SMEAR 86). At 1744 G.m.t., 6 June, the Hawaii Tracking Station observed parameter AB-04 out of limits (ASE OFF) without a command verification word (CVW) in the downlink. At 2006 G.m.t., 6 June, the Guam Tracking Station uplinked the command ASE Standby (octal 043) at the request of mission control.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 5 Dec 75 ALSEP Performance Summary Report). The sensor temperature was offscale HIGH on 5 June at a sun angle of 111.7°.

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch SC3, telephone 713-333-3481.

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	STATIIS		4 (U.)	110 + 0213		- 1
É	51A103	77		Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	o 17 A
ne	ueproyed	14122, 11/19/69		1805Z, 7/31/71	19387, 4/21/72	12/12/72
	Lunar Location	23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°F. 20.2°N
I.	$\circ$	94/2758	79/2182	73/2139	1	56/1639
Ph	Phase, Sun Angle	Noon, 149.4°	Noon, 155.3°	Sunset, 176.4°	Sunset, 187.3°	Sunset, 203.5°
Cmds	ds - Total/Week	32454/42	1	1.~	25580/105	38731/147
Spi	Spurious Changes	119	108	135		0
БТЯ	Initial/Present Reserve Power	73.6w/45.8w 20.3w	72.5w/ 58.7w 13.7w	74.7w/ 42.8w 16.0w	70.9w/62.4w 13.7w	75.4w/ 61.7w
	Avg. Therm. Plate	Plate 75.6 $^oF$	73.4°F	40.2°F	33.2°F	-0.6°F
	er	B, 7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A. 12/9/74
AT:	Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	1	
	PCU	_				
AATV	Fimer	Inoperative	Inoperative	Operative Reset: 5/24/77	Inhibited 5/72 Reset: 5/24/77	Operative Inhibited: 6/8/77
	Heaters	055-1 (104)/2797	DSS-1 (16/2/27/95F	- 0FF	46/ s	APM STATUS:
	LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0.0.0db	LSPE - STBY 4/25/77
	Heaters	Auto On Z Motor OFF 5/27/77	Auto ON 6/7/77 21w PDRs OFF 6/8/77	Auto On	Auto ON 6/7/77	
713	Filter	0UT - 3/27/77	OUT - 11/17/76	OUT - 3/27/77	0UT - 3/27/77	HFE - ON
, U	DL-07 1	Offscale HIGH	. 401.88I	125.2°F	ToE	
	Uncage Ckt.	Uncaged .	Uncaged	$\mathcal{I}\mathcal{O}$		RBS weekly
S	, 1771	Dust Detector - ON	DTREM - ON	DTREM - ON	LSM - ON	1.56-
IWENT	ACIIVE/ OPERABLE		CPLEE -ON 6/8/77 Uperate Night Only Anal B Failed 4/71		Z Failed 3/3/75 Y Static 6/6/77	Auto Htr Failed No Free Modes or
EXPER		SWS - OFF 1/15/77 Increase Reserve Power for C/S heat		SIDE - OFF 3-12-77 FOR RESERVE POWER		
	INOPERABLE	SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	<u>SIDE</u> - 0FF 1/5/75 Failed	HFE - OFF 1/13/77 For Reserve Power	HFE - Off Since deployment, cable severed.	LEAM - QN 4/25/77 . Static @ night 7/76 Intrmt days 4/25/77
		LSM - OFF 6/74 Failed	ASE - STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	SWS - OFF 6/74  LSM - OFF 6/74  LSM - OFF 6/74	ASE - OFF 6/7/77 Mortar #1 unfired. Sensors failed.	LACE - STBY 7/22/76 HV Failed 10/73
PS	PSEP - Apollo 11 D	Deployed 7/21/69, 23.	23.4°E, 0.7°N - Lost Uplink 8/25/69	, Lost	Downlink 12/14/69	
			,			

# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 6/8/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
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15 June 1977 G.m.t.: 1600

#### Apollo 17 ALSEP

The station is operating in the Data Processor Format ON (Normal Bit Rate 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain.

The Lunar Surface Gravimeter Experiment is ON and configured with the slave heater OFF, seismic high gain, power amplifier (PA) at step #2, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, the tilt servo motors in an intermediate position, the decoder ON, and the pressure transducer ON. Additional heat is added to the instrument at lunar night by operation with the heater OFF, decoder ON, and pressure transducer ON.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. Ring bridge surveys are being achieved on a periodic basis. On 15 June the lunar surface temperature, as measured by the HFE thermocouples, was  $107 \pm 8$ °K. At a depth of 230 cm the subsurface temperatures were 256.9°K at probe #1 and 257.0°K at probe #2.

The Lunar Ejecta and Meteorites Experiment is ON. The LEAM data has been totally invalid this reporting period and the analog data has stopped sequencing.

### Apollo 16 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night.

The Passive Seismic Experiment is configured for network congruity (thermal control, AUTO ON; component gain O db; and feedback loop filter OUT).

The Lunar Surface Magnetometer Experiment is ON and recording data. Flip calibration sequences have been discontinued for this lunar night due to the low temperature of the Z-axis sensor head. The Y and Z-axes science data remained static this reporting period.

#### Apollo 15 ALSEP

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP). The experiment received a spurious functional command (PSE, Long Period calibration ON, octal 066) between real time support periods of 11 and 12 June without a command verification word (CVW) being observed in the downlink signal. On 12 June the experiment was reset to calibration OFF (octal 066) during the support period.

15 June 1977 G.m.t.: 1600

#### Apollo 14 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night operation. The external 14 and 7-watt power dump resistors are OFF.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP).

The Charged Particle Lunar Environment Experiment is ON and operating in the normal mode at the -35 vdc range and automatic thermal control mode.

## Apollo 12 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night operation.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at - 20 db (Ref. 4 Dec 75 ALSEP Performance Summary Report). The Z-motor is ON to maximize heating in the instrument for lunar night operation. The sensor temperature returned onscale (DL-07 =  $141.6^{\circ}$ F, sun angle  $160.7^{\circ}$ ) on 9 June. It had been Offscale HIGH since 5 June. The sensor temperature was Offscale LOW on 15 June and is expected to return onscale 25 June.

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch SC3, telephone 713-333-3481.

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	Apollo 17 AISED 5	112/72	1	23	Midnight, 289.20		0	75 Aulos 2.	16.7w	-3.9°F	A. 12/9/74	┨ ";		Operative Inhibited:6/15/77		1 SPF - STRY 4/25/77		HFE - ON.		RBS weekly	751001C NO -53	Auto Htr Failed No Free Modes or		LEAM - 0N 4/25/77 Static @ night 7/76 Intrmt days 4/25/77	LACE - STBY 7/22/76 HV Failed 10/73	
	Apollo 16 ALSEP 3				Midnight, 274.0°	25628/48		70 gw/ 62.7w		26.4°F	B, 3/26/73	l	F	Inhibited 5/72 Reset: 5/24/77	DSS-1 (108)7779N	0.0.0dh	Auto On 6/7/77	77/76/5 - TIIO	1*	0T	LSM - ON	Z Failed 3/3/75 Y Static 6/6/77		HFE - Off Since deployment, cable severed.	ASE - OFF 6/7/77 Mortar #1 unfired. Sensors failed.	Downlink 12/14/69
1 une 1977	Apollo 15 AISEP 2	7/31/71	2	73/2146	Sunset, 262,1º	40384/55	136	74.7w/41.5w	13.5w	-10.0°E	B, 8/20/76	Y, 10/19/76		Operatis/24/77 Reset: 5/24/77	DSS-1 (10w) - OFF	0.0.0db	Auto On	OUT - 3/27/77	124.7°F	Uncaged	DTREM - ON		SIDE - OFF 3-12-77 FOR RESERVE POWER	HFE - OFF 1/13/77 For Reserve Power	SWS - 0FF 6/74  Eailed LSM - 0FF 6/74	ost
1600 Z (G.m.t.)	Apollo 14 ALSEP 4	2/5/71		79/2189	Sunset, 241.0°	18033/29	108	72.5w/ 57.1w		21.3°F	B, 11/12/76	Y, 8/24/76		Inoperative	NO 22/FT/6) 1-SSQ	0,0,0db	Auto ON 6/7/77 21w PDRs OFF 6/8/77	0UT - 11/17/76	A <sub>o</sub> I	D.	DTREM - ON	CPLEE - ON 6/8/77 Operate Night Only Anal B Failed 4/71		<u>SIDE</u> - 0FF 1/5/75 Failed	ASE - STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	23.4°E, 0.7°N - Lost Up
as of week ending	Apollo 12 ALSEP 1		23.5°W, 3.0°S	94/2756	Sunset, 235.0°	32543/89	119	73.6w/ 44.5w		1.3°F	-	Y, 8/25/76	-	Inoperative	μ6/፲ <u>፲</u> (%0ι) 1-ssα	0,0,-20db 11/75	Auto On Z Motor <i>ON 6/11/77</i>	27/77	е БОЖ		Dust Detector - ON		SWS - OFF 1/15/77 Increase Reserve Power for C/S heat	SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	LSM - OFF 6/74 Failed	Deployed 7/21/69, 23.
		Deployed	Lunar Location	S	Phase, Sun Angle	Cmds - Total/Week	Spurious Changes		도 Reserve Power	Z Avg. Therm. Platel.		A Processor	W PCU	五文 Timer	Heaters	LPX/Y,Z,SPZ	Heaters	س Filter	DL-07 7	Uncage Ckt.		ACIIVE/ OPERABLE	ЕХЬЕВ	INACTIVE/ INOPERABLE		PSEP - Apollo 11 De

# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 6/15/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
			LOS 09/2335		
09/10 June	HAW/GWM	Higher Priority	AOS 10/0116	ALL	1 <sup>h</sup> 41 <sup>m</sup>
		·	LOS 11/0254		
ll June	ACN	Schedule	AOS 11/0257	A16 & A17	03 <sup>m</sup>
			LOS 11/0254		
ll June	ACN	Schedule	AOS 11/0259	A12 & A14	05 <sup>m</sup>
			LOS 11/0254		
ll June	ACN	Schedule	AOS 11/0301	A15	o7 <sup>m</sup>
			LOS 11/0836		
11 June	MIL	Station Problem	AOS 11/0900	ALL	24 <sup>m</sup>
			LOS 11/1921		
11 June	GDS/GWM	Schedule	AOS 11/1925	ALL	04 <sup>m</sup>
			LOS 13/0105		
13 June	ORR	Station Problem	AOS 13/0110	ALL	05 <sup>m</sup>
			LOS 13/0131		
June	ORR	Station Problem	AOS 13/0135	ALL	$04^{\rm m}$
			LOS 14/0000		m
14 June	GDS/ORR	Schedule	AOS 14/0005	ALL	05
			LOS 15/0923		
15 June	ACN/MIL	Schedule	AOS 15/0952	ALL	29 <sup>m</sup>
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22 June 1977 G.m.t.: 1600

#### Apollo 17 ALSEP

The station is operating in the Data Processor Format ON (Normal Bit Rate 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain.

The Lunar Surface Gravimeter Experiment is ON and configured with the slave heater OFF, seismic high gain, power amplifier (PA) at step #2, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, the tilt servo motors in an intermediate position, the decoder ON, and the pressure transducer ON. Additional heat is added to the instrument at lunar night by operation with the heater OFF, decoder ON, and pressure transducer ON.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. Ring bridge surveys are being achieved on a periodic basis. On 20 June the lunar surface temperature, as measured by the HFE thermocouples, was  $105 \pm 8^{\circ}$ K. At a depth of 230 cm the subsurface temperatures were 256.9°K at probe #1 and 257.0°K at probe #2.

The Lunar Ejecta and Meteorites Experiment is ON. The LEAM data has been totally invalid this reporting period and the analog data has stopped sequencing.

# Apollo 16 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night.

The Passive Seismic Experiment is configured for network congruity (thermal control, AUTO ON; component gain O db; and feedback loop filter OUT).

The Lunar Surface Magnetometer Experiment is ON and recording data. Flip calibration sequences have been discontinued for this lunar night due to the low temperature of the Z-axis sensor head. The Y and Z-axes science data remained static this reporting period.

# Apollo 15 ALSEP

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP).

## Apollo 14 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night operation. The external 14 and 7-watt power dump resistors are OFF.

22 June 1977 G.m.t.: 1600

#### Apollo 14 ALSEP

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP).

The Charged Particle Lunar Environment Experiment is ON and operating in the normal mode at the -35 vdc range and automatic thermal control mode. Between real time support periods of 15 and 17 June a spurious functional change occurred, CPLEE to Step Voltage Level +3500 volt range (octal 115), without a command verification word (CVW) being observed in the downlink signal. During support on 17 June the CPLEE was reset to the -35 volt range.

#### Apollo 12 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night operation.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 4 Dec 75 ALSEP Performance Summary Report). The Z-motor is ON to maximize heating in the instrument for lunar night operation. The sensor temperature has been Offscale LOW since 15 June and is expected to return onscale 25 June.

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch SC3, telephone 713-333-3481.

ALSEF S	eek ending	Z (G.m.			11
	Apollo 12 ALSEP 1		9		
	761/11	17 501, 2/3//1	76		171
	64 / San 3.0°S	ી	3.7 E, 20.1 N	15.5°E, 9.0°S	30.8°E, 20.2°N
nbs		- 1	1	- 1	
sun Angle	Midnight, 296.2°	Midnight, 302.2°	Midnight, 324.3°	Midnight, 335.2°	Midnight, 350.6°
Total/Week	32547/4	18047/14	40392/8	25636/8	38790/12
Changes	119	109	137		0
Initial/Present	73.6w/ 43.0w	72.5w/ 57.2w	74.7w/ 40.9w	70.9w/61.7w	75 4w/ 60.9w
Ромег	9.3w	12.2w	13.2w	13.0w	16.7w
Plate.	<i>∃o I • -</i>	20.0°E	-12.6°F	25.7°F	-5.0°F
	B, 7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A 12/9/74
	Y, 8/25/76	Y, 8/24/76	1	1	
					1
	Inoperative	Inoperative	Operatiye Reset: 5/24/77	Inhibited 5/72 Reset: 5/24/77	Operative Inhibited:6/20/77
	1661-1801) 1-ssn	DSS-1 (10W)-0N 6/11	DSS-1 (10w) - OFF	100	APM STATUS:
SPZ	0,0,-20db 11/75	0,0,0db	0.0.0db	0.0.0db	LSPE - STRV 4/25/77
	Auto On Z Motor ON 6/11/77	Auto On 6/7/77	Auto On	Auto On 6/7/77	
	OUT - 3/27/77	OUT - 11/17/76	OUT - 3/27/77	OUT - 3/27/77	HFE - ON,
	Offscale LOW	184.1°F2	124.4°F	8	
	ŀ	Uncaged	Uncaged	0.T	RBS weekly
	Dust Detector - ON	DTREM - ON	DTREM - ON	LSM - ON	ISG-0N 3/28/77
		CPLEE - ON 6/8/77 Operate Night Only Anal B Failed 4/71		illed 3/3/75	Auto Htr Failed No Free Modes or
	SWS - OFF 1/15/77 Increase Reserve Power for C/S heat		SIDE - OFF 3-12-77 FOR RESERVE POWER		
	SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	SIDE - OFF 1/5/75 Failed	HFE - OFF 1/13/77 For Reserve Power	HFE - Off Since deployment, cable severed.	LEAM -ON 4/25/77 Static @ night 7/76 Intrmt days 4/25/77
	LSM - OFF 6/74 Failed	ASE - STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	SWS - OFF 6/74  LSM - OFF 6/74  Eailed	ASE - OFF 12/23/74 Mortar #1 unfired. Sensors failed.	LACE - STBY 7/22/76 HV Failed 10/73
- D	Deployed 7/21/69, 23	23.4°E, 0.7°N - Lost Up	9, Lost	Downlink 12/14/69	

# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 6/22/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
		,	LOS 16/0154		
16 June	ORR	Station Problem	AOS 16/0156	ALL	o2 <sup>m</sup>
		·	LOS 16/0825		
16 June	MAD	Higher Priority	AOS 16/1055	ALL	2 <sup>h</sup> 30 <sup>m</sup>
n			LOS 17/0300		
17 June	GWM	Higher Priority	AOS 17/0409	ALL	1 <sup>h</sup> 09 <sup>m</sup>
			LOS 17/0804		
17 June	GWM/ACN -	Higher Priority	AOS 17/0958	ALL	1 <sup>h</sup> 54 <sup>m</sup>
			LOS 18/0940		
18 June	GWM/ACN	Schedule	AOS 18/0950	ALL	10 <sup>m</sup>
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29 June 1977 G.m.t.: 1600

#### Apollo 17 ALSEP

Sunrise of the 57th lunation occurred on 21 June at the Taurus Littrow Site. The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain.

The Lunar Surface Gravimeter Experiment is ON and configured with the slave heater OFF, seismic high gain, power amplifier at step #2, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, the tilt servo motors in an intermediate position, and the pressure transducer and decoder OFF.

The Lunar Seismic Profiling Experiment is in STANDBY.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. Ring bridge surveys are achieved on a periodic basis. On 29 June the lunar surface temperature, as measured by the HFE thermocouples, was 371  $\pm$  8°K. At a depth of 230 cm the subsurface temperatures were 256.8°K at probe #1 and 257.0°K at probe #2.

