Software Task Priorities (In Play / In the Queue) - 12/03/07

Jim L.

~~1. Missing v01 and v02 State cdf's 10/1-10/19. Reprocessing job launched. (QA related)~~

~~1. Missing Data for Probe 'B' (Reported by Harald and Andreas)~~

~~Send tohban email about Probe 'B' 4 day orbit and data availability~~

1. Compress and Decompress routines for MOMs. BugzID=81
   (On Hold) ready for packets from Peter
1. Compress and Decompress routines for Fields. BugzID=81 (Performance testing in progress)
   ready for packets from Peter
1. Any MAP assignments
1. Interface with Pat to do IDL Geopack Testing on the Mac (before 12/9)
1. L1 File definitions Document. BugzID=xx.
2. Split the input telemetry file into (possibly multiple) single-SCID files, then process only the ones that correspond to valid THEMIS SCIDs
2. Log File Processing
    a. Issue a log msg for any VC files which contain mixed SCIDs or otherwise invalid transfer frames.
    b. Each processing script should, at the very least, take a command-line option specifying a log file where sufficiently-important messages can be written.
    c. Log message format is TBD, but should probably include:
        1) wall clock date/time when the log message was generated
        2) A file or directory name identify the input data that provoked the msg
        3) A severity field (e.g. "info", "warning", "critical")
    d. Modify lzp_wrapper and process_lzp_dir scripts. BugzID=49.
    e. Clean-up current VC->L0 processing scripts temporary files. BugzID=50.
    f. Unexpected transfer frames time matched packet time yet in the past. BugzID=38.
3. Help out with Compression Flatsat Testing
3. L0 to L1 processing: look ahead to the next packet before processing the current packet. BugzID=67
4. FGM range changes in the mid packet. Post Proc maybe a solution to eliminate the spike. BugzID=44.
5. Provide Higher Cadence State Files - Spin period and spin phase - double precision. BugzID=91
6. Non Monotonic timestamps. BugzID=72

Tim

1. email from SPDF (THG L2 - 4 new stations) ?
1. Additional ground mag data from the University of Alaska Geophysical Institute (GI) ground mag network. We have been using 2 mags from this network up to this point (these 2 are located in the same location as one of our GBO's). Now we're adding the remaining 9 gmags in that network. The new stations will be processed in the same fashion as the current stations.
1. GBO – GMAG master CDF for the last GBO - Kuujjuaq.
1. Investigate retrieval of additional datasets from the Canadian (CARISMA)
    a. Send to U. Alberta IDL code for cdf conversion b. Stats of usage of data for current 5 stations
1. Related Web Sites - updates (JAXA) – see email from Vassilis
1. Related Web Sites – Taiwan ASCII and IDL SAVE FTP system for Themis.
1. Update Software drop down menu with link to Accomplishment Monthly Reports ftp site.
1. Sort out with Pat Tasks needed to update Filetracker for USN* files.
1. Any MAP assignments
2. Default for Load FIT and MOM to be L1 (for Davin)
3. High-pass filter function.(for Vassilis)
4. tsmooth2 needs to accept a time keyword (say, seconds) rather than # of points. (for Vassilis, Davin)

Jim M.

1. ~~ESA – reprocess gaps in aug-oct~~, except for THEMIS 'B' 10/19
1. ~~Check in esa calib file from Jim McFadden (to be sent)~~
1. Awaiting new routine from Jim McFadden then
    a. check in routine and test using the bleeding edge
    b. reprocess all L2 ESA
    c. fix tohban FGM Tohban Plots- plot scales +/-100nT same as overview plots.
    d. units still appear as [nT] and [ADC]. I thought that was eliminated at some point, but they seem to have reappeared both in the tohban FGM plots and in the overview plots. Can you fix at least in the FGM tohban plots? I suspect it may be because the broken code was fixed in the bleeding edge but not in the QA.
    d. test using the 3.0x branch, build 3.03, release 3.03 (Tim and David)
    e. Reprocess Overview and tohban plots
1. L2 ESA MOM's crib sheet (12/3)

~~1. Change L2 cron job to 6am.~~

1. thm_load_state question

~~1. Overview Plot changes – data for 11/23-25 generated.~~

~~a. use min value if zeros or lower than min value~~ ~~b. log for scale on FBK~~
~~c. ylimits - float of SST/ESA energy spectra plots~~ *d. generic solution (keyword to optimize) - ???*
~~e. auto scale Y range of SST spectrograms to avoid the white spaces.~~
~~f. mode bar seems thick (nothing we can do easily - moved to priority 3)~~
~~g. what the near-blank black and panels above the colored FBK plots? *(zeros now set to min value)*~~
~~h. Are you sure the SST spectra ylimit auto scales? I see a white band from 3MeV to 10MeV, where we dont measure anyway. Vassilis stated leave as is.~~

