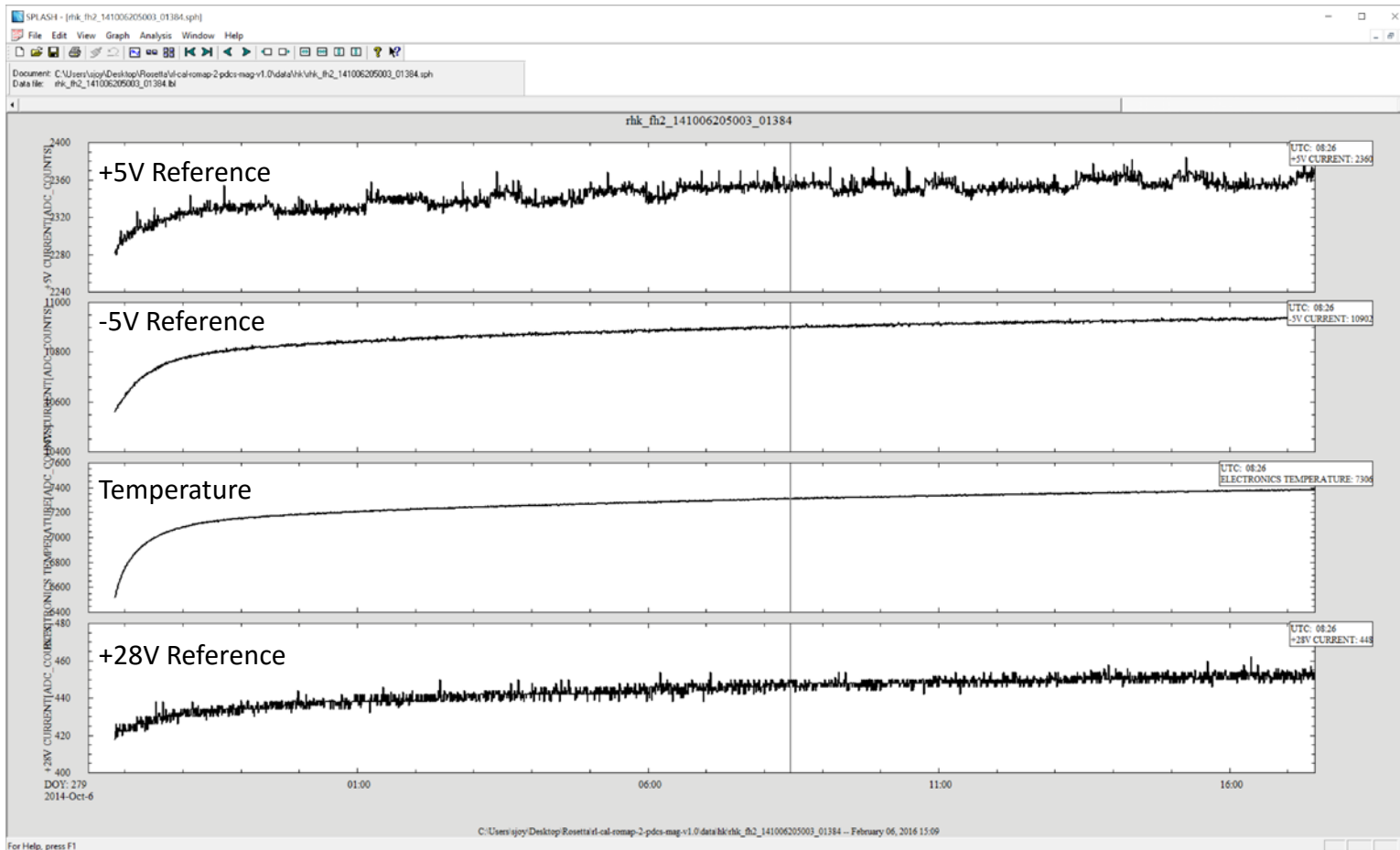


# Rosetta Lander MAG Data Review Comment Summary

rl-cal-romap-2-pdcs-mag-v1.0  
rl-cal-romap-2-phc-mag-v1.0  
rl-c-romap-2-fss-mag-v1.0  
rl-c-romap-2-rbd-mag-v1.0  
rl-c-romap-2-sdl-mag-v1.0  
rl-cal-romap-3-pdcs-mag-v1.0  
rl-cal-romap-3-phc-mag-v1.0  
rl-c-romap-3-fss-mag-v1.0  
rl-c-romap-3-rbd-mag-v1.0  
rl-c-romap-3-sdl-mag-v1.0  
rl-cal-romap-5-pdcs-mag-v1.0  
rl-c-romap-5-fss-mag-v1.0