The Lunar Atmospheric Composition Experiment is in STANDBY.

The Lunar Ejecta and Meteorites Experiment is ON. The engineering data synched and was valid on 26 and 29 June. A LEAM calibration was obtained on 28 June, but the science data remained invalid.

# Apollo 16 ALSEP

Sunrise at the Descartes Site occurred on 22 June for the 65th lunation. The DSS-1 (10w) heater was commanded OFF 22 June.

The Passive Seismic Experiment is configured thermal control Forced OFF; component gain 0 db; and feedback loop filter OUT. The heater is being operated in Forced OFF and Uncaged for lunar day operation to minimize heating in the experiment. Operation in this configuration with the heater in Forced OFF has shown a decrease in the sensor temperature and a reduction in the frequency of levelling required.

The Lunar Surface Magnetometer Experiment is ON and recording data. Flip calibration sequences have been resumed for this lunar day and a total of 1324 have been executed and verified by the experiment engineering data since deployment. The Y axis science data had returned to normal operations on 26 June at a sun angle of 43°.

The Active Seismic Experiment is in STANDBY.

29 June

G.m.t.: 1600

## Apollo 15 ALSEP

Sunrise of the 74th lunation at the Hadley Rille Site occurred on 23 June. The 18 hour timer pulse was 25 minutes late on 26 June and is attributed to low temperature  $(-12^{\circ}F)$  in the Central Station at night.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the heater is AUTO ON.

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments were commanded OFF 12 March 1977.

The Solar Wind Spectrometer Experiment was commanded OFF 14 June 1974.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

The Heat Flow Experiment was commanded OFF 13 January 1977.

# Apollo 14 ALSEP

Sunrise of the 80th lunation at the Apollo 14 site occurred on 25 June. The central station DSS-1 (10 watt) heater was commanded OFF and the external 14 and 7-watt power dump resistors were commanded ON for day operation on 26 and 27 June, respectively. The DTREM responded to a spurious OFF command (octal 031) between support periods of 20 and 22 June. It was commanded ON (octal 027) during real time support 26 June and operation in Data Processor Y was verified.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP). The sensor heaters were commanded off on 29 June. The Long Period Z-axis data was noisy on 17 June and was static on 20 June. The axis has not responded to calibration commands since 26 June.

The Active Seismic Experiment is in STANDBY (Apollo 14 ALSEP, SMEAR 86). The experiment was commanded ON and operated in High Bit Rate for 20 minutes on 28 June. The grenades were armed to determine whether the Mortar Box Ground Monitor Voltage (DS-05) would show a change by charging the capacitors to fire the mortars. No change in voltage occurred. Further analysis is being conducted. The grenades were dearmed when the ASE was commanded to STANDBY.

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments were commanded OFF on 21 May 1976.

The Charged Particle Lunar Environment Experiment was commanded to STANDBY on 27 June for lunar day time.

29 June 1977 G.m.t.: 1600

# Apollo 12 ALSEP

Sunrise of the 95th lunation occurred on 25 June. The central station DSS-1 (10w) heater was commanded OFF on 26 June and operation in Data Processor Y was verified.

The Passive Seismic Experiment is configured thermal control Auto ON, component gain 0 db and feedback loop filter OUT, and the short period Z-axis gain is set at -20 db. The sensor temperature (DL-07) returned onscale at a sun angle of  $4.1^{\circ}$  and the Z motor was commanded OFF on 26 June. The PSE operated normally throughout this past lunar night even though the Central Station average thermal plate temperature dropped below +1°F to  $-1.5^{\circ}$ F.

The Solar Wind Spectrometer Experiment was commanded OFF 15 January 1977.

The Suprathermal Ion Detector Experiment was commanded OFF 3 May 1976.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch SC3, telephone 713-333-3481.

SIAIUS	as of week ending	1600 Z (G.m.t.)	29 June 1977		
	12	14 A	Apollo 15 ALSFP 2	Apollo 16 ALSEP 3	Apollo 17 AISFD 5
uepioyed	14122, 11/19/69	1728Z, 2/5/71	7/31/71	4/21/72	12/12/72
Lunar Location	23.5°W, 3.0°S	17.5°W, 3.7°S	i	1.3	5
Lunation/Days Ops		80/2203	74/2160	1	300
Phase, Sun Angle	Sunrise, 46.2°	Sunrise, 52.2º	Surrise, 73.3º	Sunrise 85.10	MOOW 100 40
Cmds - Total/Week	32624/77	ŧ		2	- 17
Spurious Changes	L	110	134		0
Initial/Present	t 73.6w/44.6w	72.5w/ 58.2w	74.7w/42.1w	70 gw/61.7w	
Reserve Power		12.6w		30.8w	24.8w
Avg. Therm. Plate	te 80.3°F	90.3°F	97.3°F	101.6°F	79.4°F
Fransmitter		B, 11/12/76	B, 8/20/76	B. 3/26/73	Δ 12/0/7/
Processor	Y, 8/25/76	Y, 8/24/76	1	ŧ	17 5 8
PCU			Ĺ	1	1
Fimer	Inoperative	Inoperative	Operative Reset: 5/24/77	Inhibited 5/72 Reset: 5/24/77	Operative Inhibited:8/98/77
leaters	$0.85-1 (10w) - 0N \\ 6/26/77$	DSS-1 (10W) - ON 6/26 21w PDRs OFF 6/27/79		DSS-1 (10w) 6/99/77	APM STATUS:
LPX/Y,Z,SPZ	db 11	0,0,0db	0,0,0db	0.0.0dh	1 SPF _ CTRV //25/77
Heaters	Auto On Z Motor OFF 6/26/77	Forced OFF 6/27/77	Auto On	Forced OFF 6/27/77	2
J Filtor	OUT - 3/27/77	1			
S DI -07 Tomb	201	100 - 11/1/10	11/17 - 3/5////	OUT - 3/27/77	HFE - ON
_1_	Trong T	161.5 F	138.9°F'		
olicage cht.		١٣	g	Uncaged 6/22/77	RBS weekly
ACTIVE/	Dust Detector - UN	DIREM - ON	DTREM - ON	NO -	LSG-0N 3/28/77
OPERABLE		CPLEE - STBY 6/2/// Operate Night Only Anal B Failed 4/71		Z Failed 3/3/75 Y Failed 4/8/77	Auto Htr Failed No Free Modes or
	SWS - OFF 1/15/77 Increase Reserve Power for C/S heat		SIDE - OFF 3-12-77 FOR RESERVE POWER		sdo doo nasora
INACTIVE/ INOPERABLE	SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	<u>SIDE</u> - 0FF 1/5/75 Failed	HFE - OFF 1/13/77 For Reserve Power	HFE - Off Since deployment, cable severed.	LEAM - ON 4/25/77 Static @ night 7/76 Intrmt days 4/25/77
	LSM - OFF 6/74 Failed	ASE - STBY 12/23/74 Mortars unfired	5/74	ASE - OFF 12/23/74 Mortar #1 unfired.	LACE - STBY 7/22/76 HV Failed 10/73
		J	Faile	sensors ralled.	

# NOON and NIGHT DATA (Latest Lunation)

APOLLO 15 ALSEP	Noon Night	73 73 90.8° 285.5° -137.0 dbm -144.0 dbm 43.7w 41.2w 15.2w 14.0w 103.7°F -11.8°F HIGH 124.5°F
APOLLO		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. PSE T. (DL-07)
	Night	79 264.5° -141.0 dbm 57.2w 12.2w 20.2°F 124.1°F -22.7°C
APOLLO 14 ALSEP	Noon	79 93.3° -141.0 dbm - 59.0w 13.5w 104.0°F 129.3°F STBY
APOLL		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. PSE T. (DL-07) CPLEE T. (AC-06)
	Night	94 258.5° -137.0 dbm 43.3w 9.5w 1.0°F LOW
APOLLO 12 ALSEP	Noon	94 87.1° -139.0 dbm 46.1w 20.6w 86.6°F HIGH
APOLLC		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. PSE T. (DL-07)

APOLLO 17 ALCED		The state of the s
PULLO 10 ALSEP	THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TRANSPORT NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TRANSPORT NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TRANSPORT NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TRANSPORT NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TRANSPORT NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TRANSPORT NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TRANSPORT NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TRANSPORT	

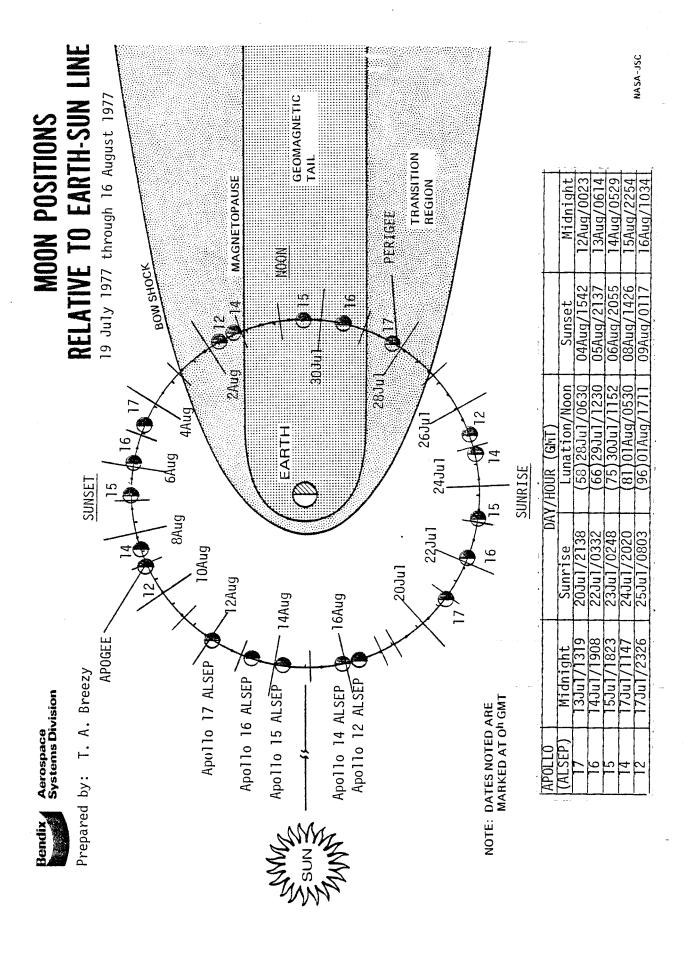
		EE
	Night	56 263.9° -139.0 dbm 61.3w 17.0w -3.1°F -16.1°F -17.4°F 285.9°K LOW -2.3°F
	Noon	56 93.1° -138.0 dbm 60.9w 23.6w 80.7°F 157.7°F 205.6°F 327.4°K HIGH 80.9°F
1		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther P1 T. LACE T. (AM-41) LEAM T. (AJ-11) HFE T. (DH-13) LSG T. (AP-01)
•	Night	64 272.9° -134.0 dbm 62.7w 13.4w 26.4°F 125.8°F -10.2°C
	Noon	64 89.9° -137.0 dbm 62.1w 30.8w 102.6°F HIGH 45.8°C
		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. PSE T. (DL-07) LSM T. (DM-05)

# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 6/29/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
			LOS 21/1245		
21 June	ACN/MAD	Higher Priority	AOS 21/1313	ALL	28 <sup>m</sup>
		·	LOS 22/0951		
22 June	GWM/ORR	Higher Priority	AOS 22/1017	ALL	26 <sup>m</sup>
			LOS 23/1030		
23 June	GWM	Higher Priority	AOS 23/1128	ALL	58 <sup>m</sup>
			LOS 24/0930		
24 June	GWM/ORR .	Higher Priority	AOS 24/1004	ALL	34 <sup>m</sup>
			LOS 25/1336		
25 June	ORR/ACN	Higher Priority	AOS 25/1346	ALL	10 <sup>m</sup>
. 5			LOS 26/1834		
26 June	MAD/AGO	Higher Priority	AOS 26/1857	ALL	23 <sup>m</sup>
			LOS 27/0911		
June	GDS/GWM	Higher Priority	AOS 27/0917	ALL	06 <sup>m</sup>
			LOS 28/1815	:	
28 June	MAD	Higher Priority	AOS 28/1857	ALL	42 <sup>m</sup>
			LOS		
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				i	
YAILY					
PSE Co	16/19, NO SUPPORT	23/204	0900-1100	30/211	0900-1100
	15/196 0900-1100	22/203	0800-1000 ALSEP 15 C/S HTR 0FF LSM FLIP CAL	29/210	0900-1100 ALSEP 16 LSM FLIP CAL
c/EVENTS	14/195 NO SUPPORT	21/202	NO SUPPORT ALSEP 16	28/209	0900-1100 ALSEP 14 PSE HTR OFF
ALSEP SUPPORT SCH 7/E	13/194 0900-1100 ALSEP 17 HFE - RBS	20/201	0900-1100 ALSEP 17 HFE RBS	27/208	0900-1100 ALSEP 16 LSM FLIP CAL ALSEP 17 HFE RBS
ALSEP S	12/193 0900-1100	19/200	NO SUPPORT	26/207	0900-1100 ALSEP 14 CPLEE STBY PDRS ON
Albert des services (se é a des des compans e a des compans des des compans de la compans de des de l'Albert d	11/192 0900-1100	18/199	0900-1100	25/206	0300-0600 ALSEP 12 C/S HTR OFF Z MTR OFF Y PROC CHK ALSEP 14 C/S HTR OFF Y PROC CHK ALSEP 16 LSM FLIP CAL 1800-1900
TIMES	JUL 10/15, 1200-1600 ALSEP 12 C/S HTR ON PSE Z MTR ON ALSEP 14 C/S HTR ON	JUL 17/198	NO SUPPORT	JUL 24/205	P 16 HTR 0FF

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PSE C. 25/176 0900-1100 ALSEP 14 ALSEP 12	02/183	09/190 0900-1100 ALSEP 14
24/175 0900-1100 ALSEP 16 LSM FLIP CAL	JUL 01/182 0900-1100 ALSEP 16 LSM FLIP CAL	0900-1100 ALSEP 75 ALSEP 14 CPLEE ON PDRS OFF
E/EVENTS  23/174  0900-1100  ALSEP 15	30/181 0900-1100	07/188 0900-1100 ALSEP 16 C/S HTR ON ALSEP 14 PSE HTR ON
ALSEP SUPPORT SC. E/  22/173  1800-2000 ALSEP 16 C/S HTR OFF TIMER RST ALSEP 17 HFE-RBS	29/180 0900-1100 ALSEP 17 HFE RBS ALSEP 16 LSM FLIP CAL ALSEP 14 PSE HTR OFF	06/187 0900-1100 ALSEP 17 HFE RBS ALSEP 16 LSM FLIP CAL 2200-2300
ALSEP 3	28/179 0900-1100	05/186 0900-1100 2200-2300 AL SEP 17
20/171 0900-1100	27/178 0900-1100 ALSEP 16 LSM FLIP CAL PSE HTR OFF ALSEP 14 CPLEE STBY PDRS ON	04/185 0900-1100 ALSEP 16 LSM FLIP CAL
JUN 19/170 NO SUPPORT	JUN 26/177 0000-0200 ALSEP 14 C/S HTR 0FF ALSEP 12 C/S HTR 0FF PSE Z MTR 0FF 1100-1200	JUL 03/184 0900-1100



6 July 1977 G.m.t.: 1600

## Apollo 17 ALSEP

The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain. A real-time check of the timer was obtained on 6 July at 030013 G.m.t., within 51 seconds of the predicted time of 030104 G.m.t. This check verified that the timer remains 1 hour 4 minutes 53 seconds early from initialization in December 1972. The timer interval remains 61 hours 49 minutes 35 seconds between pulses, and the time-outs are predictable. Future checks are planned during real-time support periods when time-outs will occur.

The Lunar Surface Gravimeter Experiment is currently ON and configured with the slave heater OFF, seismic high gain, power amplifier at step #2, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, decoder ON, pressure transducer ON, and the tilt servo motors in an intermediate position.

The Heat Flow Experiment is operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 6 July the lunar surface temperature as measured by the HFE thermocouples was 126 ± 8°K. At a depth of 230 cm the subsurface temperature was 256.9°K at probe #1. Between the real-time support periods of 29 and 30 June an anomaly re-occurred in probe #2 at the 230 cm level. DTH 22 bridge reference currents and voltages are reading full scale. T22 bridge reference voltages are also reading full scale while bridge reference currents are normal. DTL 22 bridge reference voltages and currents appear normal. As a result the subsurface temperatures at a depth of 230 cm cannot be determined. Further analysis of this anomaly is being conducted. This anomaly occurred previously in February 1977.

The Lunar Ejecta and Meteorites Experiment is currently ON. Valid science data has been received intermittently this report period. The analog engineering data is useable. The instrument survival temperature (AJ-11) reached a maximum of 213.6°F during this period.

# Apollo 16 ALSEP

A verification of the interval between pulses of the 18-hour timer was obtained at 0316 G.m.t., 6 July. The interval was at 18 hours 15 minutes and 9 seconds, which approximates the last interval check obtained in May 1972.

