

| Task #  | Task Description  | Date Opened | Reported By | Pri | Assigned To | Notes   | Estimate | A&E; crib; script; suite; UG; DevG; Qref; AdmG |
|---|---|-------------|-------------|-----|-------------|---|----------|--|
| <b>To be Assigned or Discussed</b>            |   |             |             |     |             |   |          |  |
| 4729  | tsmooth2 behavior on irregularly gridded data   | 8/13/2012   | Pat         |     |             | Basically, because smooth works on number of points, it ignores time. So if we have a tplot variable with a descending array, then a gap of 10 years, then a tplot variable with an ascending array. tsmooth2 ignores the fact that the data are separated by long enough that one could not possibly contribute to the other and treats them as if there is no gap. <b>Not sure if easy fix; maybe add a test &amp; warning?</b>   |          |  |
| 4731  |   |             |             |     |             |   |          |  |
| 4732  |   |             |             |     |             |   |          |  |
| <b>v7.0 QA Tasks for Review with Vassilis</b> |   |             |             |     |             |   |          |  |
| <b>Hannes</b>                                 |   |             |             |     |             |   |          |  |
| 4153  | maintenance of gmag stations "Exclude List"   | 10/11/2010  | David       | 0   | Hannes      | Exclude List up to date as of 6/25/2012   |          |  |
| 4018a   | New Calibration FGM parameters and spin axis offsets  | 5/10/2010   | Hannes      | 1   | Hannes      | <b>7/02/2012: THA spin axis offset done 7/6/2012, thd and the in progress.</b>  |          |  |
| 4080  | Attitude Determination next few months  | 6/21/2010   | Hannes      | 1   | Hannes      | <b>Updated for inner probes, 2012-07-18</b>   |          |  |
| 4472  | Inter-spacecraft FGM calibration for ARTEMIS.   | 1/4/2012    | Vassilis    | 1   | Hannes      | <b>6/4/12 from Hannes: Artemis inter spacecraft differences</b>   |          |  |
| <b>Aaron</b>                                  |   |             |             |     |             |   |          |  |
| 4468  | Ongoing - Review all commits by Davin, Peter, etc for impact to TDAS.                                 | 3/27/2012   | David       | 0   | Aaron       | Provide weekly report and spreadsheet   |          |  |
| 4725  | thm_cal_fgm crash   | 8/9/2012    | Pat         | 1   | Aaron       | I just called thm_load_fgm with the !themis.no_download keyword set(because I was having trouble talking to the SSL data server)<br><br>I got the following crash. (Presumably because a file that needed to be there was not.)<br>We should find a way to make this crash occur gracefully.<br><br>STORE_DATA(104): Deleted 21 variables<br>SPINMODEL_GET_PTR(63): No eclipse corrections.<br>THM_SPINMODEL::INTERP_T(160): Using spinphase correction<br>% FILE_LINES: Error opening file. File:<br>_No such file or directory<br>After TDAS 7.0. |          |  |
| 4468  | Modify ESA packet loading code to use standard spinmodel routines rather than deprecated ASCII files. |             | Jim L       | 1   | Aaron       |   | 1 day    |  |
| 4034a2  | thm_parts_moments update (spin moments mods)  | 11/22/2010  | Vassilis    | 1   | Aaron       | initial simple way, final fix is to fix esa and sst 3D data structures. Probably a good idea to make a THEMIS-specific moment calculation routine, to avoid extensive changes to WIND code currently being used. Jim McFadden (as of 3/26/12) said he would review what Jim L sends him. <b>After 4468.</b>   |          |  |
| 4509  | Some array accesses still use () instead of [].   | 2/6/2012    | A. Breneman | 1   | Aaron       | <b>For example the ESA packet loading routines, thm_load_peif, thm_load_peekb. Work to be done when 4034a2 work continues</b>   |          |  |

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| 4669         | (Not 8.2) The slices code should output percent progress to the status bar and/or IDL console. The processing times are usually short ( < 1 second per cut for basic slices) but depending on data type and resolution they can be much longer. With the recent addition of averaging over multiple planes the time per slice can easily exceed 30 seconds, making progress reports necessary when taking multiple cuts. | 6/7/2012    | Aaron       | 2   | Aaron       |   | 4-6 hrs  |  |
| <b>Cindy</b> |  |             |             |     |             |   |          |  |
| 4358         | Every 6 months check that the UCLA Mag Cal have not changed.   | 9/6/2011    | David       | 0   | Cindy       | Next October 2012   |          |  |
| 4481         | New data product, AE index from THEMIS+std sites   | 1/9/2012    | Vassilis    | 1   | Cindy       | awaiting Russian data 7/2/2012: Still need data from 2007-2010. 7/27/2012: Getting current data again, still waiting for older data.  |          |  |
| 4720         | Add USGS GMAG sites (BOU,CMO, DED, FRD, FRN, GUA, HON, NEW, SJG, SHU, SIT, BSL, TUC)   | 8/3/2012    | Cindy       | 1   | Cindy       | In progress – have data from 2009,2012,2011. 2007,2008 in progress. Unpacking/installation script and master CDFs in progress.  |          |  |
| 4721a        | Add VLDR site to automated processing  | 8/3/2012    | Cindy       | 1   | Cindy       | In progress.  |          |  |
