Rosetta Review

11 October 2017

**OSIRIS**

Alan Fitzsimmons’ presentation. He used the OSIRIS software to read the OSIRIS data, or a FITS reader – so the PDS labels were not exercised. He notes the filter bandpass information is missing, and due to the results reported so far has become increasingly critical. The team (Carsten Guettler?) is reluctant because there are issues of angle of observation and other circumstances that might affect the filtering. Alan notes that at least the basic parameters can be published with a caveat. Team responds that they team itself uses center wavelength and FWHM, and do not want to put anything more detailed but necessarily more speculative out now (before the calibration paper is published).

Long discussion/argument about whether any filter description at all should be provided. The team is adamant that not even the ground calibration measurements be released prior to the calibration paper publication; the reviewers equally insistent that the best available info be made public. The team expects it will be a year until the calibration paper is written. [This appears to be an attempt to extend the proprietary period for these data by at least a year, likely more, buy withholding the filter data that would allow even rough analysis. This would likely result in OSIRIS data being unavailable for ROSES funding for two cycles.] The team is willing to provide the table indicating the quantum efficiency and some key numbers on the filter [missed the specific filters], which is satisfactory to the reviewer.

Alan F., not a SPICE user, asked for a double-check of phase angles because of the difficulty in sight-reading phase angle for something shaped like 69P. Using two different methods, a team member (? Michele) found a discrepancy. The team explained that the phase angle calculated at the center of the object would be different than the phase angle at the boresight intercept. [think I got that right]

Mike Kelley making Jian-Yang Li’s presentation. Jian-Yang also noted phase angle issues – not only is the angle in the label different from what he calculated, but it jumps. The spikes in the phase angle plot indicate sweeps, when the spacecraft was rotating to observe the dust field. The phase angle at the boresight intercept point is what you would want for these data, so this is all in good order. The related RID was closed without action.

Regarding to display direction – rotation issue. The team is concerned about backward compatibility if the use of the DISPLAY\_DIRECTION keywords was changed at this point. But NORTH\_AZIMUTH is defined on the assumption that the 180 degree rotation has been applied. The team would rather change the value of NORTH\_AZIMUTH than display directions, which is fine, as long as the labels are internally consistent. This will require also checking for other keywords referenced to the display orientation of the image. Also, the team indicates the “NORTH” in this case is celestial north.

Regarding the ‘missing’ calibrated images: There is some description of why some images do not have counterpart, but apparently either not seen or not sufficiently described for Jian-Yang. Jian-Yang can provide lists of “missing” images for investigation.

**RPC-LAP**

Yuri Khotyiantsev’s presentation. Once again NASAView failed to work. A planned user guide will address the bulk of the RIDs filed.

Steve Joy’s presentation. The issue of adding a high-level directory for these 100+ files to locate data has been raised now by 4 separate reviewers. It may need a PSA resolution – the team is reluctant to do anything. The question was raised at PSA of whether there is a possibility of reformatting these data. The team notes this is a lot of work, and not high-priority compared to other pending tasks at this point in the mission.

Regarding the hardware issue at end of mission, the team notes the data, for the moment, are included but not flagged. Cross-calibration is going on now, and the EAICD will be update with some additional details now and as more are known.

**RPC-MAG**

Nicholas Achilleos’ report. He was able to modify previously written code to read the data. He also confirmed the “missing” file in the calib directory that Stever reported. He notes that a worked example would be a useful thing to have at some point. The team notes the transformation description in the EAICD, in general, and in the cookbook, in detail. Larry notes the user guide would also help with this.

Steve Joy’s presentation. The request for an estimate of the magnitude of the interference effects from various spacecraft environment affects appears to be accepted by the team. The question of the seemingly constant DATA\_QUALITY\_FLAG was raised. The team says the flag is being used. It sounds [to me] like the quality flag is not used to indicate known cross-talk events, as these are documented elsewhere.

**CONSERT**

Roberto Orosei’s presentation. He notes the data description as interleaved tables is very difficult. Also, the geometry table format seems to have more columns than actually in the file. He reports an apparent change in the reference time from table to table in the same file. The team suggests this is a modulo effect that will be modified in the L4 version of the data (where the time will be absolute). This is not the only difference in the figure created by Roberto and the figure published in the paper, but this was apparently determined to be a combination of modulo and axis scale effects.

Erwan Mazarico’s presentation. Part of the inconsistency in things like catalog files and directory structure is a result of SONC producing the L2 data and the team producing L3. They are going to work together to resolve these issues as they can. Regarding the calibration documents only provided in French, this was an oversight and will be corrected with the next delivery. [Sounds like they may only be provided for the L4 data, though.] Regarding the two FMT files with the same name but different format, the team was reluctant to change names. Raugh made another request, arguing the programmatic issues with FMT files in the archive that are already complex, and the team seemed willing to consider modifying at least one of the two colliding names.

**RSI**

Jean Charles Marty’s presentation. He notes previous reviews could not review data, only documentation. Regarding the request to convert RSI data to TDM, the team has indicated the amount of work is prohibitive. There might be a short-cut though, that would get a superset of the information in the same format as used for radio science data of a similar nature in missions like New Horizons. [Not sure that’s a step forward, but at least it reduces the number of unreadable formats by one.] The team says the L2 file has the same information as in the original format files, just translated. The team considers it an improved TDM.

Some discussion of the 1s sampling data discovered in one directory, where others are 10s sampling rate. The team considers this not significant. The reviewer considers it confusing. Larry notes a simple explanatory sentence in the documentation would save a user a fair amount of head-scratching. Larry takes an action to investigate “missing” HGA geometry parameters.

Erwan Mazarico’s presentation. The outstanding lien on TDM format has already been discussed. Again, the presentation of small bits of data as separate data sets creates issues for end users. Janusz (?) notes the phase center of the HGA is NOT in the SPICE kernel, as previously asserted. It is available in another file, but it’s not clear that is in the archive. This will be addressed.

There is an ASCII spacecraft events file that can be included in the archive. Looks like it will be. Regarding missing ionospheric media correction, the numbers in the L2 data that address this will be referenced to a database (website) in Berne, Switzerland. [I’m still not convinced that they aren’t deferring critical information needed to use the data to a website.] The documents that need editing do not originate with either the team or Rosetta. Larry will investigate what might be done in these cases.

The team is reluctant to provide any user guide, insisting that only the 5 remaining planetary radio scientists can use it anyway. [Apparently, they see no point in encouraging new users or new uses of their data.] Larry asked about open-loop data. This was taken only for bi-static experiments (somewhere between 5 and 8 of those), and those data have not been archived yet. There are no open-loop data for gravity experiments.

**MIRO**

Bryan Butler’s review. The one major RID is already being worked by the team. The rest are minor.

Raphael Moreno’s review. Also had issues with the out-of-date FORTRAN code. He also notes that a specific worked example would help users trying to roll their own. He documents a readPDS failure that seems to indicate a label issue – mismatch in the number of COLUMN definitions vs. the value of COLUMNS. This should be investigated. This was in the spectroscopic data.

He discovered while trying to use the geometry file, the arrays he expected to correspond in size did not, so he couldn’t display the data. Mark Hofstadter (team) says this is a documentation issue – a different pulse is used for geometry and image dimensions. [Or something like that – clearly some sort of expectation management is needed.]

[I’m a bit concerned that documents in the PDS archive are leaning heavily on any software, even ours, as the seemingly only gateway to reading MIRO - or any other – data.]

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