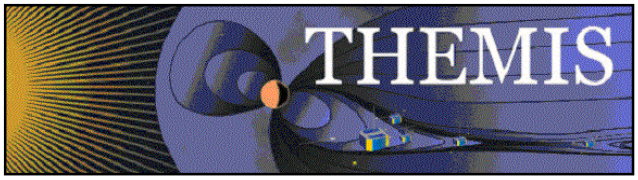
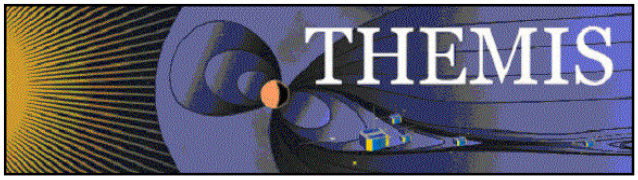



# THEMIS-ARTEMIS
# Administrator's Guide

thm_soc_122
May 4, 2012

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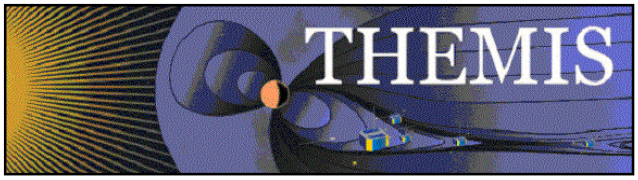


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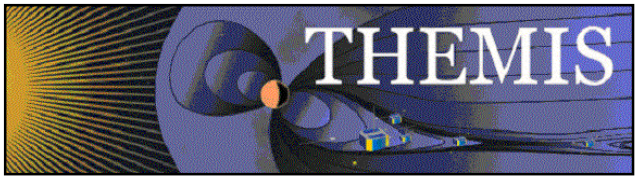



# 1. Introduction

## *1.1 Purpose*

The purpose of this document is to describe all activities, procedures, and functions involved in the day to day data processing of THEMIS science data. Also details of the maintenance of the THEMIS web site and the TDAS software distribution are included.

## *1.2 Applicable Documents.*

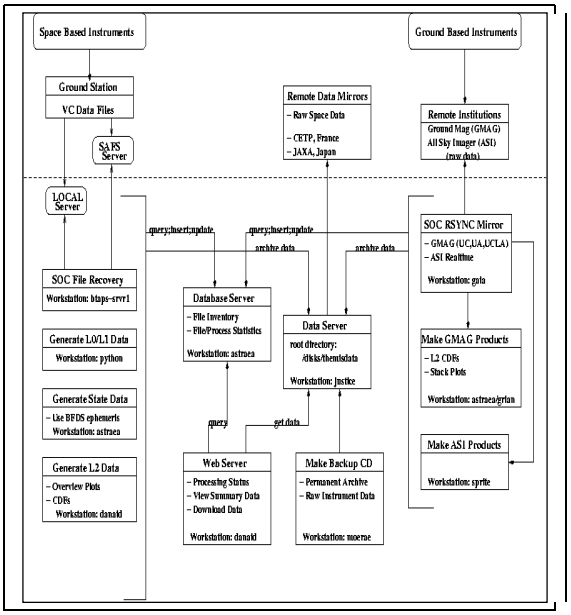
| | | |
|---|---|---|
| 1. | THM_SYS_012_PDMP | THEMIS Project Data Management Plan |
| 2. | THM-SOC-102 | THEMIS Probe State File Definition |

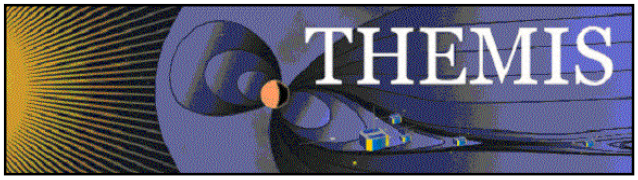
# 2. Data Processing Overview

## 2.1 Overview

The major data processing elements are displayed below in Figure 1.

**Figure 1 Data Processing Overview**



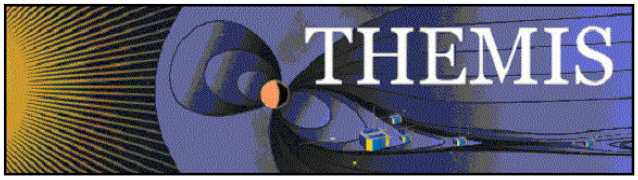



Data processing is driven mainly by scripts and programs called from unix cronjobs which reside on a variety of workstations. These workstations and the associated cronjob initiated scripts are listed in Table 1. The majority of data processing scripts and programs reside in the workspace **/disks/socware/thmsoc_dp_current**, which is currently a softlink to **/disks/socware/thmsoc_production_test**. The scripts and programs found here are developed under **SVN** control and are copied into the workspace. Additional scripts and software can be found in **/home/thmsoc/software_dev**.

A wrapper script, **call_scripts.ksh**, is used to call a particular script and serves to check if that script is already running. This is done in place of lock files. If a script is found to be running in excess of a set time limit, email notification is sent to personnel. The wrapper script also records workstation, and start/stop time of each script in a MySQL database table **Process_Logs.process_list**.

**Table 1 Cron Job Overview**

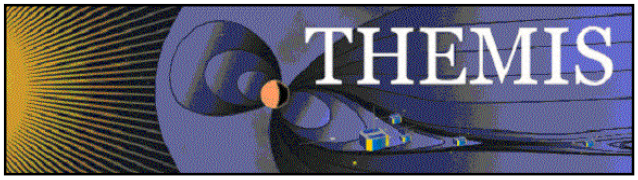
| **Process** | **Script(s)** | **Workstation** |
|---|---|---|
| Server Write Check | cronwatch.ksh | ALL |
| EPO UCLA-GMAG Mirror | epo_ucla_rmd_mirror_batch.ksh | gaia |
| GBO UCLA-GMAG Mirror | gbo_uc_rmd_mirror_batch.ksh | gaia |
| GBO UAlberta-GMAG Mirror | gbo_ua_canmag_mirror_batch.ksh | gaia |
| GBO UAlaska-GMAG Mirror | gbo_ualaska_mirror_batch.ksh | gaia |
| GBO UAthabasca-GMAG Mirror | gbo_atha_rmd_mirror_batch.ksh | gaia |
| Download Greenland/Norway/Denmark gmag data from TGO. | wget_green_gmag.ksh | gaia |
| Download gmag data provided through INTERMAGNET | call_wget_intermagnet_gmag.ksh | gaia |
| GBO Check for late GMAG (disabled Sep 09) | chk4late_gmag.ksh | gaia |
| Probe Make State V2 CDFs | make_state_v2.ksh | python |
| GBO ASI Low Res Mirror with Calgary | gbo_asi_rt_mirror_batch.ksh | gaia |
| GBO ASI Low Res Mirror Cleanup | rsync_gbo_cleanup.ksh | gaia |
| GBO ASI Low Res Collection Check (disabled Sep 09) | chk_lowrate_asi_files.ksh | gaia |
| Probe L0 Inventory List Generation | list_probe_l0.ksh | gaia |
| Probe L0 Inventory Display Generation | gen_probe_l0_list.ksh | gaia |
| Probe L1 Inventory List Generation | list_probe_l1.ksh | gaia |
| Probe L1 Inventory Display Generation | gen_probe_l1_list.ksh | gaia |
| Probe L2 Inventory List Generation | list_probe_l2.ksh | gaia |
| Probe L2 Inventory Display Generation | gen_probe_l2_list.ksh | gaia |
| Probe State Inventory List Generation | list_probe_state.ksh | gaia |
| Probe State Inventory Display Generation | gen_probe_state_list.ksh | gaia |
| Probe BFDS Archive and State V0 Generation | bfds_archive.ksh | python |
| Probe BFDS Archive Check | chk_bfds_archive.ksh | python |
| GBO UAlaska GMAG Conversion to L2 | call_gima_netcdf2all.ksh | astraea |
| GBO UAlberta GMAG Conversion to L2 | call_candat_ascii2all.ksh | astraea |
| GBO Greenland GMAG Conversion to L2 *(no longer running)* | call_green_ascii2all.ksh | astraea |
| GBO MACCS GMAG Conversion to L2 | call_maccs_ascii2all.ksh<br>maccs_ascii2all_cleanup.ksh | astraea |
| EPO GMAG JPG Collection and Processing | epo_jpg_check.ksh | astraea |

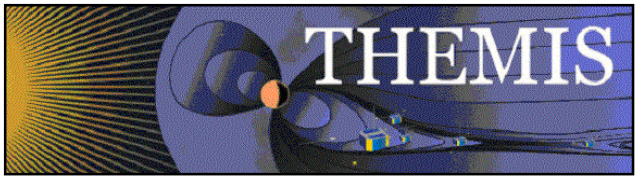



| Process | Script(s) | Workstation |
|---|---|---|
| EPO GMAG JPG List Generation | list_gmag_epojpgs.ksh<br>gen_gmag_jpg_list.ksh | astraea |
| GBO GMAG Stack Plot Generation | call_make_stack.ksh | astraea |
| GBO GMAG AEIndex generation | call_make_ae_index.ksh | astraea |
| GBO GMAG Raw Data Inventory | make_gmag_raw_files.ksh | astraea |
| GBO GMAG L2 CDF Data Inventory | make_gmag_cdf_files.ksh | astraea |
| GBO GMAG Missing L2 CDFs | gen_gmag_missing_cdf_list.ksh | astraea |
| Greenland/Denmark/Norway Conversion to L2 CDF | green_ascii2all_new.ksh | astraea |
| INTERMAGNET GMAG Conversion to L2 CDF | intermagnet_ascii2all.ksh | astraea |
| GBO ASI Low Res Inventory and Display | list_lowrate_asi_files.ksh,<br>gen_lowrate_asi_display.ksh,<br>gen_lowrate_asi_display_summary.ksh | astraea |
| GBO ASI Hi Res Inventory and Display | make_hi_asi_file_list.ksh,<br>gen_hirate_asi_display_daily.ksh | astraea |
| GBO ASI L1 CDF Lists | list_l1_ast_cdfs.ksh,<br>gen_ast_l1_cdf_list.ksh,<br>list_l1_asf_cdfs.ksh,<br>gen_asf_inventory_display.ksh,<br>list_l1_ask_cdfs.ksh,<br>gen_ask_l1_cdf_list_display.ksh | astraea |
| GBO ASI Summary File Inventory and Display | list_asi_site_summaries.ksh,<br>gen_asi_site_summary_display.ksh,<br>list_asi_allsite_summaries.ksh,<br>gen_asi_allsite_summary_display.ksh,<br>gen_grand_asi_display.ksh | astraea |
| Probe L0/L1 File Generation | make_l0_and_l1.ksh | python |
| Probe Data Dump Checks | process_vc1dump_stats.ksh,<br>process_vc3dump_stats.ksh | python |
| Probe L2 File generation | create_probe_l2cdf.ksh | python |
| GBO Augsburg GMAG Mirror | call_wget_maccs_gmag.ksh | gaia |
| Cleanup after GMAG download scripts | gmag_webdownloads_cleanup.ksh | gaia |
| Probe Summary Plot Generation | overplot.ksh | gaia |
| Probe Summary Plot Inventory | list_summaryplots.ksh,<br>gen_summaryplot_display | gaia |
| Web Server Log Processing | process_weblogs.ksh | danaid |
| GBO ASI Mosaic Generation | run_asi_mosaic.ksh | thailo |
| GBO/EPO UCLA GMAG Conversion to L2 | ucla_rmd2all.ksh<br>ucla_rmd2all_missing.ksh | auxo |
| GBO ASI CDF Product Generation | make_asi_products.ksh, reprocess_asi.ksh | auxo |
| Probe/GBO Orbit/Ground Plot Generation | make_asi_orbits.ksh | auxo |
| Probe VC File CD Archive | probeDataToCD.ksh | auxo |
| Generate EPO GMAG summary plots for EPO web interface. | make_epo_plots_daily.ksh<br>epo_magfile_append.ksh | auxo |

To check on the status of processing activities, go to the following website:

http://themis.ssl.berkeley.edu/status.shtml


THEMIS




# 3. Probe Data Processing Activities

## *3.1 Virtual Channel (VC) File Recovery*

### 3.1.1 Description

The VC files containing the raw instrument data have to be retrieved from a variety of locations, both remotely and locally.

### 3.1.2 Main Scripts/Programs

There are 4 major programs making up the THEMIS VC File Recovery System:

- **/home/thmsoc/software_dev/filetracker/sattrackscheduler/ScheduleReader.java**
- **/home/thmsoc/software_dev/filetracker/filegetter /FileGetter.java**
- **/home/thmsoc/software_dev/filetracker/filechecker/FileChecker.java**
- **/home/thmsoc/software_dev/filetracker/fileprocessor/FileProcessor.java**

These programs run automatically on **btaps-srvr1** and will restart themselves if errors occur. For each program there's a cronjob running on rayon which restarts the program in an event of a catostrophic failure. The programs also terminate and restart periodically.

### 3.1.3 Products and Storage

VC files are initially copied to:

**/disks/themisdata/vc_drop/incoming**

When the copy is complete, they are moved to the following directory for further processing:

**/disks/themisdata/vc_drop/ready2process**

### 3.1.4 Process Logs

Log information is found in:

**/disks/themisdata/process_logs/vc_files/schedulereader.txt**
**/disks/themisdata/process_logs/vc_files/filegetter.txt**
**/disks/themisdata/process_logs/vc_files/filechecker.txt**
**/disks/themisdata/process_logs/vc_files/fileprocessor.txt**

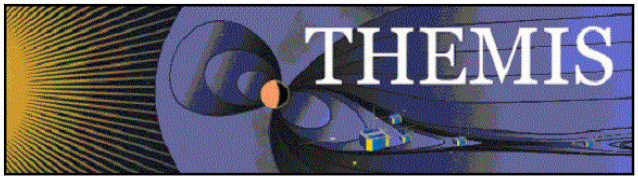
### 3.1.5 Database Information

The database **file_tracker_themis** is found on the MySQL database server on astraea. It includes tables containing file and process statistics.

### 3.1.6 Web Information

An interface to the database statistics can be found at:

http://themis.ssl.berkeley.edu/schedule_view/




## *3.2 Level 0 (L0) and Level 1 (L1) File Creation*

### 3.2.1 Description

When the VC files are received they are initially converted into 2 data products: L0 files are raw counts for each packet/application ID, L1 files are raw counts stored in CDF format.

### 3.2.2 Main Scripts/Programs

A cronjob on python launches the following script:

**/disks/socware/thmsoc_dp_current/src/ksh/make_l0_and_l1.ksh**

and calls the configuration files:

**[1] /disks/socware/thmsoc_dp_current/src/config/make_l0_and_l1.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[3] /home/thmsoc/jwls_stuff/tmtools_current/tmtools_setup.bourne**

which define the following environment variables:

from [1]: LOGFILE=/disks/themisdata/process_logs/lzprocess/lz_process_log_$(date '+%y%m%d')
VCDROP=/disks/themisdata/vc_drop/ready2process
from [2]: THMSOC=/disks/socware/thmsoc
LOCAL=/mydisks/home/thmsoc
WEBSERVERLOGHOME=/var/log/httpd
VC1FILECHK=/disks/themisdata/workdir/VC0_Files_Received/VC1_Check
VC3FILESCH=/disks/themisdata/workdir/VC0_Files_Received/VC3_Check
KSH_SCRIPTS=/disks/socware/thmsoc/src/ksh
PHP_SCRIPTS=/disks/socware/thmsoc/src/php
SCRATCH=/disks/themisdata/scratch
SOC_EMAIL="jimm@ssl.berkeley.edu pcruce@igpp.ucla.edu jwl@ssl.berkeley.edu lphilpott@igpp.ucla.edu"
from [3]: TMTOOLS_DATAROOT=/disks/themisdata
TMTOOLS_ROOT=/home/thmsoc/jwls_stuff/tmtools_6_30

This script checks **/disks/themisdata/vc_drop/ready2process** for VC files and if found, launches the following script to produce the L0 and L1 files:

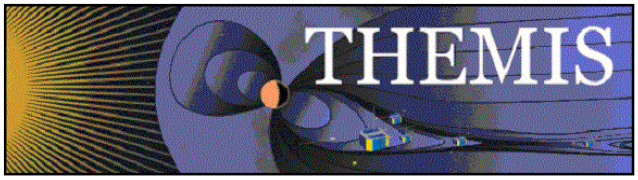
**/home/thmsoc/jwls_stuff/tmtools_current/bin/vc_wrapper**
**/home/thmsoc/jwls_stuff/tmtools_current/bin/lzp_wrapper**

For each VC files processed, **vc_wrapper** produces a directory of log files containing numerous statistics on processing results. The following script is called to process this information into a MySQL database:

**/disks/socware/thmsoc_dp_current/src/ksh/prc_vcwrap_results.ksh**

### 3.2.3 Products and Storage

**vc_wrapper** will produce L0 packet files for a specific probe and place the files at:



**/disks/themisdata/th[a-e]/l0/yyyy/mm/dd/**

**lzp_wrapper** will produce L1 CDF files for a specific probe at:

**/disks/themisdata/th[a-e]/l1/yyyy/[type]/**

### 3.2.4 Process Logs

Process logs are available at:

make_l0_and_l1.ksh: **/disks/themisdata/process_logs/lzprocess/lz_process_log_yymmdd**
vc_wrapper: **/tmp/vc_wrapper_dirlist.$$**
lzp_wrapper: **/disks/themisdata/th[a-e]/l1/tmpfiles/th[a-e]_yyyymmdd.log**
prc_vcwrap_results.ksh: **/tmp/vc_wrapper_dirlist.$$**

### 3.2.5 Database Information

The database **probe_l0_process** is found on the MySQL database server on astraea. It includes tables containing file and process statistics.

### 3.2.6 Web Information

Recent results of the L0 processing can be viewed at the following web address:

http://themis.ssl.berkeley.edu/vc_check/list_latest.php

Long term results can be accessed by probe/apid/date at:

http://themis.ssl.berkeley.edu/vc_check/

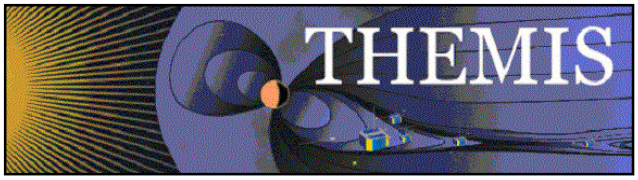
A useful tool for reviewing packet counts by probe/apid is found at:

http://themis.ssl.berkeley.edu/db_access/apidStat.html

A full inventory of the L0 and L1 files produced can be viewed at the following web addresses:

http://themis.ssl.berkeley.edu/data_inventory/space_data/probe_l0_availability.txt

http://themis.ssl.berkeley.edu/data_inventory/space_data/probe_l1_availability.txt




## *3.3 Level 2 (L2) CDF File Production*

### 3.3.1 Description

The L2 data files include data in calibrated, physical units.

### 3.3.2 Main Scripts/Programs

A cronjob on **python** launches the following script:

**/disks/socware/thmsoc_dp_current/src/ksh/create_probe_l2cdf.ksh**

and calls the configuration files:

**[1] /disks/socware/thmsoc_dp_current/src/config/overplot.bourne**
**[2] /disks/socware/thmsoc_dp_current/src/config/setup_idl6.3.bourne**
**[3] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**

thus defining the following environment variables:

from [1]: IDL_BASE_DIR=/disks/socware/thmsoc_dp_current/idl
IDL_PATH=+/disks/apollo/export/idl_6.3/lib:
+/disks/apollo/export/idl_6.3/examples:
+/disks/socware/thmsoc_dp_current/idl/thmsoc/temp:
+/disks/socware/thmsoc_dp_current/idl/themis:
+/disks/socware/thmsoc_dp_current/idl/ssl_general:
+/disks/socware/thmsoc_dp_current/idl/external:
+/disks/socware/thmsoc_dp_current/idl/thmsoc/summary_plots/
from [2]: IDL_DIR=/disks/apollo/export/idl_6.3
from [3]: LOCAL=/mydisks/home/thmsoc

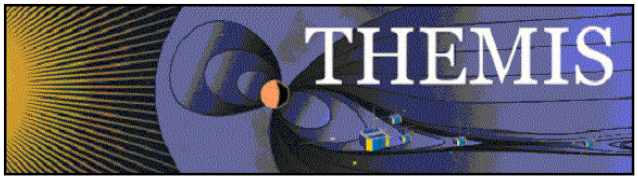
The script calls an IDL routine which converts any L1 data files produced or modified in the last 36 hours into L2 data files in CDF format:

**/disks/socware/thmsoc_dp_current/idl/thmsoc/l2gen/runoff_l2gen.bm (wrapper)**
**/disks/socware/thmsoc_dp_current/idl/thmsoc/l2gen/thm_all_l1l2gen.pro**

The IDL routine thm_all_l1l2gen.pro in turn executes instrument-specific L2 data generation IDL routines:

**/disks/socware/thmsoc_dp_current/idl/thmsoc/l2gen/thm_l2gen_fgm.pro**
**/disks/socware/thmsoc_dp_current/idl/thmsoc/l2gen/thm_l2gen_fbk.pro**
**/disks/socware/thmsoc_dp_current/idl/thmsoc/l2gen/thm_l2gen_fit.pro**
**/disks/socware/thmsoc_dp_current/idl/thmsoc/l2gen/thm_l2gen_esa.pro**
**/disks/socware/thmsoc_dp_current/idl/thmsoc/l2gen/thm_l2gen_mom.pro**
**/disks/socware/thmsoc_dp_current/idl/thmsoc/l2gen/thm_l2gen_sst.pro**
**/disks/socware/thmsoc_dp_current/idl/thmsoc/l2gen/thm_l2gen_fft.pro**
**/disks/socware/thmsoc_dp_current/idl/thmsoc/l2gen/thm_l2gen_scm.pro**
**/disks/socware/thmsoc_dp_current/idl/thmsoc/l2gen/thm_l2gen_efi.pro**
**/disks/socware/thmsoc_dp_current/idl/thmsoc/l2gen/thm_l2gen_scmode.pro**

In the instrument specific programs (i.e. thm_l2gen_esa.pro), the first step it to create calibrated data. Typically, one uses TDAS software to load and calibrate the L1 (of L0) data. All L2 data are the same as




what one would get by loading and calibrating L1 data. The L2 data generated are contained in "TPLOT VARIABLES," which are the main components of any TDAS based analysis. For information on tplot variables, please read the THEMIS_DATA_ANALYSIS_USERS_GUIDE.