| 4721b        | Add NRCAN GMAG sites (EHB, actually chain of 5 GMAGs)  | 8/3/2012    | Cindy       | 1   | Cindy       | In progress – working with Ian Schofield and Martin Connors to get data back to 2007  |          |  |
| 4699         | I've had questions from some scientists about the status of some of the gbo sites. In particular Fort Yates and Beetles. I know that Fort Yates is done for (drowned in a flood or some other natural disaster). It might be helpful to add a color scheme that is not red but maybe grey for those sites we know will not be up again. Maybe even a note saying site is down for good.                                  | 7/10/2012   | Cindy       | 1+  | Cindy       | Database table for "defunct" sites, with brief explanation why, and check this in the PHP code for the status pages? Or (static) web page linked somewhere with status of each site? Tim Quinn had a page based on Google Maps, bring up to date (1 map per year showing GMAG sites). Also, use a different color for defunct sites on the PHP status pages (instead of "red" for stale data). 8/3/2012: Status inventory in progress, will make GMAG map page similar to ASI map page. Emmanuel on vacation until Aug 20, will add map to THEMIS web site when he's back. 8/16/2012: about halfway through |          |  |
| 4730         | Bad range_epoch values in some Alaska GMAG CDFs  | 8/16/2012   | Tami        | 1   | Cindy       |   |          |  |
| 4409b        | Dixon (DIK) (AARI, Russia)   | 10/19/2011  | Vassilis    | 2+  | Cindy       | Downloads in progress. Data from 2011 on has been made available; they have agreed to provide data back to 2007. No 1 sec data available (minimum 1 minute sample interval). Will ping week of Aug 15.  |          |  |
| <b>Jim L</b> |  |             |             |     |             |   |          |  |
| 4709         | Manual eclipse processing resets "last processed" date for automated processing  | 7/24/2012   | Jim L       | 0   | Jim L       | If the automated processing is up to date, and I manually reprocess a time range early in the mission, the "last processed" date will get reset to the earlier date, which could trigger an unintended reprocessing of the full mission. "last processed" date should only be updated if it moves forward in time.  |          |  |
| 4710         | Automated eclipse processing not running correctly out of crontab  | 7/24/2012   | Jim L       | 0   | Jim L       | Seems to die immediately without doing anything, works OK from command line. After 4709 is fixed.   |          |  |
| 4716         | Add examples of eclipse spin model corrections to crib sheets (fgm, efi, scm, fit, mom)  | 7/27/2012   | Vassilis    | 1   | Jim L       | fgm, fit, mom, updated; efi, scm, new eclipse crib in progress.   |          |  |
| 4613         | Prevent Email Storms when data servers go down   | 4/25/2012   | Jim L       | 1   | Jim L       |   |          |  |
| 4613c        | Modify existing processing scripts to log to the database rather than send their own emails  | 4/25/2012   | Jim L       | 1   | Jim L       | 7/20/2012: Next batch of updates will be GMAG download scripts  |          |  |
| 4656         | THEMIS Orbits - Discuss with Dan Cosgrove on July 9th. From time to time, the first orbit determination after a maneuver is very "raw" due to the shortness of the arc, causing large discontinuities in definitive position ephemeris when the arc is propagated back to the maneuver burnout time.   | 6/4/2012    | Vassilis    | n/a | Jim L       | Dan C. and Jeff M. suggest that after each maneuver or series of maneuvers, the MOC can curate the orbit determination data so that the back propagation is done from a higher quality orbit solution (e.g. 7 days rather than a few hours). There will still be discontinuities but they should be much smaller. MOC will provide improved definitive ephemeris files to JWLL (est. late August 2012). We will reprocess a few days of L1 STATE for each incident. We will also provide Hannes a list of reprocessed ephemeris time intervals, so he can check for any changes                             |          |  |

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| 4718   | ESA energy table updates – L0->L1 processing mods (tmttools)  | 8/2/2012    | Jim L       | 0   | Jim L       | Modified tables will need a new ESA config word – tmttools L0->L1 code needs to be updated to recognize it as a valid ESA mode. <b>Waiting for Jim McFadden to help us update the mode spreadsheet with new config words and table configuration.</b>   |          |  |
|        | <b>Jim M</b>  |             |             |     |             |   |          |  |
| 4152b  | change the ESA tables such that the minimum magnetospheric electron energy becomes lower (about 3eV, or lower). McFadden can specify the lower energy | 10/20/2011  | Vassilis    | 0   | Jim M       | <b>only ARTEMIS probes - Need to talk to Jim McFadden. Also need MOC Support. 8/10/2012: FLATSAT energy weights don't match Jim McFadden's spreadsheet, need to discuss with him, possibly 8/10/2012. Jim L will participate, so we can pick new configuration words for the altered modes and add them to the current spreadsheet.</b>   |          |  |
| 4726   | tdegap feature request, /twonanspergap keyword  | 8/9/2012    | Pat         | 1   | Jim M       | The default behavior for tdegap is to fill gaps with NaNs at whatever it thinks the data cadence of the input variable is. Under certain circumstances, this can use a ton of memory. (For example if you have large gaps.) To fix this problem, we added   |          |  |
