THEMIS Science Data Analysis Software Monthly Accomplishments – October 2008

THEMIS Web
1. The ESA Instrument web pages have been significantly enhanced with the following features:
   a. Table of eESA and iESA Parameters
   b. Example of ESA Data Illustrating Accuracy of In-Flight Calibrations
   c. Sources of Non-Ideal Instrument Performance
   d. ESA Modes and Data Products
   e. How to Select an Appropriate Data Type (Flow Diagram)
2. The Summary Plot Viewer's retrieval time has been reduced by allowing just the requested plot to load instead of reloading the whole page.

THEMIS Data Products
1. The L1 ESA, SST, MOM, FBK and STATE data for the entire mission has been reprocessed using revised algorithms and master cdf's. The enhancements include:
   a. The L0->L1 processing algorithm for ESA and SST particle distributions has been changed to improve the handling of cases where the instrument configuration changes in mid-packet.
   This algorithm change also impacts the L1 MOM cdf contents (but not the structure!), since the new algorithm may produce slightly different timings for the SST attenuator bits and ESA sweep modes that appear in the L1 MOM cdf.
   b. The master L1 FBK cdf's have been revised to include center frequencies of each filter band (rather than start frequencies), and the center frequencies and bandwidths have been revised with new values from Chris Cully.
   c. Spin model variables now reside in the L1 state cdf.
2. The L2 ESA, FBK, FFT, FGM, FIT, SST, MOM data for the entire mission has been reprocessed.
   The enhancements include:
   a. Software version numbers that have been added into all L2 cdf's as a global attribute.
   b. Total magnetic field variables in the FGM L2 cdf's.
   c. New frequency bands in the FBK L2 cdf's.
   d. Data Quality flags plus virtual variables in the ESA L2 cdf's.
3. The ASI Mosaic Software now merges thumbnail images into full-resolution mosaics if full-resolution images are not available for a particular station.
4. Narsarsuaq Greenland (ASI only) and Snap Lake Canada (ASI and UCLA GMAG) GBO's were integrated into the data processing system.

THEMIS Science Data Analysis Software – Bleeding Edge Distribution post TDAS-V4.00)
1. The Gaussian convolution code convolve_gaussian_1d.pro has been upgraded. It now uses a dedicated FFT convolution algorithm, which maximizes the speed and improves the endpoint handling.
2. Routine thm_part_spec_calc.pro was enhanced to handle 1-angle reduced data.