The DSS-1 (10w) heater is OFF for lunar day.

6 July 1977 G.m.t.: 1600

# Apollo 16 ALSEP (continued)

The Passive Seismic Experiment is configured thermal control Forced OFF; component gain 0 db; and feedback loop filter OUT. The heater is being operated in Forced OFF and the Arm/Fire circuit in Uncaged for lunar day operation to minimize heating in the experiment. The instrument assembly temperature (DL-07) was offscale HIGH on 30 June at a sun angle of 96.1° and returned onscale on 6 July ( $DL-07 = 141.2^{\circ}F$ , sun angle 169.3°).

The Lunar Surface Magnetometer Experiment is ON. During real-time support on 5 July the science data from the Y-axis sensor became static at a sun angle of 157.7°. It is expected to return to normal operation on 25 July at a sun angle near 43° after lunar sunrise. Science data from the Z-axis remained static this report period. Flip calibration sequences are being conducted during the lunar day and a total of 1328 have been executed and verified by the engineering data since deployment.

The Active Seismic Experiment is OFF. The experiment was commanded ON and operated in High Bit Rate for 3 minutes on 1 July. The grenades were armed to determine whether the Mortar Box Ground Monitor Voltage (DS-05) would show a change by charging the capacitors to fire the mortars. No change in voltage occurred. Further analysis is being conducted. The grenades were dearmed when the ASE was commanded to OFF.

#### Apollo 15 ALSEP

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the thermal control is Auto ON. The instrument assembly temperature (DL-07) was offscale HIGH on 2 July sun angle of  $108.4^{\circ}$  and returned onscale on 3 July (DL-07 =  $140.4^{\circ}$ F, sun angle  $120.6^{\circ}$ ).

#### Apollo 14 ALSEP

The central station DSS-1 (10 watt) heater is OFF and the external 14 and 7-watt power dump resistors are ON for day operation.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP). Data from the long-period Z-axis remains static and the axis does not respond to calibration commands.

The Charged Particle Lunar Environment Experiment is in STANDBY.

At 2258 G.m.t., 5 July, the Guam Tracking Station reported a spurious command (DTREM OFF, octal 031) with a command verification word observed in the downlink signal. The DTREM was commanded ON (octal 027) at 0323 G.m.t., 6 July, during real-time support.

6 July 1977 G.m.t.: 1600

## Apollo 12 ALSEP

The central station DSS-1 (10 watt) heater is OFF for lunar day time.

The Passive Seismic Experiment is configured thermal control Auto ON; component gain 0 db and feedback loop filter OUT, and the short period Z-axis gain is set at -20 db. The sensor temperature (DL- 07) was offscale HIGH on 3 July (sun angle  $94.0^{\circ}$ ). It is expected to return onscale on 9 July.

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payloads Requirements and Operations Branch SC3, telephone 713-333-3481.

ro-	as of week ending	1600 Z (G.m.t.)	<sup>7</sup> uLy 1977		
Apo11o	12 ALSEP 1	0 1,	ADOILO 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
1412Z		1/2	, 7/31/71	19382, 4/21/72	12/12/72
23.5°W,	M, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N		30.8°F. 20.2°N
95/27		80/2210	74/2167	11902	
Woon,	131.60		Noon, 158.7º	Noon, 170.5°	Sunset. 195/9°
32646,	6/22	18137/27		25881/110	0
		111	136		0
Initial/Present 73.6w/	w/ 46.0w	72.5w/ 58.3w	74.7w/41.4w	70.9w/62.4w	75.4w/ 61.3w
19.5w	w	13.7w	12.7w	25.8w	16.4w
Plate84.9°F	$\mathcal{A}_{o}$	86.1°F	71.7°F	57.9°F	15.0°E
•	7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
×,	8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/12/77	X.R.S.W.DCDR B 8/74
	<b>-</b>				2
Inop	Inoperative	Inoperative	Operative Reset: 5/24/77	Inhibited 5/72 Reset: 5/24/77	Operative Inhibited: 7/6/77
uss-1	1 (108/26/9FF	DSS-1 (16)/2/6/79FF	0FF	DSS-1 (10W&722)57	1
0,0	0,0,-20db 11/75	0,0,0db	0,0,0db	0.0.0db	LSPE -STRY 4/25/77
Auto On Z Motor	~ ~ 1	Forced OFF 6/29/77	Auto On	Forced OFF 6/27/77	
0UT -	- 3/27/77	OUT - 11/17/76	OUT - 3/27/77	OUT - 3/27/77	HFE - ON, NBR
Offscale	sale HIGH	129.4°F	125.9°F	20	
Uncaged	jed .	D,	OT	Uncaged 6/22/77	RBS weekly
Dust	Detector - ON	DTREM - ON	DTREM - ON	LSM - ON	LSG-0N 3/28/77
engledoni, implication proper		CPLEE STBY 6/27/77 Uperate Night Only Anal B Failed 4/71		Z Failed 3/3/75 Y Failed 4/8/77	Auto Htr Failed No Free Modes or
SMS	SWS - OFF 1/15/77		SIDE - 0FF 3-12-77		
Powe	Power for C/S heat		FOR KESEKVE FOWER		
SIDE	SIDE - 0FF 5/3/76	SIDE - 0FF 1/5/75	- OFF 1/13/77	HFE - Off Since	LEAM - 0N 4/25/77
Incre Power	Increase Reserve Power for C/S Heat	Failed	Reserve Power	deployment, cable severed.	يد ت
LSM	- OFF 6/74	ASE - STBY 12/23/74	SWS - OFF 6/74 Failed	ASE - OFF 12/23/74	LACE - STBY 7/22/76
		bad	LSM - OFF 6/74 Failed	Sensors failed.	IIV railed 10/73
lep lo	Deployed 7/21/69, 23	23.4°E, 0.7°N - Lost Up	ost	Downlink 12/14/69	

# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 7/06/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
			LOS 29/1828		
29 June	ORR/MAD	Antenna Masking	AOS 29/1832	ALL	04 <sup>m</sup>
		·	LOS 02/2132		
02 July	ACN	Unknown	AOS 02/2135	A14	03 <sup>m</sup>
•			LOS 03/0600		
03 July	AG0	Station Problem	AOS 03/0630	ALL	30 <sup>m</sup>
			LOS		
			AOS		
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13 July 1977 G.m.t.: 1600

At approximately 0200 G.m.t., 12 July, the Apollo ALSEP 15 and 16 timer counters executed a 48.5 day time interval output. This change caused parameters AZ-02 and AZ-03 in ALSEP 16 and AZ-02 only in ALSEP 15 to show an output from a low reading (octal 15 to 19) to a high reading (greater than octal 200). Because there was no change of ALSEP 15 parameter AZ-03 it is believed that the timer will not turn the transmitter OFF when it times out. This verified the half way point to the 97 day timer's time out in late August. The timers were last reset on 24 May 1977.

# Apollo 17 ALSEP

The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain.

The Lunar Surface Gravimeter Experiment is currently ON and configured with the slave heater OFF, seismic high gain, power amplifier at step #2, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, decoder ON, pressure transducer ON, and the tilt servo motors in an intermediate position.

The Heat Flow Experiment is operating in the gradient mode and all sensors are being sampled in full sequence. Ring bridge surveys are achieved on a periodic basis. On 13 July the lunar surface temperature as measured by the HFE thermocouples was  $107 \pm 8^{\circ} \text{K}$ . At a depth of 230 cm the subsurface temperature was  $256.9^{\circ} \text{K}$  at probe #1. The anomaly with probe #2 at the 230 cm level continued through this period. The HFE readings DTH22, DTL22, and T22 remain offscale high. Further analysis of this anomaly is being conducted.

The Lunar Ejecta and Meteorites Experiment is currently ON. Static science data has been received during this report period. The analog engineering data is useable.

## Apollo 16 ALSEP

The DSS-1 (10 watt) heater was commanded ON for lunar night on 7 July.

The Passive Seismic Experiment is ON and configured for seismic network congruity (thermal control AUTO ON; component gain O db; and feedback loop filter OUT).

The Lunar Surface Magnetometer Experiment is ON and recording data. Flip calibration sequences have been discontinued for this lunar night due to the low temperature of the Z-axis sensor head. The Y and Z-axes science data remained static this reporting period.

13 July 1977 G.m.t.: 1600

## Apollo 15 ALSEP

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP). A real time verification of the 18 hour timer was obtained on 10 July (lunar night), and it was reading 28 minutes late from timer reset (24 May) and 3 minutes late from the verification observed on 1 July (lunar day). This appears to be a low temperature problem where the timer increment is approximately 1 minute longer at night.

## Apollo 14 ALSEP

The central station DSS-1 (10 watt) heater is ON and the external 14 and 7-watt power dump resistors are OFF for night operation.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP). Data from the long-period Z-axis remains static and does not respond to calibration commands. At 0832 G.m.t., 11 July the Madrid Tracking Station observed a spurious command verification word (CVW) in the downlink signal (PSE Uncage - arm fire circuit to OUT of Tolerance, octal 073). An attempt was made to command the PSE back to the Uncaged status (octal 073) during real time support on 12 and 13 July, however, no function was indicated.

The Charged Particle Lunar Environment Experiment was commanded ON, 7 July, and is operating in the normal mode at -35 vdc range and automatic thermal control mode.

#### Apollo 12 ALSEP

The Central Station DSS-1 (10 watt) Heater is ON for lunar night operation.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 4 Dec 75 ALSEP Performance Summary Report). The Z-motor is ON to maximize heating in the instrument for lunar night operation. The sensor temperature returned onscale (DL-07 = 137.3°F, sun angle 167.3°) on 9 July. It had been Offscale HIGH since 3 July. On 12 July, DL- 07 was offscale LOW at a sun angle of 203.6° and is expected to return Onscale 25 July. The experiment received a spurious functional command (PSE, Short Period calibration ON, octal 065) between the 2 real time support periods on 7 July without a command verification word (CVW) being observed in the downlink signal. At 1426 G.m.t., 7 July the experiment was reset to SP calibration OFF (octal 065) during the support period.

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch SC3, telephone 713-333-3481.

pollo 12 ALSEP 1 Apollo 14 ALSEP 4 Apollo 15 ALSEP 2 4122, 11/19/69 17282, 2/5/71 18052, 7/31/71 18052, 7/31/71 18052, 7/31/71 18052, 7/31/71 18052, 7/31/71 18052, 7/31/71 18052, 7/31/71 18052, 7/31/71 18052, 7/31/71 18052/89 18188/61 17.5% 527.2% 74.7% 75.6% 73.6		as of week ending	1600 Z (G.m.t.)	1977 July 1977		
14122, 11/19/69   17283, 2/5/71   18052, 7/31/71		pollo 12	14 ALSEP	15 AI SFP	ı	Apollo 17 ALSFP 5
March   Marc		-	2/5/71	, 7/31/71	4/21/72	12/12/72
Activity	unar Location		3.7		9.0°	30.8°F. 20.2°N
Active   Sunset, 217.2°   Sunset, 223.2°   Sunset, 244.3°     Sunset, 22755/89   122   136   136     Initial/Present 7.36w/42.7\(\text{2}\)   12.5\(\text{3}\)   5.2\(\text{2}\)   17.8\(\text{3}\)   17.	on/Days		2	1		£
Active   A	e, Sun Angle	217.	٦	1	į.	Midnight 271 do
Initial/Present   7.6w/42.7w   72.5w/ 57.2w   74.7w/ 39.6w   72.5w/ 57.2w   74.7w/ 39.6w   72.5w/ 57.2w   74.7w/ 39.6w   72.5w   72.5w/ 57.2w   74.7w/ 39.6w   72.5w   72.5w   74.7w/ 57.7w   74.2x/77   74.7w/ 60.0w/ 7/2/77   74.7w/ 60.0w/ 60.0w	- Total/Week		19,	40563/61		
Initial/Present   73.6W/42.7\( \text{Tr} \)   72.5\( \text{Tr} \)   72.7\( \text{Tr} \		120		136	11	0
Avg. Therm. Plate 1.0°F  Avg. Therm. Plate 1.0°F  Iransmitter  B, 7/8/74  B, 11/12/76  B, 8/26/76  Y, 8/25/76  Y, 10/19/76  For Reserve  Inoperative  B, 11/12/76  Y, 10/19/76  Inoperative  Reset.5/24/77  Reset.5/24/77  Reset.5/24/77  Reset.5/24/77  Reset.5/24/77  Reset.5/24/77  Reset.6/25/20  BSS-160W  Auto On  Auto	Initial/Present	73.6w/42.7w		/ 39.	61.	75.4w/60.5w
Avg. Therm. Plate 1.0%	ויכאכן אב ו מאבו	y. Sw	12.8w	$11.8\omega$	13.0w	16.2w
Transmitter   B, 7/8/74   B, 11/12/76   B, 8/20/76     Processor   Y, 8/25/76   Y, 8/24/76   Y, 10/19/76     Processor   Y, 8/25/76   Y, 8/24/76   Y, 10/19/76     Processor   John	Avg. Therm. Plate	7.(	21.3°F	-13.6°F	40 F. 98	₫o9°9-
Processor   Y, 8/25/76   Y, 8/24/76   Y, 10/19/76     PCU	Transmitter				3/26,	A, 12/9/74
Timer   Inoperative   Inoperative   Reset;5/24/77     Frimer   Inoperative   Inoperative   Reset;5/24/77     Heaters   USS-1 (10W) - OW   USS-1 (10W) - OFF     LPX/Y,Z,SPZ   O,O,-20db   11/75   O,0,0db   O,0,0db     Heaters   Auto On   7/10/77   Auto On   Z Motor OW   7/10/77   Auto On     Filter   OUT - 3/27/77   OUT - 11/11/76   OUT - 3/27/77     Filter   OUT - 3/27/77   OUT - 11/11/76   OUT - 3/27/77     Filter   OUT - 3/27/77   OUT - 11/11/76   OUT - 3/27/77     Filter   OUT - 3/27/77   OUT - 11/11/76   OUT - 3/27/77     CPLEE OW   7/7/77   OUT - 11/11/77     COLOT Temp. Offscale LOW   OT   OT   OT   OT     ODERABLE   OUT - 11/11/76   OUT - 3/27/77     ODERABLE   OUT - 11/11/77   OUT - 11/11/77     SWS - OFF 1/15/77   OUT   OUT - 11/11/77     SWS - OFF 1/15/77   OUT   OUT   OUT   OUT     CPLEE OW   7/7/77   OUT   OUT   OUT     OUT - 3/27/77   OUT   OUT   OUT   OUT   OUT     OUT - 3/27/77   OUT   OUT   OUT   OUT   OUT   OUT     OUT - 3/27/77   OUT	Processor			_	1/12	X.R.S.W.DCDR B 8/74
Heaters Inoperative Inoperative Operatis/\$24/77  Heaters DSS-1 (10w) - OW DSS-1 (10w) - OFF  LPX/Y,Z,SPZ 0,0,-20db 11/75 0,0,0db  Heaters Auto On Z/10/77  Eilter OUT - 3/27/77  DL-O7 Temp. Offseale LOW 124.1°F 11/17/76 OUT - 3/27/77  McTive, Oberabe Ckt. Uncaged OT ON DTREM - OFF 1/13/77  INOPERABLE DOFF 5/3/76 SIDE - OFF 1/5/75 FOR RESERVE POWER DOWER for C/S Heat DOWER Failed AND DEFENSE DOWER DOWER Failed AND DEFENSE DOWER DOWE	PCU			_	,	2
Heaters by S2-1 (10w) - ON BSS-1 (10w) - OFF  LPX/Y,Z,SPZ 0.0.0-20db 11/75 0.0.0db  Heaters Auto On Auto ON 7/7/77 Auto ON 7/7/77  Eilter OUT - 3/27/77 OUT - 11/17/76 OUT - 3/27/77  DL-O7 Temp. Offscate LOW OT OT	Timer	Inoperative	Inoperative	7	Inhibited 5/72 Reset: 5/24/77	Operative Inhibited: 7/11/22
Heaters	Heaters	1	ON 7/1	ODSS-1 (10w) - OFF	DSS-1 (1944) $\frac{1}{7}$ ON	
Heaters	ZyS,Z,	11	0,0,0db	0.0.0db	0.0.0dh	1.SPF - STNRV 4/25/77
Filter   OUT - 3/27/77   OUT - 11/17/76   OUT - 3/27/77	*		Auto ON 7/7/77	Auto On	Auto On 7/7/77	
DL-07 Temp. Offscale LOW   124.1°F   184.6°F     DL-07 Temp. Offscale LOW   124.1°F   184.6°F     Uncage Ckt. Uncaged   OT		/01// NIO				
DL-07 Temp. Offscale LOW	Filter	•	,	- 1	ı	HFE - ON
Uncage Ckt.   Uncaged   OT	DL-07 Temp.		4.1°F	124.6°F	9	
ACTIVE/ OPERABLE  SWS - OFF 1/15/77  Increase Reserve Power for C/S heat INOPERABLE  INOPERABLE  INOPERABLE  LSM - OFF 6/74  Reserve Power for C/S Heat Failed  LSM - OFF 6/74  Rocators on fired Rocators of STBY 12/23/74  Rocators on fired Geophones 2 & 3 had LSM - OFF 6/74	ckt.	jed .		Uncaged		RBS weekly
OPERABLE   OPERATE   OPE	12110	Detector - ON	NO	,	NO -	ISG- ON 3/28/77
SWS - OFF 1/15/77   SIDE - OFF 3-12-77   FOR RESERVE POWER			OW 7/7 Night ailed		ailed 3/3/75 ailed 4/8/77	Auto Htr Failed No Free Modes or
SIDE - OFF 5/3/76   SIDE - OFF 1/5/75   HFE - OFF 1/13/77     Increase Reserve Pailed   For Reserve Power Power for C/S Heat   LSM - OFF 6/74   ASE - STBY 12/23/74   SWS - OFF 6/74   Failed   Geophones 2 & 3 had LSM - OFF 6/74		OFF 1/19 se Reser for C/S		SIDE - OFF 3-12-77 FOR RESERVE POWER		
- OFF 6/74 ASE - STBY 12/23/74 SWS - OFF 6/74 Failed Mortars unfired Failed Geophones 2 & 3 had LSM - OFF 6/74		SIDE - OFF 5/3/76 Increase Reserve Ower for C/S Heat	- 0FF 1/5/75 Failed	- OFF 1/13/77 Reserve Power	- Off Since loyment, cable ered.	LEAM - ON, 4/25/77 Static @ night 7/76 Intrmt days 4/25/77
Geophones 2 & 3 had LSM - OFF 6/74 Sensons		- OFF 6/74 Failed	TBY 12/23/74 unfired	- OFF 6/74 Failed	F 12/23/74	LACE - STBY 7/22/76
Failed			es 2 & 3 bad	L.SM	failed.	
59, Lost	- Apollo 11	7/21/69, 23	0.7°N -	8/25/69, Lost	Downlink 12/14/69	

# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 7/13/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
			LOS 06/0942		
06 July	GDS	Higher Priority	AOS 06/1029	ALL	47 <sup>m</sup>
		,	LOS 07/1047		
07 July	AGO/GDS	Higher Priority	AOS 07/1120	ALL	33 <sup>m</sup>
			LOS 08/0201		m
08 July	GWM/MAD	Higher Priority	AOS 08/0240	ALL	39 <sup>m</sup>
			LOS 12/2156		
12 July	GWM	Station Problem	AOS 12/2204	A-14	08 <sup>m</sup>
			LOS 12/2201		
12 July	GWM	Station Problem	AOS 12/2204	A-15	03 <sup>m</sup>
			LOS 13/0256		
13 July	ULA	Antenna Masking	AOS 13/0314	A-15	18 <sup>m</sup>
			LOS 13/0307		
13 July	ULA	Antenna Masking	AOS 13/0314	A-14	o7 <sup>m</sup>
			LOS 13/0308		
l July	ULA	Antenna Masking	AOS 13/0314	A-17	06 <sup>m</sup>
			LOS		
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24 August 1977 G.m.t.: 1600

# Apollo 17 ALSEP

Sunrise of the 59th lunation occurred on 19 August at the Taurus Littrow Site. The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain.

The Lunar Surface Gravimeter Experiment is ON and configured with the slave heater OFF, seismic high gain, power amplifier at step #2, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, the tilt servo motors in an intermediate position, and the pressure transducer and decoder are OFF.

The Lunar Seismic Profiling Experiment is in STANDBY.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. Ring bridge surveys are achieved on a periodic basis. On 24 August the lunar surface temperature, as measured by the HFE thermocouples, was  $339 \pm 8^{\circ}$ K. At a depth of 230 cm the subsurface temperature was 256.8°K at probe #1. The anomaly with probe #2 at the 230 cm level continued through this period. The DTH22, DTL22, and T22 readings remain abnormal.

The Lunar Atmospheric Composition Experiment was commanded to STANDBY 19 August. During the experiment power ON period this lunar night no change was observed in the high voltage and sweep lock anomalies.

The Lunar Ejecta and Meteorites Experiment is ON. The engineering data synched and was valid on 20 and 21 August. The science data was intermittent during this report period.

# Apollo 16 ALSEP

Sunrise at the Descartes Site occurred on 20 August for the 67th lunation. The DSS-1 (10 watt) heater was commanded OFF 20 August.

The Passive Seismic Experiment is ON and configured thermal control Auto ON; component gain O db; and feedback loop filter OUT.

The Lunar Surface Magnetometer Experiment is ON and recording data. Flip calibration sequences have been resumed for this lunar day and a total of 1342 have been executed and verified by the experiment engineering data since deployment. The Y axis science data returned to normal operation on 24 August at a sun angle of 43.3°.

The Active Seismic Experiment is in STANDBY.

24 August 1977 G.m.t.: 1600

## Apollo 15 ALSEP

Sunrise of the 76th lunation at the Hadley Rille Site occurred on 21 August. The 18 hour timer pulse was verified on 20 August during real time support and it was 29 minutes late from the previous verification on 2 August. The pulse is 1 hour 22 minutes later than the predicted time and is attributed to low temperature (-22.7°F) in the Central Station at night. The loss is apparently predictable and causes no problem. On 23 August during the real time support period it was verified that the Heat Flow, Lunar Surface Magnetometer, Solar Wind, and the Suprathermal Ion Detector/Cold Cathode Gauge Experiments were OFF.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP).

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments were commanded OFF 12 March 1977.

The Solar Wind Spectrometer Experiment was commanded OFF 14 June 1974.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

The Heat Flow Experiment was commanded OFF 13 January 1977.

# Apollo 14 ALSEP

Sunrise of the 82nd lunation at the Apollo 14 site occurred on 23 August. The central station DSS-1 (10 watt) heater was commanded OFF for day operation 24 August. Operation in Data Processor Y was verified 24 August.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP). The Long Period Z-axis remains static and does not respond to calibration commands.

The Active Seismic Experiment is in STANDBY.

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments were commanded OFF on 21 May 1976.

The Charged Particle Lunar Environment Experiment is ON and operating in the normal mode at -35 vdc range and automatic thermal control mode.

# Apollo 12 ALSEP

Sunrise of the 97th lunation occurred on 23 August. Operation in Data Processor Y was verified on 24 August. The average thermal plate temperature dropped to -22.7°F during the past lunar night with the Central Station heaters OFF.

24 August 1977 G.m.t.: 1600

# Apollo 12 ALSEP (continued)

The Passive Seismic Experiment is configured thermal control Auto ON, component gain 0 db and feedback loop filter OUT, and the short period Z-axis gain is set at -20 db. The sensor temperature (DL- 07) returned onscale at a sun angle of 4.2° (DL-07 =  $126.4^{\circ}F$ ) and the Z motor was commanded OFF on 24 August. On 23 August a power check was made of the PSE heater and it was found to be drawing 1.67 watts. The PSE power consumption for heating is 4.67 watts (Z-motor ON = 3 watts, heater Auto ON = 1.67 watts) which is sufficient to maintain the required temperature of the experiment for lunar night operation.

The Solar Wind Spectrometer Experiment was commanded OFF 15 January 1977.

The Suprathermal Ion Detector Experiment was commanded OFF 3 May 1976.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch SC3, telephone 713-333-3481.

Acollo 12 ALSEP   Acollo 14 ALSEP   Acollo 15 ALSEP   Acollo 16 Acollo 17 Acollo 16 Acollo 16 Acollo 16 Acollo 16 Acollo 17 Acollo 16 Acollo 16 Acollo 17 Acollo 16 Acollo 17 Acollo 16 Acollo 16	cation	ALSEP 1	all 1977 - 2			
Standard   14122, 11/19/99   17824, 2/20/12   18022, 17/13/14   19324, 4/21/12   10/22   17/19/99   17/22, 2/21/12   18022, 4/21/12   19324, 4/21/12   19324, 4/21/12   19324, 4/21/12   19324, 4/21/12   19324, 4/21/12   19324, 4/21/12   19324, 4/21/12   19324, 4/21/12   19324, 4/21/12   19324, 4/21/12   19324, 4/21/12   19324, 4/21/12   19324, 4/21/12   19324, 4/21/12   19324, 4/21/12   19324, 4/21/12   19324, 4/21/12   19324, 4/21/12   1/21/14   1/21/12   1/21/14   1/21	cation	1	O D O D	01010	JE AI CED	77777
Supplementary   Supplementar	300),9	11/	2/5/71	7/31/71	4/21/72	<u> </u>
Substitute   Sub			33	26.	0	5
Sun Hugle Sunries, 10.5° Sunries, 27.6° Sunries, 27.6° Sunries, 49.5° Sunries, 47.7 Internal Hugle Sunries, 10.5° Sunries, 27.6° Sunries, 49.5° Sunries, 47.7 Internal Hugh Sunsition of T.2.5w.62.25	on/Days Ops	5	82/2254	9		2
130   131	Sun Angle	10.	16.5	37.	49.	64.
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Service Power   73.64/ 42.30   72.54/6.6.00   74.74/27.70   70.94/61.30   75.44/62.30   70.54/6.10   70.35/61   76.44/62.30   70.36/61.30   76.46/62.30   76.26/62   76.46/62.30   76.26/62   76.46/62.30   76.26/62   76.46/62   76.			113	137		, 0
Section   19.70   29.60   20.20   20		3.6w/ 42.3w	72.5w/58.0w			75 Aw 158.90
independing the following plate 40.2% by 52.7% by 10.1% by 8.2% by 11.12.76 by 8.326,73 by 11.2.97.74 by 11.12.76 by 11.2.97.77 by 11.2.97 by 11.2.97.77 by	Power	19.7w	29.6w			23.6w
Seeson	Plate	10.2°F	59.7°E		30°3°E	74.7°F
cessor V, 8/25/76 V, 8/24/76 V, 10/19/76 X, 1/12/77 X, B.S. W.DCDR B  Inoperative Inoperative Constitution of the sector of the			11/12/	8/24/77	1	12
ters    Inoperative   Inoperative   Inoperative   Inoperative   Inoperative   Inoperative   Inoperative   Inoperative   Reset: 5/24/77   Reset: 5/24/77   Reset: 5/24/77   Reset: 5/24/77   Reset: 5/24/77   Inhibited: 8/294    cessor		8/24/7	10/19/76	1	R.S.W.DCDR	
er Inoperative Inoperative   Operative   Operative   Reset. 5724/77   Reset. 5727/77   Reset. 600   Reset. 60			1			2
ters    USS-1 (10w) OFF 8/1   DSS-1 (10w) OFF 8/1   DSS-1 (10w) OFF 8/20   DSS-1 (10w) OFF			Inoperative	77	Inhibited 5/72 Reset: 5/24/77	I
Heaters Auto On 8/4/77 Auto On 8/5/77  Heaters Auto On 8/2/77 Auto On 8/4/77 Auto On 8/5/77  Filter 2 Notor OFF 8/24/77 OUT - 3/27/77 OUT - 3/		8/11	DISS-JOR'S OFF 8/24	- 0FF	(10w)OFF	APM STATUS:
Heaters	/Y,Z,SPZ		0,0,0db		0.0.0db	
### Filter OUT - 3/27/77 OUT - 11/17/76 OUT - 3/27/77 OUT - 3/27/77 HFE - 0  ### DL-07 Temp. 125.8%  ### DL-07 Temp. 125.4%  #### ##############################	,	OFF	∞ ¯			- - -
DL-O7 Temp. 125.8°F		27/7	- 11/17	- 3/27/77	'	,
Note   Continged   Continged   Cort	ешр.	.25.8¢F		5°F	4	
Oust Detector - ON   DTREM - ON   DTREM - ON   CPLEE - ON   8/6/77   Auto Ht Oust Detector - ON   Operate   Night Only   Valled   Auto Ht Oust Detector - ON   Operate   Night Only   Valled	Ckt.	·	Uncaged		1	RBS weekly
Noterable   SWS - OFF 1/15/77   SIDE - OFF 3-12-77   Failed 4/8/77   Note Free		NO -	DTREM - ON		1	NO
SWS - OFF 1/15/77	ACTIVE/ OPERABLE		CPLEE - ON 8/6/77 Operate Night Only Anal B Failed 4/71		iled 3/3/75 iled 4/8/77	Auto Htr Failed No Free Modes or
INOPERABLE Increase Reserve Failed For Reserve Power deployment, cable Static Former For C/S Heat Fower for C/S Heat Failed Former Form		- OFF 1/15/77 rease Reserve er for C/S heat				
LSM - OFF 6/74				- OFF 1/13/77 Reserve Power	HFE - Off Since deployment, cable	104
- Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N - Lost Uplink 8/25/69, Lost Downlink 12/14/69	IS]	8.	ASE - STBY 12/23/74	WS - OFF 6/74	4SE - 0FF 12/23/74	ر أ د
- Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N - 10st Unlink 8/25/69, Lost			Mortars unfired Geophones 2 & 3 bad	S	Mortar #1 unfired. Sensors failed.	<u></u>
2001 600 /01/2 0001	- Apollo 11	7/21/69, 23	.4°E, 0.7°N - Lost Up	8/25/69, Lost	Downlink 12/14/69	

# NOON and NIGHT DATA (Latest Lunation)

	Night	75. 286.7° -138.0 dbm 36.8w 9.9w -21.2°F 124.6°F
APOLLO 15 ALSEP	Noon	75 91.0° -136.0 dbm 40.4w 11.9w 100.0°F
APOLLO		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. PSE T. (DL-07)
	Night	81 265.5° -137.0 dbm 57.9w 12.8w 21.3°F 124.1°F -22.7°C
APOLLO 14 ALSEP	Noon	81 70.1° -142.0 dbm 58.2w 12.6w 99.8°F 130.5°F STBY
APOLL		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. PSE T. (DL-07) CPLEE T. (AC-06)
	Night	96 283.9° -139.0 dbm 41.5w 17.2w -19.2°F LOW
APOLLO 12 ALSEP	Noon	96 88.6° -142.0 dbm 44.2w 22.6w 87.6°F 141.3°F
APOLL(		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. PSE T. (DL-07)

LLO 17 ALSE	
APOL	
6 ALSEP	
APOLLO 16 A	

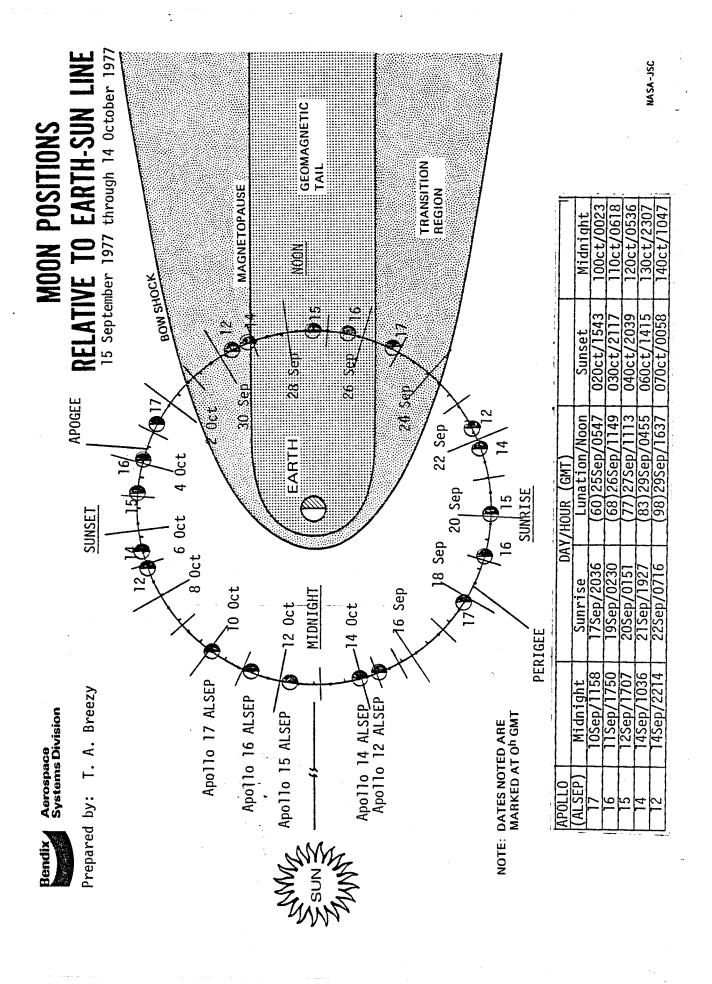
	Noon	Night		Noon	Night
Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. PSE T. (DL-07) LSM T. (DM-05)	66 90.6° -135.0 dbm 61.9w 30.8w 102.2°F 142.8°F	66 261.6° -137.0 dbm 61.5w 13.0w 25.7°F 125.8°F -10.2°C	Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. LACE T. (AM-41) LEAM T. (AJ-11) HFE T. (DH-13) LSG T. (AP-01)	58 94.1° -134.0 dbm 59.3w 23.9w 80.3°F 157.7°F 207.2°F 326.4°K LOW 80.2°F	58 277.2° -140.0 dbm 59.7w 15.6w -7.7°F -16.1°F - 14.0°F 281.9°K LOW -7.7°F

# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 8/24/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
			LOS 17/0911		
17 August	ORR/GWM	Higher Priority	AOS 17/0927	ALL	16 <sup>m</sup>
		• .	LOS 17/1001		
17 August	GWM/ACN	Higher Priority	AOS 17/1129	ALL	1 h 28 m
		` .	LOS 18/0930		
18 August	ORR/ACN	Higher Priority	AOS 18/1418	ALL	4 <sup>h</sup> 48 <sup>m</sup>
			LOS 18/1645		
18 August	ACN/AGO	Higher Priority	AOS 18/1826	ALL	1 <sup>h</sup> 41 <sup>m</sup>
			LOS 19/0356		
19 August	ULA/GWM	Higher Priority	AOS 19/0411	ALL	15 <sup>m</sup>
A Section 1			LOS 19/1030		
19 August	ORR/ACN	Higher Priority	AOS 19/1136	ALL	1 <sup>h</sup> 06 <sup>m</sup>
			LOS 19/1206		
19 August	ACN	Higher Priority	AOS 19/1304	ALL	58 <sup>m</sup>
			LOS 20/0625		
ugust	ORR	Higher Priority	AOS 20/0802	ALL	1 <sup>h</sup> 37 <sup>m</sup>
			LOS 20/1000		
20 August	ORR/ACN	Higher Priority	AOS 20/1515	ALL	5 <sup>h</sup> 15 <sup>m</sup>
	*		LOS 21/1020		
21 August	ORR/ACN	Higher Priority	AOS 21/1245	ALL	2 <sup>h</sup> 25 <sup>m</sup>
			LOS 21/1600		
21 August	ACN	Higher Priority	AOS 21/1709	ALL	1 <sup>h</sup> 09 <sup>m</sup>
			LOS 22/1508		
22 August	ACN	Higher Priority	AOS 22/1612	ALL	1 h <sub>04</sub> m
			LOS		
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( ) 3 ( )	0900-1100 ALSEP 15 ALSEP 14 PDRS OFF CPLEE ON	13/225	NO SUPPORT	20/232	1600-1800 ALSEP 16 C/S HTR OFF
05/217	0900-1100 ALSEP 16 C/S HTR ON LSM FLIP CAL PSE HTR ON ALSEP 14 PSE HTR ON	12/224		19/231	0900-1100 ALSEP 17
04/216	0900-1100 ALSEP 17 2200-2300	11/223	0900-1100 ALSEP 12 C/S HTR OFF	18/230	NO SUPPORT
03/2	0900-1100 ALSEP 17 HFE RBS ALSEP 16 LSM FLIP CAL	10/222	0900-1100 ALSEP 17 HFE RBS	17/229	0900-1100 ALSEP 17 HFE RBS
02/214	0900-1100	09/221	0000-0400 ALSEP 14 C/S HTR ON ALSEP 12 C/S HTR ON PSE Z MTR ON 1600-1700	16/228	NO SUPPORT
AUG 01/213	0900-1100 ALSEP 16 LSM FLIP CAL	08/220	0900-1100 ALSEP 14 ALSEP 12	15/227	0900-1100 ALSEP 17 LSM ON
JUL 31/21		AUG 07/219	<u>0900-1100</u>	AUG 14/226	NO SUPPORT

стру в применя в при В применя в	Book and the control of the control	
27 0900-1100 ALSEP 14 PSE HTR OFF	03/246 0900-1100 2200-2300	10/253 NO SUPPORT
26/238 0900-1100 ALSEP 16 LSM FLIP CAL	02/245 0900-1100 ALSEP 17 2200-2300	09/252 0900-1100
25/237 0900-1100 ALSEP 14 CPLEE STBY PRDs ON	SEP 01/244 0900-1100	0900-1100
24/2: 0900-1100 ALSEP 17 HFE RBS ALSEP 16 LSM FLIP CAL	31/243 0900-1100 ALSEP 17 HFE RBS ALSEP 16 LSM FLIP CAL	07/250 1100-1500 ALSEP 12 C/S HTR ON PSE Z MTR ON ALSEP 14 C/S HTR ON ALSEP 17 HFE RBS
23/235 0900-1100 ALSEP 14 ALSEP 12 2200-2400 ALSEP 12 C/S HTR OFF PSE Z MTR OFF ALSEP 14 C/S HTR OFF	30/242 0900-1100	0900-1100 ALSEP 14
22/234 0000-0300 ALSEP 16 LSM FLIP CAL PSE HTR 0FF 1200-1300	29/241 0900-1100 ALSEP 16 LSM FLIP CAL	05/248 0900-1100 ALSEP 15 ALSEP 14 PDRS OFF CPLEE ON
AUG 21/2 0900-1100 ALSEP 15 2200-2400	AUG 28/240 0900-1100	SEP 04/247 0900-1100 ALSEP 16 C/S HTR ON PSE HTR ON ALSEP 14 PSE HTR ON



31 August 1977 G.m.t.: 1600

At 20:42:17 G.m.t., 29 August, the Apollo 16 ALSEP transmitter was turned OFF by the 97 day timer output. The transmitter was turned ON by the Ascension tracking station at 2053 G.m.t., 29 August. Allowing the timer to turn the transmitter OFF after 97 days eliminates the necessity to reset the timer in the future as this is a one-time occurrence. Due to a malfunction in the AZ-03 counter of the Apollo 15 ALSEP the transmitter did not turn OFF. However, the timer does not need to be reset because of the AZ-03 anomaly. Future transmitter turn OFFs for both ALSEPs must be executed by ground command.

# Apollo 17 ALSEP

The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain.

The Lunar Surface Gravimeter Experiment is ON and configured with the slave heater OFF, seismic high gain, power amplifier at step #2, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, decoder OFF, pressure transducer OFF, and the tilt servo motors in an intermediate position.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. Ring bridge surveys are achieved on a periodic basis. On 30 August the lunar surface temperature, as measured by the HFE thermocouples, was  $336 \pm 8^{\circ}$ K. At a depth of 230 cm the subsurface temperature was  $256.9^{\circ}$ K at probe #1. The anomaly with Probe #2 at the 230 cm level continued through this period. The DTH22, DTL22, and T22 readings remain abnormal.

The Lunar Ejecta and Meteorites Experiment is ON. Valid science data has been received intermittently this report period. The analog engineering data is useable. The instrument survival temperature (AJ-11) reached a maximum of 215.2°F during this period.

# Apollo 16 ALSEP

The DSS-1 (10w) heater is OFF for lunar day.

The Passive Seismic Experiment is configured thermal control Forced OFF; component gain 0 db; and feedback loop filter OUT. The heater is being operated in Forced OFF and the Arm/Fire circuit in Uncaged for lunar day operation to minimize heating in the experiment. The instrument assembly temperature (DL-07) was offscale HIGH on 28 August at a sun angle of 97.0° and is expected to return onscale on 4 September.

31 August 1977 G.m.t.: 1600

# Apollo 16 ALSEP (continued)

The Lunar Surface Magnetometer is ON. The science data from the Y-axis sensor was valid on 24 August (sun angle  $43.3^{\circ}$ ). Science data from the Z-axis remained static this report period. Flip calibration sequences are being conducted during the lunar day and a total of 1346 have been executed and verified by the engineering data since deployment.

# Apollo 15 ALSEP

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the thermal control is Auto ON. The instrument assembly temperature (DL-07) was offscale HIGH on 28 August (sun angle 85.3°) and is expected to return onscale on 1 September.

# Apollo 14 ALSEP

The central station DSS-1 (10 watt) heater is OFF for day operation.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP). Data from the long-period Z-axis remains static and the axis does not respond to calibration commands.

Between the real-time support periods of 27 and 28 August the instrument executed a functional change to Short Period calibration ON (octal 065). A command verification word was not seen in the downlink telemetry by the tracking stations. The instrument was reconfigured to SP calibration OFF (octal 065) at 1402 G.m.t., 28 August.

The Charged Particle Lunar Environment Experiment was commanded to STANDBY on 25 August.

# Apollo 12 ALSEP

The central station DSS-1 (10 watt) heater is OFF for lunar day time.

The Passive Seismic Experiment is configured thermal control Auto ON; component gain O db and feedback loop filter OUT, and the short period Z-axis gain is set at -20 db.

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payloads Requirements and Operations Branch SC3, telephone 713-333-3481.

Mode	JANUS   JANU	<u>F</u> I						
14   12.3   1.7	1400   1728, 215.71   1805, 1817171   18171717   18171711   1817171   181717111   181717111   181717111   181717111   1817171111   1817171111   1817171111   1817171111   1817171111   1817171111   1817171111   1817171111   18171711111   1817171111	7		12	14 ALSEP	15 ALSEP	16 ALSEP	17 ALSEP
1.5   1.5	1.5				3/2	7/31/71	4/21/72	12/12/72
March   Marc	March   Marc			- 1	3	3.7°E, 26.1°N	٠ ليا	20
### ### ##############################	Action   A		on/Days Ops	97/2841	82/2260	76/2222	•	
Colored Note	The control of the	7	Sun Angle		89.	110.	ļ	1
Tansmitter	Initial/Present   1.5	<u>ں</u>	Total/Week	33121/62	<b>\</b>			1 🔨
Reserve   73.6\text{Reserve}   75.5\text{Reserve}   75.5\text{Reserve}   75.6\text{Reserve}	Reserve   73.6 \text{No.} \frac{52.56}{52.60} \frac{75.54}{52.60} \frac{75.44}{52.60} \frac{75.24}{52.60} \frac{75.44}{52.60} \frac{75.44}{60.60} \frac{75.44}{52.60} \frac{75.44}{52.60} \frac{75.44}{52.60	S	purious Changes			137		0
Harter   Plate   Pla	Ayg. Therm. Plate         20.7ω         30.0ω         33.6ω           Ayg. Therm. Plate         21.2ω         30.7ω         30.0ω         33.6ω           Francismitter         2.7/8/74         8.7/8/74         8.3/26/73         A.12/377         X. B.S. M.DGDR B.           Processor         V. 9/28/76         V. 8/24/76         V. 10/19/76         X. 11/27/7         X. B.S. M.DGDR B.           Processor         V. 9/28/76         V. 8/24/76         V. 10/19/76         X. 11/27/7         X. B.S. M.DGDR B.           PUD         Timer         Inoperative         Inoperative         Inoperative         Inoperative         1.00/19/76         X. 11/27/7         X. B.S. M.DGDR B.           PUD         Timer         DSS-1 (10ω)         A.0.0mb         D.0.0db         A.0.0db	IJŢ	Initial/Present		58.7w	_	$70.9 \text{W}/61.5 \omega$	75.4w/58.9w
House Care   1, 18, 18, 18, 18, 18, 18, 18, 18, 18,	Way	۵,	reserve rower	21 <b>.</b> 8w		10.7w	30.0w	23.6w
Transmitter   8, 7/8/74   8, 11/12/76   7, 8/24/76   7, 11/2/77   7, 12/9/74   7, 10/19/76   7, 11/2/77   7, 12/9/74   7, 10/19/76   7, 11/2/77   7, 11/2/77   7, 11/2/77   7, 11/2/77   7, 11/2/77   7, 11/2/77   7, 11/2/77   7, 11/2/77   7, 11/2/77   7, 11/2/77   7, 11/2/2/2/27   7, 11/2/2/2/27   7, 11/2/2/27   7, 11/2/2/27   7, 11/2/2/27   7, 11/2/2/27   7, 11/2/2/27   7, 11/2/2/27   7, 11/2/2/27   7, 11/2/2/27   7, 11/2/2/27   7, 11/2/2/27   7, 11/2/2/27   7, 11/2/2/27   7, 11/2	Processor	1/1(	Avg. Therm.	87.4°F		97.4°E	98.6°F	∄ <sub>o</sub> 9.89
Processor   Y, 8/25/76   Y, 8/24/76   Y, 10/19/76   X, 1/12/77   X, B.S. W. DCDB B	Processor   Y, 8/28/76   Y, 8/24/76   Y, 10/19/76   Y, 10/19/77   X.R.S.W.DCDR B   Court	ΊŢ	Transmitter	- 1	11/12/			
PCU   1	Timer   1	ΔT;	Processor		8/	Y, 10/19/76		R. S. W. DCDR
Timer   Inoperative   Inoper	Timer   Inoperative   Inoper	) .					,	
Heaters bSS-1 (10w) 1/9FF BYW-10WB/PRS-0FF BYW-1 (10w) - OFF BSS-1	Heaters DSS-1 (10wg/110f) DSW-100hPFF/8/6/74 DSS-1 (10w) - OFF DSS-1 (10wg/20f) DSS-1 (10wg	AGTV	Timer	Inoperative	Inoperative	Operative	:	$\infty$
Heaters	Heaters	LFI	Heaters	USS-1 (10W)_10FF	DSIN- 1000 PFF 8/8/29	DSS-1 (10w) -		APM STATUS:
Heaters   Auto On	Heaters   Auto On		.Υ,Ζ,SPZ	11/	0,0,0db		0.0.0db	- STBY
Filter   OUT - 3/27/77   OUT - 11/17/76   OUT - 3/27/77   OUT - 3/27/77	Filter   OUT - 3/27/77   OUT - 11/17/76   OUT - 3/27/77   OUT - 3/27/77			Auto On Z Motor		Auto On	Auto On	
Ducage Ckt.   Uncaged   Offscale HIGH   Offscale HIGH	Dust Detector - ON DTREM - OFF 1/15/77 DTREM - OFF 1/15/77 DTREM - OFF 5/3/76 DOWER		Filter		=		- 3/27	
Uncaged   Uncaged   Uncaged   OT   Uncaged	Uncaged   Uncaged   Uncaged   Uncaged   OT		DL-07 Temp.	139.70F	129.9°F	Offscale HIGH	Offscale HIGH	
ACTIVE/ OPERABLE  Note that Detector - ON DIREM - OFF 1/15/77  Note that Side - OFF 1/15/75  INOPERABLE  INOPERABLE  INOPERABLE  SWS - OFF 1/15/77  SIDE - OFF 3-12-77  For Reserve Power Power General Power for C/S heat Down - OFF 6/74  Increase Reserve Power for C/S Heat Down - OFF 6/74  Eailed ASE - STBY 12/23/74  Mortars unfired Geophones 2 & 3 bad LSM - OFF 6/74  Sensors failed Benoyed 7/21/69, 23.4°E, 0.7°N - Lost Uplink 8/25/69, Lost Downlink 12/14/69	ACTIVE/ OPERABLE  OPERABLE  SWS - OFF 1/15/77  SWS - OFF 1/15/77  Increase Reserve Power for C/S heat INOPERABLE  INOPERABLE  INOPERABLE  INOPERABLE  INOPERABLE  INOPERABLE  INOPERABLE  INOPERABLE  INOPERABLE  Increase Reserve INOPERABLE  Increase Reserve Increase Reserve Failed  Eailed  Geophones 2 & 3 bad LSM - OFF 6/74  Geophones 2 & 3 bad LSM - OFF 6/74  Geophones 2 & 3 bad LSM - OFF 6/74  SEP - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N - Lost Uplink 8/25/69, Lost Downlink 12/14/69		Ckt.	•	Uncaged	ĮO.	Uncaged	RBS weekly
NACTIVE/ SIDE - OFF 1/15/7	SWS - OFF 1/15/77   SIDE - OFF 3-12-77   SIDE - OFF 3-12-77   SIDE - OFF 3-12-77   Forease Reserve   Power for C/S heat   Failed   Forease Reserve   Forea	<u>S.</u>		NO -		1	1	LSG-0N 3/28/77
SWS - OFF 1/15/77   FOR RESERVE POWER	NACTIVE/   SIDE - OFF 1/15/77   FOR RESERVE POWER	IMFNT			$\sigma$ $\leftarrow$			Auto Htr Failed No Free Modes or
INOPERABLE	INOPERABLE	EXbEB		SWS - OFF 1/15/77 Increase Reserve Power for C/S heat		SIDE - OFF 3-12-77 FOR RESERVE POWER		
LSM - OFF 6/74	LSM - OFF 6/74  ASE - STBY 12/23/74 SWS - OFF 6/74  Failed  Geophones 2 & 3 bad LSM - OFF 6/74  Geophones 2 & 3 bad LSM - OFF 6/74  Failed  - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N - Lost Uplink 8/25/69, Lost Downlink 12/14/69			SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	- OFF Failec	Re	HFE - Off Since deployment, cable severed.	LEAM -ON 4/27/77 Static @ night 7/76 Intrmt Days 4/25/77
- Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N - Lost Uplink 8/25/69, Lost Downlink 12/14/69	- Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N - Lost Uplink 8/25/69, Lost Downlink 12/14/69		4	- OFF 6/74 Failed				LACE - STBY 8/19/77
- Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N - Lost Uplink 8/25/69, Lost	- Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N - Lost Uplink 8/25/69, Lost				2 × × × × × × × × × × × × × × × × × × ×	LSM	•	nv ralled 10/73
			- Apollo 11	7/21/69,	0.7°N - Lost	8/25/69, Lost	Downlink 12/14/69	

# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 8/31/53

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
			LOS 24/2145		
24 August	ACN/AGO	Higher Priority	AOS 24/2212	ALL	27 <sup>m</sup>
		1.	LOS 25/1158		
25 August	HAW/ORR	Higher Priority	AOS 25/1310	ALL	i <sup>h</sup> 12 <sup>m</sup>
		٠,	LOS 25/1640		
25 August	ORR/AGO	Higher Priority	AOS 25/2010	ALL	3 <sup>h</sup> 30 <sup>m</sup>
			LOS 25/2130		
25/26 August	AG0	Higher Priority	AOS 26/0242	ALL	5 <sup>h</sup> 12 <sup>m</sup>
			LOS 26/0408		
26 August	QUI/GDS	Higher Priority	AOS 26/0544	ALL	1 <sup>h</sup> 36 <sup>m</sup>
to the			LOS 26/1214		
26 August	HAW/ORR	Higher Priority	AOS 26/1325	ALL	1 <sup>h</sup> 11 <sup>m</sup>
			LOS 26/1839		
26 August	ACN	Higher Priority	AOS 26/1938	ALL	59 <sup>m</sup>
			LOS 27/1144		
27 August	HAW/ORR	Higher Priority	AOS 27/1159	ALL	15 <sup>m</sup>
			LOS 27/2150		
27 August	ACN .	Higher Priority	AOS 27/2353	ALL	2 <sup>h</sup> 03 <sup>m</sup>
	′		LOS 28/2119		
28 August	ACN	Higher Priority	AOS 28/2253	ALL	1 h 34 m
			LOS 29/2042		
29 August	ACN	18 hr Time Out	AOS 29/2053	A16	l 11 <sup>m</sup>
			LOS		
			AOS		
-			LOS		
		·	AOS	7	
			LOS		
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7 September 1977 G.m.t.: 2000

## Apollo 17 ALSEP

The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain. A test will be performed during this lunar night to decrease the central station internal temperature to  $-20\,^{\circ}\mathrm{F}$  by turning the 7 watt power dump resistor ON today to check low temperature operation.