When reprocessing of L2's is required, use the following script:

**/disks/socware/thmsoc_dp_current/src/ksh/create_probe_l2cdf_redux.ksh**

The default L2 processing will reprocess any L2 files that require coordinate transforms (all but FFT and FBK) if new L1 STATE files are created. Occasionally, massive STATE file reprocessing will cause large amounts of un-necessary reprocessing (for example, if new state variables are added, but the state data used for coordinate transforms are not changed). If the new STATE files do not change coordinate transforms, then edit the crontab file on python, comment out the default command, and un-comment the line containing the command:

**/disks/socware/thmsoc_dp_current/src/ksh/create_probe_l2cdf_nostate.ksh**

In addition, there are a number of scripts for different types of reprocessing in the directory /home/thmsoc/l2_cronjobs, which can handle complex reprocessing tasks. These are typically .tcsh or .csh shell scripts which can be run from the command line.

Reprocessing can also be done by the thmsoc user from the IDL command line. First, cd into the directory /home/thmsoc/l2_cronjobs. Then source test_idl_setup, and start IDL. The IDL scripts that handle L2 processing are RUNOFF_L2GEN and THM_ALL_L1L2GEN. Please refer to the documentation headers in these files (located in the directory /disks/socware/thmsoc_dp_current/idl/thmsoc/l2gen) for instructions for use.

### 3.3.3 Products and Storage

The L2 data files produced take the form:

**th[a-e]_l2_[abc]_yyyymmdd_vnn.cdf**
**where:**
**abc=data type=fbk,fgm,esa,sst**
**nn=version number**

The files are archived at:

**/disks/themisdata/th[a-e]/l2/[abc]/yyyy**

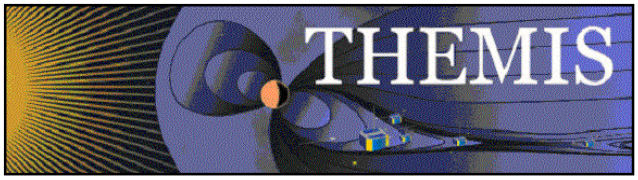
### 3.3.4 Process Logs

Process logs are available on python at:

**/mydisks/home/thmsoc/l2_proc/l2gen_idl_log.txt**

### 3.3.5 Database Information

The database **probe_l2_processing** is found on the MySQL database server on astraea. It includes tables containing file and process statistics.




### 3.3.6 Web Information

An inventory of the L2 files can be viewed at:

http://themis.ssl.berkeley.edu/data_inventory/space_data/probe_l2_availability.txt

## *3.4 BFDS Ephemeris Data Product Archive and Probe State File Production – Version 0*

### 3.4.1 Description

BFDS ephemeris products are archived and version 0 of the probe state files are produced on a daily basis. Version 0 contains predictive information on all elements.

### 3.4.2 Main Scripts/Programs

A cronjob on **python** launches the following script to archive the ephemeris products:

**/disks/socware/thmsoc_dp_current/src/ksh/bfds_archive.ksh**

which calls the following configuration files:

**[1] /disks/socware/thmsoc_dp_current/src/config/bfds.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[3] /disks/socware/thmsoc_dp_current/src/config/make_l0_and_l1.config**

and the following environment variables are defined as:

from [1]: PROBES=”THEMIS_A THEMIS_B THEMIS_C THEMIS_D THEMIS_E”
BFDSEPHM=/home/bfds/THEMIS
BFDSARCH=/disks/themisdata/bfds
from [2]: SOC_EMAIL="jimm@ssl.berkeley.edu pcruce@igpp.ucla.edu jwl@ssl.berkeley.edu lphilpott@igpp.ucla.edu"
from [3]: TMTOOLS_ROOT=/home/thmsoc/jwls_stuff/tmtools_current

The following script is called to convert the newly archived ephemeris into version 0 of probe state files:

**/home/thmsoc/jwls_stuff/tmtools_current/bin/ephem_prelim_wrapper**

calling the configuration files:

**[1] /home/thmsoc/jwls_stuff/tmtools_current/tmtools_setup.bourne**

and thus defining the environment variables:

from [1]: TMTOOLS_DATAROOT=/disks/themisdata
TMTOOLS_TMPROOT=/mydisks/home/thmsoc

The script ephem_prelim_wrapper.bash calls a TMTOOLS batch routine to create probe state V00 CDF files from 1-day probe state ASCII files:

**/home/thmsoc/jwls_stuff/tmtools_current/bin/process_prelim_ephem (bash)**

which in turn calls the following routines:

**/home/thmsoc/jwls_stuff/tmtools_current/bin/split_ephem_ascii_24h (bash)**
**/home/thmsoc/jwls_stuff/tmtools_current/bin/ephem2cdf (C)**
**/disks/socware/thmsoc_dp_current/idl/thmsoc/state/state_addcoords_batch.pro**
**/disks/socware/thmsoc_dp_current/idl/thmsoc/state/state_addcoords.pro**

The ephem_prelim_wrapper.bash script can be run from the command line to reprocess state V00 CDFs, but not to re-archive the daily ephemeris files. An additional script is available for archiving long time periods as well as processing data in the QA area:

**/disks/socware/thmsoc_dp_current/src/ksh/make_state_from_archive.ksh**

### 3.4.3 Products and Storage

The ephemeris products are retrieved from /home/bfds/Products/THEMIS and are stored at:

**/disks/themisdata/bfds**

Version 0 of the probe state files follow the naming convention:

**th[a-e]_l1_state_yyyymmdd_v00.cdf**

These files are stored at:

**/disks/themisdata/th[a-e]/l1/state/yyyy**

### 3.4.4 Process Logs

Process logs available:

make_probe_state_cdf: **/disks/themisdata/process_logs/makestate/IDLOUT_MAKESTATE_yymmdd**

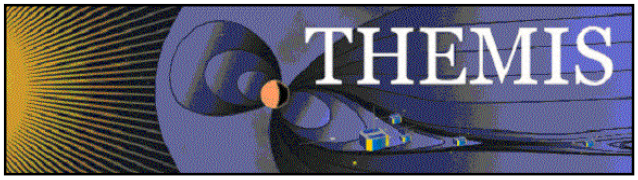
### 3.4.5 Database Information

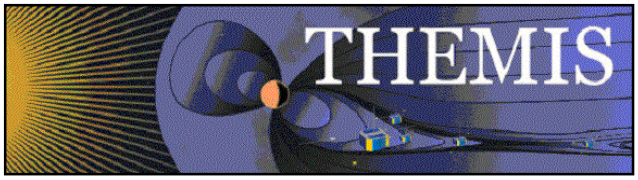
None.

### 3.4.6 Web Information

An inventory of version 0 state files can be viewed at:

http://themis.ssl.berkeley.edu/data_inventory/space_data/probe_state_availability.txt


THEMIS




## *3.5 BFDS Ephemeris Data Product Archive Check*

### 3.5.1 Description

Check to see that the BFDS archive is up to date. If an archive is found missing, the procedure listed in section 3.4 will be run.

### 3.5.2 Main Scripts/Programs

A cronjob on **python** launches the following script to archive the ephemeris products:

**/disks/socware/thmsoc_dp_current/src/ksh/chk_bfds_archive.ksh**

which calls the following configuration files:

**/disks/socware/thmsoc_dp_current/src/config/bfds.config**
**/disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**

### 3.5.3 Products and Storage

The ephemeris products are retrieved from /home/bfds/Products/THEMIS and are stored at:

**/disks/themisdata/bfds**

Version 0 of the probe state files follow the naming convention:

**th[a-e]_l1_state_yyyymmdd_v00.cdf**

These files are stored at:

**/disks/themisdata/th[a-e]/l1/state/yyyy**

### 3.5.4 Process Logs

None.

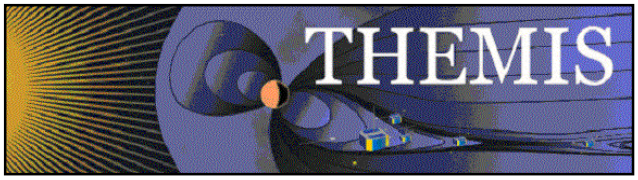
### 3.5.5 Database Information

None.

### 3.5.6 Web Information

An inventory of version 0 state files can be viewed at:

http://themis.ssl.berkeley.edu/data_inventory/space_data/probe_state_availability.txt




## *3.6 Probe State File Production – Version 1*

### 3.6.1 Description

Version 1 state files shall contain predictive information on all elements except _spinper and _spinphase, which shall be definitive, produced from SUNPULSE telemetry processing..

### 3.6.2 Main Scripts/Programs

Version 1 of the state file is produced as part of the L1 file creation – **see section 3.2**.

### 3.6.3 Products and Storage

The filename format look like:

**th[a-e]_l1_state_yyyymmdd_v01.cdf**

These files are stored at:

**/disks/themisdata/th[a-e]/l1/state/yyyy**

### 3.6.4 Process Logs

None.

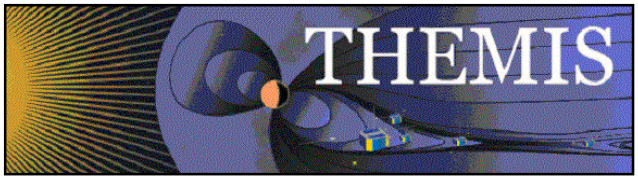
### 3.6.5 Database Information

None.

### 3.6.6 Web Information

An inventory of version 1 state files can be viewed at:

http://themis.ssl.berkeley.edu/data_inventory/space_data/probe_state_availability.txt




## *3.7 Probe State File Production – Version 2*

### 3.7.1 Description

When definitive ephemeris data becomes available, it is converted into CDF format and predictive information on attitude and principal inertial axis is added.

### 3.7.2 Main Scripts/Programs

A cronjob on python launches the following script:

**/disks/socware/thmsoc_dp_current/src/ksh/make_state_v2.ksh**

which calls the following configuration files:

**[1] /disks/socware/thmsoc_dp_current/src/config/make_l0_and_l1.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/bfds.config**
**[3] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**

and thus defining the environment variables:

from [1]: LOGDIR=/disks/themisdata/process_logs/lzprocess
from [2]: BFDSEPHM=/home/bfds/THEMIS
BFDSARCH=/disks/themisdata/bfds

For the definitive ephemeris data processing, the script make_state_v2.ksh calls the wrapper and PHP routines:

**/home/thmsoc/jwls_stuff/tmtools_current/src/scripts/ephem_definitive_wrapper.bash**
**/disks/socware/thmsoc_dp_current/src/php/inputEphem.php**
**/disks/socware/thmsoc_dp_current/src/php/inputASCII.php**
**/disks/socware/thmsoc_dp_current/src/php/inputCDF.php**

The ephem_definitve_wrapper script initializes and calls the bash script:

**/home/thmsoc/jwls_stuff/tmtools_current/src/scripts/process_definitive_ephem.bash**

which in turn calls the following C binary, and IDL routines:

**/home/thmsoc/jwls_stuff/tmtools_current/bin/ephem2cdf**
**/disks/socware/thmsoc_dp_current/idl/thmsoc/state/state_addcoords_batch.pro**
**/disks/socware/thmsoc_dp_current/idl/thmsoc/state/state_addcoords.pro**

followed by the execution of the wrapper script:

**/home/thmsoc/jwls_stuff/tmtools_current/src/scripts/statev2_wrapper**

which sets up and calls the C binaries:

**/home/thmsoc/jwls_stuff/tmtools_current/bin/process_statev2**
**/home/thmsoc/jwls_stuff/tmtools_current/bin/make_spinmodel**
**/home/thmsoc/jwls_stuff/tmtools_current/bin/spinmodel2cdf**

**/home/thmsoc/jwls_stuff/tmtools_current/bin/statecdf**
**/home/thmsoc/jwls_stuff/tmtools_current/bin/fix_l1_times**
**/home/thmsoc/jwls_stuff/tmtools_current/bin/link_highest_version**

### 3.7.3 Products and Storage

Similar to the version 0 production, C binaries and an IDL routine will convert ephemeris data into version 2 of the probe state file:

**th[a-e]_l1_state_yyyymmdd_v02.cdf**

These files are stored at:

**/disks/themisdata/state15/CDF** ***(no predictive attitude or inertial axis information yet)***
**/disks/themisdata/th[a-e]/l1/state/yyyy** **(*predictive attitude and inertial axis information added)***

### 3.7.4 Process Logs

make_state_v2.ksh: **/disks/themisdata/process_logs/makestate/make_v2_yymmdd**
ephem_definitive_wrapper**: /tmp/make_state_v2.$$**
process_definitive_ephem: **/disks/themisdata/ephem/logs/th[a-e]**

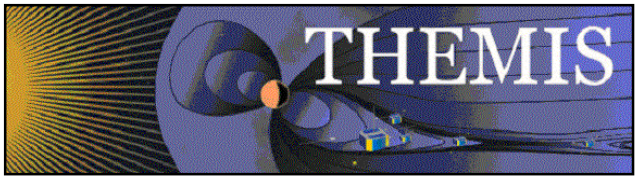
### 3.7.5 Database Information

The database **Probe_StateFile_Production** is found on the MySQL database server on astraea. It includes tables containing ASCII and CDF file and process statistics.

### 3.7.6 Web Information

An inventory of version 2 state files can be viewed at:

http://themis.ssl.berkeley.edu/data_inventory/space_data/probe_state_availability.txt




## *3.8 Summary and Tohban Plot Production*

### 3.8.1 Description

Summary and Tohban plots are created from L1 and L2 data products giving overviews of instrument operations and events, and are available for viewing on the THEMIS website

### 3.8.2 Main Scripts/Programs

A cronjob on **gaia** launches the following script:

**/disks/socware/thmsoc_dp_current/src/ksh/overplot.ksh**

### 3.8.3 Products and Storage

This script calls an IDL routine which downloads L1/L2 data files into IDL memory for conversion into the various plots. These plots are place in the following directory:

**/disks/themisdata/overplots/yyyy/mm/dd**

### 3.8.4 Process Logs

Process logs are available at:

**/disks/themisdata/process_logs/overplots/make_over_yymmdd**

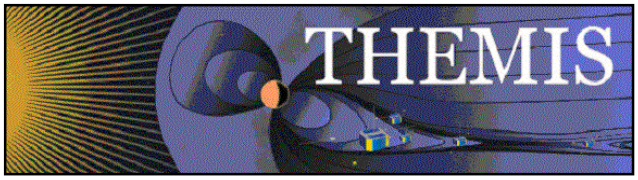
### 3.8.5 Database Information

None.

### 3.8.6 Web Information

The plots can be viewed on the website at:

http://themis.ssl.berkeley.edu/summary.php




## *3.9 Archival of Raw Probe Telemetry Files*

### 3.9.1 Description

The raw probe telemetry (Virtual Channel – VC) files are archived at:

**/disks/themisdata/th[a-e]/vc_archive/yyyy**

In addition to the online archive, the VC files are backed up ob CD-R media

### 3.9.2 Main Scripts/Programs

A cronjob on auxo launches the following script:

**/disks/socware/thmsoc_dp_current/src/ksh/probeDataToCD.ksh**

This script determines if enough new data has accumulated (650 Mbyte CD-R limit), and if so it assembles a CD-R directory of data in /disks/themisdata/scratch/CD_Production and converts the directory into a ISO CD-R image file which will be downloaded to the CD-R production system.

The CD production equipment is PC based and is found in SSL-Addition room 236 and is initiated by running the following script on moerae:

**C:\Program Files\Padus\DiscJuggler\make_themis_images.BAT**

### 3.9.3 Products and Storage

The CD ISO file naming format is:

**THEMIS_VC_ARCHIVE_n.iso**

Where nnnn is a unique integer identifier starting at 1 for the first CD and incrementing through the mission.

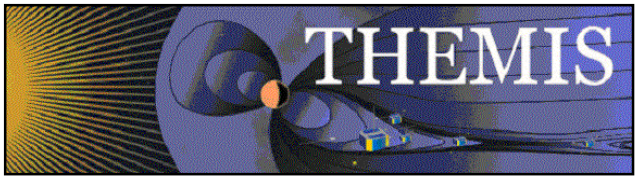
Note: There is also a **THEMIS_VC_ARCHIVE_n.job** file made which contains ancillary data about the iso file and is used to drive to write process.

The files are stored at:

**/disks/themisdata/scratch/CD_Production**

Check output spindle on CD production system for finished THEMIS CDs. CDs are labeled using the following naming convention:

When (1) CD volume is found, delete the associated image and job files (**THEMIS_VC_ARCHIVE_n.iso &THEMIS_VC_ARCHIVE_n.job**) from /disks/themisdata/scratch/CD_Production.




### 3.9.4 Process Logs

Process logs can be found at:

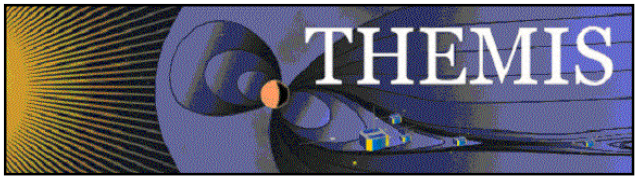
**/disks/themisdata/process_logs/cd_production/CD_LogYYMMDD**

### 3.9.5 Database Information

CD production is database driven. Received VC files are archived in the MySQL table **probe_l0_process.VC_Files_Processed**. Each entry in this table has an "archive" field, a binary setting indicating whether the file needs to be archived (0) or not (1). The table **CD_Production.CD_Inventory** is used to catalog what files are on what CD. Both databases are accessed via the MySQL database server on astraea.

### 3.9.6 Web Information

None currently, but an interface allowing a user to specify probe/date/VC and retrieve volume information would be useful and easy to build.




## *3.10 VC1 Dump Verification and Validation*

### 3.10.1 Description

Housekeeping telemetry is used to check for an indication that VC1 dump has occurred, and if so, verify the file was received and compare the frame dump count derived from housekeeping telemetry against the actual count derived from the file on the ground. Any discrepancies encountered will lead to notification of the FOT.

### 3.10.2 Main Scripts/Programs

A cronjob on **python** launches the following script:

**/disks/socware/thmsoc_dp_current/src/ksh/process_vc1dump_stats.ksh**

This high level script checks the following directory for VC0 files to check:

**/home/thmsoc/software_dev/workdir/VC0_Files_Received/VC1_Check**

Additional scripts:

**/home/thmsoc/software_dev/ksh/ probe_vc1memchk.ksh** – Gets SSR statistics from the BTAPS MySQL database; checks if a dump has occurred; compares telemetered dump count with ground dump count; updates DP MySQL database with dump statistics; notifies ops personnel if discrepancies are encountered (no VC1 file found, ground dump count < telemetered dump count).

### 3.10.3 Products and Storage

None.

### 3.10.4 Process Logs

None.

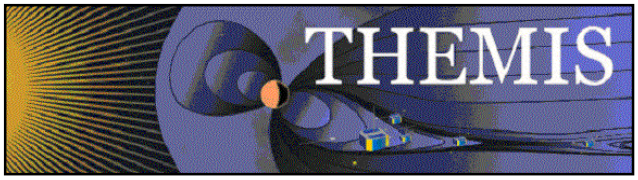
### 3.10.5 Database Information

A table in the database probe_l0_process is used to store VC1 dump statistics which can be accessed from the web. The database is accessed via the MySQL database server on astraea.

### 3.10.6 Web Information

Dump statistics can be viewed at:

http://themis.ssl.berkeley.edu/data_processing_check/probe_data_processing/list_vc1_stats.php




## *3.11 VC3 Dump Verification and Validation*

### 3.11.1 Description

Housekeeping telemetry is used to check for an indication that VC3 dump has occurred, and if so, verify the file was received and compare the frame dump count derived from housekeeping telemetry against the actual count derived from the file on the ground. Any discrepancies encountered will lead to notification of the FOT.

### 3.11.2 Main Scripts/Programs

A cronjob on danaid launches the following script:

**/home/thmsoc/software_dev/ksh/process_vc3dump_stats.ksh**

This high level script checks the following directory for VC0 files to check:

**/home/thmsoc/software_dev/workdir/VC0_Files_Received/VC3_Check**

Additional scripts:

**/home/thmsoc/software_dev/ksh/ probe_vc1memchk.ksh** – Gets SSR statistics from the BTAPS MySQL database; checks if a dump has occurred; compares telemetered dump count with ground dump count; updates DP MySQL database with dump statistics; notifies ops personnel if discrepancies are encountered (no VC3 file found, ground dump count < telemetered dump count).

### 3.11.3 Products and Storage

None.

### 3.11.4 Process Logs

None.

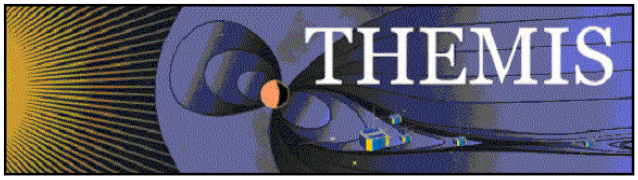
### 3.11.5 Database Information

A table in the database probe_l0_process is used to store VC3 dump statistics which can be accessed from the web. The database is accessed via the MySQL database server on astraea.

### 3.11.6 Web Information

Dump statistics can be viewed at:

http://themis.ssl.berkeley.edu/data_processing_check/probe_data_processing/list_ssr_stats.php




## *3.12 L0 Data File Inventory*

### 3.12.1 Description

Files are created and maintained which contain a list of files for each probe/apid. These files are then used to create a web display which gives quick access to the overall inventory of available L0 files.

### 3.12.2 Main Scripts/Programs

A cronjob on gaia launches the following scripts:

**/disks/socware/thmsoc_dp_current/src/ksh/list_probe_l0.ksh**
**/disks/socware/thmsoc_dp_current/src/ksh/gen_probe_l0_list.ksh**

### 3.12.3 Products and Storage

list_probe_l0.ksh produces the following files:

**th[a-e]_l0_list_nnn.txt**

where nnn = apid number (hex)

Each file contains a listing of the L0 files that have been produced for that probe/apid. The files are stored at:

**/disks/themisdata/workdir/filelists**

gen_probe_l0_list.ksh produces the file:

**probe_l0_availability.txt**

This file contains an ascii formatted display of L0 availability and can be viewed on the web. It is also found locally at the directory listed above.

### 3.12.4 Process Logs

None.

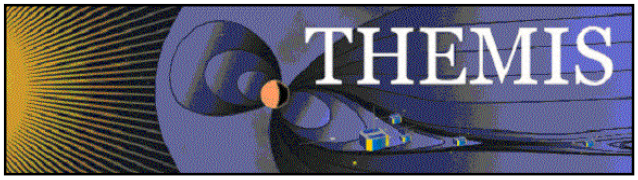
### 3.12.5 Database Information

None.

### 3.12.6 Web Information

The probe L0 availability display can be viewed at:

http://themis.ssl.berkeley.edu/data_inventory_space_data/probe_l0_availability.txt




## *3.13 L1 Data File Inventory*

### 3.13.1 Description

Files are created and maintained which contain a list of files for each probe/dtype. These files are then used to create a web display which gives quick access to the overall inventory of available L1 files.

