Themis Software Task Priorities (In Play / In the Queue) - 05/22/09

To Be Discussed - Top of Meeting

1. Data and Misc Issues
2. Jim McFadden
3. Davin
    a. Enhanced SST and MOM Instrument Web Pages (post code check-in)
    b. Wiki Operational Changes
4. Harald
    a. Keograms being updated. Current status ASK through September 2008.
    b. The THEMIS movies are now up to date and finished through the end of April.
    There will be a ~4 days delay because we wait with the
    mosaic generation until we are sure that all the station data have been transmitted.
    c. Mosaic reprocessing post-February 2008 (Full Resolution).
    Process full resolution for March 1-15 2008, Jan 15 2009 and onward. (Jim M)
    d. From Harald: Overview plots for web site done though 4/30.
    e. From Harald: March CDF file up to date through 4/30. During the tail season I kept these up to date every 10 days. Now I planned to keep up with this task only once a month somewhere around the 10th of the following month.
    f. L2 ASI cdf's
    g. When L2 ASI available Quality Flags and History Status?
5. James Weygand (student) - Greenland data total magnetic field is only about 250 nT even if no baseline subtracted (from Harald). Waiting for student to have time.
6. John
    a. Enhanced EFI Instrument Web Pages - partial delivered and Amanda will start working on
    b. Wiki Operational Changes
    c. QA analysis on changed results
7. Uli
    a. Enhanced FGM Instrument Web Pages (done)
8. Olivier
    a. Enhanced SCM Instrument Web Pages (done)
9. Chris Cully
    a. Enhanced FBK, FFT and FIT Instrument Web Pages (May or later)
10. Chris Russell
    a. Enhanced GMAG Instrument Web Pages (not going to happen)
11. Web
12. Jon Loran - New server installation delayed - eta June 5th.

Tim

1. Support Mirror Sites: a. Japan (ISAS) b. Austria c. France (**Rumi** - not always up to date for gmags)
   d. UCLA – mirror site set-up: Status: UCB sent 08T UCLA loaded 06T
   Four bricks sent to UCLA - UCLA must reconfigure server first
   UCLA will need to supply SSH key - RSYNC Key
1. Support gmag data remote sites:
   a. Augsburg (MACC's) - send Augsburg email to determine max value for master cdf
   - RBAY issues, 5 other sites (CDR, CRV, GJO, NAN, PGG, RBY)
   b. Japan - made contact
   c. Alberta d. APL e. Greenland - complete
2. Processing full resolution ASI data disks. Received Alaska sites hard drives and downloading.
   2008 and 2009 Calgary in progress (very slow process).
3. Web related tasks:
   a. ASI and GMAG Site Maps with cursor positioning invoking chart info. Next Version completed
   Later Release: There was a request to make the links the same color as the icon/markers. The javascript was getting complicated enough with the new features and I decided to put that off for a later version. You can always click selections on/off to remind yourself what's what. Plus, just click on any icon and a pop-up will occur describing the site. Put onto official site (with Amanda) to new ASI web page.
4. Inventory of Data Files available is being enhanced.
4. 20 Themis scripts review to optimize processing. (40% complete)
5. ~~Inventory of Products, monitoring and building new alarms for Production Data Processing.~~
   ~~Draft document produced.~~ Next version with Harald's info as well. (On Hold)
6. Create checksum files for ~~gmag (completed)~~, ASI then Probe files.

Hannes

1. Awaiting new V02 STATE files in QA area from Jim L.
   Note: Maybe changes to V03 STATE calibrations after conference in Germany end of June.
1. New FGM offsets for tail season.
2. L2 State cdf (talk to fgm folks)
   a. See email concerning parms ("thx_sci_mode", "thx_hsk_issr_mode") sci_mode - know fast survey
   issr_mode - when IDPU thinks fast survey b. quality flag for FGM data - talk to Uli
3. Spin Axis offsets – Improve the new spin axis offsets calibration routine – In progress. A new technique has been developed for inside magnetosphere with high accuracy. Once complete a paper to be published. Sent data to Karl Heinz, included in the distribution.