| 4714   | !themis.verbose setting not propagated to tplot_options,'verbose' setting   | 7/31/2012   | Jim L       | 1   | Jim M       | Davin recently (Feb 2012) changed some dprint levels in store_data.pro. Some expected diagnostic output is missing, even though !themis.verbose is set high enough. However, the behavior is a little unexpected: the diagnostics appear within thm_load_state, for example, but not when calling store_data from the command line. Perhaps !themis.verbose needs to be pushed down to tplot_options,'verbose' in thm_init or   |          |  |
| 4703   | New FGM overview plots (EMIC spectrograms)  | 7/12/2012   | Vassilis    |     |             | <del>After 4703a</del> the IDL code, along with the IDL save sets we used as data and a full day's set of plots from January 1, 2012, can be found at ftp://yspace.augsburg.edu/themis/. You will see that the IDL batch file is set up to produce one daily spectrogram and four 6-hour spectrograms for each axis, in two frequency ranges (0-1 and 0-2 Hz). It didn't take Jennifer very long to produce all of these plots for the past 1 - 1/2 years of Themis data. Having so many different plots may be overkill -- one can often identify events using only the 0-2 Hz, 24-hour plot showing only X axis (transverse to B) data... but you can decide how many of these might be optimal for you to produce. If you or your colleagues have any questions, please get back to Jennifer (posch@augsborg.edu) or me. |          |  |
| 4703b  | Additional summary plots for EMIC spectrograms plus supporting changes to THEMIS web site.  | 7/23/2012   | Vassilis    | 1   | Jim M       | After 4703a (Pat). <b>8/16/2012: Ready to commit, will enable 8/17, when Emmanuel returns 8/20, will make accessible from THEMIS web site, also plot key?</b>   |          |  |
|        | <b>Pat</b>  |             |             |     |             |   |          |  |
|        | Updated FGM calibrations for solar array currents, ADC nonlinearity available?  | 5/30/2012   | Vassilis    | 0   | Pat         | Last Recieved - May 2012. May need to remind FGM team if we go a long time without updates.   |          |  |

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| 4712   | Add a keyword to the SST code which would extrapolate SST data down to the ESA   | 7/24/2012   | Vassilis    | 0   | Pat         | Some diode degradation on the SST instrument is increasing the gap between the SST and the ESA. The task is to add a keyword to the SST code which would extrapolate SST data down to the ESA. It would use ESA intercalibration factors that are going to be generated by Drew(or a student), but it would not actually interpolate to the ESA data. If the keyword is set, a linear regression(log energy v log counts) of sst data would be performed for each look direction of the SST. Additional points would be generated using the regression to extend the SST down to the ESA; maintaining the dE/E of the SST instrument. <b>Due late August 2012.</b>  |          |  |
| 4713   | Since the diode degradation will be modeled as shifting the minimum energy of the SST up, we'll need to interpolate the SST efficiency parameters to the new energy bins.                                      | 7/24/2012   | Vassilis    | 0   | Pat         | After 4712. This may not actually be done by someone on the software team, but I thought I'd report it anyway, so that it doesn't get lost in the shuffle once the other calibrations are completed.  |          |  |
| 4724   | Issues with implementation of specplot datagap keyword   | 8/9/2012    | Pat         | 0   | Pat         | The way that the keyword is implemented is that it breaks the main spectrogram into smaller spectrograms, using any time gaps bigger than the parameter provided in the datagap keyword as the condition for splitting spectrograms. It then loops over each spectrogram and draws it separately. The problem is that the code it is looping over is basically a copied and pasted version of the single spectrogram version. Some of the parameters that are determined inside each iteration of the loop are then used outside the loop. What this means is that the parameters that get used after the loop are basically set arbitrarily depending on the loop order and on how each parameter is set. May be similar problems, but haven't examined further. |          |  |
| 4723   | tplot feature request: formatting callbacks  | 8/7/2012    | Pat         | 1   | Pat         | There doesn't appear to be a way to explicitly format a var_label in tplot using a callback function, the same way that I can format an annotation using a callback in normal IDL-plot. This is a pretty big limitation on the var_labels. Right now it only  |          |  |
| 4705   | The changes that I made to allow more flexible tick aesthetic tick placement don't seem to be working so well on the z-axis.(see image from previous email, steps of 0.9 orders of magnitude don't make sense) | 7/12/2012   | Pat         | 1   | Pat         | If this were the y-axis, you could just change the recommended number of ticks to a number of ticks where the aesthetic selection algorithm selects an even order of magnitude. But that option is unavailable on the z-axis. <b>Allow the user to input a recommended number of ticks even when the "aesthetic" option is selected.</b>  |          |  |