### 3.13.2 Main Scripts/Programs

A cronjob on gaia launches the following scripts:

**/disks/socware/thmsoc_dp_current/src/ksh/list_probe_l1.ksh**
**/disks/socware/thmsoc_dp_current/src/ksh/gen_probe_l1_list.ksh**

### 3.13.3 Products and Storage

list_probe_l1.ksh produces the following files:

**th[a-e]_l1_list_[dtype].txt**

where dtype =
eff,efp,efw,esa,fbk,ffp_16,ffp_32,ffp_64,ffw_16,ffw_32,ffw_64,fgm,fit,hsk,mom,scf,scp,scw,spin,
state,trg,vaf,vap,vaw,vbf,vbp,vbw

Each file contains a listing of the L1 files that have been produced for that probe/dtype. The files are stored at:

**/disks/themisdata/workdir/filelists**

gen_probe_l1_list.ksh produces the file:

**probe_l1_availability.txt**

This file contains an ascii formatted display of L1 availability and can be viewed on the web. It is also found locally at the directory listed above.

### 3.13.4 Process Logs

None.

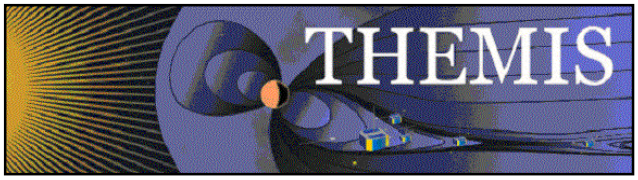
### 3.13.5 Database Information

None.

### 3.13.6 Web Information

The probe L1 availability display can be viewed at:

http://themis.ssl.berkeley.edu/data_inventory_space_data/probe_l1_availability.txt




## *3.14 L2 Data File Inventory*

### 3.14.1 Description

Files are created and maintained which contain a list of files for each probe/instrument. These files are then used to create a web display which gives quick access to the overall inventory of available L2 files.

### 3.14.2 Main Scripts/Programs

A cronjob on gaia launches the following scripts:

**/disks/socware/thmsoc_dp_current/src/list_probe_l2.ksh**
**/disks/socware/thmsoc_dp_current/src/ksh/gen_probe_l2_list.ksh**

### 3.14.3 Products and Storage

list_probe_l2.ksh produces the following files:

**th[a-e]_l1_list_[instr].txt**

**where instr = esa,fbk,fgm,scm,sst**

Each file contains a listing of the L1 files that have been produced for that probe/instr. The files are stored at:

**/disks/themisdata/workdir/filelists**

gen_probe_l2_list.ksh produces the file:

**probe_l2_availability.txt**

This file contains an ascii formatted display of L1 availability and can be viewed on the web. It is also found locally at the directory listed above.

### 3.14.4 Process Logs

None.

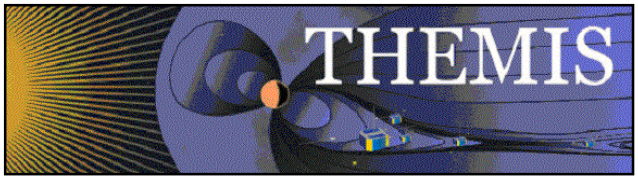
### 3.14.5 Database Information

None.

### 3.14.6 Web Information

The probe L2 availability display can be viewed at:

http://themis.ssl.berkeley.edu/data_inventory_space_data/probe_l2_availability.txt




## *3.15 State Data File Inventory*

### 3.15.1 Description

Files are created and maintained which contain a list of files for each probe/state-file-version. These files are then used to create a web display which gives quick access to the overall inventory of available state files.

### 3.15.2 Main Scripts/Programs

A cronjob on gaia launches the following scripts:

**/disks/socware/thmsoc_dp_current/src/ksh/list_probe_state.ksh**
**/disks/socware/thmsoc_dp_current/src/ksh/gen_probe_state_list.ksh**

### 3.15.3 Products and Storage

list_probe_state.ksh produces the following files:

**th[a-e]_state_list_v[nn].txt**

**where nn=00,01,02,03**

Each file contains a listing of the state files that have been produced for that probe/version. The files are stored at:

**/disks/themisdata/workdir/filelists**

gen_probe_state_list.ksh produces the file:

**probe_state_availability.txt**

This file contains an ascii formatted display of state availability and can be viewed on the web. It is also found locally at the directory listed above.

### 3.15.4 Process Logs

None.

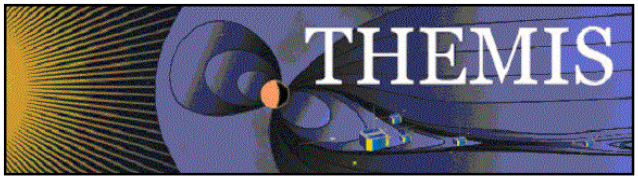
### 3.15.5 Database Information

None.

### 3.15.6 Web Information

The probe state availability display can be viewed at:

http://themis.ssl.berkeley.edu/data_inventory_space_data/probe_state_availability.txt




# 4. Ground Data Processing Activities

Ground magnetometer data from both THEMIS ground based observatories and from external magnetometer networks is collected (downloaded) and processed to CDF using a number of automatic scripts. A brief overview of the process is given here, and details of each script can be found in the subsequent sections.

The magnetometer data available through TDAS can be divided up into a number of networks/groups based on where we retrieve the files from. These groups are:

**THEMIS EPO** (Education and Public Outreach) magnetometers, installed in US schools;
**THEMIS GBO** magnetometers;
**University of Athabasca** GBO (also known as AUTUMN: Athabasca University THEMIS UCLA Magnetometer Network);
**University of Alberta** GBO (also known as the CARISMA network);
**Augsburg College** (also known as MACCS network);
**University of Alaska** (GIMA network);
**Greenland** (actually Greenland, Denmark, Norway, data from the TGO and DTU networks);
**INTERMAGNET** (site ABK from SGU network and sites FCC and YKC from NRCan);
**USGS** (currently only site BRW);
**Antarctic** (also known as PENGUIN, Virginia Tech).

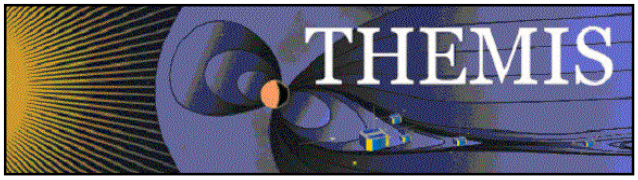
A list of all of the magnetometer sites available through TDAS can be found at gmag_desc.shtml and further information including longitude and latitude of stations can be found in the spreadsheet http://themis.ssl.berkeley.edu/images/ASI/THEMIS_GMAG_Station_List_Aug_2011.xlsx

For each of the networks an automated script downloads the magnetometer data to /disks/themisdata/thg/mirrors/mag from external servers at least once a day. The format of the downloaded data depends on the network. Additional scripts process the downloaded files and produce ascii and cdf files, saved to /disks/themisdata/thg/ascii_data/mag/[SITE]/YYYY and /disks/themisdata/thg/l2/mag/[SITE]/YYYY respectively (and available on the THEMIS data website: http://themis.ssl.berkeley.edu/data/themis/).
Note:

1. The script ucla_rmd2all.ksh processes THEMIS EPO, GBO, and AUTUMN rmd files to ascii and cdf, also producing intermediate flat files.
2. Calibration files are used to produce flat files from rmd files. These calibration files live at /home/thmsoc/software_dev/c_prog/UCLA_Cal. The *master* calibration files can be found at http://www-ssc.igpp.ucla.edu/themis_data/calib_files/, and are kept up to date by the UCLA EPO team (contact: Kathyrn Rowe, Richard Hart, Max Chung). Changes to the master files need to be monitored so that the versions used by the scripts are kept up to date. Calibration files for AUTUMN are not included on the UCLA site.

Information about files that are downloaded and processed is written to databases on astraea. The databases are in turn used to generate the status tables showing latest data availability (http://themis.ssl.berkeley.edu/status.shtml). Scripts are also run to generate ascii tables showing all files available (same website as above). The ascii tables do not rely on database information.

Data from the THEMIS EPO magnetometers undergoes further processing to produce jpg plots for archiving (there is some overlap between sites considered to be THEMIS GBO and EPO). These plots are saved to /disks/horae/raid1/themis_epo/[SITE] and made available at http://sprg.ssl.berkeley.edu/themis/GEONS/SCHOOLS/. Information on the jpg plots produced is written to the EPOMAG database on Juneau. This database is queried by the webform http://sprg.ssl.berkeley.edu/themis/GEONS/ that gives the EPO schools access to the archived plots.




Note that 'live' plots are produced by the UCLA server, forwarded to Berkeley, and made available at http://ds9.ssl.berkeley.edu/themis/classroom_geons_data.html. There is no TDAS involvement in the production of the live plots.

Further notes:

1. SPDF picks up gmag cdfs from THEMIS (along with all our other cdfs) from ftp://justice.ssl.berkeley.edu/thg/l2/mag.
2. Many of the scripts listed here can also be used to reprocess data. Additional reprocessing scripts can be found in /disks/socware/thmsoc_dp_current/src/ksh. Manual reprocessing is best run on the same machine as the corresponding automated script.
3. Notes relating to the display of GMAG information on the THEMIS website can be found in Section 5.2.

## *4.1 UCLA Ground Magnetometer (GMAG) Data Collection – THEMIS GBO*

### 4.1.1 Description

Raw THEMIS GMAG data is collected from a data server at the University of Calgary.
Point of contact: Contact Harald Frey at (hfrey_at_ssl.berkeley.edu), who is in contact with the relevant people at Calgary.
Calgary status webpage: http://themis-rt.phys.ucalgary.ca:8080/dataflow/summary

Note: Data is occasionally retrieved from Calgary for the BERK magnetometer. This data comes from testing and trouble shooting at Berkeley. When this data is downloaded it may result in a warning message from the processing scripts as no calibration file is available. This data does not need to be processed to CDF so these warnings can be ignored.

### 4.1.2 Main Scripts/Programs

A cronjob on gaia launches the following script:

**/disks/socware/thmsoc_dp_current/src/ksh/gbo_uc_rmd_mirror_batch.ksh,**

which simply calls

**/disks/socware/thmsoc_dp_current/src/ksh/gbo_uc_rmd_mirror.ksh**

for the current and previous month. The script gbo_uc_rmd_mirror.ksh calls the following configuration files

**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2]/disks/socware/thmsoc_dp_current/src/config/gbo_uc_rmd_mirror.config,**

defining the environment variables

from [1] SOC_EMAIL="jimm@ssl.berkeley.edu pcruce@igpp.ucla.edu jwl@ssl.berkeley.edu lphilpott@igpp.ucla.edu"
THEMISDATA="/disks/themisdata"
WORKDIR=${THEMISDATA}/workdir
GMAGMIRROR=${WORKDIR}/gmag_mirror
from [2] UCB_MIRROR_HOME=${THEMISDATA}/thg/mirrors/mag/ucalgary_rmd
LOGDIR=${THEMISDATA}/process_logs/gbo
LOGFILE=${LOGDIR}/GBO_UC_RMD_MIRROR_Log$(date '+%y%m%d')
WLOGFILE=${LOGDIR}/WGET_GBO_UC_RMD_MIRROR_Log$(date '+%y%m%d') ;
WEBSITE_NAME="http://aurora.phys.ucalgary.ca/data/themis/fluxgate/stream0"

gbo_uc_rmd_mirror.ksh uses wget to connect to the UCalgary server and download any new or updated files, writing a list of any downloaded files to

$GMAGMIRROR/GBO_RMDdirs,

and calling

**/disks/socware/thmsoc_dp_current/src /php/gbo_uc_rmd_mirror.php**

to update the record of the files collected in the database on the DP MySQL server.

NB: Files were previously retrieved using rsync, this was changed to wget in October 2011 as UCalgary moved their files to an http site. A record of the rsync exchange used to be kept in a database table gbo_ucla_rmd_rsync_stats, updated by the script

**/disks/socware/thmsoc_dp_current/src /php/gbo_uc_rmd_mirror_stats.php.**

This script is no longer run as it is harder to get download information from wget output.

### 4.1.3 Products and Storage

The raw UCLA gmag data files take the form:

**[site]YYMMDD_MAG_HH_MM.RMD**

where [site] = {CHBG, GBAY, INUV, KAPU, KIAN, KUUJ, MCGR, SNAP, TPAS, WHIT} (and previously included {EKAT, YKNF}, and also PGEO – now an EPO site).

The files are stored locally at:

**/disks/themisdata/thg/mirrors/mag/ucalgary_rmd/YYYY/MM/DD**

### 4.1.4 Process Logs

**/disks/themisdata/process_logs/gbo/GBO_UC_RMD_MIRROR_LogYYMMDD**
**/disks/themisdata/process_logs/gbo/WGET_GBO_UC_RMD_MIRROR_LogYYMMDD**

### 4.1.5 Database Information

The database **gbo_uc_gmag_rmd_mirror** is found on the DB MySQL server on astraea. It contains tables for each GBO station (**gbo_[site]_rmdfiles**) listing the gmag files collected for each. There is also a table listing rsync statistics (**gbo_ucla_rmd_rsync_stats**) that was in use prior to October 2011 when the change from rsync to wget was made.

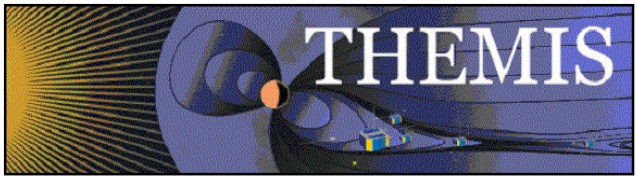
### 4.1.6 Web Information

Status on the latest collected files can be found at:

http://themis.ssl.berkeley.edu/data_processing_check/ground_data_mirrors/gbo_ucla_gmag_table.php

A full inventory of collected files can be found at:

http://themis.ssl.berkeley.edu/data_inventory/ground_data/mag/gmag_raw_list.txt




## *4.2 Ground Magnetometer (GMAG) Data Collection – THEMIS EPO*

### 4.2.1 Description

Raw THEMIS EPO GMAG data is initially collected by the University of California Los Angeles and stored on a data server. A rsync process at UCB pulls new and updated files from this server

### 4.2.2 Main Scripts/Programs

A cronjob on gaia launches the following script:

**/disks/socware/thmsoc_dp_current/src/ksh/epo_ucla_rmd_mirror_batch.ksh,**
which loads the configuration file
**/disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
defining the environment variable
CONFIGDIR=${THMSOC}/src/config.
ucla_rmd_mirror_batch.ksh calls
**/disks/socware/thmsoc_dp_current/src/ksh/epo_ucla_rmd_mirror.ksh**
for each of the present and previous month and for each school in
CONFIGDIR/lc_site_list_ucla_epo_fullname.txt.

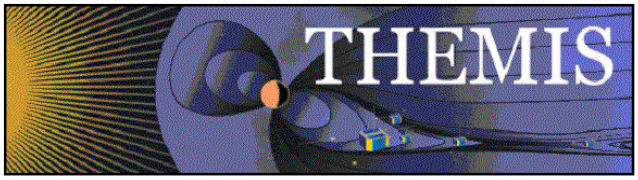
epo_ucla_rmd_mirror.ksh loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2]/disks/socware/thmsoc_dp_current/src/config/epo_ucla_rmd_mirror.config**
defining the environment variables
from [1] WORKDIR=${THEMISDATA}/workdir
GMAGMIRROR=${WORKDIR}/gmag_mirror
from [2] UCB_MIRROR_HOME=${THEMISDATA}/thg/mirrors/mag/ucla_rmd
UCLALOGDIR=$LOGDIR/gbo/ucla_gmag
LOGFILE=${UCLALOGDIR}/EPO_UCLA_RMD_MIRROR_Log$(date '+%y%m%d')
RSLOGFILE=${UCLALOGDIR}/RSYNC_EPO_UCLA_RMD_MIRROR_Log$(date '+%y%m%d')
RSYNC_OPTIONS_A="-az --log-format=\"%i|%n|%t|%l\" --stats"
REMOTE_SERVER_NAME="themisrsync@gmag-data.igpp.ucla.edu:/THEMIS/fluxgate/epo".

epo_ucla_rmd_mirror.ksh uses rsync to connect to the UCLA server and download any new or updated files, saving a list of any such files to
$GMAGMIRROR/EPO_RMDdirs*
for later processing. The script also calls
**epo_ucla_rmd_mirror.php**
to update the record of the files collected in the database on the DP MySQL server, and
**epo_ucla_rmd_mirror_stats.php**
to keep a record of the rsync exchange in a database on the DP MySQL server.

### 4.2.3 Products and Storage

The raw UCLA gmag data files take the form:

**[site]YYMMDD_MAG_HH_MM.RMD,**
where [site] = {BMLS, CCNV, DRBY, FYTS, HOTS, LOYS, PGEO, PINE, PTRS, RMUS, SWNO, UKIA}.




The files are stored locally at:

**/disks/themisdata/thg/mirrors/mag/ucla_rmd/[site]/YYYY/MM/DD**

### 4.2.4 Process Logs

**/disks/themisdata/process_logs/gbo/ucla_gmag/EPO_UCLA_RMD_MIRROR_LogYYMMDD**
**/disks/themisdata/process_logs/gbo/ucla_gmag/RSYNC_EPO_UCLA_RMD_MIRROR_LogYYMMDD**

NB: Rsync log files older than 10 days are removed by the script rsync_gbo_cleanup.

### 4.2.5 Database Information

The database **epo_ucla_gmag_rmd_mirror** is found on the DB MySQL server on astraea. It contains tables for each EPO station (**epo_[site]_rmdfiles**) listing the gmag files collected for each. There is also a table listing rsync statistics (**epo_ucla_rmd_rsync_stats**).

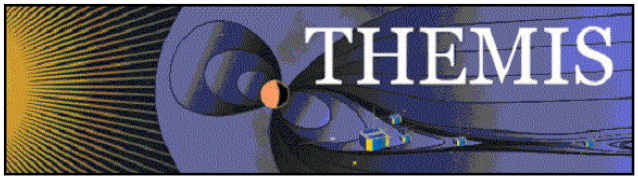
### 4.2.6 Web Information

Status on the latest collected files can be found at:

http://themis.ssl.berkeley.edu/data_processing_check/ground_data_mirrors/epo_ucla_gmag_table.php

A full inventory of collected files can be found at:

http://themis.ssl.berkeley.edu/data_inventory/ground_data/mag/gmag_raw_list.txt




## *4.3 Ground Magnetometer (GMAG) Data Collection – CARISMA*

### 4.3.1 Description

Some of the THEMIS GBO stations are co-located with a station that is part of an existing ground magnetometer network. Data from five stations of the Canadian Array for Realtime Investigations of Magnetic Activity (CARISMA) are pulled from the main data server at the University of Alberta. Note that data from the magnetometer ATHA and also from the NRCan site SNKQ is also retrieved from the University of Alberta although not part of the CARISMA network.
Additional sites from the CARISMA network are being made available to TDAS users to download directly - the data from the additional sites will not be mirrored, for further information see the IDL load routine thm_load_carisma_gmag.pro.

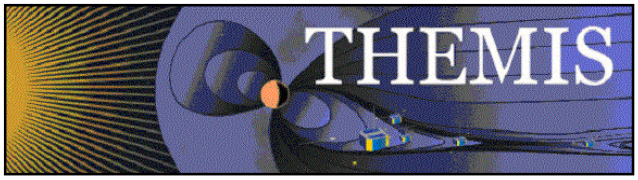
Points of contact at Alberta:
Ian Mann ian.mann_at_ualberta.ca,
David Milling dmilling@ualberta.ca
Websites:
http://bluebird.phys.ualberta.ca/carisma/
https://cssdp.ca/ssdp/app/static/data_providers/cgsm/carisma.html

### 4.3.2 Main Scripts/Programs

A cronjob on gaia launches the following script:

**/disks/socware/thmsoc_dp_current/src/ksh/gbo_ua_canmag_mirror_batch,**
which simply calls
**/disks/socware/thmsoc_dp_current/src/ksh/gbo_ua_canmag_mirror,**
which loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/gbo_ua_canmag_mirror.config,**
defining the environment variables
from [1] SOC_EMAIL="jimm@ssl.berkeley.edu pcruce@igpp.ucla.edu jwl@ssl.berkeley.edu lphilpott@igpp.ucla.edu"
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists
GMAGMIRROR=${WORKDIR}/gmag_mirror
from [2] UCB_MIRROR_HOME=/disks/themisdata/thg/mirrors/mag/ualberta_ascii
UALOGDIR=${LOGDIR}/gbo/carisma_gmag
LOGFILE=${UALOGDIR}/carisma_mirror_log_$(date '+%y%m%d')
RSLOGFILE=${UALOGDIR}/carisma_rsync_results_$(date '+%y%m%d')
REMOTE_SERVER_NAME="carisma_rt@bluebird.physics.ualberta.ca:/data/THEMIS"
RSYNC_OPTIONS="-az -e /usr/bin/ssh --log-format=\"%i|%n|%t|%l\" --stats".

gbo_ua_canmag_mirror.ksh uses the program rsync to connect to the UAlberta server and download any new or updated files. A list of downloaded files is written to
$GMAGMIRROR/CAN_ASCfiles*
for downstream L2 product creation, the php script
**/disks/socware/thmsoc_dp_current/src/php/gbo_ua_canmag_mirror.php**
is called to update the record of files collected in the database on the DP MySQL server, and the script
**/disks/socware/thmsoc_dp_current/src/php/gbo_ua_canmag_mirror_stats.php**
is called to keep a record of the rsync exchange in a database on the DP MySQL server.




### 4.3.3 Products and Storage

The data recovered from UAlberta is in ASCII format. The file naming convention is:

**YYYYMMDD[SITE].Fnn.gz**

Where nn = version number, and [SITE]={FSIM, FSMI, GILL, PINA, RANK, SNKQ, ATHA}

The files are stored locally at:

**/disks/themisdata/thg/mirrors/mag/ualberta_ascii/YYYY/MM/DD**

### 4.3.4 Process Logs

**/disks/themisdata/process_logs/gbo/carisma_gmag/carisma_mirror_log_yymmdd**
**/disks/themisdata/process_logs/gbo/carisma_gmag/carisma_rsync_results_yymmdd_***

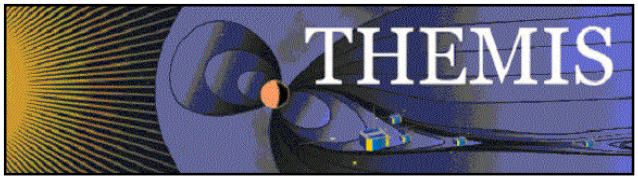
### 4.3.5 Database Information

The database **gbo_ua_canmag_mirror** is found on the DB MySQL server on astraea. It contains tables for each GBO station (**gbo_[site]_canmagfiles**) listing the gmag files collected for each. There is also a table listing rsync statistics (**gbo_ua_canmag_rsync_stats**).