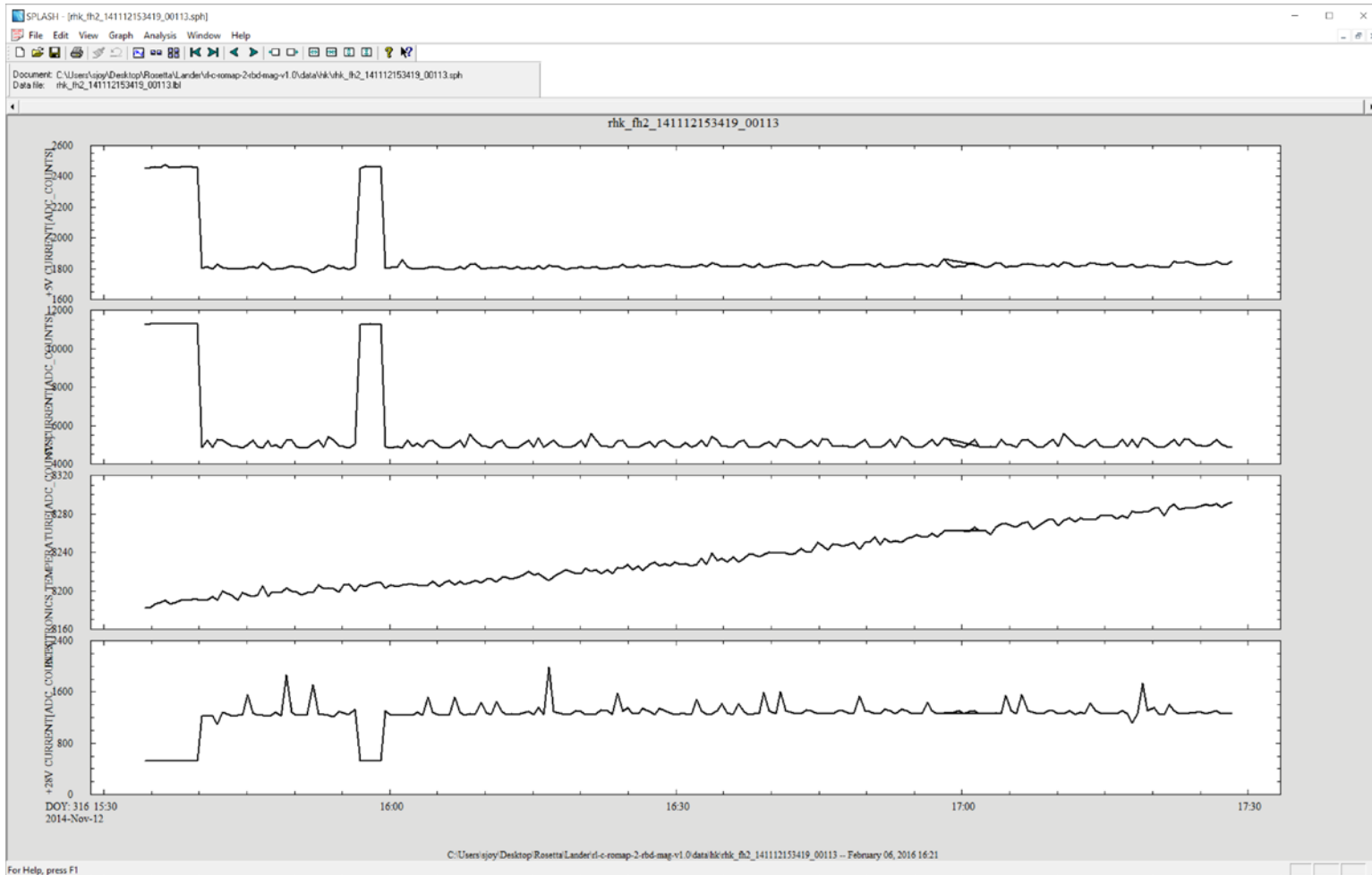
**S. Joy**

# HK Data: RL-CAL-ROMAP-2-PDCS-MAG-V1.0



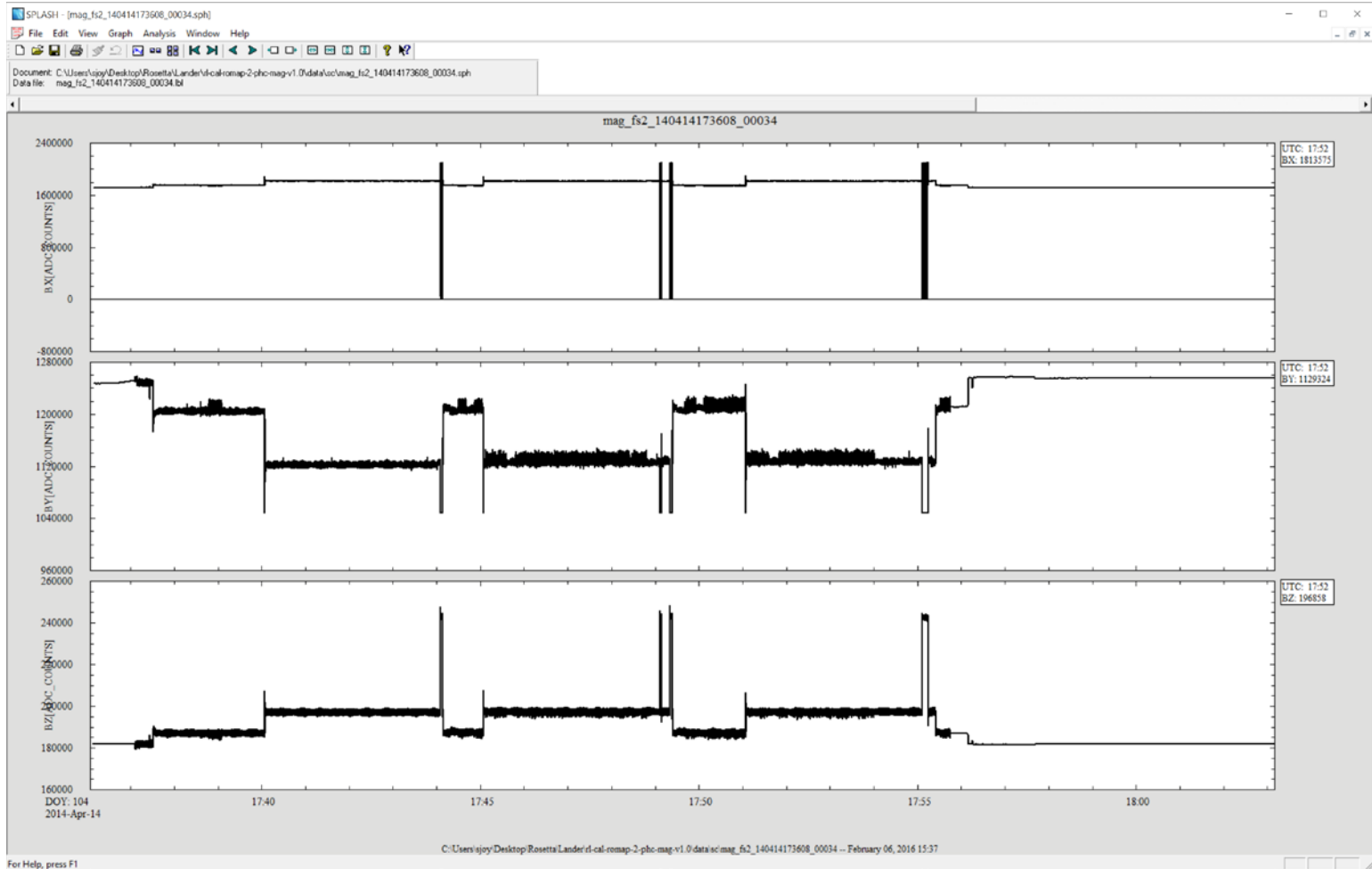
Plot generated from data file by reading label rhk\_fh2\_141006205003\_01384.tbl and format file romap\_rawhk.fmt (labels valid)