The Lunar Surface Gravimeter Experiment is currently ON and configured with the slave heater OFF, seismic high gain, power amplifier at Step #2, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, decoder ON, pressure transducer ON, and the tilt servo motors in an intermediate position.

The Heat Flow Experiment is operating in the gradient mode and all sensors are being sampled in full sequence. Ring bridge surveys are achieved on a periodic basis. On 7 September the lunar surface temperature as measured by the HFE thermocouples was 110 ± 8°K. At a depth of 230 cm the subsurface temperature was 256.8°K at probe #1. The anomaly with probe #2 at the 230 cm level continued through this period. The HFE readings DTH22, DTL22, and T22 remain invalid.

The Lunar Ejecta and Meteorites Experiment is currently ON. Static science data has been received during this report period. The analog engineering data is useable.

# Apollo 16 ALSEP

The DSS-1 (10 watt) heater will remain OFF for lunar night and the 14 watt Power Dump Resistor was turned ON today in accordance with the close-out testing for low temperature operation.

The Passive Seismic Experiment is ON and configured for seismic network congruity (thermal control AUTO ON; component gain O db; and feedback loop filter OUT). The sensor temperature returned onscale (DL-07 = 140.35°F, sun angle 170.2°) on 3 September. It had been offscale HIGH since 28 August.

The Lunar Surface Magnetometer Experiment is ON and recording data. Flip calibration sequences have been discontinued for this lunar night due to the low temperature of the Z-axis sensor head. The Y axis science data went to a static offscale HIGH condition on 2 September, at a sun angle of 158.1°. The Z axis remained static during this report period.

# Apollo 15 ALSEP

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP). The sensor temperature returned onscale

7 September 1977 G.m.t.: 2000

# Apollo 15 ALSEP (continued)

(DL-07 =  $136.65^{\circ}$ F, sun angle  $134.0^{\circ}$ ) on 1 September. It had been offscale HIGH since 28 August.

## Apollo 14 ALSEP

The central station DSS-1 (10 watt) heater will remain OFF during this lunar night in accordance with the close-out testing at low temperatures.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP). Data from the long-period Z-axis remains static and does not respond to calibration commands.

The Charged Particle Lunar Environment Experiment was commanded ON, 5 September, and is operating in the normal mode at -35 vdc range and automatic thermal control mode.

## Apollo 12 ALSEP

The Central Station DSS-1 (10 watt) heater will remain OFF for lunar night operation due to the low reserve power.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 4 Dec 75 ALSEP Performance Summary Report). The Z-motor is ON to maximize heating in the instrument for lunar night operation. The sensor temperature returned onscale (DL-07 = 138.37°F, sun angle 168.0°) on 6 September. It had been offscale HIGH since 1 September.

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch SC3, telephone 713-333-3481.

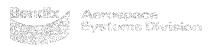
L	AI SFP	as of wook onding	2000	7 (C m + 17 Contombon 1077			
, ,	STATUS	Apollo 12 ALSEP 1	7		Anollo 16 Alcen 2	012 14 71	-
Dep	Deployed	1		1805Z, 7/31/71	19387 4/21/72	02537, 12/12/72	
Lur	Lunar Location	23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	1 .	1	
Lu	Lunation/Days Ops	_	82/2268	76/2230	1.		
Pha	:	Sunset, 183.3°	Sunset 189.2°	Sunset, 210.3°	Sunset, 222.2º	Sunset, 237.4°	
Cmds	s - Total/Week	33170/49	18535/46	40986/96	26646/135	0	
d d	Spurious Changes	1.20	114	137		0	
9T/	Initial/Present Reserve Power	73.6w/ 41.8w	72.5w/57.5w	74.7w/35.8w	70.9W/61.6w	75.4w/59.3w	
		Dla+c11 000	40.0W	8.50	24.1w	8.000	
ш	mitter	B. 7/8/74	10.0 E R 11/12/76	-21,27F	0		
TAT I	Processor		8/24	V. 10/19/76	B, 3/46//3 X, 1/12/77	A. 12/9//4	
	PCU	-	1		1	4	
IARTI F	Timer	Inoperative	Inoperative	Operative	Inhibited 5/72	Operative Inhihited: 0/8/27	
	leaters	DSS-1 (10w)- OFF	DSS-1 (10W) OFF 8/8/34	DSS-1 (10w) - OFF	DSS-Jn (10W OFF 8/20	\ <u>0</u> /2/	
	LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0.0.0dh	LSPF - STRY 4/25/77	
	Heaters		Auto ON 9/4/77	Auto On	Auto On 9/4/77		
		۲					
SE	Filte	001 - 3/27/77	OUT - 11/17/76	0UT - 3/27/77	OUT - 3/27/77	HFE - ON	
₫	DL-07	126.2°F	124.2°F	124.7°F	06	RRS Wookly	-
	Uncage Ckt.	.	Uncaged	Uncaged	Ü	ed 6/30)	77
S.	ACTIVE /	Dust Detector - ON	DTREM - ON	DTREM - ON	NO	8/77	
I IWENT	OPERABLE		CPLEE - ON 9/5/27 Operate Night Only Anal B Failed 4/71		Z Failed 3/3/75 Y Failed 4/8/77	Auto Htr Failed No Free Modes or	
EXPER		SWS - OFF 1/15/77 Increase Reserve Power for C/S heat		SIDE - OFF 3-12-77 FOR RESERVE POWER			4 -
	INOPERABLE INOPERABLE	SIDE - OFF 5/3/76 Increase Reserve Power for C/S.Heat	<u>SIDE</u> - 0FF 1/5/75 Failed	HFE - OFF 1/13/77 For Reserve Power	HFE - Off Since deployment, cable severed.	LEAM - ON 4/27/77 Static @ night 7/76 Intrmt Days 4/25/77	
		LSM - OFF 6/74 Failed	ASE - STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	SWS - OFF 6/74 Failed LSM - OFF 6/74	ASE - OFF 12/23/74 Mortar #1 unfired. Sensors failed.	LACE - STBY 8/19/77 HV Failed 10/73	r tri meningka
PSEP	- Apolio 11	Deployed 7/21/69, 23.	23.4°E, 0.7°N - Lost Up	ost	Downlink 12/14/69		rkeronetto <u>aa</u> oy
					***************************************		

# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 9/7/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
			LOS 30/2309		
30/31 August	ACN	Higher Priority	AOS 31/0011	ALL	1 h02m
		·	LOS 31/0106		
31 August	ACN/AGO	Higher Priority	AOS 31/0131	ALL	· 25 <sup>m</sup>
		٠,	LOS 31/0225		
31 August .	AGO/QUI	Higher Priority	AOS 31/0338	ALL	1 <sup>h</sup> 03 <sup>m</sup>
			LOS 31/2226		
31 August	ORR/ACN	Higher Priority	AOS 31/2333	ALL	1 <sup>h</sup> 07 <sup>m</sup>
			LOS 01/0012		
01 September	ACN	Higher Priority	AOS 01/0207	ALL	1 <sup>h</sup> 55 <sup>m</sup>
e se			LOS 01/1400		
01 September	HAW	Station Problem	AOS 01/1433	A17	33 <sup>m</sup>
			LOS 01/2227		
01/02 September	ACN	Station Problem	AOS 02/0237	ALL	4 <sup>h</sup> 10 <sup>m</sup>
			LOS 02/2056		
02 September	GWM	Higher Priority	AOS 02/2225	ALL	1 <sup>h</sup> 29 <sup>m</sup>
			LOS 03/0002		
03 September	ACN	Higher Priority	AOS 03/0102	ALL	1 <sup>h</sup> 00 <sup>m</sup>
	,		LOS 03/0242		·
03 September	ACN/MIL	Higher Priority	AOS 03/0256	ALL	14 <sup>m</sup>
			LOS 03/2054		
03 September	ORR	Higher Priority	AOS 03/2156	ALL	1 <sup>h</sup> 02 <sup>m</sup>
			LOS 03/2323		
03 September	ORR/GWM	Higher Priority	AOS 03/2334	ALL	11 <sup>m</sup>
			LOS 04/1239		
04 September	MIL/GWM	Higher Priority	AOS 04/1342	ALL	1 <sup>h</sup> 03 <sup>m</sup>
	•		LOS 04/1715		
04 September	GWM/HAW	Schedule	AOS 04/1725	ALL	10 <sup>m</sup>
			LOS 04/2119		
04 September	HAW	Higher Priority	AOS 04/2400	ALL	2 <sup>h</sup> 41 <sup>m</sup>
			LOS 05/0350		n menten menden med i med intelligi di
05 September	ACN/GDS	Higher Priority	AOS 05/0850	ALL	5 <sup>h</sup> 00 <sup>m</sup>
			LOS 05/1212		A STATE OF THE STA
05 September	GDS/HAW	Higher Priority	AOS 05/1500	ALL	2 <sup>h</sup> 48 <sup>m</sup>
			LOS 06/0445		
06 September	ACN	Higher Priority	AOS 06/0554	ALL	1 <sup>h</sup> 09 <sup>m</sup>

# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 9/7/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
			LOS 07/2228		
07 September	GWM/ORR	Higher Priority	AOS 07/2324	ALL	56 <sup>m</sup>
			LOS 07/0135		
07 September	GWM/ORR	Higher Priority	AOS 07/0212	ALL	· 37 <sup>m</sup>
			LOS 07/0622		
07 September	ORR/ACN	Higher Priority	AOS 07/0637	ALL	15 <sup>m</sup>
			LOS		
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Date September 7, 1977

Letter No. 9753-242

Ann Arbor, Michigan

From T. Breezy

Stable Penumbral Eclipse of the Moon, 27 September 1977

A penumbral eclipse of the moon will occur on September 27, 1977. The beginning of the penumbral phase will be visible in the extreme western part of Africa, North America, South America, the Atlantic Ocean, part of the arctic regions, most of the Pacific Ocean, and part of Antarctica.

The end of the eclipse will be visible in the extreme northwestern part of South America, North America except the northeastern part, the Pacific Ocean, part of the arctic regions, Australia, part of Antarctica, and the eastern part of Asia.

The penumbral phase will be 4 hours and 22 minutes in duration. The moon will not enter the umbra at any time during the eclipse. All ALSEPs will experience the penumbral phase.

A summary of exit and entry for the moon only is presented below.

Event	GMT	CST
Entry	<del>27/</del> 0619	<del>27/</del> 0119
Middle	27/0830	27/0330
Exit	27/1041	27/0541

Attached is a list of all eclipses that either one or more of the ALSEPs have experienced since deployment on the lunar surface.

Ted A. Breezy

cc: TDX Standard B. J. Rusky

# ECLIPSES OF THE MOON

DATE	ТҮРЕ	ALSEPS
1. 21 February 1970	Partial	A12
2. 16 August 1970	Partial	A12
3. 10 February 1971	Total	A12, A14
4. 6 August 1971	Total	A12, A14, A15
5. 30 January 1972	Total	A12, A14, A15
6. 26 July 1972	Partial	A12, A14, A16
7. 18 January 1973	Penumbra1	A17
8. 15 June 1973	Penumbra1	ALL
9. 9 December 1973	Penumbra1	ALL
10. 4 June 1974	Partial	ALL
11. 29 November 1974	Total	ALL
12. 25 May 1975	Total	ALL
13. 18-19 November 1975	Total	ALL
14. 13 May 1976	Partial	ALL
15. 6-7 November 1976	Penumbra1	ALL
16. 4 April 1977	Penumbra1	ALL
17. 27 September 1977	Penumbra1	ALL

### ALSEP PERFORMANCE SUMMARY REPORT

14 September 1977 G.m.t.: 1600

### Apollo 17 ALSEP

The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain. The central station has operated with the 7 watt Power Dump Resistor ON since 7 September to decrease the internal temperature. All operations have appeared normal at an average thermal plate temperature of -41.2°F from 9 to 14 September. On 9 and 14 September the redundant components (transmitter B, analog and digital processors Y, power routing X, and PCU #1) were checked and functioned normally with the exception of transmitter B. Decom lock of the downlink signal could not be maintained by the tracking station. The station was switched from transmitter B to transmitter A on 9 December 1974 because of low signal strength. The possibility exists that transmitter B will not be useable if needed in the future. High Bit Rate (3,533.3 bits per second) and Low Bit Rate (530 bits per second) were also checked and operated normally. With the Lunar Seismic Profiling Experiment in STANDBY either all ones or all zeros were received during operation. The 7 watt PDR was commanded OFF, 14 September, at the conclusion of the low temperature test.

The Lunar Surface Gravimeter Experiment is currently ON and configured with the slave heater OFF, seismic high gain, power amplifier at step #2, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, decoder ON, pressure transducer ON, and the tilt servo motors in an intermediate position.

The Heat Flow Experiment is operating in the gradient mode and all sensors are being sampled in full sequence. Ring bridge surveys are achieved on a periodic basis. On 14 September the lunar surface temperature as measured by the HFE thermocouples was  $106\pm8^{\circ}\text{K}$ . At a depth of 230 cm the subsurface temperature was  $256.9^{\circ}\text{K}$  at probe #1. The anomaly with probe #2 at the 230 cm level continued through this period.

The Lunar Ejecta and Meteorites Experiment is ON. Static science data has been received during this report period. The analog engineering data is useable.

### Apollo 16 ALSEP

The central station is operating this lunar night with the DSS-1 10 watt heater OFF and 14 watt Power Dump Resistor ON for a low temperature operational check. On 12 September at an average thermal plate temperature of -10.0°F the redundant components (processor Y, transmitter A, and PCU #1) were checked. Transmitter A did not function normally and decom lock of

### <u>Apollo 16 ALSEP</u> (continued)

the downlink signal (-150 dbm) could not be maintained by the tracking station. The central station was switched to transmitter B on 26 March 1973 because of the poor quality of the data being received. Transmitter A may not be useable if needed in the future. High and Low Bit Rates were also checked and operation was normal at low temperatures. With the Active Seismic Experiment in STANDBY alternating ones and zeros were received during HBR operation.

The Passive Seismic Experiment is ON and configured for seismic network congruity (thermal control AUTO ON; component gain O db; and feedback loop filter OUT).

The Lunar Surface Magnetometer Experiment is ON and recording data. Flip calibration sequences have been discontinued for this lunar night due to the low temperature of the Z-axis sensor head. The Y and Z-axes science data remained static this reporting period.

### Apollo 15 ALSEP

The central station redundant components (transmitter A and processor X) were checked on 12 September and both functioned normally. Low and High Bit Rates were also checked and normal operation was observed in both cases. Alternating ones and zeros were received during HBR operation.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP).

### Apollo 14 ALSEP

The DSS-1 (10 watt) heater is OFF this lunar night for close-out testing at low temperature operation.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP).

The Charged Particle Lunar Environment Experiment is ON and operating in the normal mode at -35 vdc range and automatic thermal control mode.

### Apollo 12 ALSEP

The Central Station DSS-1 (10 watt) Heater is OFF to increase the reserve power during lunar night.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 4 Dec 75 ALSEP Performance Summary Report). The Z-motor is ON to maximize heating in the instrument for lunar night. The sensor temper has been offscale LOW since 12 September and is expected to return onscale 22 September.

14 September 1977 G.m.t.: 1600

It is requested that any organization having comments, questions or suggestions concerning this report contact J. Bates, Payload Requirements and Operations Branch SC3, telephone 713-483-4458.