### 4.3.6 Web Information

Status on the latest collected files can be found at:
http://themis.ssl.berkeley.edu/data_processing_check/ground_data_mirrors/canmag_table.php

A full inventory of collected files can be found at:
http://themis.ssl.berkeley.edu/data_inventory/ground_data/mag/gmag_raw_list.txt




## *4.4 Ground Magnetometer (GMAG) Data Collection – GIMA*

### 4.4.1 Description

Some of the THEMIS GBO stations are co-located with a station that is part of an existing ground magnetometer network. Data from all stations of the Geophysical Institute Magnetometer Array (GIMA) are pulled from the main data server at the University of Alaska.
Point of contact at GIMA:

Bill Hauer uso_at_asf.alaska.edu;
Don Hampton dhampton_at_gi.alaska.edu (PI for magnetometer array)

GIMA website: http://www.asf.alaska.edu/program/gdc/project/magnetometer
Note: Data from GIMA is provided in netcdf format. Considerable information about each station can be found in the netcdf metadata. A convenient IDL netcdf browser can be obtained from http://www.idlcoyote.com/fileio_tips/ncdf_browser.html.

### 4.4.2 Main Scripts/Programs

A cronjob on gaia launches the following script:

**/disks/socware/thmsoc_dp_current/src/ksh/gbo_ualaska_mirror_batch**

loading the configuration file

**/disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config,**

which defines the environment variable

CONFIGDIR=${THMSOC}/src/config.

This script calls the script

**/disks/socware/thmsoc_dp_current/src/ksh/gbo_ualaska_mirror.ksh**

for the current (and possibly last) year, and for each site listed in

**${CONFIGDIR}/gima_network.txt.**

**gbo_ualaska_mirror.ksh** loads the configuration files

**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/gbo_ualaska_mirror.config,**

which define the environment variables

from [1] WORKDIR=${THEMISDATA}/workdir
GMAGMIRROR=${WORKDIR}/gmag_mirror
SOC_EMAIL="jimm@ssl.berkeley.edu pcruce@igpp.ucla.edu jwl@ssl.berkeley.edu lphilpott@igpp.ucla.edu"
from [2] UCB_MIRROR_HOME=/disks/themisdata/thg/mirrors/mag/ualaska_netcdf
GIMALOGDIR=$LOGDIR/gbo/gima_gmag
LOGFILE=${GIMALOGDIR}/gima_mirror_log_$(date '+%y%m%d')
RSLOGFILE=${GIMALOGDIR}/gima_rsync_results_$(date '+%y%m%d')
RSYNC_OPTIONS_A="-az --log-format=\"%i|%n|%t|%l\" --stats"
REMOTE_SERVER_NAME="gima@gwa.asf.alaska.edu:/sc2/magnet/sites".

**gbo_ualaska_mirror.ksh** uses the program rsync to connect to the UAlaska server and download any new or updated files. A list of new or updated files is copied to

**${GMAGMIRROR}/GIMA_NC2ALL***

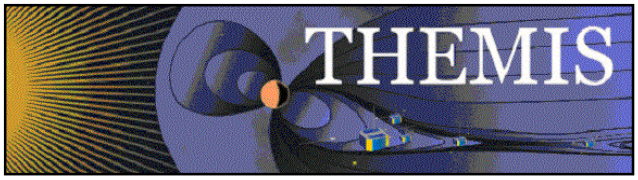
for downstream L2 product creation, the php script

**/disks/socware/thmsoc_dp_current/src /php/gbo_ualaska_mirror.php**

is called to update the record of the files collected in the database on the DP MySQL server, and the php script

**/disks/socware/thmsoc_dp_current/src /php/gbo_ualaska_mirror_stats.php**

is called to record the rsync exchange in a database on the DP MySQL server.




### 4.4.3 Products and Storage

The data recovered from UAlaska is in netcdf format. The file naming convention is:

**YYYY[SITE]DOY-HH.nc**

where [SITE] = {Arctic, Bettles, CIGO, Eagle, FtYukon, Gakona, HLMS, Homer, Kartovik, Poker, Trapper}

The files are stored locally at:

**/disks/themisdata/thg/mirrors/mag/ualaska_netcdf/[site]/YYYY**

### 4.4.4 Process Logs

**/disks/themisdata/process_logs/gbo/gima_gmag/gima_mirror_log_YYMMDD**
**/disks/themisdata/process_logs/gbo/gima_gmag/gima_rsync_results_YYMMDD**

Note: the gima_rsync_results* logfiles are currently used to write the record of the rsync exchange to the database, but are deleted upon completion of the process.

### 4.4.5 Database Information

The database **gbo_alaska_mirror** is found on the DB MySQL server on astraea. It contains tables for each GBO station (**gbo_[site]_magfiles**) listing the gmag files collected for each. There is also a table listing rsync statistics.

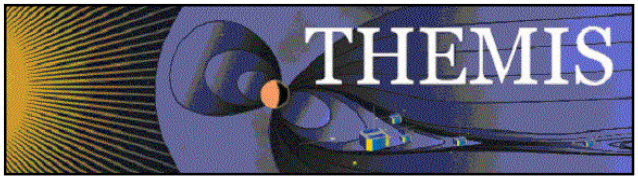
### 4.4.6 Web Information

Status on the latest collected files can be found at:

http://themis.ssl.berkeley.edu/data_processing_check/ground_data_mirrors/alaska_table.php

A full inventory of collected files can be found at:

http://themis.ssl.berkeley.edu/data_inventory/ground_data/mag/gmag_raw_list.txt




## *4.5 Ground Magnetometer (GMAG) Data Collection – MACCS*

### 4.5.1 Description

Magnetometer data from magnetometers in the MACCS (Magnetometer Array for Cusp and Cleft Studies) network is retrieved from Augsburg College
Point of contact at Augsburg:
Erik Steinmetz steinmee_at_augsburg.edu
MACCS website:
http://space.augsburg.edu/ (formerly yspace.augsburg.edu)

Note: MACCS data is provided in local geomagnetic coordinates. Some data on the MACCS website is rotated from local coordinates to geographic coordinates, but the data we retrieve is all in local magnetic coordinates. If any further back data is downloaded it should be checked carefully to ensure it is in local magnetic coordinates.

### 4.5.2 Main Scripts/Programs

A cronjob on gaia launches the following script:
**/disks/socware/thmsoc_dp_current/src/ksh/call_wget_maccs_gmag.ksh**
loading the configuration file
**/disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config,**
which defines the environment variable
CONFIGDIR=${THMSOC}/src/config.
This script calls the script
**/disks/socware/thmsoc_dp_current/src/ksh/wget_maccs_gmag.ksh**
for the current (and possibly last) year, and for each site listed in
**${CONFIGDIR}/maccs_site_list.txt.**

**wget_maccs_gmag.ksh** loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/wget_maccs_gmag.config,**
which define the environment variables
from [1] LOGDIR=${THEMISDATA}/process_logs
WORKDIR=${THEMISDATA}/workdir
GMAGMIRROR=${WORKDIR}/gmag_mirror
PHP_SCRIPTS=${THMSOC}/src/php
SOC_EMAIL="jimm@ssl.berkeley.edu pcruce@igpp.ucla.edu jwl@ssl.berkeley.edu lphilpott@igpp.ucla.edu"
from [2] WEBSITE="ftp://yspace.augsburg.edu/MACCS_DATA/IAGA2000/"
LOCALWEBMIRROR="${THEMISDATA}/thg/mirrors/mag/maccs_ascii"
in addition, the following variables are defined:
LOGFILE=${LOGDIR}/webdownloads/maccs_gmag_log_ $(date '+%y%m%d')_$$
WGETLOG=${LOGDIR}/webdownloads/wget_output_maccs_gmag_ $(date '+%y%m%d').

**wget_maccs_gmag.ksh** uses the program wget to connect to the Augsburg server and download files. Files are copied to
**${GMAGMIRROR}/**
for downstream L2 product creation, and the php script
**/disks/socware/thmsoc_dp_current/src /php/wget_maccs_gmag.php**
is called to update the record of the files collected in the database on the DP MySQL server.

### 4.5.3 Products and Storage

The data recovered from Augsburg is in ASCII format according to IAGA2000 guidelines. The file naming convention is:

**[SITE]YYYYMMDD_10_sec.sec**

where [SITE] = {CDR, CRV, GJO, IGL, NAN, PGG, RBY}.
The files are stored locally at:

**/disks/themisdata/thg/mirrors/mag/maccs_ascii/[site]/YYYY.**

### 4.5.4 Process Logs

**/disks/themisdata/process_logs/webdownloads/maccs_gmag_log_YYMMDD**
**/disks/themisdata/process_logs/webdownloads/wget_output_maccs_gmag_YYMMDD**

Note that these process logs are cleaned up by the script gmag_webdownloads_cleanup.ksh (see section below).

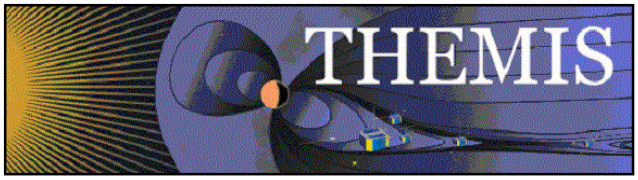
### 4.5.5 Database Information

The database **web_downloads** is found on the DB MySQL server on astraea. It contains a table **augsburg_maccs_gmag**, listing the gmag files collected from the network.

### 4.5.6 Web Information

Status on the latest collected files can be found at:
http://themis.ssl.berkeley.edu/data_processing_check/ground_data_mirrors/maccs_table.php

A full inventory of collected files can be found at:
http://themis.ssl.berkeley.edu/data_inventory/ground_data/mag/gmag_raw_list.txt




## *4.6 Cleanup after GMAG data download*

### 4.6.1 Description

Cleanup old log files associated with the collection of gmag files from web-based servers (namely MACCS data).

### 4.6.2 Main Scripts/programs

A cronjob on gaia launches the following script

**/disks/socware/thmsoc_dp_current/src/ksh/gmag_webdownloads_cleanup.ksh,**

which calls the configuration file

**/disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config,**

defining the environment variable

LOGDIR=${THEMISDATA}/process_logs.

The script deletes files found in

${LOGDIR}/webdownloads

that are older than 14 days.

### 4.6.3 Products and Storage

None.

### 4.6.4 Process logs

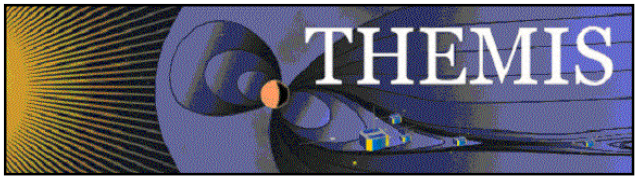
None.

### 4.6.5 Database Information

None.

### 4.6.6 Web Information

None.




## *4.7 Ground Magnetometer (GMAG) Data Collection – Athabasca*

### 4.7.1 Description

Some of the THEMIS GBO stations are co-located with a station that is part of an existing ground magnetometer network. Magnetometer data from magnetometers in the AUTUMN network is retrieved from U Athabasca. Note that the sites currently retrieved are LARG, LETH, REDR, and ROTH. The site located at Athabasca (ATHA) is *not* retrieved from Athabasca. It is instead downloaded from Alberta.
Website:

http://autumn.athabascau.ca/

### 4.7.2 Main Scripts/Programs

A cronjob on gaia launches the following script:

**/disks/socware/thmsoc_dp_current/src/ksh/gbo_atha_rmd_mirror_batch.ksh**

loading the configuration file

**/disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config.**

This script calls the script

**/disks/socware/thmsoc_dp_current/src/ksh/gbo_atha_rmd_mirror.ksh**

for the current (and possibly last) month, and for each of the sites: LETH ROTH REDR LARG.

**gbo_atha_rmd_mirror.ksh** loads the configuration files

**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**

**[2] /disks/socware/thmsoc_dp_current/src/config/gbo_atha_rmd_mirror.config,**

which define the environment variables

from [1] WORKDIR=${THEMISDATA}/workdir
GMAGMIRROR=${WORKDIR}/gmag_mirror
SOC_EMAIL="jimm@ssl.berkeley.edu pcruce@igpp.ucla.edu jwl@ssl.berkeley.edu lphilpott@igpp.ucla.edu"

from [2] ATHA_MIRROR_HOME=${THEMISDATA}/thg/mirrors/mag/uatha_rmd
LOGDIR=${THEMISDATA}/process_logs/gbo
LOGFILE=${LOGDIR}/GBO_ATHA_RMD_MIRROR_Log$(date '+%y%m%d')
RSLOGFILE=${LOGDIR}/RSYNC_GBO_ATHA_RMD_MIRROR_Log$(date '+%y%m%d')
REMOTE_SERVER_NAME="themis@131.232.13.43:/autumndp/L0/"
RSYNC_OPTIONS="-az --port=8873 --log-format=\"%i|%n|%t|%l\" --stats"

**gbo_atha_rmd_mirror.ksh** uses the program rsync to connect to the UAthabasca server and download new or updated files. A list of downloaded files is written to

**${GMAGMIRROR}/ATH_RMDdirs$$**

for downstream L2 product creation.

### 4.7.3 Products and Storage

The data recovered from Athabasca is in RMD format. The file naming convention is:

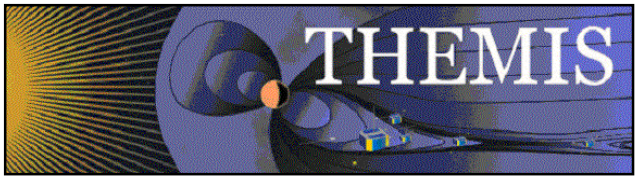
**[SITE]YYYYMMDD_MAG_HH_MM.RMD**

where [SITE] = {LARG, LETH, ROTH, REDR}.
The files are stored locally at:

**/disks/themisdata/thg/mirrors/mag/uatha_rmd/[site]/YYYY/MM/DD/.**

### 4.7.4 Process Logs

**/disks/themisdata/process_logs/gbo/GBO_ATHA_RMD_MIRROR_LogYYMMDD**



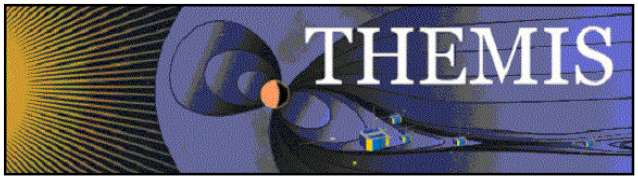
**/disks/themisdata/process_logs/gbo/RSYNC_GBO_ATHA_RMD_MIRROR_LogYYMMDD**
NB: rsync log files older than 10 days are removed by rsync_gbo_cleanup.ksh.

### 4.7.5 Database Information

The database **gbo_uatha_rmd_mirror** is found on the DB MySQL server on astraea. It contains tables for each station (**gbo_[site]_rmdfiles**) listing the gmag files collected for each. There is also a table listing rsync statistics. Note that this database was setup in September 2011 so earlier rsync statistics are not captured.

### 4.7.6 Web Information

Status on the latest collected files can be found at:
http://themis.ssl.berkeley.edu/data_processing_check/ground_data_mirrors/autumn_ucla_gmag_table.php




## *4.8 Ground Magnetometer (GMAG) Data Collection – Greenland/Denmark/Norway*

### 4.8.1 Description

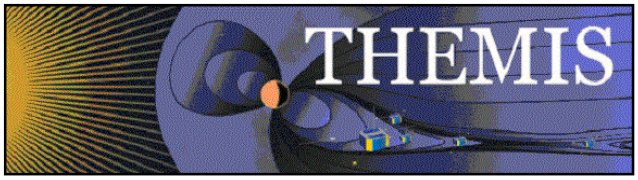
Data from magnetometers in the DTU (Technical University of Denmark) and TGO (Tromsø Geophysical Observatory) networks is retrieved from TGO.
For information on these networks see:
TGO:
http://geo.phys.uit.no/
DTU:
Point of contact:
Claudia Stolle cst_at_space.dtu.dk
Website:
http://www.space.dtu.dk/English/Research/Scientific_data_and_models/Magnetic_Ground_Stations.aspx

Note:

1. TGO data is available in 10 sec or 1 min resolution. DTU data is available only in 1 min resolution (if 10 sec data is requested, the resulting data is generated from the 1 min data). The current script downloads 1 min data for both TGO and DTU as there have not been any specific requests for 10 sec TGO data. If the resolution downloaded is changed in the future, changes are needed in a number of places in download and processing to cdf as the file names are given suffix .min for min resolution.
2. **Uncalibrated** 1 sec data from DTU is being made available gradually. See ftp://ftp.spacecenter.dk/data/Ground_magnetometers/Adjusted/ for this data. This data is in geographic coordinates.
3. Data can be downloaded from the Tromsø website in DHZ, XYZ geographic, or XYZ sensor (also referred to as HEZ) coordinates.
4. In DHZ D is the declination measured in minutes of arc (not degrees) from geographic north, H is the strength of the field in the horizontal plane measured in nT, Z is the field strength in the vertical direction. The XY geographic values are effectively: X = H cos(D/60), Y = H sin(D/60) (arguments in degrees).
   The sensor XYZ (or XYZ(2) on the webform) data is uncalibrated raw sensor output. The XYZ sensor values give the **variation** of the field in the X (local magnetic north), Y (local magnetic east), and Z (vertical) directions. The following information is from Claudia Stolle and Jürgen Matzka at DTU:
   > Sensor XYZ has the following disadvantages, which for many applications are not critical:
   > -The numbers represent only variations of the field determined from an arbitrary level
   > -The scale values are not always exactly nT but might deviate by typically 3 %.
   > -The direction of H and D can be wrong by several degrees.
   > If you want to achieve the optimum data quality, you should use from Tromsø or from our ftp site data in XYZ geographic and then rotate the XY by the local geomagnetic declination found from a field model.

   Truls Hansen at TGO additionally points out that some of the TGO sites have DIF rather than DHZ sensor orientation. This could cause confusion.

   The current script downloads data in XYZ sensor coordinates. This system does not precisely match the THEMIS HDZ convention, as THEMIS HDZ records the absolute value in the mean magnetic north, east and vertical directions. It is likely that in the future the system will be changed to download data in XYZ geographic coordinates.




### 4.8.2 Main Scripts/Programs

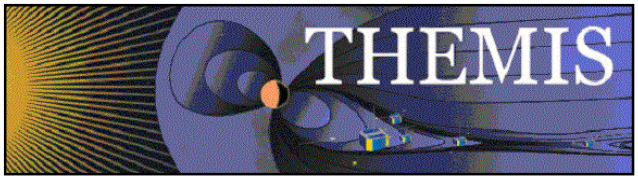
A cronjob on gaia launches the script
**/disks/socware/thmsoc_dp_current/src/ksh/call_wget_green_gmag.ksh,**
which loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/wget_green_gmag.config**
defining the environment variables
from [1] CONFIGDIR=${THMSOC}/src/config
from [2] DAYSTOCHECK=10
DAYSOFLAG=1.
This script loops through days beginning DAYSTOCHECK+DAYSOFLAG days ago for DAYSTOCHECK number of days.

For each date the script loops through the sites listed in
**/disks/socware/thmsoc_dp_current/src/config/green_site_list_new.txt**
calling the script
**/disks/socware/thmsoc_dp_current/src/ksh/wget_green_gmag.ksh,**
which loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2]/disks/socware/thmsoc_dp_current/src/config/wget_green_gmag.config,**
defining the environment variables
from [1] THEMISDATA="/disks/themisdata"
LOGDIR=${THEMISDATA}/process_logs
WORKDIR=${THEMISDATA}/workdir
from [2] WEBSITE="http://flux.phys.uit.no/cgi-bin/mkascii.cgi"
WEBOPTS="res=1min\&pwd=NewAsc56\&format=iagaUnix\&comps=DHZ\&getdata=+Get+Data+"
LOCALWEBMIRROR ="${THEMISDATA}/thg/mirrors/mag/greenland_ascii/flux.phys.uit.no"
GMAGWORKDIR="${WORKDIR}/greenMag2Do".
The script runs /usr/bin/wget to retrieve files from the TGO website. Retrieved files are renamed
green_SITE_YYYYMMDD_min.min,
and saved in
$LOCALWEBMIRROR/SITE/YYYY/MM,
and copied to
$GMAGWORKDIR
for downstream processing.

### 4.8.3 Products and Storage

The files are retrieved from TGO as 'unix' format and named with file name convention
**green_{SITE}_YYYYMMDD_min.min**
(filenames almost conform to IAGA2002 standards, original name of file as downloaded is the last part of the web address for the file and thus not suitable).
**NB:** SITE here is a 5 character alphanumeric code that begins with the three letter station code (the short and long codes can be found in green_site_list_new.txt). The final two characters for each station can change, so if there is a failure to retrieve data from a site the code should be checked by manually retrieving data using the webform: http://flux.phys.uit.no/ascii/ (settings for this form are found in the WEBOPTS variable listed above).
The files contain ASCII IAGA2002 formatted data except where a query has failed, in which case the html file may display for example "Cannot open datafile ?? No data".

These files are stored locally at



**/disks/themisdata/thg/mirrors/mag/greenland_ascii/flux.phys.uit.no/SITE/YYYY/MM**

### 4.8.4 Process Logs

**/disks/themisdata/process_logs/webdownloads/green_gmag_log_${processdate}**
**/disks/themisdata/process_logs/webdownloads/wget_output_green_gmag_${processdate}_${site}**

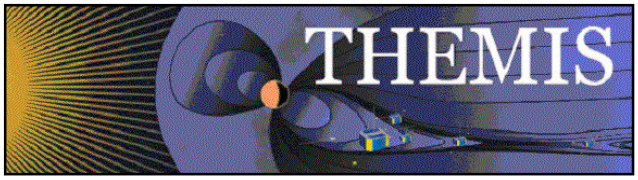
**NB:** The webdownloads directory is periodically cleaned out by the script
**/disks/socware/thmsoc_dp_current/src/ksh/gmag_webdownloads_cleanup.ksh**

### 4.8.5 Database Information

None.
**NB:** There is a table greenland_nrsq_gmag in the database web_downloads. This table was used when the site NRSQ/NAQ was retrieved via a different process. It is no longer in use.

### 4.8.6 Web Information

None.