Questions:

1. When L2 are released to SPDF do they still post L1 as well.

Jim L.

1. V03-L2 cdf STATE - need code for missing variables -in progress. After some discussion with Hannes, we decided that the attribute structure for the new spin phase correction variable is incorrect.
   b) Hannes will take the QA V02 files and build another set of V03 CDFs with the corrected attributes.
   In the course of reprocessing the state files, I discovered a few that were missing spin model variables due to a bug in the automated L1 processing. I'm in the process of finding and fixing all the incomplete files before handing them off to Hannes so he can make correct V03 files. in progress 5/19
   While he's doing that,
   c) Jim L be writing some code to fill in the position and velocity variables for GSE and GSM coordinates.
   This is done...the state files in QA have all had the new position/velocity variables filled in, except for the few that have missing variables and need to be fixed. - talk to Tim to setup automated processing

   If the new cotrans code works well on the QA data, Tim Q. and I will work out the best way of incorporating it into the automated L1 state processing. This will probably involve building a new release of the tmtools server-side L1 processing tools. **In progress...the cotrans code seems to be working for this one-time batch reprocessing, but will probably need a few tweaks for the automated processing**
   d) I need to add support to thm_load_state (and any load/cal routines that call thm_load_state, e.g. thm_cal_fgm) for specifying which version V00, V01, V02, V03 should be used for cotrans and calibration. **in progress**
   e) I need to enhance the spinmodel routines to use Hannes' spin phase correction, if present
   With these code changes in place, we can hopefully make some kind of comparison between FGM data calibrated/cotrans-ed with V02 vs. V03 state to verify that the V03 attitude and spin phase corrections are working properly.
   f. automate importing V3 STATE files from Hannes. g. discuss archiving V3 STATE data
   i. revised QA script for STATE (path finder for other scripts to be revised later) **Still in progress. Right now I'm concentrating on making sure the state CDFs are correct, then I'll move on to the QA test scripts for thm_load_state.**
2. Split L1 ESA (using Thomas's routine) in master ESA data cdf
2. GOES 10-12 Test data: h. update labels (Howard's request - minor tweak)
3. SCW Minima's - review back real data as of impact to compression bug (Compression issue analysis)
3. J. Kissinger's cotrans routine (from GSE to SSE coordinates)
3. SM coord transformation in thm_cotrans does not work: fixing that would be too drastic a change for a patch release, because it might break a lot of existing code. The issue is: if the in_coord parameter is not explicitly specified, and the dlimits structure also does not specify the coordinate system, do we want to try to figure it out from the "in_suffix" argument (current behavior, doesn't work for SM coords), or just fail with a message that a coordinate system must be specified with either the in_coord argument or dlimit structure (probably a better solution, but might break existing code).
4. STATE Web Page (s)
4. L1 File definitions Document. BugzID=xx.
4. bad timing sun pulse times (early January 2009)
5. thm_load_state out_coord velocity calculations wrong
5. L1 Data Processing History Info: SCM, EFI, STATE
6. FGM range changes in the mid packet. Post Proc maybe a solution to eliminate the spike. BugzID=44. Bfield mid-packet jumps.
6. Refactor repeated CDF library code in CDF processing tools BugZid=50
7. L0 to L1 processing: look ahead to the next packet before processing the current packet. BugzID=67
7. Repeated timestamps and gaps in spin fit data BugZid=113 (#67 may fix this one as well).
8. Create a more efficient & productive prototype QA Instrument Command Line Script - first template (s) functional blocks then scripts for FGM, ASK, SCM, FIT, MOM, ASI, EFI, FFT, FBK, Gmag, State, SST, ESA

Jim L (continued)

