Rosetta SPICE

Data Set: ROS-E_M_A_C-SPICE-6-V1.0

Rosetta SPICE
Data Set Evaluation Tools

Evaluation -
- Machine: IBM lenovo T60p ThinkPad
- Operating System: openSUSE 10.2

Staging -
- Machine: Dell Precision T3400
- Operating System: Red Hat Enterprise Linux

SPICE IK and software

Boom mounted instruments on the Rosetta spacecraft, particularly the RPC LAP, are effected by direct sun light. The LAP depends of the sun shining on the instrument in order to balance currents correctly and interpret the data in order to produce scientific quantities. Thus, it is helpful to know when the spacecraft is occulting the boom mounted instruments.

The problem is very similar to one in which SPICE already solves. The problem that SPICE solves is an instrument on a spacecraft which orbits a planet can use SPICE to determine when the Sun is occulted by the planet. It should be possible to create SPICE software routines to consider the spheroid shaped planet as a rectangular shaped body and include within the SPICE definitions the location of the instrument sensor relative to the spacecraft. Thus, a connection would be created between the location of the spacecraft frame and those of the instrument. In this manner, the frames of both could be related and occultation of the spacecraft could be generated.

For Rosetta, this information could be used as both a planning aid and an evaluation aid. As a planning aid, SPICE kernels are generated ahead of spacecraft maneuvers, such as when Rosetta is at the comet. The shading of the boom mounted instruments can be evaluated in order to determine which would have an issue operating due to the Sun. As another example, you could use occultation to determine if MIP is directly viewing the comet or if the spacecraft is in the way. When doing analysis of data already in the archive, any scientist or engineer can study the effect of the instrument's data of transition from light into darkness, or maybe they have some way of correcting the instrument's data for conditions in darkness and they need to identify when the instrument is in the dark.

ROS-E_M_A_C-SPICE-6-V1.0 CATALOG/INSTHOST.CAT

- This version is an old version from the time of the Steins data review which has many errors and should be replace with the updated text version from one of the RPC data sets.

ROS-E_M_A_C-SPICE-6-V1.0 CATALOG/MISSION.CAT

- This version is an old version from the time of the Steins data review which has many errors and should be replace with the updated text version from one of the RPC data sets.

ROS-E_M_A_C-SPICE-6-V1.0 CATALOG/REF.CAT

- Reference Key ID “BESSEL1999” is missing the the title; it should be: "Spectrophotometry: Revised Standards and Techniques". Also, the journal abbreviation should be "Publ. Astron. Soc. Pac.” Journal abbreviations should follow ISI Standards: http://library.caltech.edu/reference/abbreviations
- Reference Key ID “FORNASIER2006” the journal is abbreviated “Astron. Astrophys.”, not “A&A”.

ROS-E_M_A_C-SPICE-6-V1.0 CATALOG/REF.CAT – Cont. 1

- Reference Key ID “HAMUYETAL1992” has an incorrect title; it should be: “Southern spectrophotometric standards. I”. Also, the journal abbreviation should be "Publ. Astron. Soc. Pac.”
- Reference Key ID “HAMUYETAL1994” has an incorrect title; it should be: “Southern spectrophotometric standards. II”. Also, the journal abbreviation should be "Publ. Astron. Soc. Pac.”

ROS-E_M_A_C-SPICE-6-V1.0 CATALOG/REF.CAT – Cont. 2

- Reference Key ID “KUPPERS2007” the journal is abbreviated “Astron. Astrophys.”, not “A&A”.
- Reference Key ID “LANDOLT1992” the journal is abbreviated “Astron. J.”, not “AJ”.

ROS-E_M_A_C-SPICE-6-V1.0/DOCUMENT/ RO_EST_TN_3372.PDF

- RO_EST_TN_3372 section 3.1 requires geometry tables be included in each data set; however, no data sets reviewed contain such tables. Since this was promised during the Steins review and the requirement is still listed, where are these files? Why isn't the SPICE data set adequate as the requirement?

ROS-E_M_A_C-SPICE-6-V1.0/DOCUMENT/
RO_EST_PL_5011.PDF

- RO_EST_PL_5011, Section 5, CATALOG, SOFTWARE.CAT lists this file as required. In most cases, no software is delivered, so this file should be optional and not required. The experimenters should not be required to submit a data file which is not applicable to their data, nor should the public be subject to investigating a data description file which states that it is not applicable. This is an unreasonable requirement.

ROS-E_M_A_C-SPICE-6-V1.0/DOCUMENT/RO_EST_TN_3305.PDF

- Acceptable, but could use some more text to explain figures. It took me a while to figure out what I was viewing. In addition, text should call out figures. I recommend that a paragraph or two be included to describe the table and figures included in Section 2.

Backup Slides

ROS-E_M_A_C-SPICE-6-V1.0 AAREADME.TXT

GOOD

ROS-E_M_A_C-SPICE-6-V1.0 ERRATA.TXT

Minor corrections sent to PDS

ROS-E_M_A_C-SPICE-6-V1.0
INDEX/INDEX.LBL

GOOD

ROS-E_M_A_C-SPICE-6-V1.0 INDEX/INDEX.TAB

GOOD

ROS-E_M_A_C-SPICE-6-V1.0
INDEX/INDXINFO.TXT

GOOD

ROS-E_M_A_C-SPICE-6-V1.0 CATALOG/SPICEDS.CAT

Minor corrections sent to PDS

ROS-E_M_A_C-SPICE-6-V1.0 CATALOG/SPICE_INST.CAT

GOOD

ROS-E_M_A_C-SPICE-6-V1.0 CATALOG/PERSON.CAT

GOOD

ROS-E_M_A_C-SPICE-6-V1.0 CATALOG/SOFT.CAT

GOOD

ROS-E_M_A_C-SPICE-6-V1.0 CATALOG/CATINFO.TXT

GOOD

ROS-E_M_A_C-SPICE-6-V1.0/DOCUMENT/
RO_EST_TN_3372.LBL

GOOD

ROS-E_M_A_C-SPICE-6-V1.0/DOCUMENT/
RO_SWT2003APR03.LBL
RO_SWT2003APR03.PDF

GOOD

ROS-E_M_A_C-SPICE-6-V1.0/DOCUMENT/
RO_DSS_TN_1081.LBL
RO_DSS_TN_1081.PDF

GOOD

ROS-E_M_A_C-SPICE-6-V1.0/DOCUMENT/
RO_ESC_PL_5026.LBL
RO_ESC_PL_5026.PDF

GOOD

ROS-E_M_A_C-SPICE-6-V1.0/DOCUMENT/
RO_EST_AO_0001.LBL
RO_EST_AO_0001.PDF

GOOD

ROS-E_M_A_C-SPICE-6-V1.0/DOCUMENT/
RO_EST_PL_5011.LBL

GOOD

ROS-E_M_A_C-SPICE-6-V1.0/DOCUMENT/
RO_EST_TN_3165.LBL
RO_EST_TN_3165.PDF

GOOD

ROS-E_M_A_C-SPICE-6-V1.0/DOCUMENT/
RO_EST_TN_3305.LBL

GOOD