## *4.9 Ground Magnetometer (GMAG) Data Collection – INTERMAGNET*

### 4.9.1 Description

Data from different magnetometer networks made available through INTERMAGNET is downloaded via ftp. The current sites retrieved from INTERMAGNET are:

ABK (Abisko, Sweden)

This site is run by the Geological Survey of Sweden. It is one of the sites used to generate the Kyoto AE indices.
The current data available is 1 min resolution, 1 sec resolution may become available in the future.
Website: http://www.sgu.se/sgu/eng/geol_kartering/geomagn_dok/index.html
Contact name: Gerhard Schwarz gerhard.schwarz@sgu.se

FCC (Fort Churchill, Canada), YKC (Yellowknife, Canada)

These two sites are run by NRCan (Natural Resources Canada/Geological Survey of Canada). They are also used in the generation of the Kyoto AE indices.
1 sec resolution data is available.
Website: http://gsc.nrcan.gc.ca/geomag/data/index_e.php
Contact names: David Calp david.calp@nrcan-rncan.gc.ca , Jennifer Parmelee Jennifer.parmelee@nrcan-rncan.gc.ca
David Calp is the first point of contact and is listed as the PI in the FCC and YKC cdfs.
His full details are:

David Calp
Physical Scientist, Geomagnetism
Natural Resources Canada
Canadian Hazards Information Service
Telephone: 613-837-1757
Fax: 613-824-9803
Email: David.Calp@nrcan.gc.ca

Any use of the FCC and YKC data should include the following acknowledgment:

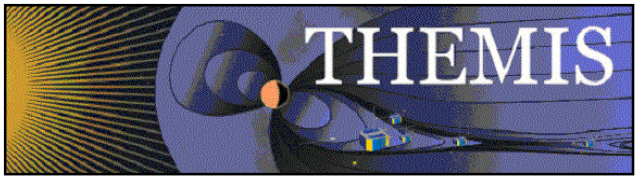
The Canadian Magnetic Observatory Network (CANMON), maintained and operated by the Geological Survey of Canada, provided the data used in this study - http://www.geomag.nrcan.gc.ca.

The following rules of use apply:

Geomagnetic data are provided for your use and are not for sale or distribution by you to third parties, without the express written permission of the Geological Survey of Canada (GSC). Any report or publication that makes use of these data should acknowledge the Geological Survey of Canada as the source. One copy of each report or publication should be sent to the GSC.

We ask that the data not be used for commercial purposes, nor in any project in which you, your organization, or your collaborators are in a commercial agreement with any third party. Commercial users may contact the Geological Survey of Canada at the address below:

Geomagnetic Laboratory
Geological Survey of Canada
Natural Resources Canada
7 Observatory Crescent
Ottawa, ON
Canada
K1A 0Y3




Phone: 613-837-4241
Fax: 613-824-9803
Website: http://www.geomag.nrcan.gc.ca.

Note:

1. Permission must be obtained from the relevant institute before data from any other sites is mirrored from INTERMAGNET.
2. There are multiple datatypes available through INTERMAGNET: variation, provisional, quasi-definitive, definitive. The scripts download variation data as there is a delay before definitive data is produced and shipped to INTERMAGNET. Definitive data was downloaded for 2009 and earlier. To download definitive (or other data) have a copy of the script call a modified version of intermagnet_site_list.txt.
3. The contact for INTERMAGNET was Jennifer Parmelee (NRCan) above, now Charles Blais chblais_at_nrcan.gc.ca or Randy Shaughnessy rshaugn_at_nrcan.gc.ca.
4. The current sites downloaded through INTERMAGNET provide data in geographic XYZ coordinates. The data is converted to HDZ in the processing to CDF (as of April 2012).

### 4.9.2 Main Scripts/Programs

A cronjob on gaia launches the script

**/disks/socware/thmsoc_dp_current/src/ksh/call_wget_intermagnet_gmag.ksh,**

which loads the configuration file

**/disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config,**

defining the environment variable

CONFIGDIR=${THMSOC}/src/config.

The script reads the gmag site, datatype, and resolution to download from the file

**/disks/socware/thmsoc_dp_current/src/config/intermagnet_site_list.txt,**

and calls the script

**/disks/socware/thmsoc_dp_current/src/ksh/wget_intermagnet_gmag.ksh**

for each site and the current and previous month.

The script **wget_intermagnet_gmag.ksh** loads the configuration files

**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**

**[2] /disks/socware/thmsoc_dp_current/src/config/wget_intermagnet_gmag.config,**

defining the environment variables

from [1] THEMISDATA="/disks/themisdata"
LOGDIR=${THEMISDATA}/process_logs
PHP_SCRIPTS=${THMSOC}/src/php

from [2] WEBSITE=ftp://ftp.intermagnet.org
LOCALWEBMIRROR="${THEMISDATA}/thg/mirrors/mag/intermagnet_ascii"
GMAGWORKDIR="${WORKDIR}/intermagnet2do".

wget_intermagnet_gmag.ksh calls **/usr/bin/wget** to download new or updated gmag files from the ftp site. Information on the downloaded files is written to the database on astraea by the script

**/disks/socware/thmsoc_dp_current/src/php/wget_intermagnet_gmag.php.**

A copy of the downloaded file is placed in the directory

**/disks/themisdata/workdir/intermagnet2do**

for downstream processing to CDF.

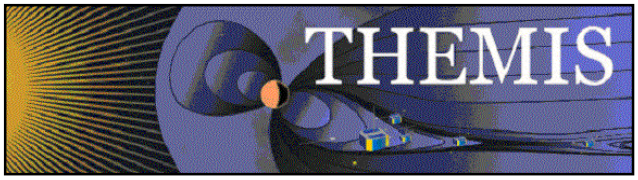
### 4.9.3 Products and Storage

Downloaded data files are stored at

**/disks/themisdata/thg/mirrors/mag/intermagnet_ascii/SITE/YYYY/MM**

and follow file naming convention

SITEYYYYM MDDvRES.RES




where SITE is the three letter code for the site, RES is either sec or min e.g. abk20110101vmin.min.
NB: Some files are downloaded in gzipped form.

### 4.9.4 Process Logs

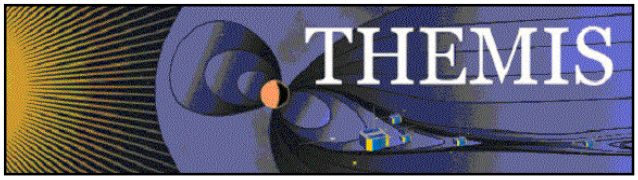
**/disks/themisdata/process_logs/webdownloads/intermagnet_gmag_log_YYMMDD**
**/disks/themisdata/process_logs/webdownloads/wget_output_intermagnet_gmag_YYMMDD_SITE_$$**

### 4.9.5 Database Information

Information on the downloaded files is stored in the table intermagnet_gmag in the database web_downloads on astraea.

### 4.9.6 Web Information

None as yet.




## *4.10 Ground Magnetometer (GMAG) Data Collection – US Geological Survey*

### 4.10.1 Description

Data from USGS sites is downloaded using wget.
As of December 2011 the only USGS site we are retrieving is Barrow (BRW), as it is one of those used in to generate the Kyoto AE indices. The data downloaded is 1 second resolution raw (variation) data, in IAGA2002 format.

Website: http://geomag.usgs.gov/
Contact: Duff Stewart dcstewart_at_usgs.gov

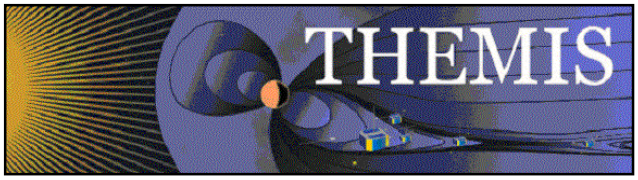
Note:

1. Data prior to October 2011 was made available in zipped monthly files at the ftp site ftp://hazards.cr.usgs.gov/Geomag/OneSecData/BRW1sec/
   This data is in a slightly different format, either .raw or .Sec files. The components listed are H, E, Z, where H is the raw value in the local magnetic north direction, E is the value in the local magnetic east direction, and Z is the value in the vertical north direction. The .raw files are give data in units of 0.001nT, the .Sec files in units of 0.01nT. All data written to cdf is in units of nT.
2. The IAGA2002 data is in HDZ coordinates. For variation data H and Z are again the values in local magnetic north and vertical directions. D is the raw declination in minutes calculated from E (value in east direction) using the approximate equation D = 3437.7468 E/H (~arctan(E/H)). (Data recorded in CDF is H E Z corresponding to the THEMIS HDZ system).
3. Duff Stewart also supplied the following useful information:
   a. Difference between the recorded "H" and the true Horizontal field:
      Note that although the H sensor detects most of the horizontal field, the true total horizontal field is the vector sum of the H and E values: Htotal = SQRT( H^2 + E^2), the contribution of E is usually negligible for low-latitude observatories but can be significant for high latitudes like BRW.
   b. Difference between the recorded "D" and the true declination: Because the H and E sensors are aligned to magnetic (rather than geographic) north/south and east/west, the recorded "D" represents the variation of declination angle rather than the total declination. The total declination is the recorded D plus a baseline: Dtotal = D + Dbaseline, where Dbaseline is the approximate geographic declination angle at the observatory's location.

### 4.10.2 Main Scripts/Programs

A cronjob on gaia2 launches the script
**/disks/socware/thmsoc_dp_current/src/ksh/call_wget_usgs_gmag.ksh,**
which loads the configuration file
**/disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config,**
defining the environment variable
CONFIGDIR=${THMSOC}/src/config.
The script calls the script
**/disks/socware/thmsoc_dp_current/src/ksh/wget_usgs_gmag.ksh**
for each site and the current and previous month.

The script **wget_usgs_gmag.ksh** loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**




**[2] /disks/socware/thmsoc_dp_current/src/config/wget_usgs_gmag.config,**
defining the environment variables
from [1] THEMISDATA="/disks/themisdata"
LOGDIR=${THEMISDATA}/process_logs
PHP_SCRIPTS=${THMSOC}/src/php
from [2] WEBSITE= http://geomag.usgs.gov/data/magnetometer/
LOCALWEBMIRROR="${THEMISDATA}/thg/mirrors/mag/usgs_ascii"
GMAGWORKDIR="${WORKDIR}/usgs2do".
wget_usgs_gmag.ksh calls **/usr/bin/wget** to download new or updated gmag files from the ftp site. Information on the downloaded files is written to the database on astraea by the script
**/disks/socware/thmsoc_dp_current/src/php/wget_usgs_gmag.php.**
A copy of the downloaded file is placed in the directory
**/disks/themisdata/workdir/usgs2do**
for downstream processing to CDF.

### 4.10.3 Products and Storage

Downloaded data files are stored at
**/disks/themisdata/thg/mirrors/mag/usgs_ascii/SITE/YYYY/MM**
and follow file naming convention
SITEYYYYM MDDvsec.sec
where SITE is the three letter code for the site, e.g. brw20110101vsec.sec

### 4.10.4 Process Logs

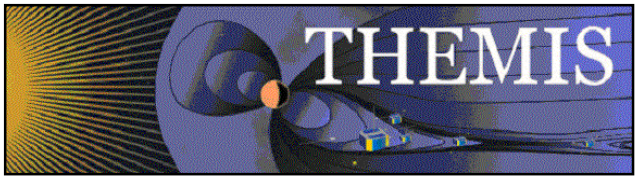
**/disks/themisdata/process_logs/webdownloads/usgs_gmag_log_YYMMDD**
**/disks/themisdata/process_logs/webdownloads/wget_output_usgs_gmag_YYMMDD_SITE_$$**

### 4.10.5 Database Information

Information on the downloaded files is stored in the table usgs_gmag in the database web_downloads on astraea.

### 4.10.6 Web Information

None as yet.




## *4.11 Ground Magnetometer (GMAG) Data Collection – Antarctic sites (PENGUIN)*

### 4.11.1 Description

Data from the Antarctic magnetometers PG1 and PG2 is downloaded using wget.
At the request of the providers, data from the Antarctic gmags has been included in the THEMIS database for use with TDAS. The data is provided to us as CDFs that should be compliant with TDAS. The coordinate system matches the THEMIS HDZ coordinates (local magnetic north, east, vertical).
All data is 1 second raw magnetometer telemetry.

Data can be browsed at http://mist.nianet.org/CDFdata/, or accessed via ftp at mist.nianet.org (port 21, username THEMIS, password Angelopoulos), or via WebDAV ftp interface at mist.nianet.org:8080 (same username and password).

Although no processing to CDF is required, a processing script is used to generate ASCII files of the data (consistent with the other gmag data that TDAS stores). See Section 4.20 for information on the processing script.

Contact names (at Virginia Tech):

Bob Clauer rclauer_at_vt.edu (General information/requests)
Daniel Weimer dweimer_at_vt.edu (Data availability/format - responsible for producing CDFs)

### 4.11.2 Main Scripts/Programs

A cronjob on gaia2 launches the script

**/disks/socware/thmsoc_dp_current/src/ksh/call_wget_antarctic_gmag.ksh,**

which loads the configuration file

**/disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config,**

defining the environment variable

CONFIGDIR=${THMSOC}/src/config.

The script calls the script

**/disks/socware/thmsoc_dp_current/src/ksh/wget_antarctic_gmag.ksh**

for each site (PG1 and PG2) for the current year. The script is also called for the previous year if the current month is January. Note that the scripts are called for the full year simply because the data is organized only by year and not by month.

The script **wget_antarctic_gmag.ksh** loads the configuration files

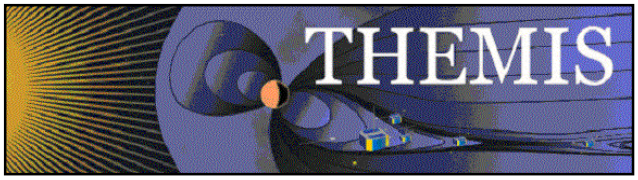
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/wget_antarctic_gmag.config,**

defining the environment variables

from [1] THEMISDATA="/disks/themisdata"
LOGDIR=${THEMISDATA}/process_logs
PHP_SCRIPTS=${THMSOC}/src/php
from [2] WEBSITE= “ftp://mist.nianet.org/CDF”
GMAGWORKDIR="${WORKDIR}/antarctic2do"
TEMPDIR="${WORKDIR}/temp_dir/antarctic_temp"
L2MAGDIR=${THEMISDATA}/thg/l2/mag.

wget_antarctic_gmag.ksh calls **/usr/bin/wget** to download new or updated gmag CDF files from the ftp site. Information on the downloaded files is written to the database on astraea by the script

**/disks/socware/thmsoc_dp_current/src/php/gmag_cdf.php.**




A copy of the downloaded file is placed in the directory
**/disks/themisdata/workdir/antarctic2do**
for downstream processing to ASCII.

### 4.11.3 Products and Storage

Downloaded data files are stored in the same location as standard gmag cdf files
**/disks/themisdata/thg/l2/mag/SITE/YYYY/**
and follow the standard file naming convention
thg_l2_mag_SITE_YYYYMMDD_v01.cdf
where SITE is the three letter code for the site: pg1 or pg2.

### 4.11.4 Process Logs

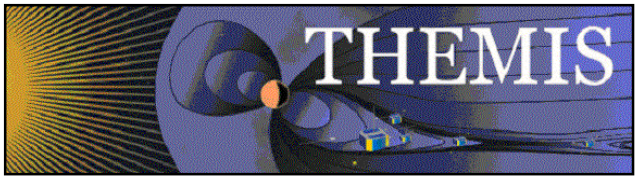
**/disks/themisdata/process_logs/webdownloads/antarctic_gmag_log_YYMMDD**
**/disks/themisdata/process_logs/webdownloads/wget_output_antarctic_gmag_YYMMDD_SITE_$$**

### 4.11.5 Database Information

Information on the downloaded files is stored in the database gmag_cdf on astraea2, in tables gbo_PG1_cdffiles and gbo_PG2_cdffiles.

### 4.11.6 Web Information

The sites PG1 and PG2 will be included in the table at
http://themis.ssl.berkeley.edu/data_processing_check/ground_data_processing/gmag_cdf_table.php.




## *4.12 Ground Magnetometer (GMAG) Data Collection – Monitor*

### 4.12.1 Description

Monitor the reception of GMAG data from all external sites and notify ops personnel when data is not being received.

### 4.12.2 Main Scripts/Programs

A cronjob on gaia launches the following script ***(disabled 25 Sep 09)***:

**/disks/socware/thmsoc_dp_current/src/ksh/chk4late_gmag.ksh**

Additional scripts:

**/disks/socware/thmsoc_dp_current/src/php/get_last_filetime.php** – Checks the various databases for the time of last file received. Notifies ops personnel if time limits are exceeded.

### 4.12.3 Products and Storage

None.

### 4.12.4 Process Logs

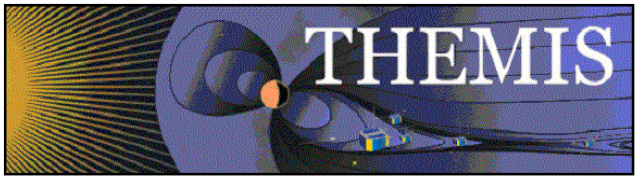
None.

### 4.12.5 Database Information

The various databases on the DP MySQL server that store gmag collection information are queried for the time of the last file received. For particular databases, check the collection sections of this document.

### 4.12.6 Web Information

None.




## *4.13 Ground Magnetometer (GMAG) Data – Convert Raw GBO Data to Level 2 (L2) CDF Data Product*

### 4.13.1 Description

The raw GBO GMAG data is converted into calibrated physical units and stored in CDF format. The CDF files are stored on the DP server and are available for download via http.

Note: Data is occasionally retrieved from Calgary for the BERK magnetometer. This data comes from testing and trouble shooting at Berkeley. When this data is downloaded it may result in a warning message from the processing scripts as no calibration file is available. This data does not need to be processed to CDF so these warnings can be ignored.

### 4.13.2 Main Scripts/Programs

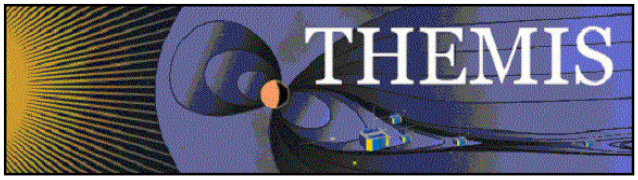
A cronjob on auxo launches the following script:

**/disks/socware/thmsoc_dp_current/src/ksh/ucla_rmd2all.ksh,**
which loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/ucla_rmd2all.config,**
defining the environment variables
from [1] WORKDIR=${THEMISDATA}/workdir
GMAGMIRROR=${WORKDIR}/gmag_mirror
SOC_EMAIL="jimm@ssl.berkeley.edu pcruce@igpp.ucla.edu jwl@ssl.berkeley.edu lphilpott@igpp.ucla.edu"
from [2] LOGDIR=/disks/themisdata/process_logs/ucla_rmd2all
LOGFILE=${LOGDIR}/UCLA_RMD2ALL_Log$(date '+%y%m%d')
EPO_MIRROR_HOME=/disks/themisdata/thg/mirrors/mag/ucla_rmd
ATHA_MIRROR_HOME=/disks/themisdata/thg/mirrors/mag/uatha_rmd
GBO_MIRROR_HOME=/disks/themisdata/thg/mirrors/mag/ucalgary_rmd
TABLE_FILES_DIR=/home/thmsoc/software_dev/c_prog/UCLA_Cal
UCB_FLAT_HOME=/disks/themisdata/thg/l1/mag
RMD2FFPATH=/home/thmsoc/software_dev/c_prog/leel_rmd_noleap/code
FFMERGEPATH=/home/thmsoc/software_dev/c_prog/ffmerge/bundle
KSHSCRIPTS=/home/thmsoc/software_dev/ksh.

This script checks the directory **/disks/themisdata/workdir/gmag_mirror** for files like **GBO_RMDdir***, **EPO_RMDdir***, and **ATH_RMDdir*,** which contain information on the station and date of the raw data to process into CDF (Level 2) products. The script checks whether a calibration file exists for each site at
${TABLE_FILES_DIR}/${site}.txt.

The program
**/home/thmsoc/software_dev/c_prog/leel_rmd_noleap/code/RMD2FF**
is called on each RMD file. This is UCLA supplied C-code that has been compiled for Solaris only (which is why this is running on auxo). This code converts the raw RMD file into an intermediate “Flat File” format, also using the calibration file.

Resulting hourly flat files are merged into a single flat file for each day using the program
**/home/thmsoc/software_dev/c_prog/ffmerge/bundle/ffmergesungnucmp**




(more UCLA supplied C-code to merge the hourly Flat Files created by the RMD2FF program). The daily flat files are stored at

**/disks/themisdata/thg/l1/mag/[SITE]/YYYY/**

with filename

**BYYDOY_[SITE}.ffd** and **BYYDOY_[SITE].ffh.**

The script

**${KSHSCRIPTS}/date2doy**

is called to convert the dates in the filename from format YYMMDD to YYDOY.

**ucla_rmd2all.ksh** then calls the script

**/disks/socware/thmsoc_dp_current/src/ksh/ucla_flat2cdf.ksh,**

which loads the configuration files

**[1] /disks/socware/thmsoc_dp_current/src/config/setup_themis_UCLA.borne**
**[2] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[3] /disks/socware/thmsoc_dp_current/src/config/ucla_rmd2all.config,**

defining the environment variables

from [1] THEMIS_DATA_DIR=/disks/themisdata/
IDL_BASE_DIR=$THMSOC/idl
IDL_EXTERNAL_DIR=${IDL_BASE_DIR}/external
IDL_UCLA_FF_DIR=$THMSOC/idl/thmsoc/ucla_ff
IDL_DIR=/disks/apollo/export/idl_${idl_level}
IDL_PATH=\+${IDL_DIR}/lib
IDL_PATH=$IDL_PATH':'+$IDL_EXTERNAL_DIR ;
IDL_PATH=$IDL_PATH':'+$IDL_UCLA_FF_DIR
IDL_STARTUP=cdf_startup.pro
IDL_DEVICE=Z

from [2] SOC_EMAIL="jimm@ssl.berkeley.edu pcruce@igpp.ucla.edu jwl@ssl.berkeley.edu lphilpott@igpp.ucla.edu"
WORKDIR=${THEMISDATA}/workdir
WORKMAGSTACKS=${WORKDIR}/magStacks2Do

from [3] UCB_FLAT_HOME=/disks/themisdata/thg/l1/mag
DATA_ROOT=/disks/themisdata
L2MAGDIR=${DATA_ROOT}/thg/l2/mag
CDFMASTERS=${THMSOC}/src/mastercdfs/thg/
KSHSCRIPTS=/home/thmsoc/software_dev/ksh.
LOGFILE=${LOGDIR}/UCLA_RMD2ALL_Log$(date '+%y%m%d')

**ucla_flat2cdf.ksh** runs the IDL routine **uff2cdf** to convert Flat Files to CDF Level 2 data products. This IDL routine also makes use of the mastercdfs located at

${CDFMASTERS}/thg_l2_mag_[SITE]*,

and copied to

${L2MAGDIR}/garage/mastercdfs

for processing.

Resulting CDFS are copied to the directory

${L2MAGDIR}/[SITE]/YYYY

with filenames

thg_l2_mag_[SITE]_YYYYMMDD_v01.cdf.