# HK Data: rl-c-romap-2-rbd-mag-v1.0



Plot generated from data file by reading label rhk\_fh2\_141112172856\_00462.tbl and format file romap\_rawhk.fmt (labels valid)

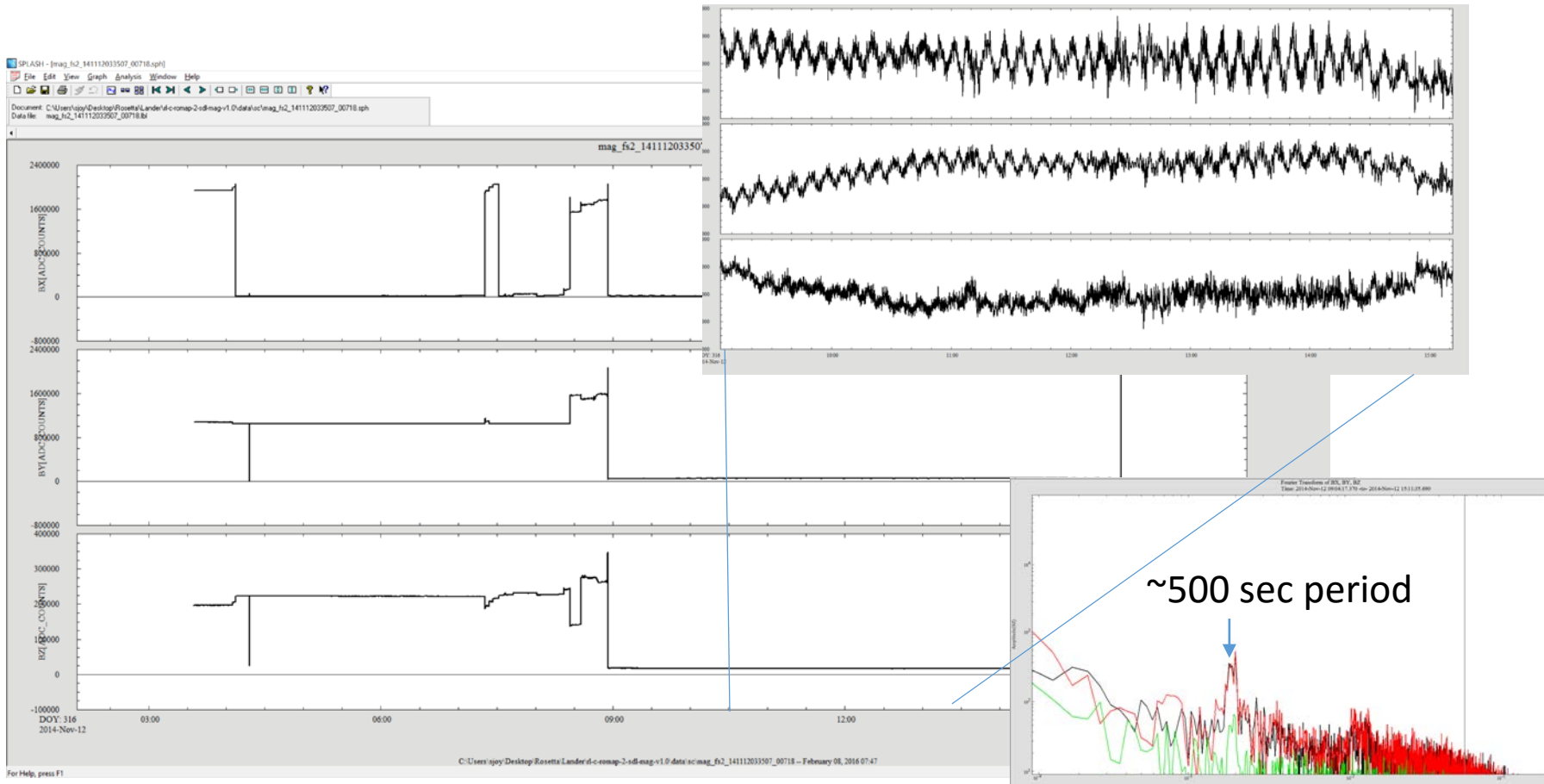
# SC Data: rl-cal-romap-2-phc-mag-v1.0



Plot generated from data file by reading label `mag_fs2_140414173608_00034.tbl` and