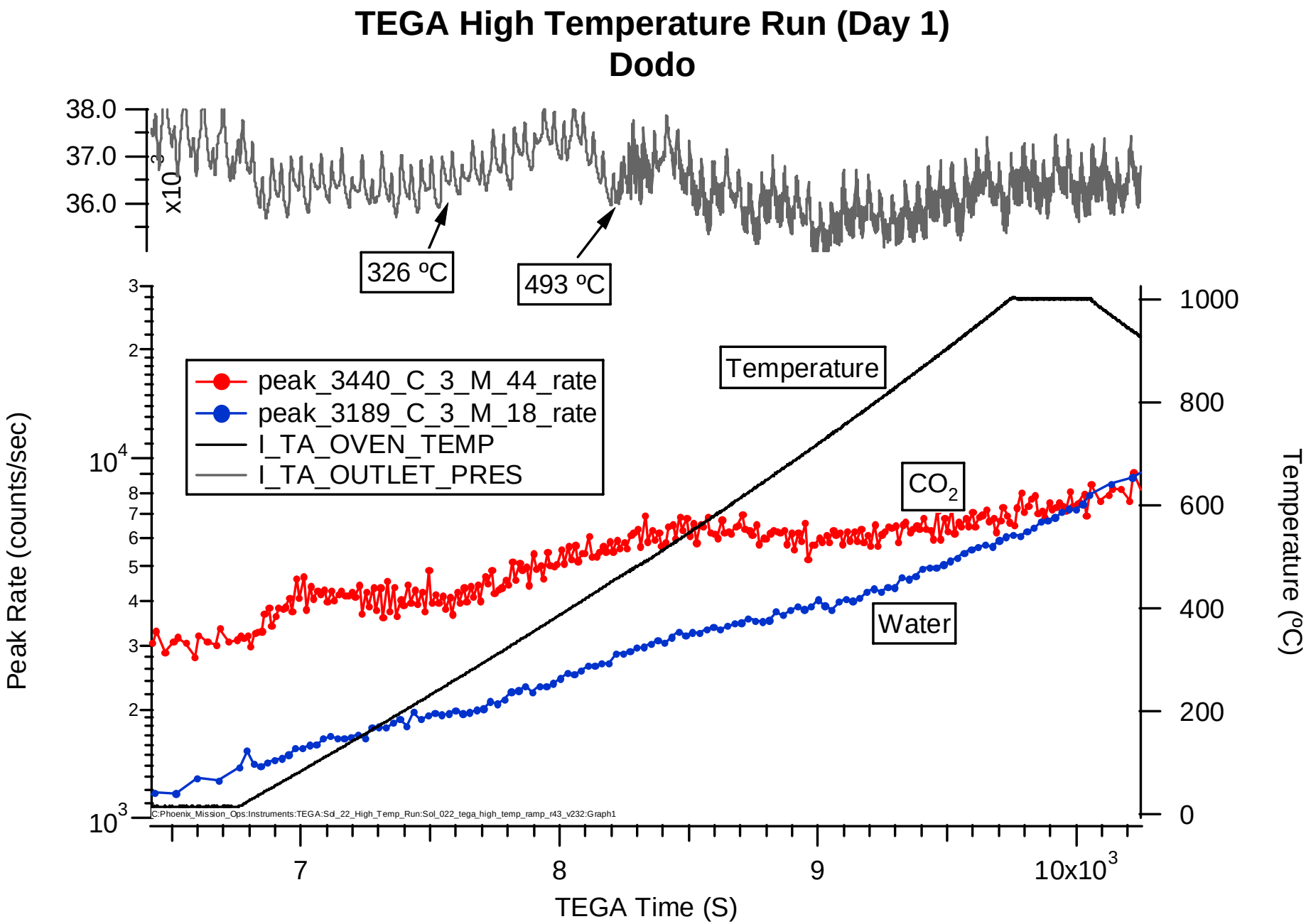
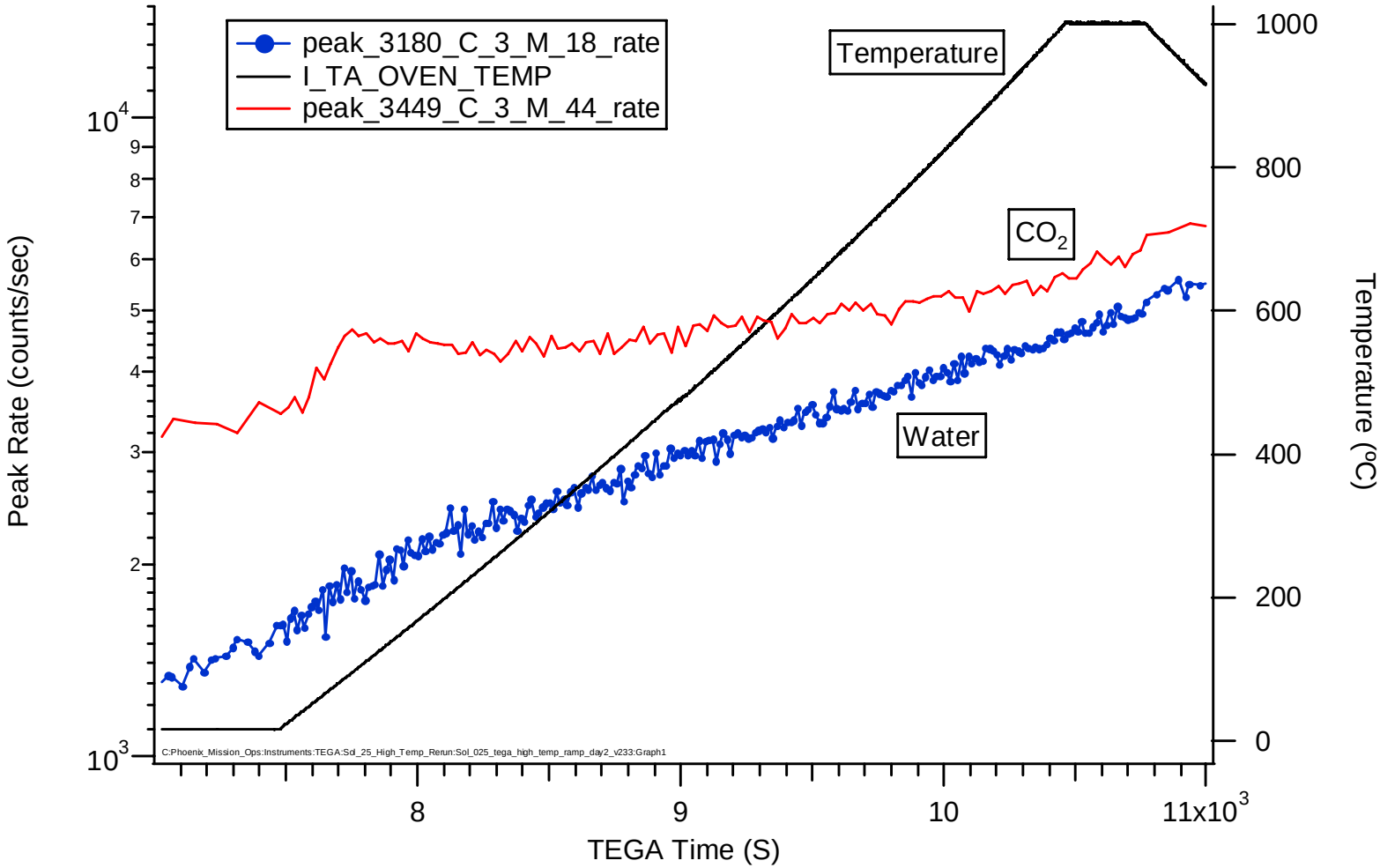
TEGA Measurements through Sol 25 Quicklook and VERY Preliminary!