1. Vladimir Help Request
    a. fit efs data as zeroes for the dates 2007/3/21 - 28. Isn't it better to put there fill values if you do not have measurements?
    b. It would be good to be consistent with the fill values and use the same everywhere - NaN or 0 or 1.e31. Generally, it is better to use a number as this is a standard everywhere else.
1. Any MAP assignments
1. ESA and SST Tohban plots
1. FIT/MOM (Onboard) in separate L2 cdf's
1. MOM L2 CDF and as part of task put Coord Systems into metadata
1.GMAG Stack Plots - In progress few more Spikes, limits changed, reprocess. BugzID=86
2. SVD-FIT instead of POLY-FIT - from Vladimir
3. Review Patches for CDF's to increase speed Jim M. (Continued)
3. Overview plot change: mode bar seems thick (nothing we can do easily - low priority)
4. GUI Mods
    a. thm_ui_config bug found by Davin
    b. No dialogue box appears for save ascii, no file location in msg box
    c. See email with history file ...231920 abort.
    d. Upper flatfile button (for Vassilis, work with Kate / UCLA Splash)
    e. button for postscripts (for Stephen Mende)
    f. Add new coord transf options to SM, GSM and GEO into GUI
    g. buttons on overview plot sub widget for fgm, esa and sst Tohban plots
5. GUI Mods
    a. current plot window - tell you which one (for UCLA)
    b. Save Ascii - fix precision, add header (with Pat for UCLA)
    c Label S/C Position button (GSE or GSN - default) (for UCLA)
    d. De-Gap widget add units
    e. DP - Delete or Overview Plot or Clear History - warning message
    f. Long Variable Names truncated in IDL-D
    g. Lower flatfile button (for Vassilis / Chris Russell)

Pat

1. ~~Check in minivar.pro from Vassilis~~
1. ~~Add the following routines to the distribution (bin1D.pro and bin2D.pro). Comments exist but some rudimentary comments to make it similar to distribution should be added (purpose, date, author etc).~~
1. wavepol.pro and twavepol.pro - ~~add to distribution. This routine (vintage '96) will do polarization analysis in IDL. It will work with time in seconds since 1970 (not only cline time). Note, timeline and freqline are the two output X,Y axes and the rest are the Z axis values. Add a routine that will take a tplot variable and output tplot variables (called: twavepol).~~ When cribs from Chris Cully, Bob Strangeway, and others received, condense cribs and add to the distribution.
1. IDL Geopack Testing. T96, T01 and T04. BugzID=87
    a. Coordinate Mac Testing by Jim Lewis
    ~~b. Coordinate with Tim new ptr to Geopack v6.6~~
    c. Pri tbd - Power Mac testing v6.6
1. ~~Fixing Tvector Rotate~~
    ~~a. Matrix Interpolation done to insure Matrix does not rotate more than 180 degrees~~
    ~~b. Quaternion interpolation in Tvector Rotate~~
1. Sort out with Tim Tasks needed to update Filetracker for USN* files.
1. Any MAP assignments
1. Ground Trac and tplotxy routines and to finalize crib sheet
   cribsheet plots footprints and equatorial trac for 3/23 on probe 'C'.
2. New overview plot - summary of fields and moments and a crib sheet that shows people how to create spin resolution overviews (bgmom overviews - for Bfield and ground processed moments).
2. VMO Deliverables: data product description files
   Step 1 - vet James We
   Step 1 - fgm L2 cdf for one probe, Step 2 - fgm L2 cdf for all probes
2. "th?_fgs_sigma" and "th?_efs_sigma" to the FIT CDFs (L1) and this should make it to the L2 CDFs as well,
2. Mini language to operate on tplot variables - first provide concept writup
3. boundary normal coordinates. On Hold. BugzID=59.
4. Christine's code to rotate the XY coord's along Earth direction was very effective. Also it was used by others. We need to streamline it, and its very similar to the others you've already written.
4. Tplot auto scaling. BugzID=41.
4. invalid inputs to the version keyword
4. Clean-up of makepng and makegif