format file `romap_mag_rawsc.fmt` (labels valid)

Data appear to have been acquired during a calibration test

# SC Data: rl-c-romap-2-sdl-mag-v1.0



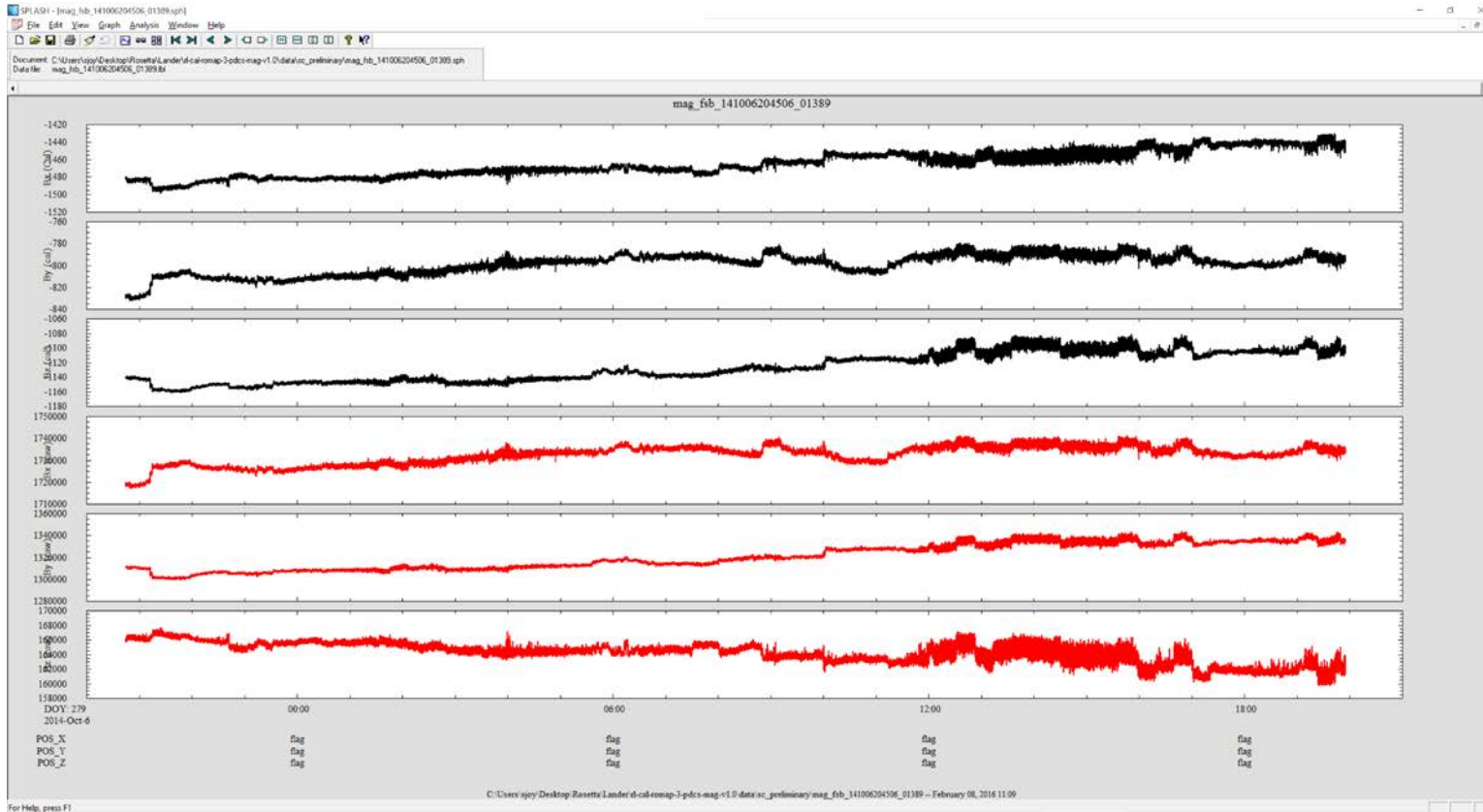
Plot generated from data file by reading label `mag_fs2_141112033507_00718.tbl` and format file `romap_mag_rawsc.fmt` (labels valid)