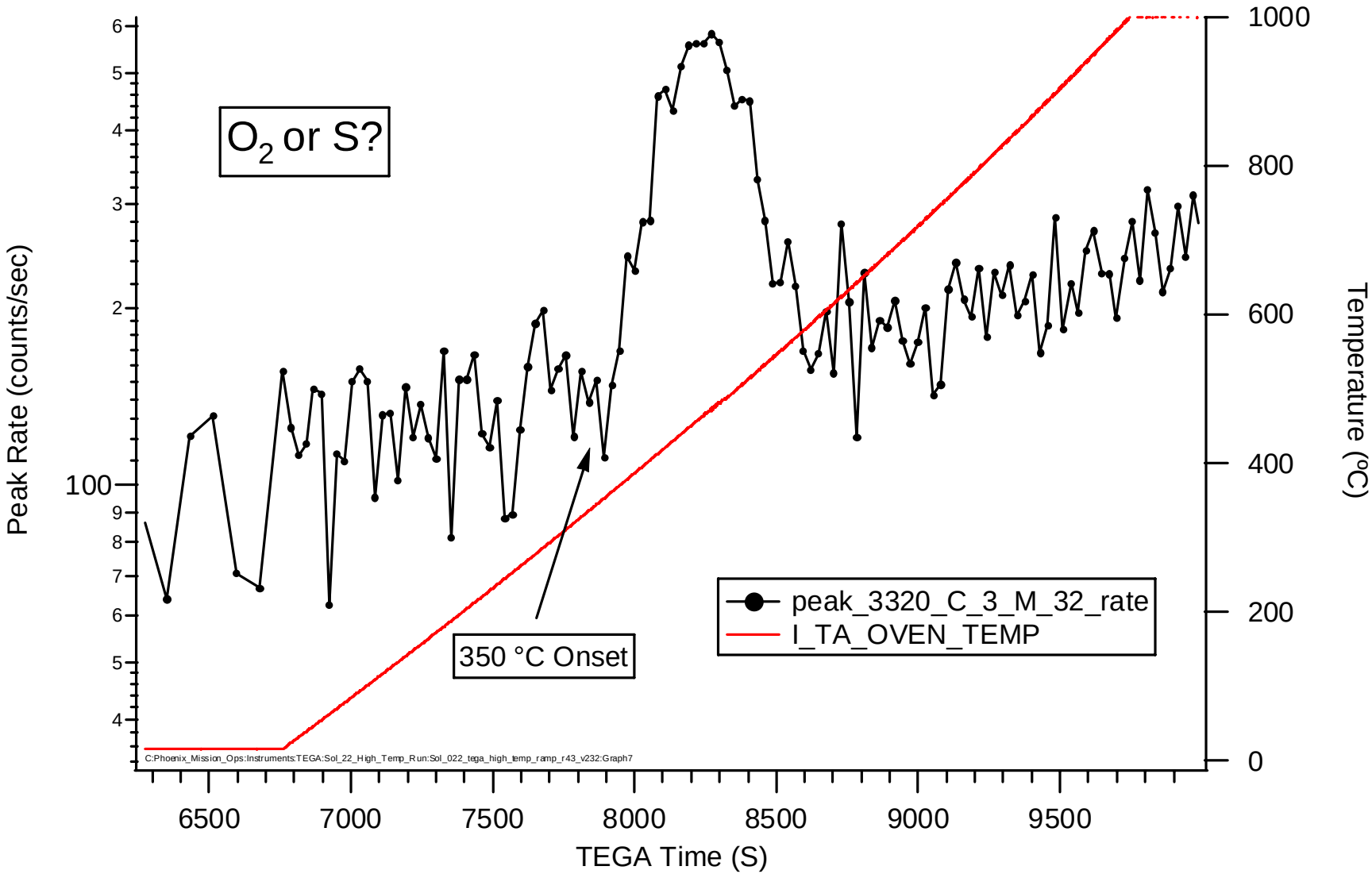
- Characterization Phase
  - Atmosphere measurement
    - Need Calibration Gas Run to get absolute measurements
- Pristine Atmosphere Runs
  - Sols 9,11,12,16
    - Primary Objective measure D/H ratio, water vapor
    - Need calibration gas run
- Soil Sample
  - Sequence Completed on Sol 25
    - Minimal to no water observed in Low T and Mid T
    - Some Adsorbed CO_2