9. Separate E and B timestamps for spin fits: a) make a revised V02 master CDF with E and B separated b) change thm_load_fit to support V01 and V02 of the L1 CDFs c) change the L0->L1 processing code d) change the L1->L2 processing code e) test the changes, then reprocess to create the V02 CDFs (keeping the V01 files around for a while to ease the transition) BugzID=45
10. FGS sample times and values, showing repeated timestamps. BugzID=113 (BugzID=67 must be done first)
11. Non Monotonic timestamps. BugzID=72 12. bau_sunpulse_met assumes x86 endiannes (BugzID=13)
13. FGL issue. We have learned that FGL data from probes C, D and E has a 0.25 sec timing error, starting in summer 2007, and continuing to the present (Feb 2008) time. We would like to fix these timestamps in the L1 CDF files. Process should be generic so future corrections can be easily handled. Low Priority steps or tasks:
    a. create a flag for the affected L1 variables somehow, to prevent confusion about which corrections have or have not yet been applied. So each entry in the proposed correction file should have some sort of tag identifying what the correction is, which could be looked up in the CDF as a variable, variable attribute, or global attribute. (low priority)
    b. Change L0-L1 code to take corrections into account. (low priority)
14. "Phantom packets" cause non-monotonic distribution times. BugzID=25, low priority.
15. Evaluate CDF compression algorithms BugZid=81, low priority.
16. Spin modeling during shadows BugZid=43. low priority.
17. Add "last processed" time to L1 (and L2?) CDFs BugZid=115, **low priority**
18. transforming one data point from SM coordinates to GSM coordinates. Low Priority from Christine

ct=time_double('2008-02-16/04:50:00') dipole=[[0],[0],[1]] v=[1,2,3]
store_data,'dipole_sm',data={x:ct,y:dipole,v:v} cotrans,'dipole_sm','dipole_gsm',/SM2GSM
cotrans,'dipole_gsm','dipole_gse',/GSM2GSE get_data,'dipole_gse',data=dipole_gse xdipgse=dipole_gse.y[0]
ydipgse=dipole_gse.y[1] zdipgse=dipole_gse.y[2] tilt=atan(xdipgse,zdipgse)

When I check the data for 'dipole_gsm', the values are 0,0,0. I'm not sure what they SHOULD be, but I know that their magnitude should equal 1. sqrt(x^2+y^2+z^2)=1

Aaron

1. Phase II GUI (80%) - See Ph II Task List
2. Magnetometer Tasks (20 % after Ph II GUI released)
3. VMO file generation (20%)
    a. One variable change to ASI files and possibly the whole repository - awaiting answer from Jan
    b. L1 STATE - in progress
    c. SCM and EFI L2 variables
    d. L2 STATE (?)

Jim M.

1. Additional Crib issue from Harald: thm_fgm_fit_correlate_tplot.pro
1. Process full resolution for March 1-15 2008, Jan 15 2009 and onward. - **in progress**
1. Re-process Overviews with new Npot routine from Michael - in progress
1. MOM Quality Flags and MOM Processing History
   Create master cdf with virtual variables
2. New ESA Quality flag for Jim McFadden
2. Add quality flag verbiage to ESA and MOM Data Description web page.
2. Revise ESA Processing History Web Page

Jim M. (continued)