The script

**${KSH_SCRIPTS}/fileChkSum.ksh**

is used to update the checksum file.

The date of the processed file is copied to a file

${WORKMAGSTACKS}/stack_YYYYMMDD_*

for downstream stackplot production.

The php script

**gmag_cdf.php**

is run to update the DP MySQL database with process results information.

**ucla_rmd2all.ksh** then calls the script

**/disks/socware/thmsoc_dp_current/src/ksh/ucla_flat2ascii.ksh,**

which loads the configuration files

**[1] /disks/socware/thmsoc_dp_current/src/config/setup_themis_UCLA.borne**
**[2] /disks/socware/thmsoc_dp_current/src/config/ucla_rmd2all.config**
**[3] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config,**

defining the environment variables

from [1] THEMIS_DATA_DIR=/disks/themisdata/
IDL_BASE_DIR=$THMSOC/idl
IDL_EXTERNAL_DIR=${IDL_BASE_DIR}/external
IDL_UCLA_FF_DIR=$THMSOC/idl/thmsoc/ucla_ff
IDL_DIR=/disks/apollo/export/idl_${idl_level}
IDL_PATH=\+${IDL_DIR}/lib
IDL_PATH=$IDL_PATH':'+$IDL_EXTERNAL_DIR ;
IDL_PATH=$IDL_PATH':'+$IDL_UCLA_FF_DIR
IDL_STARTUP=cdf_startup.pro
IDL_DEVICE=Z

from [2] UCB_FLAT_HOME=/disks/themisdata/thg/l1/mag
DATA_ROOT=/disks/themisdata
ASCIIMAGDIR=${DATA_ROOT}/thg/ascii_data/mag
LOGFILE=${LOGDIR}/UCLA_RMD2ALL_Log$(date '+%y%m%d')

from [3] SOC_EMAIL="jimm@ssl.berkeley.edu pcruce@igpp.ucla.edu jwl@ssl.berkeley.edu lphilpott@igpp.ucla.edu"
KSH_SCRIPTS=${THMSOC}/src/ksh.

**ucla_flat2ascii.ksh** runs the IDL routine **uff2asc** to convert Flat Files to ASCII formatted Level 2 data products. Resulting ASCII files are saved to

${ASCIIMAGDIR}/[SITE]/YYYY

with filenames

thg_l2_mag_[SITE]_YYYYMMDD_v01.txt.

The script

**${KSH_SCRIPTS}/fileChkSum.ksh**

is run to update the checksum file.

**uclaflat2ascii.ksh** also calls the php script

**gmag_ascii.php**

to update the DP MySQL database with process results information.

If reprocessing of specific stations and dates is required, use the following script:

**/disks/socware/thmsoc_dp_current/src/ksh/ucla_rmd2all_regen.ksh**

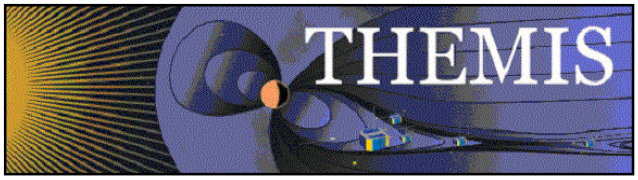
### 4.13.3 Products and Storage

The Flat File naming convention takes the following form:

**BYYDDD_[SITE].ffd**

where SITE = BMLS, CCNV, CHBG, DRBY, EKAT, FYTS, GBAY, HOTS, INUV, KAPU, KIAN, KUUJ, LARG, LETH, LOYS, MCGR, PGEO, PINE, PTRS, REDR, RMUS, ROTH, SNAP, SWNO, TPAS, UKIA, WHIT, YKNF.

These files are stored at:




**/disks/themisdata/thg/l1/mag/[site]/YYYY**

The CDF File naming convention takes the form:

**thg_l2_mag_[site]_YYYYMMDD_vnn.cdf**

These files are stored at:

**/disks/themisdata/thg/l2/mag/[site]/YYYY**

The ASCII File naming convention takes the form:

**thg_l2_mag_[site]_YYYYMMDD_vnn.txt**

These files are stored at:

**/disks/themisdata/thg/ascii_data/mag/[site]/YYYY**

### 4.13.4 Process Logs

Logfiles for the process are at
**/disks/themisdata/process_logs/ucla_rmd2all/ UCLA_RMD2ALL_LogYYMMDD***

### 4.13.5 Database Information

Databases **gmag_cdf_files** and **gmag_ascii_files** on the DP MySQL server contain tables for each site **epo_[site]_cdffiles** (**epo_[site]_asciifiles**) or **gbo_[site]_cdffiles** (**gbo_[site]_asciifiles**), containing information on each CDF and ASCII file created.

### 4.13.6 Web Information

Status on the latest processed files can be found at:

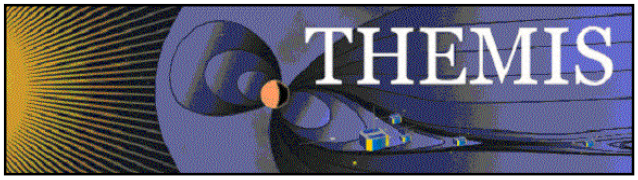
http://themis.ssl.berkeley.edu/data_processing_check/ground_data_processing/gmag_ascii_table.php

and

http://themis.ssl.berkeley.edu/data_processing_check/ground_data_processing/gmag_cdf_table.php

A full inventory of CDF files can be created can be found at:

http://themis.ssl.berkeley.edu/data_inventory/ground_data/mag/gmag_cdf_list.txt




## *4.14 Ground Magnetometer (GMAG) Data – Convert CARISMA ASCII to Level 2 Data Product*

### 4.14.1 Description

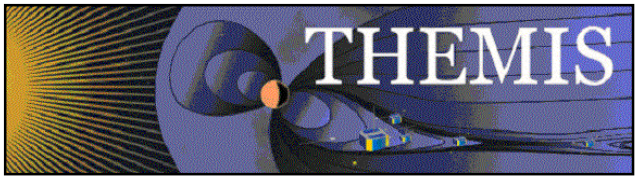
The CARISMA ASCII data is converted into CDF format. The CDF files are stored on the DP server and are available for download via http.

### 4.14.2 Main Scripts/Programs

A cronjob on astraea launches the following script:

**/disks/socware/thmsoc_dp_current/src/ksh/call_candat_ascii2all.ksh,**
which loads the configuration file
**/disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config,**
defining the environment variables
WORKDIR=${THEMISDATA}/workdir
GMAGMIRROR=${WORKDIR}/gmag_mirror.
**call_candat_ascii2all.ksh** calls the script
**/disks/socware/thmsoc_dp_current/src/ksh/candat_ascii2all.ksh**
for each site and date listed in
$GMAGMIRROR/CAN_ASCfiles*.

The script **candat_ascii2all.ksh** loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/setup_themis.bourne**
**[3] /disks/socware/thmsoc_dp_current/src/config/ucla_rmd2all.config**
**[4] /disks/socware/thmsoc_dp_current/src/config/candat_ascii2all.config,**
defining the environment variables
from [1] CONFIGDIR=${THMSOC}/src/config
SOC_EMAIL="jimm@ssl.berkeley.edu pcruce@igpp.ucla.edu jwl@ssl.berkeley.edu lphilpott@igpp.ucla.edu"
KSH_SCRIPTS=${THMSOC}/src/ksh
WORKMAGSTACKS=${WORKDIR}/magStacks2Do
from [2] THEMIS_DATA_DIR=/disks/themisdata/
IDL_BASE_DIR=$THMSOC/idl
IDL_GENERAL_SSL_DIR=${IDL_BASE_DIR}/ssl_general
IDL_THEMIS_DIR=${IDL_BASE_DIR}/themis
IDL_EXTERNAL_DIR=${IDL_BASE_DIR}/external
IDL_THMSOC_DIR=${IDL_BASE_DIR}/thmsoc
IDL_DIR=/disks/apollo/export/idl_${idl_level}
IDL_PATH=\+${IDL_DIR}/lib
IDL_PATH=$IDL_PATH':'+$IDL_GENERAL_SSL_DIR
IDL_PATH=$IDL_PATH':'+$IDL_THEMIS_DIR
IDL_PATH=$IDL_PATH':'+$IDL_EXTERNAL_DIR
IDL_PATH=$IDL_PATH':'+$IDL_THMSOC_DIR
IDL_STARTUP=idl_startup.pro
IDL_DEVICE=Z
from [3] DATA_ROOT=/disks/themisdata
L2MAGDIR=${DATA_ROOT}/thg/l2/mag
ASCIIMAGDIR=${DATA_ROOT}/thg/ascii_data/mag
from [4] UALOGDIR=/disks/themisdata/process_logs/gbo/carisma_gmag



```
LOGFILE=${UALOGDIR}/carisma_cdf_log_$(date '+%y%m%d')
UCB_MIRROR_HOME=/disks/themisdata/thg/mirrors/mag/ualberta_ascii
CDFMASTERS=$THMSOC/src/mastercdfs/thg/.
IDL_UALBERTA_ASCII_DIR=$THMSOC/idl/thmsoc/ualberta_ascii
IDL_PATH=$IDL_PATH':'+$IDL_UALBERTA_ASCII_DIR
```

**candat_ascii2all.ksh** runs the IDL procedure **make_canadian_gbo_cdf2** to produce a CDF and a txt file.
The CDFs are copied to the directory
${L2MAGDIR}/[SITE]/YYYY,
the txt files are copied to the directory
${ASCIIMAGDIR}/[SITE]/YYYY.
The script
**${KSH_SCRIPTS}/fileChkSum.ksh**
is run to update the checksum files.
The date of the created file is copied to a file
${WORKMAGSTACKS}/stack_YYYYMMDD_*
for downstream stack plot production.
Finally, the php scripts **gmag_cdf.php** and **gmag_ascii.php** are called to update the DP MySQL database with the process results information.

### 4.14.3 Products and Storage

The CDF File naming convention takes the form:

**thg_l2_mag_[site]_YYYYMMDD_vnn.cdf**
where site = atha, fsim, fsmi, gill, pina, rank, snkq.

These files are stored at:

**/disks/themisdata/thg/l2/mag/[site]/YYYY**

The unzipped ASCII txt files with file names
**thg_l2_mag_[site]_YYYYMMDD_vnn.txt**
are stored at:
**/disks/themisdata/thg/ascii_data/mag/[site]/YYYY.**

### 4.14.4 Process Logs

Log files for this process take the form:

**/disks/themisdata/process_logs/gbo/carisma_gmag/carisma_cdf_log_YYMMDD**
**/disks/themisdata/process_logs/gbo/carisma_gmag/carisma_idlout_YYMMDD_***

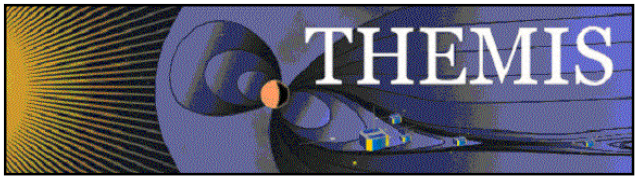
### 4.14.5 Database Information

Database **gmag_cdf_files** (**gmag_ascii_files**) on the DP MySQL server contains tables for each site **gbo_[site]_cdffiles** (**gbo_[site]_asciifiles**), containing information on each CDF (ASCII file) created.

### 4.14.6 Web Information

Status on the latest processed files can be found at:

http://themis.ssl.berkeley.edu/data_processing_check/ground_data_processing/gmag_ascii_table.php

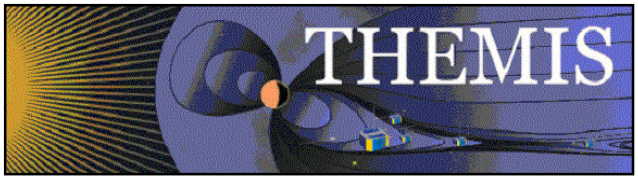



and

http://themis.ssl.berkeley.edu/data_processing_check/ground_data_processing/gmag_cdf_table.php

A full inventory of CDF files can be created can be found at:

http://themis.ssl.berkeley.edu/data_inventory/ground_data/mag/gmag_cdf_list.txt




## *4.15 Ground Magnetometer (GMAG) Data – Convert GIMA NetCDF to Level 2 Data Product*

### 4.15.1 Description

The GIMA NetCDF data is converted into CDF format. The CDF files are stored on the DP server and are available for download via http.

### 4.15.2 Main Scripts/Programs

A cronjob on astraea launches the following script:

**/disks/socware/thmsoc_dp_current/src/ksh/call_gima_netcdf2all.ksh,**
which loads the configuration file
**/disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config,**
defining the environment variables
WORKDIR=${THEMISDATA}/workdir
GMAGMIRROR=${WORKDIR}/gmag_mirror.

This script checks the directory **/disks/themisdata/workdir/gmag_mirror** for files like **GIMA_NC2ALL***, which contain information on the station and date of the NetCDF data to process into CDF (Level 2) products. For each station and date it calls the script
**/disks/socware/thmsoc_dp_current/src/ksh/gima_netcdf2all.ksh,**
which loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/setup_themis.bourne**
**[3] /disks/socware/thmsoc_dp_current/src/config/gima_netcdf2all.config**
defining the environment variables
from [1] SOC_EMAIL="jimm@ssl.berkeley.edu pcruce@igpp.ucla.edu jwl@ssl.berkeley.edu lphilpott@igpp.ucla.edu"
KSH_SCRIPTS=${THMSOC}/src/ksh
WORKDIR=${THEMISDATA}/workdir
WORKMAGSTACKS=${WORKDIR}/magStacks2Do
from [2] THEMIS_DATA_DIR=/disks/themisdata/
IDL_BASE_DIR=$THMSOC/idl
IDL_GENERAL_SSL_DIR=${IDL_BASE_DIR}/ssl_general
IDL_THEMIS_DIR=${IDL_BASE_DIR}/themis
IDL_EXTERNAL_DIR=${IDL_BASE_DIR}/external
IDL_THMSOC_DIR=${IDL_BASE_DIR}/thmsoc
IDL_DIR=/disks/apollo/export/idl_${idl_level}
IDL_PATH=\+${IDL_DIR}/lib
IDL_PATH=$IDL_PATH':'+$IDL_GENERAL_SSL_DIR
IDL_PATH=$IDL_PATH':'+$IDL_THEMIS_DIR
IDL_PATH=$IDL_PATH':'+$IDL_EXTERNAL_DIR
IDL_PATH=$IDL_PATH':'+$IDL_THMSOC_DIR
IDL_STARTUP=idl_startup.pro
IDL_DEVICE=Z
from [3] GIMALOGDIR=$LOGDIR/gbo/gima_gmag
LOGFILE=${GIMALOGDIR}/gima_netcdf2all$(date '+%y%m%d')
DATA_ROOT=/disks/themisdata
L2MAGDIR=${DATA_ROOT}/thg/l2/mag
UCB_MIRROR_HOME=/disks/themisdata/thg/mirrors/mag/ualaska_netcdf

ASCIIMAGDIR=${DATA_ROOT}/thg/ascii_data/mag.

**gima_netcdf2all.ksh** makes use of a mapping file
**/disks/socware/thmsoc_dp_current/src/netcdf2cdf/netcdf_to_cdf_mapping.dat**
and master CDFs in
**/disks/socware/thmsoc_dp_current/src/mastercdfs/thg/,**
and calls an IDL routine **netcdf2cdf_gmag** which converts the NetCDF data into CDF format (and produces a txt file version). The resulting CDFs are copied to
${L2MAGDIR}/[SITE]/YYYY,
the txt files are copied to
${ASCIIMAGDIR}/[SITE]/YYYY
The script
**${KSH_SCRIPTS}/fileChkSum.ksh**
is called to update checksum files.
The date of the new file is written to
${WORKMAGSTACKS}/stack_YYYYMMDD
for downstream stack plot production.
The php scripts **gmag_cdf.php** and **gmag_ascii.php** are called to update the DP MySQL database with process results information.

### 4.15.3 Products and Storage

The CDF File naming convention takes the form:

**thg_l2_mag_[site]_YYYYMMDD_vnn.cdf**
where site = fykn, gako, arct, bett, cigo, eagl, hlms, homr, kako, pokr, trap.

These files are stored at:

**/disks/themisdata/thg/l2/mag/[site]/YYYY.**

The ASCII file naming convention takes the form:

**thg_l2_mag_[site]_YYYYMMDD_vnn.txt**

These files are stored at:

**/disks/themisdata/thg/ascii_data/mag/[site]/YYYY.**

### 4.15.4 Process Logs

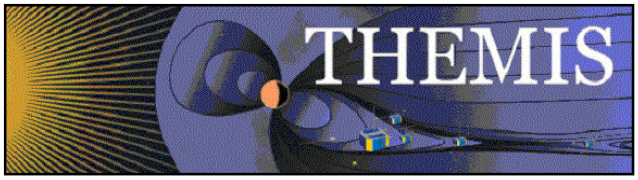
Log files for this process take the form:

**/disks/themisdata/process_log/gbo/gima_gmag/gima_netcdf2allYYMMDD**
**/disks/themisdata/process_logs/gbo/gima_gmag/idl_netcdf2cdf_log&**

### 4.15.5 Database Information

Database **gmag_cdf_files** (**gmag_ascii_files**) on the DP MySQL server contains tables for each site **gbo_[site]_cdffiles** (**gbo_[site]_asciifiles**), containing information on each CDF (ASCII file) created.

### 4.15.6 Web Information




Status on the latest processed files can be found at:

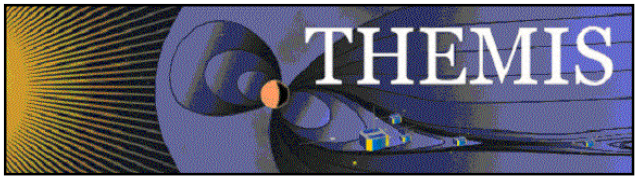
http://themis.ssl.berkeley.edu/data_processing_check/ground_data_processing/gmag_ascii_table.php

and

http://themis.ssl.berkeley.edu/data_processing_check/ground_data_processing/gmag_cdf_table.php

A full inventory of CDF files can be created can be found at:

http://themis.ssl.berkeley.edu/data_inventory/ground_data/mag/gmag_cdf_list.txt




## *4.16 Ground Magnetometer (GMAG) Data – Convert MACCS ASCII data to CDF*

### 4.16.1 Description

The MACCS ASCII data is converted into CDF format. The CDF files are stored on the DP server and are available for download via http.

### 4.16.2 Main Scripts/Programs

A cronjob on astraea launches the following script:

**/disks/socware/thmsoc_dp_current/src/ksh/call_maccs_ascii2all.ksh,**
which loads the configuration file
**/disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config,**
defining the environment variables
WORKDIR=${THEMISDATA}/workdir
GMAGMIRROR=${WORKDIR}/gmag_mirror
CONFIGDIR=${THMSOC}/src/config.

This script checks the directory **/disks/themisdata/workdir/gmag_mirror** for files like *.sec, which need to be processed into CDF (Level 2) products. The site names are obtained from
**${CONFIGDIR}/maccs_site_list.txt**
For each station and date it calls the script
**/disks/socware/thmsoc_dp_current/src/ksh/maccs_ascii2all.ksh,**
which loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/setup_themis.bourne**
**[3] /disks/socware/thmsoc_dp_current/src/config/maccs_ascii2all.config**
defining the environment variables
from [1] SOC_EMAIL="jimm@ssl.berkeley.edu pcruce@igpp.ucla.edu jwl@ssl.berkeley.edu lphilpott@igpp.ucla.edu"
KSH_SCRIPTS=${THMSOC}/src/ksh
WORKDIR=${THEMISDATA}/workdir
WORKMAGSTACKS=${WORKDIR}/magStacks2Do
CONFIGDIR=${THMSOC}/src/config
from [2] THEMIS_DATA_DIR=/disks/themisdata/
IDL_BASE_DIR=$THMSOC/idl
IDL_GENERAL_SSL_DIR=${IDL_BASE_DIR}/ssl_general
IDL_THEMIS_DIR=${IDL_BASE_DIR}/themis
IDL_EXTERNAL_DIR=${IDL_BASE_DIR}/external
IDL_THMSOC_DIR=${IDL_BASE_DIR}/thmsoc
IDL_DIR=/disks/apollo/export/idl_${idl_level}
IDL_PATH=\+${IDL_DIR}/lib
IDL_PATH=$IDL_PATH':'+$IDL_GENERAL_SSL_DIR
IDL_PATH=$IDL_PATH':'+$IDL_THEMIS_DIR
IDL_PATH=$IDL_PATH':'+$IDL_EXTERNAL_DIR
IDL_PATH=$IDL_PATH':'+$IDL_THMSOC_DIR
IDL_STARTUP=idl_startup.pro
IDL_DEVICE=Z
from [3] MACCSLOGDIR=${LOGDIR}/gbo/maccs_gmag
LOGFILE=${MACCSLOGDIR}/maccs_cdf_log_$(date '+%y%m%d')

IDLOUT=${MACCSLOGDIR}/maccs_idlout_$(date '+%y%m%d')
L2MAGDIR=${THEMISDATA}/thg/l2/mag
UCB_MIRROR_HOME=${THEMISDATA}/thg/mirrors/mag/maccs_ascii
ASCIIMAGDIR=${THEMISDATA}/thg/ascii_data/mag
CDFMASTERS=$THMSOC/src/mastercdfs/thg/.

**maccs_ascii2all** reads the file
**${CONFIGDIR}/maccs_site_list.txt**
to translate between the three letter MACCS codes for sites (e.g. NAN) and the four-letter THEMIS codes (e.g. NAIN).
Using master CDFs in
**/disks/socware/thmsoc_dp_current/src/mastercdfs/thg/,**
the script calls an IDL routine **thm_maccs_gmag_l2gen** which converts the ASCII data into CDF format (and produces a txt file version). The resulting CDFs are copied to
${L2MAGDIR}/[SITE]/YYYY,
the txt files are copied to
${ASCIIMAGDIR}/[SITE]/YYYY
The script
**${KSH_SCRIPTS}/fileChkSum.ksh**
is called to update checksum files.
The date of the new file is written to
${WORKMAGSTACKS}/stack_YYYYMMDD
for downstream stack plot production.
The php scripts **gmag_cdf.php** and **gmag_ascii.php** are called to update the DP MySQL database with process results information.

Additional scripts:

A cronjob on astraea launches the script
**/disks/socware/thmsoc_dp_current/src/ksh/maccs_ascii2all_cleanup.ksh,**
which loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/maccs_ascii2all.config,**
defining the environment variables
from [2] MACCSLOGDIR=${LOGDIR}/gbo/maccs_gmag
L2MAGDIR=${THEMISDATA}/thg/l2/mag.
This script deletes log files and scratch directories older than 32 days, namely the files in
$MACCSLOGDIR
and
$L2MAGDIR/garage.

