Pioneer 8 and 9 Cosmic Dust Detector Calibration Notebook Collection

Collection Overview

This collection contains digital reproductions of two hand-written laboratory notebooks of calibration analyses for the Pioneer 8 and 9 Cosmic Dust Detectors (CDD) by Dr. Otto E. Berg. The notebooks include diagrams, plots, and notes pertaining to the data and operation of the CDD experiments during interplanetary flight. Since these instruments were identical to the Apollo 17 Lunar Ejecta And Meteorites (LEAM) Experiment detector, Dr. Berg used the CDD analyses to help calibrate the lunar LEAM data. A digital reproduction of Dr. Berg's LEAM calibration laboratory notebook is archived separately in the PDS collection, "Apollo 17 Lunar Ejecta And Meteorites Experiment Calibration Notebook Collection".

Digital Reproduction

As the principal investigator for these three dust detectors, Dr. Berg loaned his laboratory notebooks to the NASA Space Science Data Coordinated Archive (NSSDCA) for digital reproduction in January 2011. As the notebooks could not be unbound, NSSDCA staff mounted a 16 mega pixel, digital Nikon camera on a stable frame, then photographed each page of the notebook, including attached foldouts and loose pages. Foldouts were photographed folded, then unfolded and multiple photographs taken so that the entire wide page was imaged. For completeness, all loose pages were photographed individually and organized as they were located in the notebook at the time it was loaned to NSSDCA.

The NSSDCA converted the raw digital photograph files to JPEG format, arranged the JPEG files in the same order as the physical notebook, then merged the ordered JPEG files into one PDF/A-formatted file for each notebook. The filenames for two digitally-reproduced notebooks and the associated PDS label in this collection are:

p8_p9_cdd_calib_notebook1.pdf
p8_p9_cdd_calib_notebook2.pdf
p8_p9_cdd_calib_notebook.xml

Reproduction Quality

NSSDCA staff used one of the highest-resolution digital cameras at the time and endeavored to take the best possible photograph of each page, including re-photographing several items in an attempt to improve the quality. Staff noted the author used rubber cement to glue some pages together which, over time, significantly degraded the handwriting. Pen ink occasionally bled through one side of a page to the other, which decreased the legibility. The style of handwriting may be difficult to read; enlarging a PDF page by 200-400% typically improves the legibility. Finally, the PDF notebooks are best displayed on a large, high-resolution computer screen.

References

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Source

The NSSDCA provided this collection description.