2. Issue with ESA data and Overview Plots. Pgm Change and reprocessing from Feb 2009-current ?
   Have a fix, will commit after MOM flags are up. Will need to reprocess ESA and Overview plots for the following:
   ETC-sst-esa table load TH-A 2009-02-02 22:30:14.
   ETC-sst-esa table load TH-D 2009-02-13 20:36
   ETC-sst-esa table load TH-E 2009-02-13 22:27
   ETC-sst-esa table load TH-B: 2009-02-17 23:50:38
   ETC-sst-esa table load TH-C: 2009-02-18 00:52:20
3. ESA L2 from L1 (not packets) - awaiting Jim L to split L1 into master cdf, create L2 and test thoroughly, then reprocess ESA.
3. Do we need to add RBAY mag site - added to list?
3. SCM CAL File Processing Doc: text completed. Put into std document format and send to Olivier for review.
3. SCM L2 cdf - keep Olivier in the loop. In repository.
3. found 3 errors in the new th*_l2_esa masters - the good news is, with them fixed in our masters, all plotting issues w/ the ESA files (in CDAWeb) seem to have been resolved.
4. L2 Data Processing History Info Completed: ESA Still to be Done: SST, MOM, FGM, FBK, FFT, FIT
4. L2 cdf Quality Flags: Completed: ESA Still to be Done: MOM, SST
5. Alberta - At the moment the data files are from Dawson (daws), Churchill (fchu), Island Lake (isll) and Fort McMurray (mcmu). I will add Rabbit Lake and Taloyoak at some time but we have some issues with mag pointing at those 2 sites. If you recall, the agreement between Ian and Vassilis was that this data wouldn't be copied to become part of a mirrored archive like the existing data we provide. Instead, each file would be obtained from this site each time it is requested (using curl or some such). This means we can use our own logs to monitor data usage.
Themis Software to be able to retrieve from Alberta
5. Data Description Paragraphs
5. Summary Plot mods
   a. Fix duplicate velocity units by removing 'km/s' from ytitle and maintaining 'km/s' in ysubtitle.
   b. Either make velocity labels into ('X','Y','Z') or make velocity labels into 'VX','VY','VZ'.
      So that the components are easier to distinguish.
   c. Modify ytitles on esa eflux and sst eflux so that they do not collide.
      (Insert '!C's or change setting to make tplot do this automatically).
   d. Set the scales on the zoomed out(24 hr) plots so that they are not autoscaled.
      Information on appropriate yranges should come from Vassilis.
   e. Change labels on temperature lines so that they are done in different colors
      (and possibly different linestyles).
   f. If necessary, Update the plot key so that it reflects any of the changes above. It'd probably be best to give this task to me, since I've done the past modifications of the plot key.
6. Orbit Plot on Summary Plot web page - on the right side, 3 plots vertically, each overview plot there would be orbit panels (coordinate with Harald).
7. Administrator's Guide
8. Themis Developers Guide
9. thm_load_mom: for quantities like velocity, the coordinate system isn't stored in the meta data, and none of the units are stored in the place we normally try to store them (from Pat - Vassilis concurs) Will take a look.
9. Thm_fgm_overviews currently loads the data out of the fit file. It should probably load the data out of the fgm file. Only needs to load from one data source. Jim M thinks the thm_load_fit can be deleted.
9. routine that streamlines the generation of gmag stackplots and a crib to show how to do this. (< than a day)
10. Once Jim McFadden completes his mods for n_3d_new_3 reprocess L2 cdf's - entire mission.
10. thm_load_mom changes - reconcile mods with Davin at an appropriate time.
10. AE Indexes Issue Jan 8-12, keyograms Jan 12-13, Stripes- Vassilis: minor nuisance - low priority
11. Overview plot change: mode bar seems thick (nothing we can do easily - low priority)
12. Mosaic Processing - permanent script needed (very low priority)

    L2 Product Status: Completed: ESA, MOM, FIT (onboard), FBK, FGM, SST (needs upgrades), GMAG, FFT (onboard) Yet to be done: SCM (Jim M), EFI (Michael), ASI (Harald)

Pat

1. Science calibration/trending (20% after Ph II released)
1. Phase II GUI (100%) - see GUI Task List

---- Other Tasks 30% after Ph II released --------

3. SPLIT_VEC routine changes

   From Michael: SPLIT_VEC should also split the labels (as well as the traces), if there are the same number of labels as traces. Otherwise, you get the error: MPLOT: Incorrect number of labels and often also the wrong label displayed for the split trace. From Vassilis - Colors also, preserving the dlimits