Data show large unexplained variations over the full time interval superimpose on the small scale nearly sinusoidal variations in the X-Y components.

# Raw Data (-2-) Archive Summary

- All of the files in each data set are properly described by their labels allowing the user to read and interpret the bytes in the data files
- The documentation is very sparse.
  - There is no detailed timeline explaining activities on the spacecraft that might help the user understand the sharp jumps in the field or in the reference voltages
  - There is no explanation of how the changes in the reference voltages (both nearly instantaneous and slow drifts) might impact the calibration
- The data are not terribly “usable” in their current state but it would be difficult for another team to develop an independent calibration of the magnetometer without additional documentation.
- RIDs
  1. Add descriptions to the dataset.cat files explaining that there are significant sources of time varying magnetic contamination in the data. Also describe how the changes in the reference voltages and temperatures impact the team’s ability to calibrate the data.

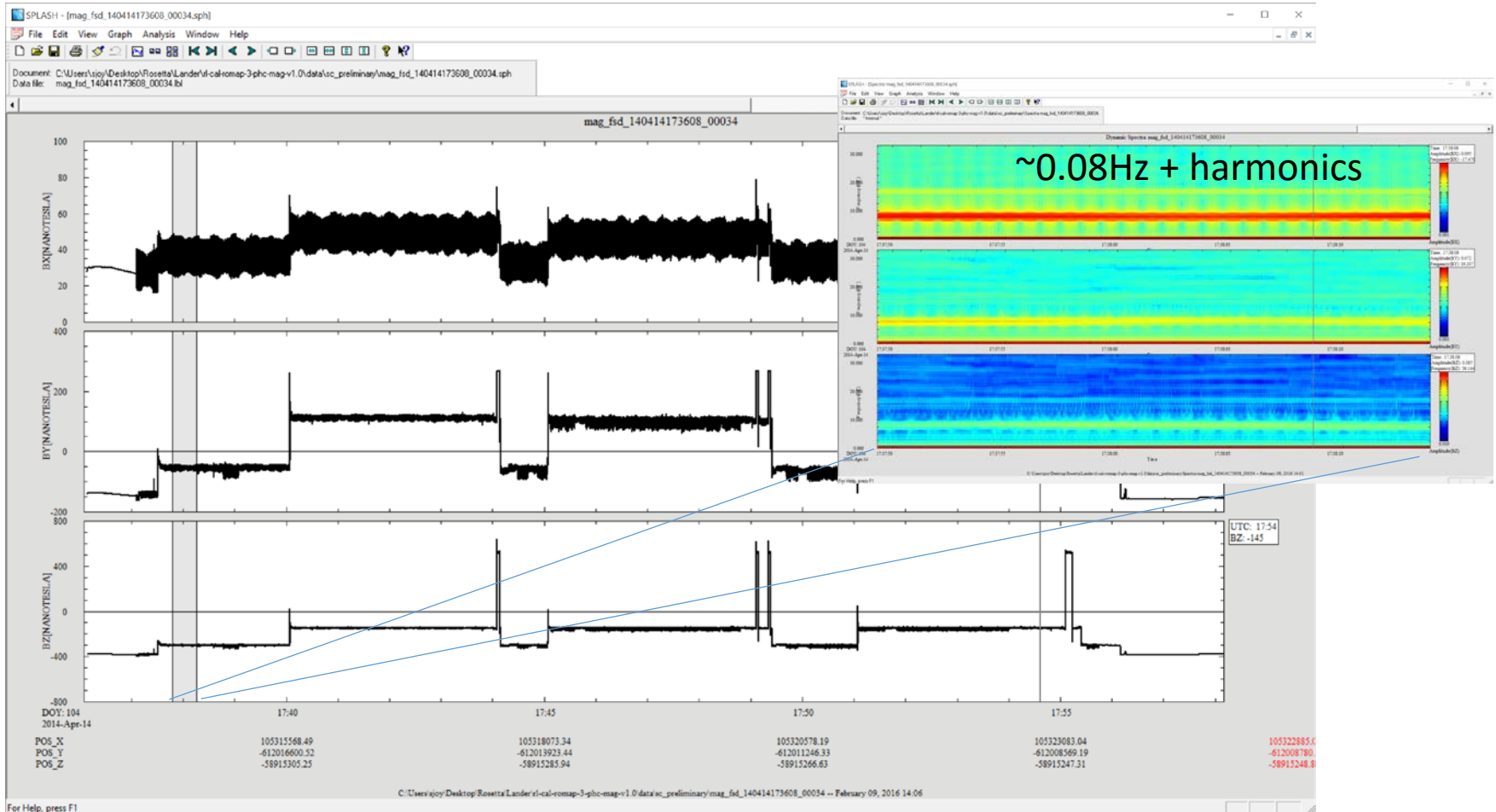
# SC Data: RL-CAL-ROMAP-3-PDCS-MAG-V1.0



Plot generated from data file by reading label `mag_fsb_141006204506_01389.tbl` and format file `romap_mag_calscb.fmt` (labels valid). Black traces are calibrated data, red traces are the raw data for the same time period. Trajectory columns are all missing data flags in all data files.

Data appear to be poorly calibrated, events that appear to be s/c related remain, IMF field is orders of magnitude smaller than these data indicate.

# SC Data: rl-cal-romap-3-phc-mag-v1.0



Plot generated from data file by reading label `mag_fsd_140414173608_00034.tbl.tbl` and format file `romap_mag_calscd.fmt` (labels valid – verified that format files a-d have identical structure differing only by the coordinate systems of the values.)

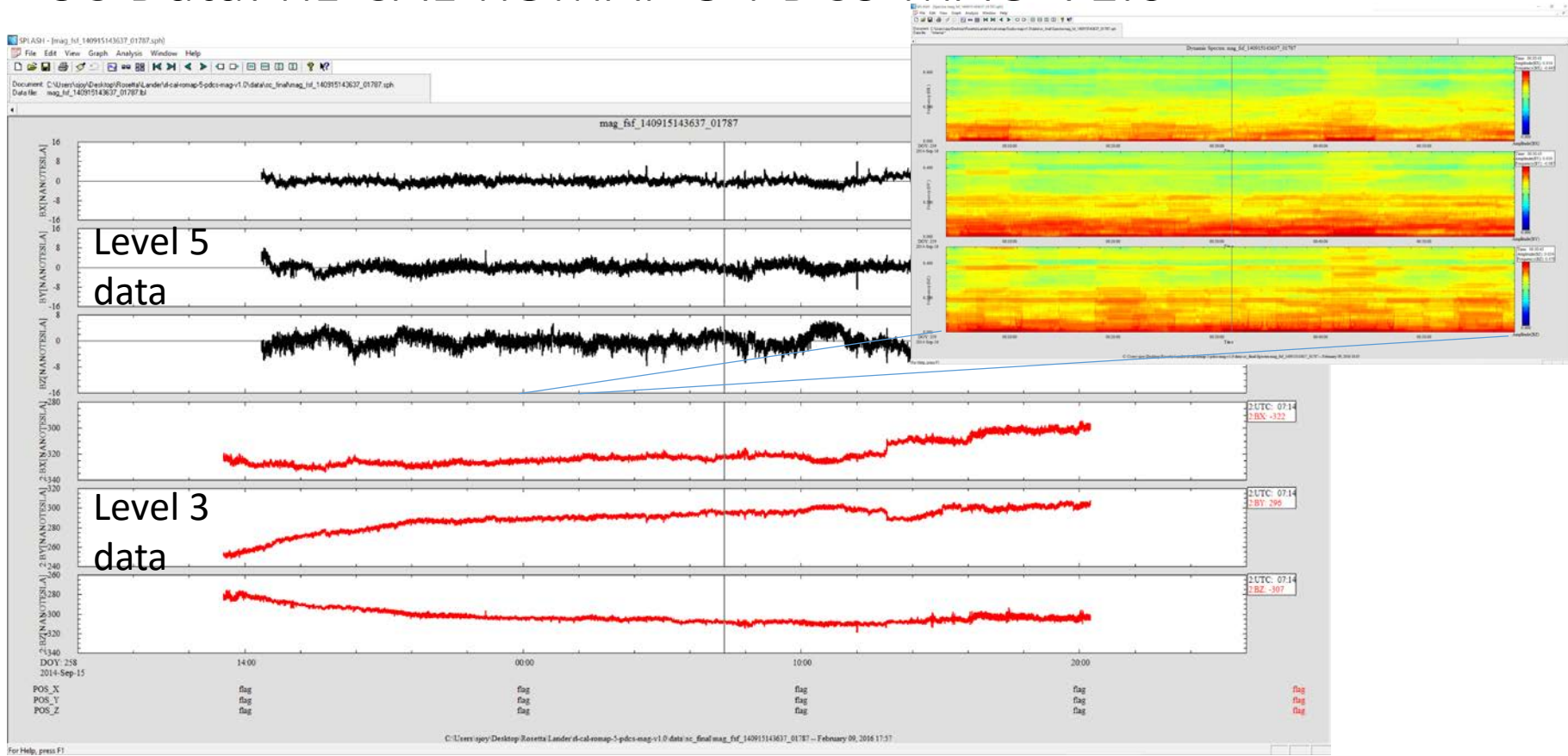
Calibration has not removed non-physical phenomenon.