### 4.16.3 Products and Storage

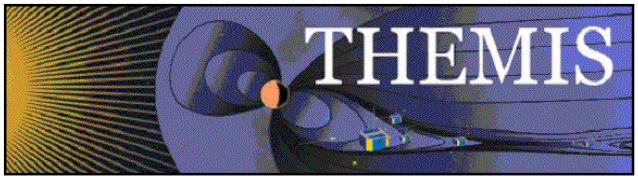
The CDF File naming convention takes the form:

**thg_l2_mag_[site]_YYYYMMDD_vnn.cdf**

These files are stored at:

**/disks/themisdata/thg/l2/mag/[site]/YYYY.**

The ASCII file naming convention takes the form:



**thg_l2_mag_[site]_YYYYMMDD_vnn.txt**

These files are stored at:

**/disks/themisdata/thg/ascii_data/mag/[site]/YYYY.**

### 4.16.4 Process Logs

Log files for this process take the form:

**/disks/themisdata/process_log/gbo/maccs_gmag/maccs_cdf_log_YYYYMMDD**
**/disks/themisdata/process_logs/gbo/maccs_gmag/macs_idlout_YYYYMMDD**

### 4.16.5 Database Information

Database gmag_cdf_files (gmag_ascii_files) on the DP MySQL server contains tables for each site, containing information on each CDF (ASCII file) created.

### 4.16.6 Web Information

Status on the latest processed files can be found at:

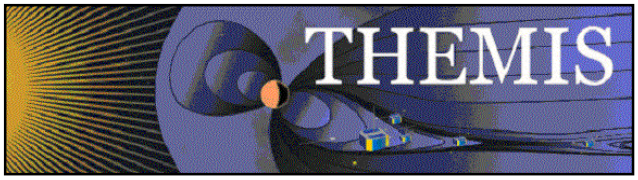
http://themis.ssl.berkeley.edu/data_processing_check/ground_data_processing/gmag_ascii_table.php

and

http://themis.ssl.berkeley.edu/data_processing_check/ground_data_processing/gmag_cdf_table.php

A full inventory of CDF files created can be found at:

http://themis.ssl.berkeley.edu/data_inventory/ground_data/mag/gmag_cdf_list.txt




## *4.17 Ground Magnetometer (GMAG) Data – Convert Greenland/Denmark/Norway ASCII data to CDF*

### 4.17.1 Description

The Greenland/Denmark/Norway magnetometer data obtained from TGO in IAGA 2002 format is converted to CDF.

### 4.17.2 Main Scripts/Programs

A cronjob on astraea launches the script

**/disks/socware/thmsoc_dp_current/src/ksh/green_ascii2all_new.ksh,**

which loads the configuration files

**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/setup_themis.bourne**
**[3] /disks/socware/thmsoc_dp_current/src/config/wget_green_gmag.config,**

defining the environment variables

from [1] THEMISDATA="/disks/themisdata"
LOGDIR=${THEMISDATA}/process_logs
WORKDIR=${THEMISDATA}/workdir
from [2] THEMIS_DATA_DIR=/disks/themisdata/
IDL_BASE_DIR=$THMSOC/idl
IDL_GENERAL_SSL_DIR=${IDL_BASE_DIR}/ssl_general
IDL_THEMIS_DIR=${IDL_BASE_DIR}/themis
IDL_EXTERNAL_DIR=${IDL_BASE_DIR}/external
IDL_THMSOC_DIR=${IDL_BASE_DIR}/thmsoc
unset IDL_PATH
IDL_DIR=/disks/apollo/export/idl_${idl_level};
IDL_PATH=\+${IDL_DIR}/lib
IDL_PATH=$IDL_PATH':'+$IDL_GENERAL_SSL_DIR ;
IDL_PATH=$IDL_PATH':'+$IDL_THEMIS_DIR ;
IDL_PATH=$IDL_PATH':'+$IDL_EXTERNAL_DIR ;
IDL_PATH=$IDL_PATH':'+$IDL_THMSOC_DIR ;
IDL_STARTUP=idl_startup.pro
IDL_DEVICE=Z
from [3] GMAGWORKDIR="${WORKDIR}/greenMag2Do"
TEMPDIR="${WORKDIR}/temp_dir/gmag_temp"
GREENMASTERDIR="${IDL_THMSOC_DIR}/greenland_gmag/mastercdfs_new"
L2MAGDIR=${THEMISDATA}/thg/greenland_gmag/l2
ASCIIMAGDIR=${THEMISDATA}/thg/ascii_data/greenland_gmag.

The script looks at all files in

$GMAGWORKDIR ( = /disks/themisdata/workdir/greenMag2Do)

of the format *.min and runs the IDL procedure

**thm_greenmag_l2gen_new.pro,**

passing the ascii file name, master cdf directory, and output file name.
The procedure thm_greenmag_l2gen_new.pro creates the CDF file with the help of the master cdfs found at

**/disks/socware/thmsoc_dp_current/idl/thmsoc/greenland_gmag/mastercdfs_new/.**

The routine also generates an ascii file.
The php scripts **gmag_cdf.php** and **gmag_ascii.php** are called to update the DP MySQL database with process results information.

NB: an earlier version of thm_greenmag_l2gen_new.pro read the ascii files with the help of an IDL template. Some of the sites recently made available have a different number of comment lines in their header making use of a template difficult.

### 4.17.3 Products and Storage

The CDF File naming convention takes the form:

**thg_l2_mag_[site]_YYYYMMDD_vnn.cdf**

These files are stored at:

**/disks/themisdata/thg/l2/mag/[site]/YYYY.**

The ASCII file naming convention takes the form:

**thg_l2_mag_[site]_YYYYMMDD_vnn.txt**

These files are stored at:

**/disks/themisdata/thg/ascii_data/mag/[site]/YYYY.**

### 4.17.4 Process Logs

Log files for this process take the form:

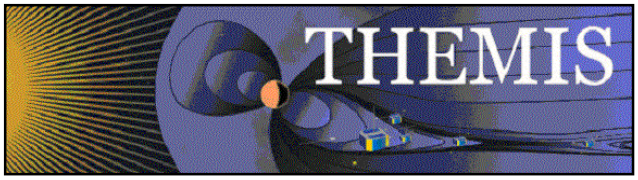
**/disks/themisdata/process_log/webdownloads/green_ascii2all_new_YYYYMMDD***
**/disks/themisdata/process_logs/webdownloads/green_ascii2all_new_idl_YYYYMMDD***

### 4.17.5 Database Information

Database gmag_cdf_files (gmag_ascii_files) on the DP MySQL server contains tables for each site, containing information on each CDF (ASCII file) created.

### 4.17.6 Web Information

The latest Greenland data available can be checked in the tables:
http://themis.ssl.berkeley.edu/data_processing_check/ground_data_processing/gmag_ascii_table.php
and
http://themis.ssl.berkeley.edu/data_processing_check/ground_data_processing/gmag_cdf_table.php.




## *4.18 Ground Magnetometer (GMAG) Data – Convert INTERMAGNET ASCII data to CDF*

### 4.18.1 Description

The INTERMAGNET magnetometer data obtained in IAGA 2002 format is converted to CDF.
Sites are currently: ABK, FCC, YKC.

Note: The data for the current sites we retrieve through INTERMAGNET is provided in geographic XYZ coordinates. The IDL processing routine has been updated as of April 2012 to rotate the data into local geomagnetic coordinates HDZ before saving to CDF. The declination angle for the rotation is stored in the master cdf, and was calculated using IGRF11 with a date of 2007-17-02 (see http://www.ngdc.noaa.gov/geomag-web/#igrfwmm to calculate declination angles). The transformation between XYZ and HDZ is thus only approximately correct.

### 4.18.2 Main Scripts/Programs

A cronjob on astraea launches the script

**/disks/socware/thmsoc_dp_current/src/ksh/intermagnet_ascii2all.ksh,**

which loads the configuration files

**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/setup_themis.bourne**
**[3] /disks/socware/thmsoc_dp_current/src/config/wget_intermagnet_gmag.config,**

defining the environment variables

from [1] THEMISDATA="/disks/themisdata"
LOGDIR=${THEMISDATA}/process_logs
WORKDIR=${THEMISDATA}/workdir
from [2] THEMIS_DATA_DIR=/disks/themisdata/
IDL_BASE_DIR=$THMSOC/idl
IDL_GENERAL_SSL_DIR=${IDL_BASE_DIR}/ssl_general
IDL_THEMIS_DIR=${IDL_BASE_DIR}/themis
IDL_EXTERNAL_DIR=${IDL_BASE_DIR}/external
IDL_THMSOC_DIR=${IDL_BASE_DIR}/thmsoc
unset IDL_PATH
IDL_DIR=/disks/apollo/export/idl_${idl_level};
IDL_PATH=\+${IDL_DIR}/lib
IDL_PATH=$IDL_PATH':'+$IDL_GENERAL_SSL_DIR ;
IDL_PATH=$IDL_PATH':'+$IDL_THEMIS_DIR ;
IDL_PATH=$IDL_PATH':'+$IDL_EXTERNAL_DIR ;
IDL_PATH=$IDL_PATH':'+$IDL_THMSOC_DIR ;
IDL_STARTUP=idl_startup.pro
IDL_DEVICE=Z
from [3] GMAGWORKDIR="${WORKDIR}/intermagnet2Do"
TEMPDIR="${WORKDIR}/temp_dir/intermagnet_temp"
CDFMASTERS=$THMSOC/src/mastercdfs/thg/
L2MAGDIR=${THEMISDATA}/thg/l2/mag
ASCIIMAGDIR=${THEMISDATA}/thg/ascii_data/mag.

intermagnet_ascii2all loops through all files in the directory

**/disks/themisdata/workdir/intermagnet2do,**

generates and runs an idl batch file calling the idl routine
**/disks/socware/thmsoc_dp_current/idl/thmsoc/intermagnet_gmag/thm_intermagnetmag_l2gen.pro**
to generate a CDF file and an ascii file from the data.

The mastercdfs located in
**/disks/socware/thmsoc_dp_current/src/mastercdfs/thg/**
are used in creating the CDFs.
The script
**/disks/socware/thmsoc_dp_current/src/ksh/fileChkSum.ksh**
is called to update the checksum listing for the created files in the files
**/disks/themisdata/thg/l2/mag/[site]/YYYY/CHECKSUMS**
and
**/disks/themisdata/thg/ascii_data/mag/[site]/YYYY/MM/CHECKSUMS**.
The php scripts **gmag_cdf.php** and **gmag_ascii.php** are called to update the DP MySQL database with process results information.

### 4.18.3 Products and Storage

The CDF File naming convention takes the form:

**thg_l2_mag_[site]_YYYYMMDD_vnn.cdf**

These files are stored at:

**/disks/themisdata/thg/l2/mag/[site]/YYYY.**

The ASCII file naming convention takes the form:

**thg_l2_mag_[site]_YYYYMMDD_vnn.txt**

These files are stored at:

**/disks/themisdata/thg/ascii_data/mag/[site]/YYYY/MM.**

### 4.18.4 Process Logs

Log files for this process take the form:

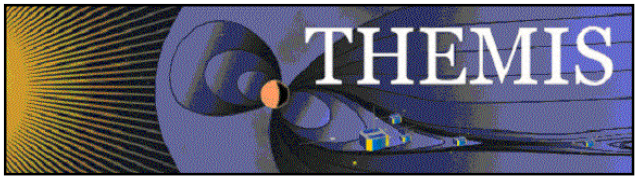
**/disks/themisdata/process_log/webdownloads/ intermagnet_ascii2all_YYYYMMDD***
**/disks/themisdata/process_logs/webdownloads/intermagnet _ascii2all_idl_YYYYMMDD***

### 4.18.5 Database Information

Database gmag_cdf_files (gmag_ascii_files) on the DP MySQL server contains tables for each site, containing information on each CDF (ASCII file) created.

### 4.18.6 Web Information

The latest INTERMAGNET data available can be checked in the tables
http://themis.ssl.berkeley.edu/data_processing_check/ground_data_processing/gmag_ascii_table.php
and
http://themis.ssl.berkeley.edu/data_processing_check/ground_data_processing/gmag_cdf_table.php.




## *4.19 Ground Magnetometer (GMAG) Data – Convert US Geological Survey ASCII data to CDF*

### 4.19.1 Description

The USGS magnetometer data obtained in IAGA 2002 format is converted to CDF.
Sites are currently: BRW.
See 4.10 (USGS download script) for further information on the format of the downloaded data. Note that the back data to 2007 was provided in a different format and thus cannot be processed using the script described here. Back data processed using
/disks/socware/thmsoc_dp_current/src/ksh/usgs_raw_ascii2all.ksh.

### 4.19.2 Main Scripts/Programs

A cronjob on astraea launches the script

**/disks/socware/thmsoc_dp_current/src/ksh/usgs_ascii2all.ksh,**

which loads the configuration files

**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/setup_themis.bourne**
**[3] /disks/socware/thmsoc_dp_current/src/config/wget_usgs_gmag.config,**

defining the environment variables

from [1] THEMISDATA="/disks/themisdata"
LOGDIR=${THEMISDATA}/process_logs
WORKDIR=${THEMISDATA}/workdir
from [2] THEMIS_DATA_DIR=/disks/themisdata/
IDL_BASE_DIR=$THMSOC/idl
IDL_GENERAL_SSL_DIR=${IDL_BASE_DIR}/ssl_general
IDL_THEMIS_DIR=${IDL_BASE_DIR}/themis
IDL_EXTERNAL_DIR=${IDL_BASE_DIR}/external
IDL_THMSOC_DIR=${IDL_BASE_DIR}/thmsoc
unset IDL_PATH
IDL_DIR=/disks/apollo/export/idl_${idl_level};
IDL_PATH=\+${IDL_DIR}/lib
IDL_PATH=$IDL_PATH':'+$IDL_GENERAL_SSL_DIR ;
IDL_PATH=$IDL_PATH':'+$IDL_THEMIS_DIR ;
IDL_PATH=$IDL_PATH':'+$IDL_EXTERNAL_DIR ;
IDL_PATH=$IDL_PATH':'+$IDL_THMSOC_DIR ;
IDL_STARTUP=idl_startup.pro
IDL_DEVICE=Z
from [3] GMAGWORKDIR="${WORKDIR}/usgs2do"
TEMPDIR="${WORKDIR}/temp_dir/usgs_temp"
CDFMASTERS=$THMSOC/src/mastercdfs/thg/
L2MAGDIR=${THEMISDATA}/thg/l2/mag
ASCIIMAGDIR=${THEMISDATA}/thg/ascii_data/mag.

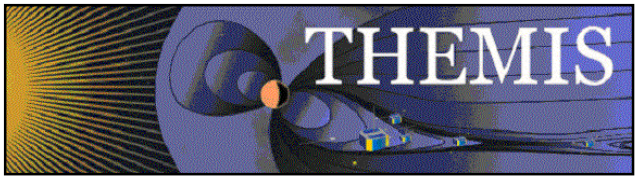
usgs_ascii2all loops through all files in the directory

**/disks/themisdata/workdir/usgs2do,**

generates and runs an idl batch file calling the idl routine
**/disks/socware/thmsoc_dp_current/idl/thmsoc/intermagnet_gmag/thm_usgsmag_l2gen.pro**
to generate a CDF file and an ascii file from the data.
The mastercdfs located in

**/disks/socware/thmsoc_dp_current/src/mastercdfs/thg/**

are used in creating the CDFs.




The php scripts **gmag_cdf.php** and **gmag_ascii.php** are called to update the DP MySQL database with process results information.

### 4.19.3 Products and Storage

The CDF File naming convention takes the form:

**thg_l2_mag_[site]_YYYYMMDD_vnn.cdf**

These files are stored at:

**/disks/themisdata/thg/l2/mag/[site]/YYYY.**

The ASCII file naming convention takes the form:

**thg_l2_mag_[site]_YYYYMMDD_vnn.txt**

These files are stored at:

**/disks/themisdata/thg/ascii_data/mag/[site]/YYYY.**

### 4.19.4 Process Logs

Log files for this process take the form:

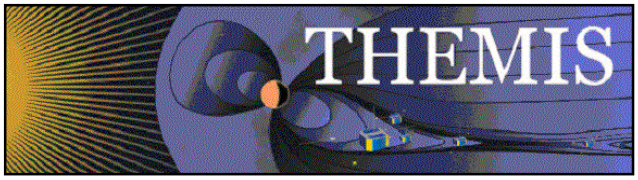
**/disks/themisdata/process_log/webdownloads/ usgs_ascii2all_YYYYMMDD***
**/disks/themisdata/process_logs/webdownloads/usgs _ascii2all_idl_YYYYMMDD***

### 4.19.5 Database Information

Database gmag_cdf_files (gmag_ascii_files) on the DP MySQL server contains tables for each site, containing information on each CDF (ASCII file) created.

### 4.19.6 Web Information

The latest USGS CDF and ASCII files available can be checked in the tables:
http://themis.ssl.berkeley.edu/data_processing_check/ground_data_processing/gmag_ascii_table.php
and
http://themis.ssl.berkeley.edu/data_processing_check/ground_data_processing/gmag_cdf_table.php.




## *4.20 Ground Magnetometer (GMAG) Data – Convert Antarctic CDF data to ASCII*

### 4.20.1 Description

The Antarctic magnetometer data (sites PG1 and PG2) is converted to ASCII format.

As the Antarctic data is provided in CDF format, no processing to CDF is required. We do however write an ASCII file of the data for consistency, as for all other gmag sites available through THEMIS the data is provided in both CDF and ASCII. For more information about the Antarctic data see Section 4.11.

### 4.20.2 Main Scripts/Programs

A cronjob on astraea2 launches the script

**/disks/socware/thmsoc_dp_current/src/ksh/antarctic_cdf2ascii.ksh,**

which loads the configuration files

**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**

**[2] /disks/socware/thmsoc_dp_current/src/config/setup_themis.bourne**

**[3] /disks/socware/thmsoc_dp_current/src/config/wget_antarctic_gmag.config,**

defining the environment variables

from [1] THEMISDATA="/disks/themisdata"
LOGDIR=${THEMISDATA}/process_logs
WORKDIR=${THEMISDATA}/workdir

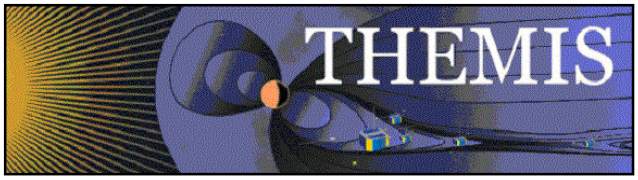
from [2] THEMIS_DATA_DIR=/disks/themisdata/
IDL_BASE_DIR=$THMSOC/idl
IDL_GENERAL_SSL_DIR=${IDL_BASE_DIR}/ssl_general
IDL_THEMIS_DIR=${IDL_BASE_DIR}/themis
IDL_EXTERNAL_DIR=${IDL_BASE_DIR}/external
IDL_THMSOC_DIR=${IDL_BASE_DIR}/thmsoc
unset IDL_PATH
IDL_DIR=/disks/apollo/export/idl_${idl_level};
IDL_PATH=\+${IDL_DIR}/lib
IDL_PATH=$IDL_PATH':'+$IDL_GENERAL_SSL_DIR ;
IDL_PATH=$IDL_PATH':'+$IDL_THEMIS_DIR ;
IDL_PATH=$IDL_PATH':'+$IDL_EXTERNAL_DIR ;
IDL_PATH=$IDL_PATH':'+$IDL_THMSOC_DIR ;
IDL_STARTUP=idl_startup.pro
IDL_DEVICE=Z

from [3] GMAGWORKDIR="${WORKDIR}/antarctic2do"
TEMPDIR="${WORKDIR}/temp_dir/antarctic_temp"
L2MAGDIR=${THEMISDATA}/thg/l2/mag
ASCIIMAGDIR=${THEMISDATA}/thg/ascii_data/mag.

antarctic_cdf2ascii.ksh loops through all files in the directory

**/disks/themisdata/workdir/antarctic2do,**

generates and runs an idl batch file calling the idl routine
**/disks/socware/thmsoc_dp_current/idl/thmsoc/thm_antarctic_asciigen.pro**
to generate an ascii file from the data.
The php script **gmag_ascii.php** is called to update the DP MySQL database with process result information.




### 4.20.3 Products and Storage

The ASCII file naming convention takes the form:

**thg_l2_mag_[site]_YYYYMMDD_vnn.txt**

These files are stored at:

**/disks/themisdata/thg/ascii_data/mag/[site]/YYYY.**

### 4.20.4 Process Logs

Log files for this process take the form:

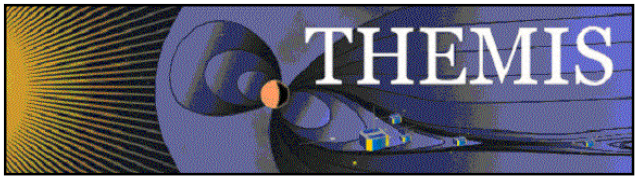
**/disks/themisdata/process_log/webdownloads/antarctic_cdf2ascii_YYYYMMDD***
**/disks/themisdata/process_logs/webdownloads/antarctic _cdf2ascii_idl_YYYYMMDD***

### 4.20.5 Database Information

Database gmag_ascii_files on the DP MySQL server contains tables for each site, containing information on each ASCII file created.

### 4.20.6 Web Information

The latest Antarctic data available can be checked in the tables
http://themis.ssl.berkeley.edu/data_processing_check/ground_data_processing/gmag_ascii_table.php
and
http://themis.ssl.berkeley.edu/data_processing_check/ground_data_processing/gmag_cdf_table.php.




## *4.21 Ground Magnetometer (GMAG) Data – Make Stack Plot*

### 4.21.1 Description

The L2 CDF data is used to create magnetometer stack plots – a single plot window containing the H, D, or Z components from a subset of sites.