	3 Apollo 17	02532, 12/12/72	2		20	72	0	75.4w/58.8w 8.0w	-41.2°F	A, 12/9/74	R. S. M.	2	Operative Inhibited: 9/14/77		LSPE -STBY 4/27/77		HFE - ON, NBR	Me	Probe 2 failed 6/30/77	LSG-	75 Auto Htr Failed 77 No Free Modes or Closed Loop Ons		e <u>LEAM</u> - ON 4-27/77 51e <u>Stat</u> ic @ night 7/76 Intrmt Days 4/25/77	3/74 LACE - STBY 7/22/76 ired. HV Failed 10/73 d.
	Apollo 16 ALSEP	1938Z. 4/21/72	۱ ،	67/1972	Midnight, 305.	26687/41		70.9w/ 61.1w 10.6w	-10°0°E	B, 3/26/73	X, 1,12/77		Inhibited 5/72	PS&- bok1 8M) 3,9FF7	0.0.0db	Auto On 9/4/77	0UT - 3/27/77		Uncaged	LSM - ON	Z Failed 3/3/75 Y Failed 4/8/77 Nights		HFE - Off Since deployment, cable severed.	ASE - OFF 12/23/74 Mortar #1 unfired Sensors failed.
votember 1977	Apollo 15 ALSEP 2	7/31/71		76/2237	Midnight, 293.9°	41016/30	137	74.7w/35.2w 8.2w	-26,9ºF	B, 9/6/77	Y, 10/19/76		Operative	DSS-1 (10w) - OFF	0,0,0db	Auto On	OUT - 3/27/77	124.6°F	LO	DTREM - ON		SIDE - OFF 3-12-77 For Reserve Power	HFE - OFF 1/13/77 For Reserve Power	SWS - OFF 6/74 Eailed LSM - OFF 6/74
1600 7 (G m + )		2/5	•	82/2275	Midnight, 272.8°	18582/47	114	72.5w/ 57.8w 22.7w	5.4°F	B, 11/12/76	Y, 8/24/76		Inoperative	DSS-1 (10w)- OFF	0,0,0db	Auto On 9/4/77	OUT - 11/17/76	Jo.	Uncaged	DTREM - ON	CPLEE - ON 9/5/77 Operate Night Only Anal B Failed 4/71		<u>SIDE</u> - 0FF 1/5/75 Failed	ASE - STBY 12/23/74 S Mortars unfired Geophones 2 & 3 bad L
as of week ending $^{1 heta}$		14122, 11/19/69	23.5°W, 3.0°S	97/2856	Midnight, 266.8°	33213/63	120	73.6w/40.5w 16.6w	-20.5°F	B, 7/8/74	γ, 8/25/76		Inoperative	DSS-1 (10W)- OFF	0,0,-20db 11/75	Auto On Z Motor    9/7/77	OUT - 3/27/77	offscale LOW	Uncaged ·	Dust Detector - ON		SWS - OFF 1/15/77 Increase Reserve Power for C/S heat	SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	LSM - 0FF 6/74 Failed
, ALSEP		Deployed	Lunar Location	Lunation/Days Ops	Phase, Sun Angle	Cmds - Total/Week	Spurious Changes	La Initial/Present	Avg. Therm. Plate-20	smitter	Processor	n Pcu	TEMEr Timer	Heaters	LPX/Y,Z,SPZ	Heaters	니 Filter	P. DL-07 Temp.	Uncage Ckt.		ACTIVE/ EM OPERABLE	ЕХЪЕВ	INOPERABLE	

# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 9/14/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
			LOS 07/1109		
07 September	AGO/BDA	Higher Priority	AOS 07/1155	ALL	46 <sup>m</sup>
		\ . · ·	LOS 07/1805		
07 September	BDA/GDS	Schedule	AOS 07/1905	ALL	1 <sup>h</sup> oo <sup>m</sup>
		· .	LOS 08/0225		
08 September	ORR/ACN	Higher Priority	AOS 08/0300	ALL	35 <sup>m</sup>
			LOS 08/2200		
08 September	ORR/ULA	Higher Priority	AOS 08/2230	ALL	30 <sup>m</sup>
			LOS 08/2230		
08 September	ULA	Station Problem	AOS 08/2239	A14, 17	- 09 <sup>m</sup>
14 Sec. 1			LOS 09/0146		
09 September	ULA/ACN	Schedule	AOS 09/0352	ALL	2 <sup>h</sup> 04 <sup>m</sup>
			LOS 09/2046		
09 September	MIL/ORR	Higher Priority	AOS 09/2120	ALL	34 <sup>m</sup>
			LOS 10/0807		
September	ACN	Schedule	AOS 10/0920	ALL	1 <sup>h</sup> 13 <sup>m</sup>
			LOS 11/0040		
11 September	ORR/HAW	Higher Priority	AOS 11/0152	ALL	1 <sup>h</sup> 12 <sup>m</sup>
			LOS 11/2031		
11 September	MIL/ORR	Higher Priority	AOS 11/2050	ALL	19 <sup>m</sup>
			LOS 11/2200		· · · · · · · · · · · · · · · · · · ·
11 September	ORR/HAW	Higher Priority	AOS 11/2325	ALL	1 <sup>h</sup> 25 <sup>m</sup>
			LOS 12/0815	· · · · · · · · · · · · · · · · · · ·	
12 September	ACN	Schedule	AOS 12/1050	ALL	2 <sup>h</sup> 35 <sup>m</sup>
			LOS 12/2115	· · · · · · · · · · · · · · · · · · ·	
12 September	AGO/HAW	Schedule	AOS 12/2124	ALL	09 <sup>m</sup>
			LOS 13/0250		
13 September	HAW/GWM	Higher Priority	AOS 13/0310	ALL	20 <sup>m</sup>
			LOS 13/1019		
13 September	ACN	Higher Priority	AOS 13/1132	ALL	1 <sup>h</sup> 13 <sup>m</sup>
			LOS 13/2207		
September	GDS	Station Problem	AOS 13/2238	ALL	31 <sup>m</sup>
Absorption extractive programming and an about			LOS		
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#### ALSEP PERFORMANCE SUMMARY REPORT

22 September 1977 G.m.t.: 1800

### Apollo 17 ALSEP

Sunrise of the 60th lunation occurred on 17 September at the Taurus Littrow Site. The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain. On 14 September during lunar night close-out testing of the Central Station redundant components, the switch of Power Conditioning Units from #1 to #2 reset the 61-hour timer. This did not change the 61-hour timer interval. During this component check the Command Decoders were switched from B to A. It was found that Decoder A is not a reliable source for uplinking commands as numerous uplinks were required to reselect Decoder B. This condition had previously been encountered with the system in August 1974 when a change to Decoder B corrected the situation.

The Lunar Surface Gravimeter Experiment is ON and configured with the slave heater OFF, seismic high gain, power amplifier at step #2, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, the tilt servo motors in an intermediate position, and the pressure transducer and decoder are OFF.

The Lunar Seismic Profiling Experiment is in STANDBY.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. Ring bridge surveys are achieved on a periodic basis. On 22 September the lunar surface temperature, as measured by the HFE thermocouples, was  $332 \pm 8^{\circ}$ K. At a depth of 230 cm the subsurface temperature was 256.9°K at probe #1. The anomaly with probe #2 at the 230 cm level continued through this period.

The Lunar Atmospheric Composition Experiment is in STANDBY.

The Lunar Ejecta and Meteorites Experiment is ON. Static science data has been received during this report period. The analog engineering data is useable.

## Apollo 16 ALSEP

Sunrise at the Descartes Site occurred on 19 September for the 68th lunation. The average thermal plate temperature dropped to -10.0°F during the past lunar night with the central station heaters OFF and the 14 watt power dump resistor ON. On 12 September during close-out testing when the redundant component checks were made switching Power Conditioning Units #1 to #2, the Timer Accept (octal 032) was activated. On 20 September, Timer Inhibit (octal 033) was sent to return the system to the Inhibit mode. The 14 watt power dump resistor was commanded OFF on 20 September, concluding the lunar night cold soak testing.

22 September 1977 G.m.t.: 1800

### Apollo 16 ALSEP (continued)

The Passive Seismic Experiment is ON and configured thermal control AUTO ON; component gain 0 db; and feedback loop filter OUT. On 16 September the PSE thermal control configurations were checked and proper operation was achieved in all four modes (heater Auto OFF, Forced ON, Forced OFF, and Auto ON). These checks showed that 4.0 watts of power was required to maintain the PSE temperature during lunar night. The PSE Uncage and Arm/Fire circuit (octal 073) was commanded to the Uncaged mode for lunar day time on 20 September.

The Lunar Surface Magnetometer Experiment is ON and recording data. Flip calibration sequences have been resumed for this lunar day and a total of 1348 have been executed and verified by the experiment engineering data. The Y axis science data returned to normal operation on 22 September at a sun angle of 43.5°. Data has been static since 2 September 1977.

The Active Seismic Experiment is in STANDBY.

### Apollo 15 ALSEP

Sunrise of the 77th lunation at the Hadley Rille Site occurred on  $^{18}$  September. The average thermal plate temperature dropped to a low of  $-29.6\,^{\circ}$ F during the past lunar night.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP). On 19 September the PSE thermal control configurations were checked and proper operation was achieved in all four modes (heater Auto OFF, Forced ON, Forced OFF, and Auto ON). These checks showed that 5.81 watts of power was required to maintain the PSE temperature during lunar night. Between the real time support periods of 16 and 19 September, a spurious functional change (Uncage to Arm/Fire, octal 073) occurred without a command verification word (CVW) being observed in the downlink. Since this change is a function of the 18-hour timer no corrective action is required.

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments were commanded OFF 12 March 1977.

The Solar Wind Spectrometer Experiment was commanded OFF 14 June 1974.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

The Heat Flow Experiment was commanded OFF 13 January 1977.

### Apollo 14 ALSEP

Sunrise of the 83rd lunation at the Apollo 14 site occurred on 21 September. During this past lunar night with the Central Station heaters off the average thermal plate temperature dropped to a low of 2.6°F. The Central Station

### Apollo 14 ALSEP (continued)

redundant components (transmitter A and processor X) were checked on 19 September and both functioned normally. Low and High Bit Rates were also checked and normal operation was observed in both cases. Alternating ones and zeros were received during HBR operation.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP). The Long Period Z-axis remains static and does not respond to calibration commands. On 20 September the PSE thermal control configurations were checked and proper operation was achieved in only the heater Forced ON and Auto ON modes. These checks showed that 4.81 watts of power was required to maintain the PSE temperature during lunar night.

The Active Seismic Experiment is in STANDBY.

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments were commanded OFF on 21 May 1976.

The Charged Particle Lunar Environment Experiment is ON and operating in the normal mode at -35 vdc range and automatic thermal control mode.

### Apollo 12 ALSEP

Sunrise of the 98th lunation occurred on 22 September. The average thermal plate temperature dropped to -22.0°F during the past lunar night with the Central Station heaters OFF. On 20 September, Low and High Bit Rates were checked and normal operation was observed in both modes. Alternating ones and zeros were received during HBR operation.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP) except the short period Z-axis gain is set at -20 db. The sensor temperature (DL-07) returned onscale 22 September (DL-07 =  $126.4^{\circ}F$ , sun angle  $4.5^{\circ}$ ).

The Solar Wind Spectrometer Experiment was commanded OFF 15 January 1977.

The Suprathermal Ion Detector Experiment was commanded OFF 3 May 1976.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

It is requested that any organization having comments, questions, or suggestions concerning this report contact J. Bates, Payload Requirements and Operations Branch SC3, telephone 713-483-4458.

ALSEP 3   Apollo 17 ALSEP 5	02532, 12/12/72	S 30.8°E, 20.2°N	١.	50 Sunrise, 59.70	40082/194	0	75.4w/ 58.1w	20.1W	74.12.47 17.19/21	R.S.W		5/72 Operative Inhibited: 9/20/77	OFF APM STATUS:	LSPE - STBY 4/27/77	777	7 HFE - 0N	RBS Weekly	Probe 2 failed 6/77,		3/3/75 Auto Htr Failed 4/8/77 No Free Modes or closed Loop Ops		Since LEAM - ON 4-27-77 t, cable Static @ night 7/76 Intrmt Days 4/25/77	12/23/74 LACE - STBY 7/22/76 unfired. HV Failed 10/73		14/69
Apollo 1.6 AL	4/2	15.5°E, 9.0°S	0861/89	Surrise, 44.	26773/86		70.9w/ 61.1w	60.00	88.2-F R 3/26/73	1/12	_	Inhibited 5/	DSS-120R ONF- OFF	0.0.0db	Auto On 9/4/77	0UT - 3/27/77	F	Uncaged	LSM - ON	Z Failed 3/ Nighatsled 4/		<pre>HFE - Off Si deployment, severed.</pre>	ASE - OFF 12 Mortar #1 u	Sensors fai	Downlink 12/14/69
September 1977 Anollo 15 Al SFP 2	7/31/71	3.7°E, 26.1°W	77/2245	Sunrise, 32.60	41065/59	138	74.7w/ 35.4w	1.1W	B 9/6/77	-	,	Operative	DSS-1 (10w) - OFF	0,0,0db	Auto On	OUT - 3/27/77	126.0°F	10	DTREM - ON		SIDE - OFF 3-12-77 FOR RESERVE POWER	HFE - OFF 1/13/77 For Reserve Power	SMS	LSM - 0FF 6/74 Failed	plink 8/25/69, Lost
7800 Z (G.m.t.) Apollo 14 ALSEP 4	2/5/71	•	83/2283	Sunrise, 11.5°			72.5w/ 57.6w		12/76	8/24		Inoperative	DSS-1 (10w) - OFF	0,0,0db	Auto On 9/4/77	OUT - 11/17/76	124.2°F	D,	DTREM - ON	CPLEE - ON 9/5/77 Uperate Night Only Anal B Failed 4/71		<u>SIDE</u> - 0FF 1/5/75 Failed	ASE - STBY 12/23/74 Mortars unfired	Geophones 2 & 3 bad	.4°E, 0.7°N - Lost Uplink
as of week ending Apollo 12 ALSEP 1		23.5°W, 3,0°S		Sunrise, 5.5°	40/37	120	73.6w/ 42.6w	# 10 N 21		1		Inoperative	USS-1 (10w) - OFF	0,0,-20db 11/75	Auto On Z Moto <i>r OFF 9/22/77</i>	OUT - 3/27/77	126.4°F		Dust Detector - ON		SUS - OFF 1/15/77 Increase Reserve Power for C/S heat	SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	LSM - OFF 6/74 Failed		Deployed 7/21/69, 23.
. ALSEP a	Deployed	Lunar Location	Lunation/Days Ops	Phase, Sun Angle	Cmds - Total/Week	Spurious Changes	Initial/Present		ON AVY. Mermi Flace	F Processor		TRAL Timer	C Heaters	LPX/Y,Z,SPZ	Heaters	Eilter	의 DL-07 Temp.	· Uncage Ckt.	i	ACTIVE/ ME OPERABLE	EXEE	INACTIVE/ INOPERABLE		n nguyan Brighel China n nguyan	PSEP - Apollo 11 D

NOON and NIGHT DATA (Latest Lunation)

	Night	76 268.3° -138.0 dbm 35.2w 7.7w -25.0°F
APOLLO 15 ALSEP	Noon	76 85.3° -136.0 dbm 38.0w 9.9w 96.1°F HIGH
APOLL		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. PSE T. (DL-07)
	Night	82 272.6° -137.0 dbm 57.9w 22.7w 5.4°F 124.6°F -22.7°C
APOLLO 14 ALSEP	Noon	88.6° -142.0 dbm - 58.7w 34.2w 111.2°F 129.9°F STBY
APOLLO		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. PSE T. (DL-07)
	Night	97 266.5° -139.0 dbm 40.5w 16.6w -20.5°F LOW
APOLLO 12 ALSEP	Noon	97 82.5° -142.0 dbm 43.6w 21.8w 87.4°F 139.7°F
APOLLC		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. PSE T. (DL-07)

	Night	59 296.5° 1-140.0 dbm 59.2w 7.7w -41.2°F -15.1°F -17.4°F 289.4°K LOW -40.0°F
POLLO 17 ALSEP	Noon	59 88.5° -134.0 dbm 58.9w 23.6w 81.3°F 158.6°F 204.0°F 326.9°K LOW 81.6°F
APOLL		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. LACE T. (AM-41) LEAM T. (AJ-11) HFE T. (DH-13) LSG T. (AP-01)
	Night	67 280.2° -137.0 dbm 61.1w 10.9w -10.0°F 125.8°F -10.2°C
APOLLO 16 ALSEP	Noon	67 85.2° -135.0 dbm 61.5w 30.5w 102.4°F 141.7°F 45.8°C
APOLLC		Lunation Sun Angle Sig Strth (9m) Input Power Reserve Power Av Ther Pl T. PSE T. (DL-07) LSM T. (DM-05)

# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 9/22/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
			LOS 14/0045		
14 September	GDS/GWM	Higher Priority	AOS 14/0235	ALL	1 <sup>h</sup> 50 <sup>m</sup>
		·	LOS 14/0840		
14 September	GWM/ACN	Higher Priority	AOS 14/1129	ALL	2 <sup>h</sup> 49 <sup>m</sup>
		٠,	LOS 14/1218		
14 September	ACN/BDA	Higher Priority	AOS 14/1251	ALL	43 <sup>m</sup>
			LOS 15/0930		
15 September	GWM/AGO	Higher Priority	AOS 15/1259	ALL	3 <sup>h</sup> 29 <sup>m</sup>
			LOS 16/1015		
16 September	GWM/ACN	Higher Priority	AOS 16/1100	ALL	45 <sup>m</sup>
To be the			LOS 16/1230		
16 September	ACN/BDA	Higher Priority	AOS 16/1325	ALL	55 <sup>m</sup>
			LOS 17/1034		
17 September	GWM/ACN	Higher Priority	AOS 17/1125	ALL	51 <sup>m</sup>
			LOS 18/1204		
18 September	GWM/ACN	Higher Priority	AOS 18/1254	ALL	50 <sup>m</sup>
			LOS 18/1453		
18 September	ACN/AGO	Higher Priority	AOS 18/1511	ALL	18 <sup>m</sup>
	,		LOS 20/1103		
20 September	ORR/MAD	Higher Priority	AOS 20/1358	ALL	2 <sup>h</sup> 55 <sup>m</sup>
			LOS 21/0948		
21 September	ORR/GWM	Higher Priority	AOS 21/1007	ALL	19 <sup>m</sup>
			LOS 21/1217		
21 September	GWM/ORR	Higher Priority	AOS 21/1250	ALL	33 <sup>m</sup>
			LOS 21/1334		
21 September	ORR/GWM	Higher Priority	AOS 21/1426	ALL	52 <sup>m</sup>
	·		LOS 21/1449		
21 September	GWM/MAD	Schedule	AOS 21/1452	ALL	03 <sup>m</sup>
			LOS		
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λ11ν.		Representations					NASA-JSC
PSE C	17/26u	NO SUPPORT ALSEP 17	24/267	0900-1100			NAS
	16/259	<u>0900-1100</u>	23/266	0900-1100 ALSEP 16 LSM FLIP CAL ALSEP 14 CPLEE STBY	30/273	1200-1400 TERMINATION SUPPORT	
- ÆVENTS	15/258	NO SUPPORT	22/265	1100-13 ALSEP 12 PSE Z MTR OFF	29/272	0000-1100	
SŲPPORT SCI - Æ	14/257	0900-1100 ALSEP 17 HFE RBS	21/264	1000-1200 ALSEP 14 ALSEP 17 HFE RBS	28/271	0900-1100 ALSEP 17 HFE RBS ALSEP 16 LSM FLIP CAL	
ALSEP S	13/256	NO SUPPORT	20/263	0900-1100	27/270	0900-1100	
the state of the s	12/255	0800-1100	19/262	ALSEP 16 ALSEP 16	26/269	0900-1100 ALSEP 16 LSM FLIP CAL	
TIMES -	SEP 11/254	NO SUPPORT	SEP 18/261	NO SUPPORT ALSEP 16	SEP 25/268	0900-1100	BEN-20

### APOLLO ALSEP PERFORMANCE SUMMARY REPORT

AP3/C.	Redmond
AP5/F.	Carlton
CH5/J.	Saultz
ED/D.	Gerke
ED5/J.	Lowery
EF5/J.	Briley

FS4/P. Barnes SC3/W. Eichelman SC3/J. Bates TA/P. Armitage TN6/J. Minear WA2/J. Lobb

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# NASA HQS.

SL/E. Glahn

### APOLLO DATA ARCHIVING GROUP

GSFC 601/R. Vostreys (NSSDC)

### LUNAR SCIENCE INSTITUTE

Dr. L. Srnka

### BENDIX AEROSPACE

B. J. Rusky

### PRINCIPAL INVESTIGATOR

Mr. O. Berg
Dr. D. Clay
Dr. P. Dyal
Dr. J. Freeman
Dr. J. Hoffman
Dr. R. Kovach
Mr. J. Kunselman
Dr. M. Langseth
Dr. G. Latham
Dr. D. Reasoner

AEC/W. C. Remini

# ALSEP PERFORMANCE SUMMARY REPORT (FINAL)

30 September 1977 G.m.t.: 1900

The Apollo Lunar Science Experiments Package (ALSEP) real-time support comes to an end as of midnight G.m.t., tonight. This culminates a 7 year 10 month 11 day effort by thousands of individuals in flying, deploying, and controlling the equipment on the moon and recording and analyzing the data it returned. Many deserving thanks and kudos are extended to all who participated in this scientific achievement which will be recorded in space history forever. To all who participated, congratulations to you and a WELL DONE.

From 12 February 1973 through 30 September 1977 there were only 117 days of lost ALSEP data. This loss was attributed to other higher priority projects or station equipment problems and constitutes only 1.048 percent of the total days of operation of all ALSEPs.

As another point of interest, if all the recording tape used with the initiation of Apollo 12 were laid end to end, it would stretch out 14,686.4 statue miles.

### Apollo 17 ALSEP

The Apollo 17 ALSEP has operated 1,753 days, since deployment on 12 December 1972, and processed 40,200 commands.

The Central Station is configured as follows: transmitter A, power conditioning unit #2, processor X, decoder B, automatic power management ON, power dump resistors OFF, and receiver B.

The Lunar Surface Gravimeter Experiment is in STANDBY and could be commanded ON.

The Lunar Atmospheric Composition Experiment is OFF.

The Lunar Ejecta and Meteorite Experiment is OFF.

The Heat Flow Experiment is in STANDBY and could be commanded ON.

The Lunar Seismic Profiling Experiment is in STANDBY and could be commanded ON.

## Apollo 16 ALSEP

The Apollo 16 ALSEP has operated 1,988 days, since deployment on 21 April 1972, and processed 26,890 commands.

The Central Station is configured as follows: transmitter B, processor X, heaters OFF, power dump resistors OFF, and power conditioning unit #1.

The Passive Seismic Experiment is in STANDBY and could be commanded ON.

30 September 1977 G.m.t.: 1900

### Apollo 16 ALSEP (continued)

The Lunar Surface Magnetometer Experiment is ON.

The Heat Flow Experiment is OFF and cannot be commanded ON.

The Active Seismic Experiment is OFF and could be commanded ON.

### Apollo 15 ALSEP

The Apollo 15 ALSEP has operated 2,253 days, since deployment on 31 July, 1971, and processed 41,120 commands.

The Central Station is configured as follows: transmitter B, processor Y, heaters OFF, power dump resistors OFF, and power conditioning unit #1.

The Passive Seismic Experiment is OFF and should not be commanded ON. The increase in Central Station reserve power will extend the life of the Apollo 15 ALSEP for approximately 6 to 10 weeks.

The Suprathermal Ion Detector and Cold Cathode Gauge Experiments were commanded OFF on 12 March 1977 to increase reserve power.

The Lunar Surface Magnetometer Experiment was commanded OFF on 14 June 1974 because of failure.

The Heat Flow Experiment was commanded OFF on 13 January 1977 to increase reserve power.

The Dust, Thermal, and Radiation Engineering Measurements Experiment is ON.

### Apollo 14 ALSEP

The Apollo 14 ALSEP was deployed on 5 February 1971 for a total 2,429 days. Data has been received for 2,291 days as 138 days were lost due to loss of signal on six separate occasions. 18,270 commands were processed by the central station.

The Central Station is configured as follows: transmitter B, processor Y, power conditioning unit #1, heaters OFF, and power dump resistors OFF.

The Passive Seismic Experiment is in STANDBY and could be commanded ON.

The Charged Particles Lunar Environment Experiment is in STANDBY and could be commanded ON for lunar night operation only.

30 September 1977 G.m.t.: 1900

### Apollo 14 ALSEP (continued)

The Suprathermal Ion Detector and Cold Cathode Gauge Experiments were commanded OFF on 5 January 1975 because of failure.

The Active Seismic Experiment is OFF and could be commanded ON.

The Dust, Thermal, and Radiation Engineering Measurements Experiment is ON.

### Apollo 12 ALSEP

The Apollo 12 ALSEP has operated 2,872 days, since deployment on 19 November 1969, and processed 33,350 commands.

The Central Station is configured as follows: transmitter B, processor Y, power conditioning unit #1, heaters OFF, and power dump resistors OFF.

The Passive Seismic Experiment is in STANDBY and could be commanded ON.

The Solar Wind Spectrometer Experiment was commanded OFF on 15 January 1977 to increase reserve power and central station heating.

The Suprathermal Ion Detector and Cold Cathode Ion Gauge Experiments were commanded OFF on 3 May 1976 to increase reserve power and central station heating.

The Lunar Surface Magnetometer Experiment was commanded OFF in June 1974 because of failure.

The Dust Detector Experiment is ON.

It is requested that any organization having comments, questions, or suggestions concerning this report contact J. Bates, Payload Requirements and Operations Branch SC3, telephone 713-483-4458.

ALSEP 1 Apollo 14 ALSEP 4 Abollo 15 ALSEP 2   17282, 2/5/71   18052, 7/31/71   19/69   17282, 2/5/71   18052, 7/31/71   19/69   17.5°W, 3.7°S   3.7°E, 26.1°N   1   1   1   1   1   1   1   1   1			7 * 4 * 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	7		•
14122, 11/19/69   17.581, 2/5/71   18052, 7/31/71   181   18052, 7/31/71   181   1		12	14	15 ALSEP	16	Apollo 17 ALSEP 5
Nationarrow   23.5° M, 3.0° S   17.5° M, 3.7° S   3.7° E, 26.1° M   10		11/19/	2/5	7/31/71	4/21/	12/12/72
ase, Sun Augle		.5°W, 3,	ო,	26	E, 9.0°	30.8°E, 20.2°N
Same Aigner   Noon, 89.7°   Noon, 95.6°   Noon, 116.7°	Ops	_		77/2252	68/1987	2
ds - Total/Week 33,333/93 18,754/59 41,104/30  urious Changes 120  Initial/Present 73.6W/ 42.7w 87.5W/58.4w 74.7W/50.0w 7.4w  Reserve Power 21.3w 83.8w 7.2s/6 40.7cc 52.8w 7.4w 7.4w 7.4w 7.6m 7.4w 7.4w 7.4w 7.4w 7.4w 7.4w 7.4w 7.4w			95.6	ı	ŀ	Noon, 143.8°
114   138   138   139   138	- Total/Week	3,333/93	18,754/59	41,104/39	26,886/113	40,187/105
Initial/Present   73.6w/ 42.7w   72.5w/ 58.4w   74.7w/36.0w   72.5w   72.5w   72.5w   74.7w/36.0w   72.5w		20	114	138		0
Avg. Therm. Plat489.19F  Avg. Therm. Plat489.19F  Avg. Therm. Plat489.19F  Avg. Therm. Plat489.19F  By 7/8/74  By 1/12/76  Y, 8/25/76  Y, 8/24/76  Y, 10/19/76  Y, 10/19/77  Y, 10/19/76  Y, 10/19/76  Y, 10/19/76  Y, 10/19/76  Y, 10/19/76  Y, 10/19/77  Y, 10/19/76  Y, 10/19/77  Y, 10/19/76  Y, 10/19/77  Y	Initial/Present	42.7w	72.5w/ 58.4w	74.7w/36.0w	19	75.4w/ 58.5w
Avg. Therm. Plat489.10F	Nesel Ve Tower		00.3W	/• 4W	29.7w	23.0w
Transmitter	Avg. Therm.	9.1°F	113.5°F	<i>36.7°</i> E	36.30E	65.0°F
Processor   Y, 8/25/76	Transmitter	- 1	11/12/7		1	A, 12/9/74
Timer   Inoperative   Increase Reserve   Failed   Forced OFF   Increase Reserve   Failed   Forced OFF   Inoperative   Inoperat	Processor	/22/	8/24/	10/19	_	X.R.S.W.DCDR B 8/74
Heaters Inoperative Inoperative Oberative Inoperative Inoperate Reserve Inoperate Inoperate Reserve Inoperate Inoperate Reserve Inoperate	PCU					2
BSS-1 (10pt) - OFF   DSS-1 (	Timer	noperative	ative	Operative	5/72	Operative 9/28/77 Inhibited: 9/28/77
Heaters	Heaters	SS-1_(JpW)-OFF DRs1_(JpW)-OFF	(10k) -	1	(194) - OFF	APM STATUS: ON PDRS - OFF
Heaters	,Z,SPZ	-	0,0,0db	0,0,0db	0,0,0db	LSPE - STANDBY
Filter						4/27/77
DL-07 Temp. Offscale HIGH   133.7°F   Offscale HIGH   Offscale Ckt. Uncaged   Uncaged   Uncaged   Offscale HIGH   Offscale Ckt. Offscale HIGH   Offscale Ckt. Offscale HIGH   Offscale Ckt. Offsca	Filter	3	//		- 3/27	HFE - ON
Uncage Ckt.   Uncaged   Uncaged   Uncaged   Uncaged   Uncaged   Uncaged   Uncaged   Uncaged   Uncaged   Obst Detector - ON   DTREM - OFF 3-12-77   DOWNER FOR C/S heat   Torease Reserve   Failed   For Reserve Power   Failed   For Reserve Power   Dower for C/S heat   Dower fo	DL-07 Temp.	202	133.7°F		1	Probe 2 Failed 6/77
ACTIVE/ OPERABLE OPERABLE SWS - OFF 1/15/77 Increase Reserve Power for C/S heat INOPERABLE INOPERABLE INOPERABLE INOPERABLE INSTITUTE INOPERABLE INOPERA	Ckt.		Uncaged	Uncaged	Lo	RBS weekly
ACIIVE   ACIIVE   Operate   Night Only   Anal B Failed 4/71     SWS - OFF 1/15/77   SIDE - OFF 3-12-77     Increase Reserve   Power for C/S heat   Increase Reserve   Failed   For Reserve Power     INOPERABLE   Increase Reserve   Failed   For Reserve Power     Increase Reserve   For Reserve Power   For Reserve Power     Increase Reserve   For Reserve Power   For Reserve Po		ı	DTREM - ON	DTREM - ON	NO -	LSG-0N 3/28/77
SWS - OFF 1/15/77   SIDE - OFF 3-12-77     Increase Reserve   Foreserve   Fo			CPLEE - STBY 9/24/77 Uperate Night Only Anal B Failed 4/71		ailed 3/3/75 ailed 4/8/77	Auto Htr Failed No Free Modes or
SIDE - OFF 5/3/76 SIDE - OFF 1/5/75 HFE - OFF 1/13/77 H  Increase Reserve Power for C/S Heat  LSM - OFF 6/74 ASE - STBY 12/23/74 SWS - OFF 6/74 ASE - STBY 12/23/74 ASE - STBY 12/23/74 SWS - OFF 6/74 ASE - STBY 12/23/74 SWS - OFF 6/74		WS - OFF 1/15/77 ncrease Reserve ower for C/S heat		SIDE – OFF 3-12-77 FOR RESERVE POWER		
Failed ASE - STBY 12/23/74 SWS - OFF 6/74 A Mortars unfired Failed Coches of the Asset of the As		IDE - OFF 5/3/76 ncrease Reserve ower for C/S Heat			HFE - Off Since deployment, cable severed.	LEAM - STBY 8/15/76 Static @ night 7/76 Intrmt Days 4/25/77
a 5 Dad Edil Oly 4		- OFF 6/74 Failed	BY 12/23/74 unfired s 2 & 3 bad	SWS	ASE - OFF 12/23/74 Mortar #1 unfired. Sensors failed.	LACE - STBY 7/22/76 HV Failed 10/73
PSEP - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N - Lost Uplink 8/25/69, Lost Downlink 12/14/69	SEP - Apollo 11	7/21/69, 23	4°E, 0.7°N -	I	Downlink 12/14/69	

# REMOTE SITE NON-RECOVERABLE ALSEP DATA LOSSES FOR WEEK ENDING 9/30/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
			LOS 22/1500		
22 September	ORR/MAD	Higher Priority	AOS 22/1537	ALL	37 <sup>m</sup>
n di materiale di Companya di Santi Salah da di Salah Salah Salah di Salah Salah Salah Salah Salah Salah Salah			LOS 24/1130		m
24 September	ORR/GWM	Higher Priority	AOS 24/1200	* ALL	30 <sup>m</sup>
No-Mort auglimpen jaga egat unlan erinten en en mungsmisstelligt des Addrés eine Marie (de Nobel de Nobel de N			LOS 26/0330		
26 September	MAD/QUI	Schedule	AOS 26/0345	ALL	15 <sup>m</sup>
italiikkii kuunika päiliikkii ilii kuhuntuu siikki pähkii, sikkiun oni (valid ilijkii uuraaks oni ilinna tiin one suo	AND AND THE PARTY OF THE PARTY	The second section of the second section is the second section of the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the second section in the second section is the second section in the section is the second section in the section is the	LOS 27/1205	·	
27 September	GDS/ORR	Antenna Masking	AOS 27/1225	ALL	20 <sup>m</sup>
			LOS 28/1959		
28 September	ORR/MAD	Schedule	AOS 28/2004	ALL	5 <sup>m</sup>
			LOS		
			AOS		
			LOS		
			AOS		
Name of the Control o			LOS		
			AOS		
			LOS		
			AOS		
m might sealthe shade what we the character purplies and gray it will be high definition of the anti-seal and an electric character is the definition of the seal and an electric character is the definition of the seal and an electric character is the seal and			LOS		
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