THEMIS Science Data Analysis Software Monthly Accomplishments – August 2008

THEMIS Web

1. Updated Summary Plot Viewer with an added reference key describing zoom capabilities.
2. The Summary Plot web page was redesigned to allow more of the summary plot to be visible with regular browser dimensions.

THEMIS Data Products

1. The ASI CDF production has been transitioned to an automated SOC system.
2. All summary plots have been reprocessed to incorporate Moments data updates.
3. FFT (onboard) L2 CDF's have been created and sent to SPDF for review.

THEMIS Science Data Analysis Software – TDAS (Bleeding Edge Distribution - post v4.00)

1. A modification was made to thm_part_getspec, thm_sst_ps**.pro, and thm_part_moments, to remove electronic noise, on-board masking, and sun contamination from SST data.
   Examples can be found in themis/examples/thm_crib_sst_contamination.pro
2. Code was added to routine 'aacgm_plot' to plot the coordinate grid on a map of the earth (aacgm)
   Examples can be found in themis/examples/thm_crib_trace.pro
3. An executable crib has been created that demonstrates how to perform various field line tracing tasks
   The crib can be found at themis/examples/thm_crib_trace.pro,
4. A new plotting routine (plotxyvec.pro) has been added for plotting arrows on top of plotxy and plotxyz plots.
   In addition a new routine grad.pro has been developed for calculating the gradient of a vector field.
   Examples of usage can be found in themis/examples/thm_crib_plotxyvec.pro
6. New routines have been developed which allow downloading/creating all A-indices from Kyoto, the Dst index from Kyoto, and the pseudo A-indices using THEMIS data. In addition crib sheets are available for each routine. All routines are fully "automatic", i.e., they do not require any manual download of data.
   The routines and cribs are as follows: kyoto_load_ae.pro, kyoto_crib_load_ae.pro, kyoto_load_dst.pro, kyoto_crib_load_dst.pro, thm_make_AE.pro and thm_crib_make_AE.pro.
7. Routine thm_part_getspec has been enhanced (all examples in crib) as follows:
   a. PITCH and GYRO keywords now affect energy spectra generation.
   b. Burst electron SST (pseb) spectra can now be plotted.
   c. DATAGAP keyword has been added to help overlay burst data over full data.
   d. Changed BINS2MASK keyword to BADBINS2MASK. While "New BADBINS2MASK is 0-1 array: [0,1,0,1,000..] which can also be automatically generated by mouse actions.
   e. Removed MASK keyword. f. Set OTHER_DIM default to 'mphigeo'.
8. Routine thm_part_moments2 magnetic data interpolation method was changed from DATA_CUT to INTERPOL_MXN. Also the capability to handle time spans containing a single data point has been added.
9. Routine Specplot has been enhanced to have the ability to prevent it from interpolating x-axis data gaps by adding the DX_GAP_SIZE keyword. Specplot will also look for the DATAGAP flag in the dlimits to accomplish the same result.
10. Routine thm_cal_efi.pro now contains a stop/warning, if the 'hed_ac" TPLOT variable contains the error code of 255.
11. Routine thm_cal_fft.pro now handles AC-coupled mode successfully.