

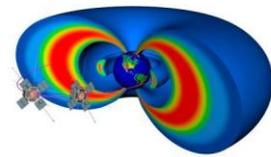
RBS
Radiation Belt Storm Probes

Overview of SOC Working Group

August 30, 2010



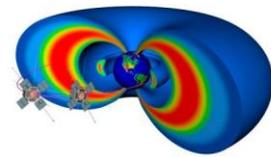
SPICE Tutorial



- Participants installed the SPICE toolkit from NAIF using a variety of platforms, including C, FORTRAN and IDL.
 - Discussion as to how clock anomalies would be handled. A clock reset will trigger instrument shutdown, so there should be no science data taken during a problem. The spacecraft clock will be reset as close to MET after the anomaly is resolved. The partition number will be incremented twice – once to flag the anomaly, and then again after the anomaly when the clock is corrected. This will result in science data having the correct MET in all cases.
 - Discussion of spacecraft ephemeris and coordinate conversions. SPICE kernels for converting from spacecraft coordinates to geophysical coordinates will be produced. Scott Turner (APL) has produced a GSE kernel (which will need to be verified) and Paul O'Brien has produced a dynamic frame kernel for GSM using IGRF.
- Action Items
 - Discuss with the MOC notifications of changes to the ephemeris files – The teams need a mechanism to trigger re-processing. This could be as simple as a daily changes file.
 - Discuss with the MOC the frequency that ephemeris files are generated and define what the contents should be – ideally the most recent definitive ephemeris file should contain the complete mission ephemeris up to that date (not have multiple files that must be strung together).
 - Discuss how attitude data is being generated – the current SPICE method is to propagate attitude forward from the last known attitude. This can lead to a discontinuity between the propagated attitude, and the next calculated attitude, in reality this is small compared to the attitude determination requirements, but should be quantified.



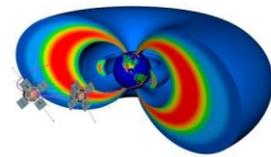
SPDF and CDF files



- Discussed history of CDF, how CDF files are generated. Tutorial involved walking through the various SPDF tools available for generating CDF skeleton files and for verifying compliance with the ISTP standards.
- Consensus that generating CDF files is a simple process once the skeleton files have been created and simple code is written to populate the variables in an empty CDF file.
- Action Items:
 - The instrument teams will start to define their CDF file formats based on the ISTP standards. Initially this will involve working from the contents of the PDMP to identify the number and type of CDF files. The teams will work with SPDF to define variables, ranges and ISTP metadata.
 - SPDF will work with EMFISIS on how to handle very high time resolution/high volume data.
 - ECT will provide prototype CDF files.
 - Where possible existing ISTP compliant CDF files will be used as a starting point.
 - Teams will work with PRBEM to map higher-level data products into the PRBEM standard. They will also further discuss possibly extending PRBEM for fields and waves.
 - Work on defining some “standard” RBSP variables that will be included in CDF files. In particular, should MET be included as a standard parameter.
 - Work on defining file-formats will be handled through discussion on SOC telecons, and using the Science Data Portal to host examples and documentation.



ViRBO



- Bob Weigel demonstrated what the role of Virtual Observatories in the Heliophysics Data Environment.
 - Made clear that the role of a VxO is data discovery catalog and discovery, not data archive. ViRBO will work with SPDF to build and tweak SPASE meta-data. The instrument teams should review as appropriate.
 - Demonstration of the capabilities of AutoPlot and ViRBO, the results of a ViRBO query can be used to generate a plot by launching Autoplot with the appropriate bookmark file.
- Action Items:
 - Bob will work with the teams on defining SPASE data records for different quantities, (people, observatory, data etc).
 - Work with Autoplot on features for RBSP and to develop VAP files. Work on getting PNGwalk and extensions for data problem flagging to other teams.