Bryan

~~1a. Create energy spectra using thm_part_moments (esa and sst - full and burst distribution)~~
~~1b. Create angular spectra using thm_part_moments (esa and sst - full and burst distribution)~~
~~1c. Create plotting routine for angular spectrograms (esa and sst - full and burst distribution)~~
1. Minor mods to esa and stt full and burst distribution.
1. energy spectra in relation to user defined angles over time
1. Software Version: 2_01, IDL Version: 6.2, In thm_cal_fit, line 338, the operator produces unmanaged error on good files. (from Vladimir)
2. Generalized for any mode
2. thm_load_state - phase I
   a. hardcode (units = "km/s" or "km", or "deg")
   b. finish "no_update" loading option (consult with Davin)
   c. Finishing the coordinate transformation of the thm_load_state data at input, to include transformation of spinaxis attitude, need to determine keyword switch, implement the rotation of the spinaxis elevation/azimuth from gei to arbitrary coordinates (consult with Pat, Vassilis and Ken)

Bryan (continued)

3. thm_load_state - phase II (consult with Ken)
   a. For STATE CDF files, the following variable attributes should be defined, consistent with they way they are defined in the L2 FGM file: units, coordinate_system (consult with Jim L.)
   b. Once defined in the CDF, thm_load_state should take the values from the dlimits.cdf.vatt to set the metadata for the tplot variables: dlimits.data_att.units, dlimits.data_att.coord_sys
   c. For thm_load_state, the suffix gets added to support data, but support data is not transformed: if you call thm_load_state, coord='gse', suffix='_gse', /get_support_data only the pos and vel get transformed, but all get the _gse suffix.
   d. in thm_load_state, the code to delete support data that was loaded for coordinate transformation should be just del_data, '*_state_temp' e. THC braid photoelectrons
4. upgrade thm_load to work with probe assignments
5. move functionality of thm_load_state2 into thm_load_state and delete thm_load_state2
6. Shadow Indicator (for Vassilis - using functionality in ...load_state2 and tplot roi)
7. Multiple enhancements concerning keywords, valid_names and thm_load routines

Ken

1. Themis SCM CAL File Processing - produce table of contents and assign sections with Patrick R.
2. Themis System Administrators Guide
3. Themis Developers Guide

Harald

1. Validate Tsygenko work from Pat

Davin

1. split_vec

Christine

1. Correlation and dynamic correlation code: include these 2 routines and make a wrapper that works with tplot variables (and possibly interpolation if necessary)

Vladimir

1. Help Requests from Vladimir
   a. Software Version: 2_01, IDL Version: 6.2, In thm_cal_fit, line 338, the operator produces unmanaged error on good files. - assigned to Bryan
   ~~b. use your software to transform data into ASCII format and GSM coordinates (where applies). My system has reloaded your data files as they are apparently changed. After that, I get spectrogram data (peif_en_eflux) with NaNs in the first data column, while previous version of data gave me meaningful data there. Dates checked: 2007/3/21 - 28, 2007/5/20. I send e-mail with two files. - discussed (NaN's at the highest energy) and closed at the last Software meeting~~.
   c. fit efs data as zeroes for the dates 2007/3/21 - 28. Isn't it better to put there fill values if you do not have measurements? - assigned to Jim McTiernan
   d. It would be good to be consistent with the fill values and use the same everywhere - NaN or 0 or 1.e31. Generally, it is better to use a number as this is a standard everywhere else. - assigned to Jim McTiernan
1. Magnetopause Coordinates
1. Zero order step to create pre-processed solar wind data
2. Shue MP routine

Thomas Moreau

1. Create IDL code to make an L1 ESA cdf.
2. Create IDL code to read L1 ESA cdf with the same functionality as Jim McFadden's L0 code.

UCLA

1. Clean-up the power ripples from the FGM data. (Krishan)
   Awaiting new programmer

Software Tasks To Be Discussed (TBD) / To Be Assigned (TBA)

1. TBA - Tweaks for _dot0 and _0 for subspin resolution (for John - tbd)
2. TBA - Implementation of the removal of the spin-independent and -dependent offsets (for John)
3. TBD - print, dprint, msg continue, verbose options for a standard
4. TBD - Mini Language to operate on tplot variables
5. TBD - Administrator's Guide
6. Hold - Themis E-Field Data (Forrest, John)

THEMIS Science Data Analysis Software Monthly Accomplishments – December 2007

THEMIS Science Operations Center (SOC), GBO, Ground Processing and Probe Data Processing Tools

1. Code added and updated code to handle the additional 9 Alaska ground magnetometers.
   CDFs as well as additional lines on the stack plots are now available.

THEMIS Web Site

THEMIS Data Products

THEMIS Science Data Analysis Software (Release Version Incremental v3.03)

THEMIS Science Data Analysis Software (Bleeding Edge Distribution - post v3.02)

1. The generalized vector rotation routine tvector_rotate now uses spherical linear interpolation to interpolate time varying rotation matrices. tvector_rotate now added to the distribution is used with our routines that generate time-varying coordinate transformations for minimum variance analysis and field aligned coordinates.
2. minivar ???