4. An option in tdegap so that if you provide several inputs, it will interpolate the outputs onto the same time cadence.(Given time to do this, it should be a pretty straightforward change for me to make.)
5. Be able to plot ASI & GMAG observatory positions and GOES data on the same plots that are generated by executing thm_crib_trace.pro
5. wavepol.pro and twavepol.pro - Put Olivier's into the distribution, test
6. str_element does not add to embedded structures (BugzID=69)
6. Tplot enhanced crib - Davin should be involved and the cribs should not be too overwhelming. Possibly multiple cribs by functions.
7. boundary normal coordinates. On Hold. BugzID=59.
7. 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 it’s very similar to the others you've already written.
8. Error msg for when timestamps of data do not match in tvector_rotate, tdotp, and tcrossp.
8. Tplot auto scaling. BugzID=41.
9. invalid inputs to the version keyword
9. Clean-up of makepng and makegif
10. General Routine 'Add magnitude' vector - adding it's magnitude in its structure. 4 vectors, colors=BGRB.
10. GMAG L2 attributes error - from Pat (very low priority)

Bryan

1. Phase II GUI (100%) - See GUI Task List

---- Other Tasks 50% after Ph II released --------

1. Think about making 2D slices through distribution. See medical imaging code in IDL demo."
   a. 2D first migrate code into crib - in progress b. 2D with med imaging code c. 3D slices
2. Check Pri with Vassilis after GUI:
   a. It looks like there's a bug that limits specplot's ability to handle short timespans of data when setting the DATAGAP. Until we can get a fix out, you should be able to get the output you want by using the options command to set the 'overlay' to 1 options, 'tha_ffp_??_*', 'overlay', 1. then you might have too reset the color bar with the zlim command: zlim, 'tha_ffp_??_*', 10e-14, 10e-5
   b. thm_part_moments2 so that it properly handles single-angle energy spectra when pitch/gyrophase constraints are requested by the user.
2. Get Spec - 1) Step 11,b,i: Throws a CL error (after the popup): Traceback Report from THM_UI_PART_GETSPEC_OPTIONS_EVENT: Array subscript for PASPEC must have same size as source expression. Execution halted at: THM_PART_MOMENTS2 1070
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
   f. 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)
4. From Hannes:
   a. Provided is the most common plot used by scientists that look at magnetic field data. Four panels Bx By Bz Bt and the position X Y Z as variables. Often the radial distance R is another variable. It would be great if someone enters e.g. tplot,'tha_fgs_gsm' such a useful default plot would appear. I am currently not able to produce such a plot using tplot. Another useful plot would be instead of one trace per panel, 5 traces per panel. One for each spacecraft and 5 sets of positions as variables at the bottom. For example: tplot,'th?_fgs_gsm' could produce such a plot. Also some standard plots that combine ground and spacecraft data could be useful. Notes from Vassilis: define keyword /positions default 'none', allow GSM X Y Z, R Lat Long,.....
   b. The level 2 CDF files at http://themis.ssl.berkeley.edu/data_download.shtml should contain position in various coordinate systems as well. Preferably in the same resolution as the data. Otherwise Scientists need to get the position from another source. Notes from Vassilis: option to introduce the data in RE with keyword (one RE =6,478 kilometers ???). Like thm_load_fgm /pos_units= 'RE'. Also thm_load_state keyword out_coord = 'GSM', 'GSE',...etc.
   c. If one loads fgm data from probe 'a' and let's say there are no data for the chosen interval. The variables tha_fgl and tha_fgl_gsm etc. should all be empty. It could be those variables still contain data from the previously loaded interval.
5. Variable units – generic solution - thm_load_spin, _state, _hsk, _sst, _esa, _bau, _fgm, _fbk, _fft, _fit, _scm, _efi, _trg, _asi, _gmag, _ask, _mom, _esa_pkt
6. If requesting 1 hour of data using timespan, then load data using one of our load data routines. Recommend if there is a fix at the load cdf level.
7. upgrade thm_load to work with probe assignments
8. move functionality of thm_load_state2 into thm_load_state and delete thm_load_state2
9. Multiple enhancements concerning keywords, valid_names and thm_load routines