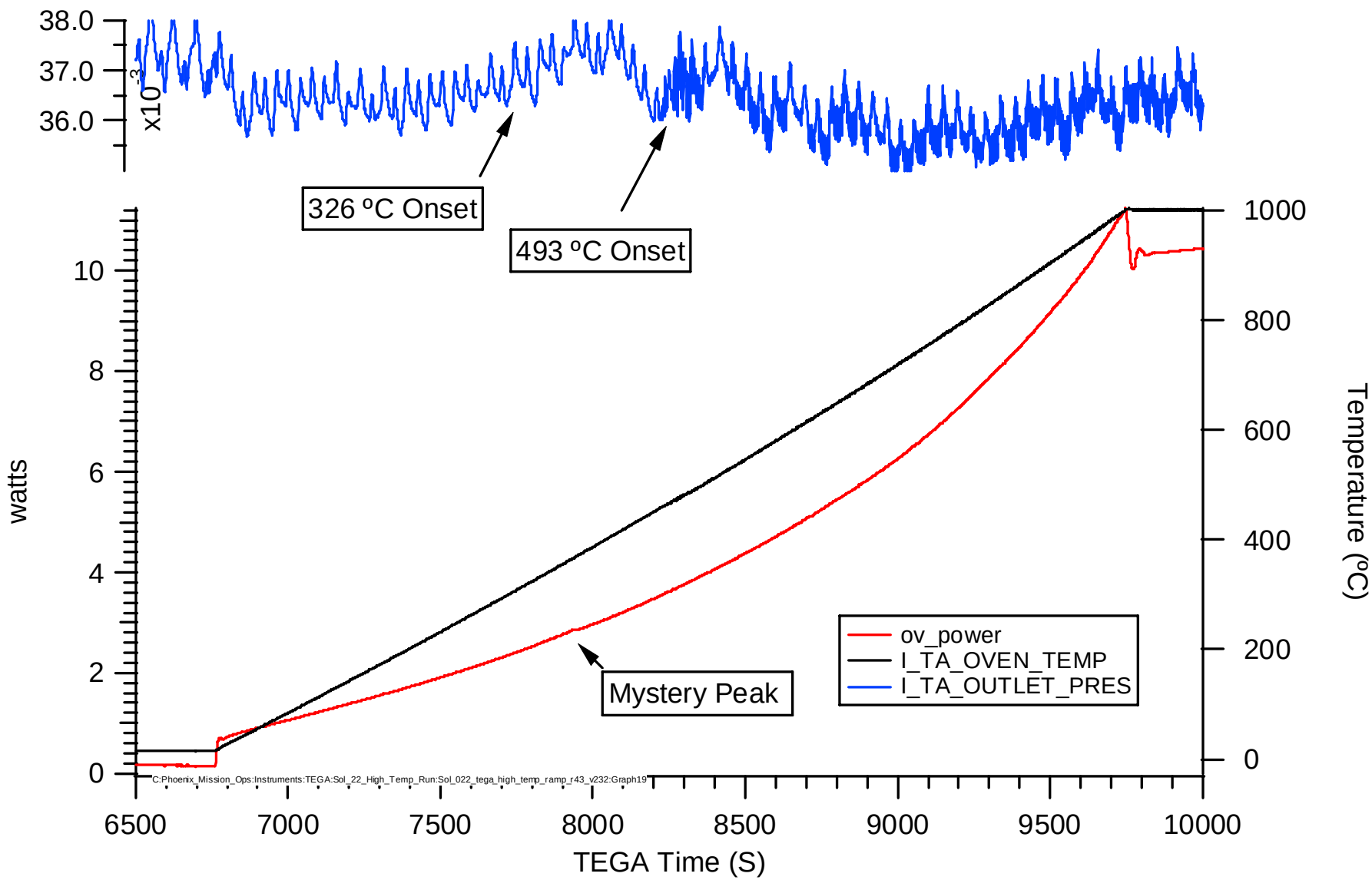

TEGA High Temperature Run (Day 1)
Dodo
38.0
37.0
36.0
x10^3
326 ºC
493 ºC
peak_3440_C_3_M_44_rate
peak_3189_C_3_M_18_rate
I_TA_OVEN_TEMP
I_TA_OUTLET_PRES
Temperature
CO2
Water
Peak Rate (counts/sec)
Temperature (ºC)
TEGA Time (S)
10x10^3
C:Phoenix_Mission_Ops:Instruments:TEGA:Sol_22_High_Temp_Run:Sol_022_tega_high_temp_ramp_r43_v232:Graph1