# Summary – Lander Calibrated (-3-) MAG data sets

- In general, the preliminary calibrations that have been applied to these data do not remove all of the instrumental/spacecraft contamination
  - The field magnitude is commonly off by orders of magnitude
  - There are numerous quasi-periodic noise sources with periods between 10-30 seconds
  - While it is understood that the calibration is preliminary, the data set catalog descriptions should be updated to describe the noise sources and if any further attempt will be made to remove them
- RIDs
  1. All: dataset.cat file descriptions do not make it clear to a user that most of these data should not be used for science. For mission phases before separation, users should be directed to preferentially use the orbiter magnetometer data. For the remainder, users should be pointed to L5 data. Data confidence notes should state that significant magnetic contamination persists in these data.
  2. RL-C-ROMAP-3-FSS-MAG-V1.0 - Error in dataset.cat terse description: "This data set contains raw data referred to FSS Mission Phase"
  3. RL-C-ROMAP-3-FSS-MAG-V1.0 - Error in the record\_length (165 -> 168) in all data labels

# SC Data: RL-CAL-ROMAP-5-PDCS-MAG-V1.0



Plot generated from data file by reading label `mag_fsf_140915143637_01787.tbl` and format file `romap_mag_calscf.fmt` (labels valid). Black traces are derived data, red traces are the preliminary data for the same time period. Trajectory columns are all missing data flags in all data files.

Derived data appear to be moderately well calibrated, events that appear to be s/c related in the preliminary calibration are removed and the IMF field is physically possible. Some artifacts remain.

# Summary – Lander Calibrated (-5-) MAG data sets

- In general, the final calibrations that have been applied to these data remove most of the instrumental/spacecraft contamination
  - The field magnitude is plausible (<10 nT)
  - There are numerous quasi-periodic noise sources in the pre-delivery data set
  - Level-5 data are provided for only a small subset of the total time period. Since these are the only data that are readily usable for science, it would be good to have a complete data set.
- These data are generally in good shape!
- RIDs
  1. The dataset.cat file descriptions should indicate how these data were derived – they appear to be calibrated with a better model of the various sources on magnetic interference. Derived indicates irreversible data processing.
  2. The data appear to be incomplete (fewer data than in the L2 or L3 data sets for the FSS phase and none for the SDL phase). Since these appear to be the only truly useful data it would be good to have a complete set of these data.