Hithesh

1. Peter wrote code to reset ETC Kicker (1/8 or 1/9) after hang-up.
   Put together a simulation of ETC VHDL Design.
   Working with Robert and may need MODELSIM software.
   First learn VHDL - in progress and almost complete. Look at the ETC VHTL programs and understand themis
   First try to simulate in Modelsim. If unable to freeze ETC, then move to hardware simulation.
   Need to find out which modules to simulate.
2. Logic Analyzer - **Ready to send it to SSL. May need it for ETC work.**
3. For Davin - dump the SST tables, awaiting Davin's reply as to the address of the tables, all probes?
   Not needed now
4. Review FSW Specifications document for v5 changes.
   Waiting review by Peter of last two paragraphs – in progress
5. ESA – investigate invalid configs from Survey to burst mode in IDPU scripts.
   Talk to Jim Lewis and / or Jim McFadden to acquire details of the problem.
   Did this occur before or after v4.0? How important is the problem? **Will talk to Jim Lewis next week**
6. Check recent overviews from the dawn sector, you will see that the FBK data have a lot of periodic noise. They seem to correlate with EFI spikes. Tai Phan sent me the attached showing FBK spikes in time series. Perhaps Tai has more information on the origin of this SCM noise; I think it's from the EFI bias current when the sphere is shadowed but it would be nice if Olivier can verify. Awaiting reply from Olivier.
7. Run the CPT tests for the following four modules - in progress and **On Hold**
   a) SCI & SCI2 - 12 (3 done successfully) c) CMP - 4 d) EEPROM - 18
8. Review FSW code of all 24 modules and the CPT tests for each (ongoing)
9. Watch engineering is going along, tools for plotting (ongoing)
10. Review scripts and/or macros with Michael Ludlam (ongoing)
11. Leftover 512 burst packets

Michael

1. Jim McFadden suggests use of his formula:
   npot=460.*10^((offset-tmp.y)/1.5)+34.*10^((offset-tmp.y)/7.)+1.6*10^((offset-tmp.y)/30.). - in progress
   a. ~~Write code to fit the formula for selected periods.~~ **~~More tweaks were need (like bias current changes), but it is done, committed, and incorporated into THM_FITGMOM_OVERVIEWS.PRO.~~**
   b. Use the code to find the offset based on a variety of plasma regions (investigate existing region flags) -> this may be more reliable and less work than always finding the offset on the fly b/c of questions about how to extend the neighborhoods. **Have nominal offsets for two plasma regions (out of at least four) for THC (currently used on all satellites). Have one bias transition for THC. Still need other transitions from J.B. Need to talk to McFadden. Existing region flags are useless, and moot at this point. Jim McTiernan's valid data flags will be useful.**
   c. Make plots of the fit performance on a variety of periods for Jim to take a look at.
   After looking at the results of (c), Jim thinks that the science is not well-defined enough for a programming task. Sent a second cut of (c) just to be sure. To speak with him today (Monday, 5/11), to get a definite answer. Otherwise, he is away until next week. Anomaly found to be change in bias current. Proceeding with Npot formula with a new set of offsets for each change in bias current:
      1. Find bias current changes. - ***I do not have the bias current changes from John (have requests in).*** **John said he would get right on it.**
      2. Find appropriate data intervals to calibrate offsets for each bias current region. ***Proceeding with fitting plasma period offsets for THC for which I know of one bias current change (from McFadden). Some plasma periods are not well-defined (either rare or have cold electrons).*** **Have offsets for well-understood plasma regions. Need to talk to McFadden about the others.**
      3. Send results to Jim. ***sent to Jim***
      4. ~~Make this routine stand-alone because it will be useful in high-resolution density measurements.~~