TEGA High Temperature Rerun (Day 2)
Dodo

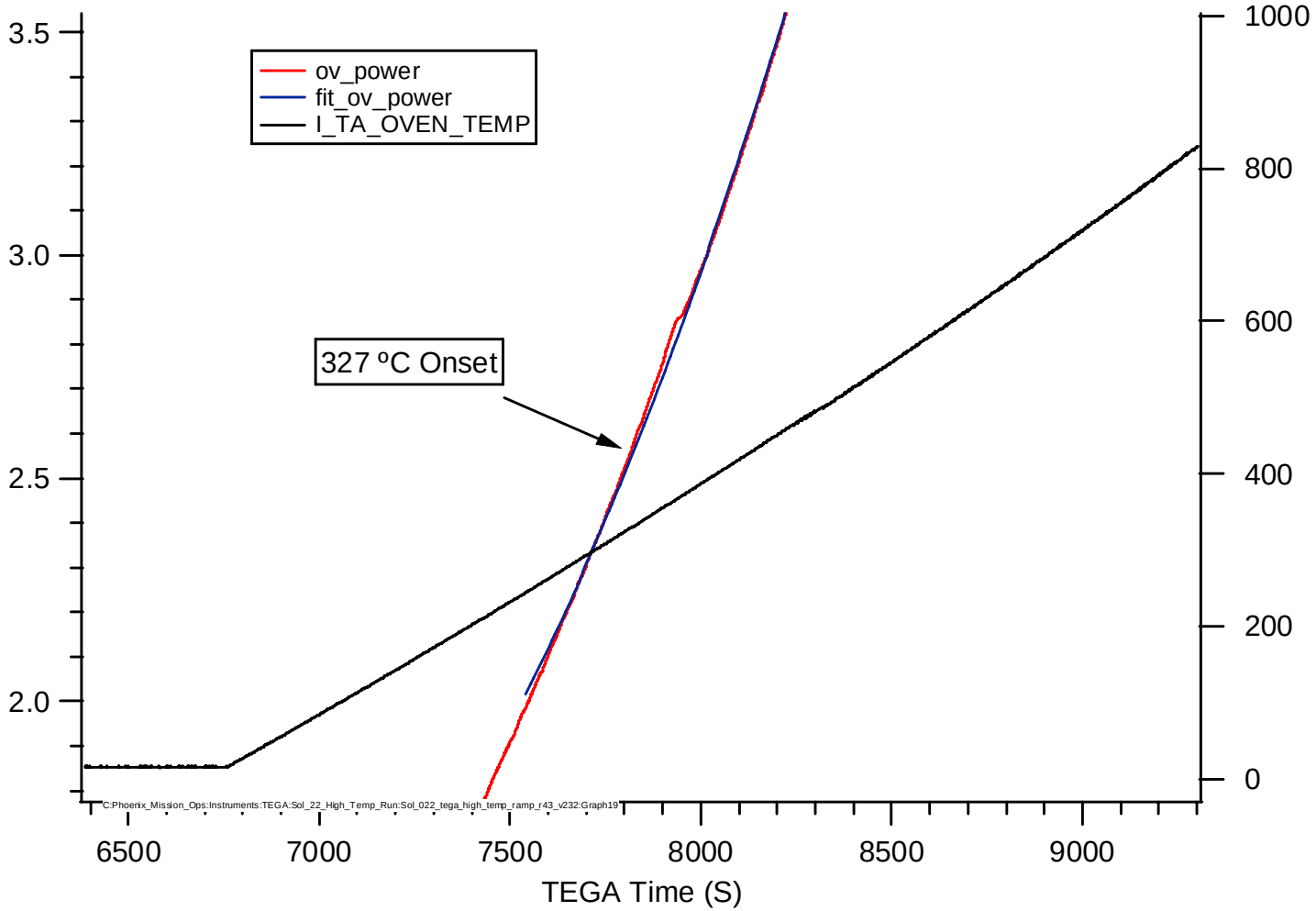


TEGA High Temperature Run (Day 1)
Dodo

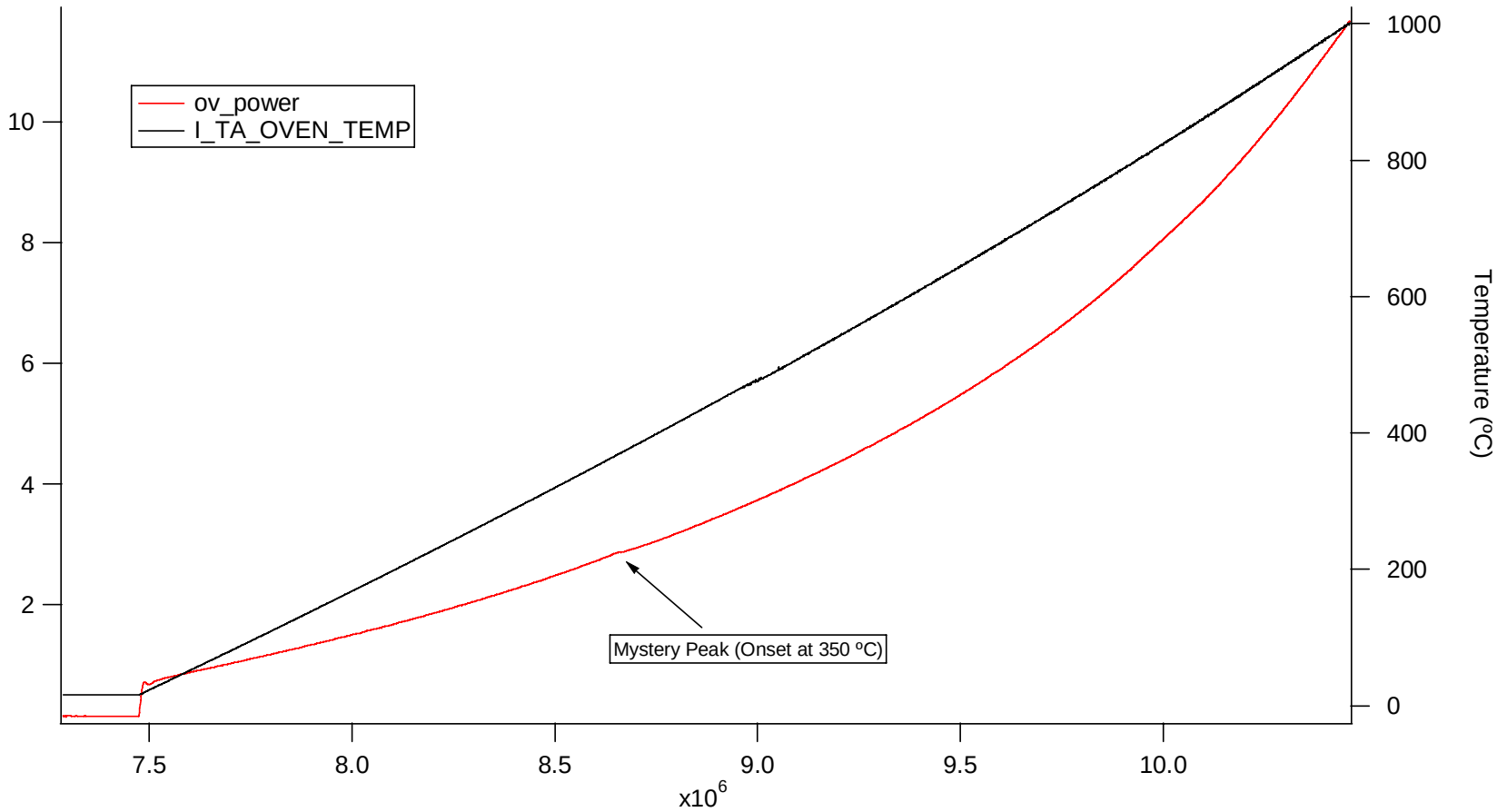



TEGA High Temperature Run (Day 1)
Dodo
38.0
37.0
36.0
x10^-3
326 ºC Onset
493 ºC Onset
10
8
6
4
2
0
watts
1000
800
600
400
200
0
Temperature (ºC)
Mystery Peak
ov_power
I_TA_OVEN_TEMP
I_TA_OUTLET_PRES
C:Phoenix_Mission_Ops:Instruments:TEGA:Sol_22_High_Temp_Run:Sol_022_tega_high_temp_ramp_r43_v232:Graph19
6500
7000
7500
8000
8500
9000
9500
10000
TEGA Time (S)