1. Run review and validation code to calibrate local ADC offsets. If this works well, then think about how to incorporate the "offset on the fly" into the calibration code - in progress (eta next week)
   Test run of "on the fly" calibration did work well. New tasks pursuant to incorporating "on the fly" offset subtraction into EFI code: Run new smoothing cases for THC and THD (Mozer periods) to get an idea of the EDC offset variance: 40-spin box w/ point-by-point subtraction. Median (~ 6 hours) of above.
   Run a normalized envelope, if time. (ETA: 4/27)
   Result: Not using the block median improves the variance by about a factor of 2.
   Questions: a. DC offset between 4sdo and 2sdo in boom plane. Which is better?
   John still to investigate, but less urgent b/c we are going with 2 spin-dependent offsets in the boom plane (works well and has right offset).
   ~~b. Small (but significant) low frequency differences between various windowing methods esp. near rapidly changing (tens of spins) E fields. Which windowing is better?~~
   ~~Committed with 20 spin smoothing~~

   Tasks:
   a. THC and THD hanning window vs. smoothing -- plots are w/ John.
   b. Simulated test data under various Hanning windows -- plots are w/ John.

1. There is an interface task for the High Frequency Calibration of wave burst data. This is something that Bob Ergun and an associate have just finished (as I understand), and John is now reviewing their code. This code takes care of gain vs. frequency calibration and phase shifts. John would like me to integrate it into our distribution. **LASP code committed into TDAS. Their crib runs. THM_FAC_MATRIX_MAKE[_LASP] needs to be merged with production version. I need to regularize their API to TDAS.**
2. Try to track down frequency scaling problem (dlimit setting? Compare to old plots?). **On Hold**
2. Nishamura's Npot routine?
2. Alter calibration formula in thm_cal_efi and thm_get_calpers, update calibration files –
   On hold for "on the fly" calibration.

Michael (continued):

2. The poor despinning bug fix in thm_efi_despin (awaiting completion of 1hz bug fix) **On hold for above**
3. Larry Kepko and efi offsets – emailed John with comments for his review. **Awaiting John's comments**.
3. FBK Frequencies
    a. ~~Resolve conflict bet C. Cully and John B's bin center values. Conflict resolved. John agrees with Chris.~~
    b. ~~Derive bin centers from CDFs (currently the bin centers are hard coded).~~
    c. Make sure that bin center assignment from L2 works with any changes that Jim M. makes.

   John wants to calibrate by signal source – thm_cal_fbk
4. Get EAC offsets from J.B. -- this *cannot* be done until AC-coupled data is taken.
5. EFI L2 cdf
5. EFI CAL Document
6. "Case-by-case" calibration parameters ("short-term" high accuracy corrections).
   involves generalizing some code from Chris C. as a tool for the general user. The tool will look at short time ranges, and pass out high-resolution calibration parameters in a structure. We envision that this structure will be passed into THM_CAL_EFI disabling those parameters that are normally gotten from the calibration files. LASP is working on this and when done would be incorporated in the tdas software.
7. deconvolution, any other tasks to have a working load and cal efi.
8. The EFI program headers should include what inputs are valid for each keyword.
9. thm_load_efi - allow multiple coord's to be entered. Do not overwrite plot variables.
10. efs data deleted when thm_load_fit run twice, second time only fgs data requested
10. Modify THM_CAL_FIT to treat efs datatype - Install E12/E34 conditional based on th?_fit_code TPLOT variable. If E12 switched to E34 software needs to be revised to handle (low priority).
11. Correlate to onboard spin fits using EFP data. Look at FGM. Talk to Jim L.
12. Add the DATATYPE kw to KYOTO_AE_LOAD , and load only AE data by default (low priority).
13. Get the downloader (KYOTO_AE_DOWNLOAD based on the new version of FILE_HTTP_COPY) working (low priority).

The following recommendations have been made by Jim McFadden and need to be reviewed and prioritized by John Bonnell:

1. The baseline offsets seem not to be sufficiently accurate, therefore spintone residuals remain in the data. It may be that only an on-the-fly calibration (a la SDT) will work, and that the EFI code would need to be modified from its current list-style calibration.
2. We should have code that duplicates the on-board spin fits in order to understand why the ground and on-board fits are different. I do not know if such code exists -- we should run this question by John Bonnell.

Cindy

1. Phase II GUI (100%) - see Ph II GUI Task List
    a. Maintain Ph II Gui Task List - on going
    b. One on one sessions with scientists have started (3 requests)
    c. Minor tweaks to Users Guide and Reference Guide
2. An IDL crib sheet has been provided that generates magnetic field and position data with the same resolution. Scientists very often like to have a set of dayfiles of magnetic field data and position. So the crib sheet could be called inside a loop and for each day an output ASCII file could be produced. An option could be all 5 spacecraft merged with only one time column. Additionally a desired resolution could be another option From Hannes. 3-4 days

Vladimir

a. SST, ~~ESA~~ and EFI Wiki pages - initial entries
b. Calibration
c. Link to Plots
d. Data contain engineering, deployment, maneuver, and science data are in the same stream. From the data description, only maneuver flag state_man is provided. Do you provide information about the time intervals when the data are on, say, engineering level? This data, though valuable in many respects, may be confusing if interpreted as science data. To provide such information, it is possible, for example, to add some bits to existing state_man flag. (from Vladimir) Quality flags (for each instrument to be added to L2 State cdf).

Kate

What's cooking?

Andreas

1. L2 File Definitions Document - awaiting L1 document to be completed to use as template.

UCLA

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

Christian Jacquey and Thomas Moreau

Software Tasks To Be Assigned (TBA)

1. TBA - Tplot User's Guide (David and Vassilis to talk further)
2. TBA - print, dprint, msg continue, verbose options for a standard
3. TBA - Tplot FAQ's (Amanda) Maybe replaced by #1

Non GUI Future Release Mods

1. Many of the data processing routines that are tested here do not inherit the plotting options from the tplot variable that they take as input. For data processing routines that I've written Vassilis has had me modify them so that they inherit these options. It shouldn't be very hard to do this, but whether we do it or not depends on whether we think these data processing routines are useful only for the gui or for the command line user as well. (from Pat).
2. Load routines to all support keywords suffix and relpathnames_all.
3. tplot does not fail gracefully after illegal margin set. In this case: tplot_options,'xmargin',[100,100], tplot does not fail gracefully after illegal margin set. In this case: tplot_options,'xmargin',[-1,-1]
-tplot does not fail gracefully after illegal margin set. In this case: tplot_options,'ymargin',[100,100]
4. fac_matrix_make: do a better job putting the inputs into the correct coordinate system.
5. minvar_matrix_make documentation is a little sparse, so it couldn't hurt to improve the function header.
6. With a pre-mission and future dates, thm_gen_overplot does not exit gracefully. The user sees a lot of "Remote file not found messages", but is not offered any indication that the date requested is before the mission began. It would also be useful to have a check for when DATE plus DUR is greater than the current date, and then ignore the requested days beyond the current.
7. There's a possible bug thm_gen_overplot when an illegal device is set with the DEVICE keyword. The code doesn't check to make sure if the graphics device is valid. It passes the test script because thm_gen_overplot has its own catch error statement embedded in the code. The catch statement does report, "Graphics device not available: a", but only after data have been loaded and tplot vars have been created. If a long time range is requested this could be a significant waste of time to the user.
8. NO_DOWNLOAD keyword missing from thm_load_fbk.
9. a. When thm_load_fit is called requesting a single data type it will also return some auxiliary data types. For example: thm_load_fit,probe='b',datatype='fgs' returns: 1 thb_fit_code 2 thb_fit_npts 3 thb_fgs (low priority load bug or test script bug) b. The relpathnames all keyword is broken. (low priority bug)
10. THM_LOAD_MOM doesn't recognize the datatype keyword for L1 data. (It does for L2).