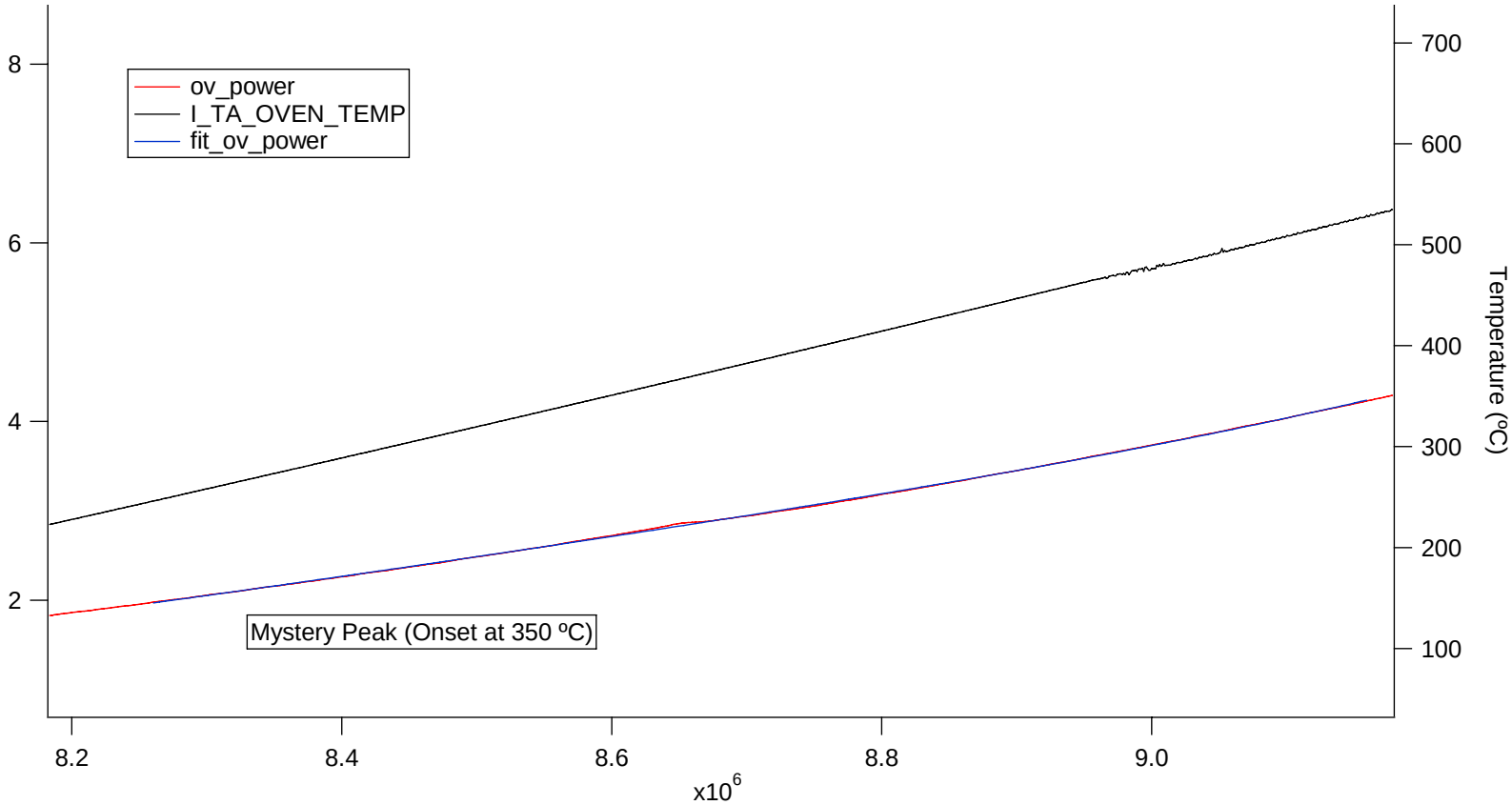
TEGA High Temperature Run (Day 1)
Dodo



TEGA High Temperature Rerun (Day 2)
Dodo



TEGA High Temperature Rerun (Day 2)
Dodo



Preliminary Interpretation

- Very little water release (surprising)
- No SO_2 observed, but calibration may be an issue
- No organics fragments observed
- CO_2 and O_2 prominent gases released

Candidate Phases
VERY Preliminary

- CO_2
  - Carbonates (low temperature decomposition of Fe-Mg carbonates)
  - Combustion of organic

- O_2 (or S)
  - Decomposition of Fe and/or Mn oxides
  - Decomposition of sulfates (SO_2 peak missed in calibration)