### 4.21.2 Main Scripts/Programs

A cronjob on astraea launches the following script:

**/disks/socware/thmsoc_dp_current/src/ksh/call_make_stack.ksh,**
which loads the configuration file
**/disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config,**
defining the environment variables
WORKDIR=${THEMISDATA}/workdir
WORKMAGSTACKS=${WORKDIR}/magStacks2Do.
This script checks the directory **/disks/themisdata/workdir/magStacks2Do** for files like **stack***, which contain information on dates for which new CDF (Level 2) products have been produced. It then calls the script
**/disks/socware/thmsoc_dp_current/src/ksh/make_mag_stack_plots.ksh**
for each date that needs to be processed.
The script **make_mag_stack_plots.ksh** loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/setup_themis.bourne**
**[3] /disks/socware/thmsoc_dp_current/src/config/ground_mag.config**
defining the environment variables
from [1] LOGDIR=${THEMISDATA}/process_logs
SOC_EMAIL="jimm@ssl.berkeley.edu pcruce@igpp.ucla.edu jwl@ssl.berkeley.edu lphilpott@igpp.ucla.edu"
from [2] THEMIS_DATA_DIR=/disks/themisdata/
IDL_BASE_DIR=$THMSOC/idl
IDL_GENERAL_SSL_DIR=${IDL_BASE_DIR}/ssl_general
IDL_THEMIS_DIR=${IDL_BASE_DIR}/themis
IDL_EXTERNAL_DIR=${IDL_BASE_DIR}/external
IDL_THMSOC_DIR=${IDL_BASE_DIR}/thmsoc
IDL_DIR=/disks/apollo/export/idl_${idl_level}
IDL_PATH=\+${IDL_DIR}/lib
IDL_PATH=$IDL_PATH':'+$IDL_GENERAL_SSL_DIR
IDL_PATH=$IDL_PATH':'+$IDL_THEMIS_DIR
IDL_PATH=$IDL_PATH':'+$IDL_EXTERNAL_DIR
IDL_PATH=$IDL_PATH':'+$IDL_THMSOC_DIR
IDL_STARTUP=idl_startup.pro
IDL_DEVICE=Z
from [3] STACKLOGDIR=${LOGDIR}/gbo/mag_stackplots
LOGFILE=${STACKLOGDIR}/STACKPLOTS_Log$(date '+%y%m%d')
DATA_ROOT=/disks/themisdata
STACKPLOTS=${DATA_ROOT}/thg/summary_plots/mag/stackplots.

**make_mag_stack_plots.ksh** calls the IDL routine **thm_gmag_stackplot,** which converts the CDF data into plots (png). The resulting png files are copied to
${STACKPLOTS}/YYYY,

and the php script **gmag_stackplots.php** is called to update DP MySQL database with process results information.

Additional scripts:
A cronjob on astraea launches the following script:

**/disks/socware/thmsoc_dp_current/src/ksh/stacks_cleanup.ksh,**

which loads the configuration files

**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/ground_mag.config,**

defining the environment variable

from [1] LOGDIR=${THEMISDATA}/process_logs.

**stacks_cleanup.ksh** deletes files of the form IDLOUT_STACK* in $LOGDIR that are older than 10 days.

**/disks/socware/thmsoc_dp_current/src/ksh/call_make_stack.ksh** – Use this for reprocessing.

### 4.21.3 Products and Storage

The plot file naming convention takes the form:

**thg_l2_mag_[type]_YYYYMMDD_vnn.cdf**
where type = hlla,dlla,zlla,hhla,dhla,zhla

These files are stored at:

**/disks/themisdata/thg/summary_plots/mag/stackplots/YYYY**

### 4.21.4 Process Logs

Log files for this process take the form:

**/disks/themisdata/process_logs/gbo/mag_stackplots/STACKPLOTS_LogYYMMDD**

### 4.21.5 Database Information

Database gmag_stackplots on the DP MySQL server contains tables for each site, containing information on each CDF created.

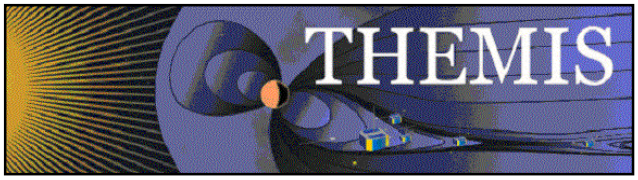
### 4.21.6 Web Information

Status on the latest processed files can be found at:

http://themis.ssl.berkeley.edu/data_processing_check/ground_data_processing/gmag_stackplots_table.php

A full inventory of stack plot files produced can be found at (not updated as of Dec 2008):

http://themis.ssl.berkeley.edu/data_inventory/ground_data/mag/gmag_stack_list.txt




## *4.22 AEIndex Generation*

### 4.22.1 Description

Create AEIndex CDFs from GMAG L2 CDFs.

### 4.22.2 Main Scripts/Programs

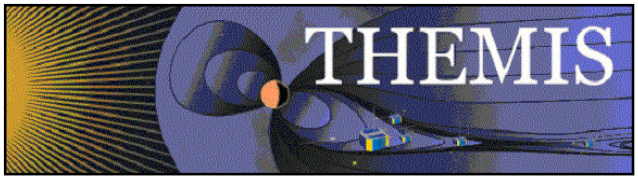
A cronjob on astraea launches the following script:

**/disks/socware/thmsoc_dp_current/src/ksh/call_make_ae_index.ksh,**
which loads the configuration file
**/disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config.**
This script calls the script
**/disks/socware/thmsoc_dp_current/src/ksh/make_ae_index.ksh,**
which loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/setup_themis.bourne,**
defining the environment variables
from [1] SOC_EMAIL="jimm@ssl.berkeley.edu pcruce@igpp.ucla.edu jwl@ssl.berkeley.edu lphilpott@igpp.ucla.edu"
LOCAL=/mydisks/home/thmsoc
LOGDIR=${THEMISDATA}/process_logs
from [2] THEMIS_DATA_DIR=/disks/themisdata/
IDL_BASE_DIR=$THMSOC/idl
IDL_GENERAL_SSL_DIR=${IDL_BASE_DIR}/ssl_general
IDL_THEMIS_DIR=${IDL_BASE_DIR}/themis
IDL_EXTERNAL_DIR=${IDL_BASE_DIR}/external
IDL_THMSOC_DIR=${IDL_BASE_DIR}/thmsoc
IDL_DIR=/disks/apollo/export/idl_${idl_level}
IDL_PATH=\+${IDL_DIR}/lib
IDL_PATH=$IDL_PATH':'+$IDL_GENERAL_SSL_DIR
IDL_PATH=$IDL_PATH':'+$IDL_THEMIS_DIR
IDL_PATH=$IDL_PATH':'+$IDL_EXTERNAL_DIR
IDL_PATH=$IDL_PATH':'+$IDL_THMSOC_DIR
IDL_STARTUP=idl_startup.pro
IDL_DEVICE=Z.
**make_ae_index.ksh** makes use of the mastercdf at
${IDL_THMSOC_DIR}/l1gen/mastercdfs/thg_l1_idx_00000000_v01.cdf,
and calls the IDL function **thm_l1gen_idx** to produce the AEIndex CDF. Resulting CDFs are copied to
${THEMISDATA}/thg/l1/mag/idx/YYYY,
and the script
${KSH_SCRIPTS}/fileChkSum.ksh
is run to update check sum files. The php script **gmag_cdf.php** is run to update the DB MySQL database with process result information.

### 4.22.3 Products and Storage

The AEIndex file naming convention takes the form:

**thg_l1_idx_YYYYMMDD_vnn.cdf**




These files are stored at:

**/disks/themisdata/thg/l1/mag/idx/YYYY**

### 4.22.4 Process Logs

Log files for this process take the form:

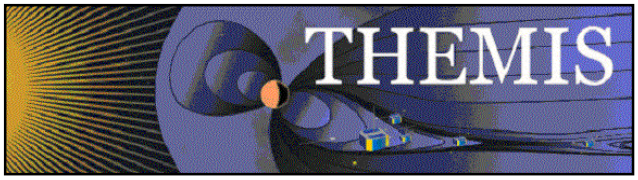
**/disks/themisdata/process_logs/ae_index/make_ae_index_YYYYMMDD**

### 4.22.5 Database Information

Database gmag_cdf_files on the DP MySQL server contains table gbo_aeIndex_cdffiles listing information on each CDF file created.

### 4.22.6 Web Information

None.




## *4.23 Ground Magnetometer (GMAG) Data – Check for Missing CDFs*

### 4.23.1 Description

Generate a list of missing GMAG CDFs for use by processing scripts.

### 4.23.2 Main Scripts/Programs

A cronjob on astraea launches the following script:

**/disks/socware/thmsoc_dp_current/src/ksh/gen_gmag_missing_cdf_list.ksh,**
which loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/ground_mag.config,**
defining the environment variables
from [1] CONFIGDIR=${THMSOC}/src/config
LOCAL=/mydisks/home/thmsoc
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists
from [2]

This script checks the list files
${FILELISTS}/gmag_cdf_list_[SITE].txt
${FILELISTS}/gmag_raw_*_[SITE].txt
(see sections 4.27 and 4.28 for how these list files are generated) and determines if a raw data file exists but no CDF has been made. Missing CDFs are written to the list
${FILELISTS}/gmag_missing_cdf_list_[SITE].txt

### 4.23.3 Products and Storage

Entries for missing CDFs are placed in files with the naming convention:

**gmag_missing_cdf_list_[site].txt**

These files are stored at:

**/disks/themisdata/workdir/filelists**

### 4.23.4 Process Logs

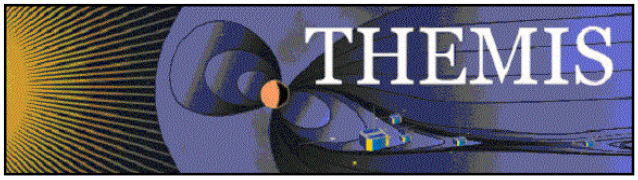
None.

### 4.23.5 Database Information

None.

### 4.23.6 Web Information

None.




## *4.24 Ground Magnetometer (GMAG) Data – Generate Missing CDFs*

### 4.24.1 Description

When raw data files exist but no CDF has been made via the normal generation process, the following scripts will use the missing CDF list mentioned above, to generate the appropriate files.

### 4.24.2 Main Scripts/Programs

A cronjob on auxo launches the following script:

**/disks/socware/thmsoc_dp_current/src/ksh/ucla_rmd2all_missing.ksh,**
which loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/ucla_rmd2all.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config,**
defining the environment variables
from [1] LOGDIR=/disks/themisdata/process_logs/ucla_rmd2all
LOGFILE=${LOGDIR}/UCLA_RMD2ALL_Log$(date '+%y%m%d')
TABLE_FILES_DIR=/home/thmsoc/software_dev/c_prog/UCLA_Cal
UCB_FLAT_HOME=/disks/themisdata/thg/l1/mag
EPO_MIRROR_HOME=/disks/themisdata/thg/mirrors/mag/ucla_rmd
GBO_MIRROR_HOME=/disks/themisdata/thg/mirrors/mag/ucalgary_rmd
RMD2FFPATH=/home/thmsoc/software_dev/c_prog/leel_rmd_noleap/code
FFMERGEPATH=/home/thmsoc/software_dev/c_prog/ffmerge/bundle
KSHSCRIPTS=/home/thmsoc/software_dev/ksh
from [2] CONFIGDIR=${THMSOC}/src/config
SOC_EMAIL="jimm@ssl.berkeley.edu pcruce@igpp.ucla.edu jwl@ssl.berkeley.edu lphilpott@igpp.ucla.edu".

**ucla_rmd2all_missing.ksh** loops through all sites in
**$CONFIGDIR/lc_site_list_ucla_all.txt**
and uses the file
**$CONFIGDIR/lc_site_list_ucla_epo.txt**
to classify sites as EPO or GBO. The script checks that calibration files exist for the sites at
**${TABLE_FILES_DIR}/[SITE].txt**
For each date in
**$CONFIGDIR/gmag_missing_cdf_list_[SITE].txt**
the script runs the C code **RMD2FF** (must be run on Sun OS) to create flat files from the RMD files (also makes use of the file
**$EPO_MIRROR_HOME/site_list.txt**
to translate between long and short forms of the EPO site names). The flat files are merged into a single flat file for each day using
**$FFMERGEPATH/ffmergesungnucmp,**
the date format is translated from YYMMDD to YYDOY using
**$KSHSCRIPTS/date2doy,**
and the resulting files BYYDOY_[SITE].ffd and BYYDOY_[SITE].ffh are copied to
$UCB_FLAT_HOME/[SITE]/YYYY/.
The script then calls
~~**/home/thmsoc/software_dev/ksh/ucla_flat2cdf.ksh**~~ ***Changed Sep 2011***
**/disks/socware/thmsoc_dp_current/ksh/ucla_flat2cdf.ksh**
to generate CDFs from the flatfiles, and
~~**/home/thmsoc/software_dev/ksh/ucla_flat2ascii.ksh**~~ ***Changed Sep 2011***

**/disks/socware/thmsoc_dp_current/ksh/ucla_flat2ascii.ksh**

to generate ASCII files from the flatfiles (see 4.13 for discussion of these scripts).
A cronjob on astraea launches the following scripts ***(No longer)***:

**/disks/socware/thmsoc_dp_current/src/ksh/call_gima_netcdf2all_missing.ksh**

### 4.24.3 Products and Storage

The Flat File naming convention takes the following form:

**BYYDDD_[SITE].ffd**

These files are stored at:

**/disks/themisdata/thg/l1/mag/[site]/YYYY**

The CDF File naming convention takes the form:

**thg_l2_mag_[site]_YYYYMMDD_vnn.cdf**

These files are stored at:

**/disks/themisdata/thg/l2/mag/[site]/YYYY**

The ASCII File naming convention takes the form:

**thg_l2_mag_[site]_YYYYMMDD_vnn.txt**

These files are stored at:

**/disks/themisdata/thg/ascii_data/mag/[site]/YYYY**

### 4.24.4 Process Logs

Logfiles for the process are at
**/disks/themisdata/process_logs/ucla_rmd2all/ UCLA_RMD2ALL_LogYYMMDD***

### 4.24.5 Database Information

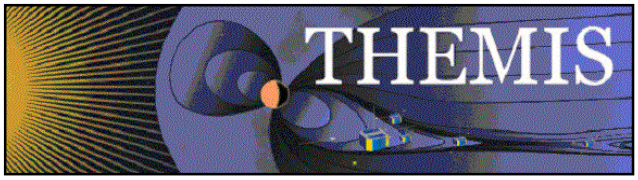
Databases gmag_cdf_files and gmag_ascii_files on the DP MySQL server contain tables for each site, containing information on each CDF and ASCII file created.

### 4.24.6 Web Information

Status on the latest processed files can be found at:

http://themis.ssl.berkeley.edu/data_processing_check/ground_data_processing/gmag_ascii_table.php

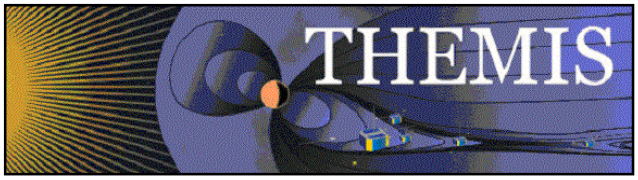
and




http://themis.ssl.berkeley.edu/data_processing_check/ground_data_processing/gmag_cdf_table.php

A full inventory of CDF files can be created can be found at:

http://themis.ssl.berkeley.edu/data_inventory/ground_data/mag/gmag_cdf_list.txt




## *4.25 Ground Magnetometer (GMAG) Data – EPO JPEG Processing*

### 4.25.1 Description

The 10 EPO magnetometers (same type as GBO) produce jpeg plots of the XYZ/HDB components as well spectrographs at 30 minute and 24 hour cadence. The plots are generated at UCLA and sent to the Berkeley server, where they are made available as 'live data' on http://ds9.ssl.berkeley.edu/themis/classroom_geons_data.html.
Previously these plots were also archived, but as of 2010 the process was changed such that the archive XYZ/HDB component day and time series jpegs are produced instead using TDAS software. As of March 2010 a decision was made to no longer archive spectral plots (according to Igor Ruderman, Oct 2011).
Once on the archive the separate component plots are merged into single plot files, file information is written to a database, and plots are made available for viewing through the GEONS website.
Contact information:

| | | |
|---|---|---|
| *UCLA* | Kathryn Rowe | krowe_at_igpp.ucla.edu |
| | Richard Hart | rhart _at_igpp.ucla.edu |
| *Berkeley* | Laura Peticolas | laura_at_sunearth.ssl.berkeley.edu (THEMIS E/PO deputy lead) |
| | Nancy Ali | nancy.ali_at_ssl.berkeley.edu (THEMIS E/PO lead) |
| | Igor Ruderman | igor_at_ssl.berkeley.edu |
| | Karen Meyer | karena_at_ssl.berkeley.edu |

### 4.25.2 Main Scripts/Programs

A cronjob on auxo launches the following scripts:

**/disks/socware/thmsoc_dp_current/src/ksh/make_epo_plots_daily.ksh**
**/disks/socware/thmsoc_dp_current/src/ksh/epo_magfile_append.ksh**

make_epo_plots_daily.ksh generates component jpeg plots and saves them to /disks/horae/raid1/themis_epo.
epo_magfile_append scans the EPO site subdirectories found at /disks/horae/raid1/themis_epo for recent jpg files. If files are found it runs the program /usr/local/bin/convert to merge the separate jpeg files. The resulting files are catalogued in a DP MySQL database.

In detail, **make_epo_plots_daily.ksh** calls configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current /src/config/setup_themis_idl64.bourne,**
defining environment variables
From [1] THEMISDATA="/disks/themisdata"
LOGDIR=${THEMISDATA}/process_logs
SCRATCH=${THEMISDATA}/scratch
From [2] IDL_BASE_DIR=$THMSOC/idl
IDL_THMSOC_DIR=${IDL_BASE_DIR}/thmsoc.
The logfile is defined in make_epo_plots_daily.ksh as
EPO_LOGFILE=${LOGDIR}/epo/epo_plots_make_${processdate}.
make_epo_plots_daily.ksh calls
**${IDL_THMSOC_DIR}/ucla_epo_gmag/epo_plots_daily_batchfile,**
which calls
**make_epo_plots_daily_wrapper,**
an IDL routine that is a wrapper for
**make_epo_plots.pro.**
**NB:** the sites for which jpgs are generated is hardcoded in make_epo_plots:

sites = ['kian','mcgr','ptrs','ccnv','ukia','hots','pine','fyts','swno','rmus','bmls','loys','drby']
By default processing is attempted for the last five days.

**epo_magfile_append.ksh** calls the configuration file
**/disks/socware/thmsoc_dp_current/src/config/thmsoc_epo.config,**
defining the environment variables
LOGDIR=/disks/themisdata/process_logs/epo/
LOGFILE=$LOGDIR/EPO_Log$(date '+%y%m%d')
EPO_HOME=/disks/horae/raid1/themis_epo
SCHOOL CCNV PINE PTRS UKIA FYTS RMUS SWNO LOYS DRBY HOTS BMLS MCGR KIAN
LOCKFILE=/var/tmp/epo_append_lock
FIND_MTIME="-12",
and calls
**usr/local/bin/convert**
to merge jpegs.

Additional scripts:

**/disks/socware/thmsoc_dp_current/src/php/epo_cmdline_input.php** – File information is stored in the database EPOMAG located on the DP MySQL database server on juneau.

Relating to the display of the jpg files on the web (unsure who has responsibility for maintaining this):
**/disks/www/sprg/themis/GEONS/geons_data.php**
**/disks/www/sprg/themis/GEONS/pan_display.php**
**/disks/www/sprg/themis/GEONS/process_form_input.php**

### 4.25.3 Products and Storage

The JPEG file naming convention takes the form:

**[SITE]_[TYPE]_MMDDYYYY_HHMMSS.jpg**
where
**TYPE = {DS1, DS2, DS3, DSB, DSD, DSH, TS1, TS2, TS3, TSB, TSD, TSH, DStamp, TStamp}**
for the files produced by make_epo_plots_daily.ksh, and
**TYPE = {DS123, DSBDH, TS123, TSBDH}**
for the files produced by epo_magfile_append.ksh. Spectra are of the type
**TYPE = {TSpectra, DSpectra}.**

These files are stored at:

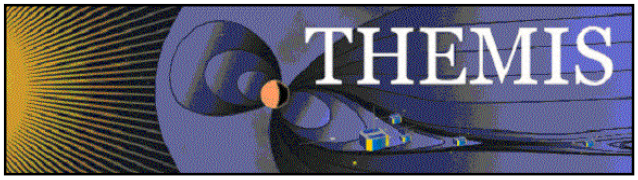
**/disks/horae/raid1/themis_epo/[site]/YYYY/MM/DD**

### 4.25.4 Process Logs

Log files for these processes take the form:
**/disks/themisdata/process_logs/epo/epo_plots_make_YYMMDD**
**/disks/themisdata/process_logs/epo/EPO_LogYYMMDD**

### 4.25.5 Database Information

Database EPOMAG on the DP MySQL server on Juneau contains tables for each site, containing information on each jpg created.




### 4.25.6 Web Information

The archived jpg files can be viewed at:

http://sprg.ssl.berkeley.edu/themis/GEONS

NB: the files in

**/disks/horae/raid1/themis_epo/[site]/YYYY/MM/DD**

are mapped to the website:

http://sprg.ssl.berkeley.edu/themis/GEONS/SCHOOLS

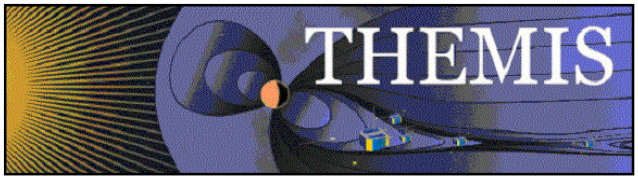
and the search form at

http://sprg.ssl.berkeley.edu/themis/GEONS

relies on the information in the EPOMAG database. Files relating to the webdisplay of data can be found at:

/disks/www/sprg/themis/GEONS

(both geons_data.php and pan_display.php need to be modified to add new years to the drop down list).




## *4.26 Ground Magnetometer (GMAG) Data – EPO JPEG Monitor*

### 4.26.1 Description

Checks for JPEGs produced by the scripts described in 4.25 above. Sends alerts if missing.

### 4.26.2 Main Scripts/Programs

A cronjob on astraea launches the following script:

**/disks/socware/thmsoc_dp_current/src/ksh/epo_jpg_check.ksh,**
which calls the configuration file
**/disks/socware/thmsoc_dp_current/src/config/thmsoc_epo.config,**
defining the environment variables
EPO_HOME=/disks/horae/raid1/themis_epo
SCHOOL CCNV PINE PTRS UKIA FYTS RMUS SWNO LOYS DRBY HOTS BMLS MCGR KIAN
CHECK_MTIME="-2"
CONTACT_LIST="pcruce@igpp.ucla.edu jimm@ssl.berkeley.edu floresaa@igpp.ucla.edu lphilpott@igpp.ucla.edu" .

### 4.26.3 Products and Storage

None.

### 4.26.4 Process Logs

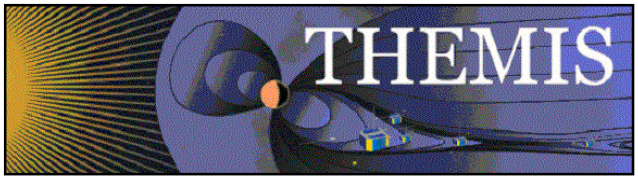
None. Email warnings are sent to the contact list if files are missing.

### 4.26.5 Database Information

None.

### 4.26.6 Web Information

None.




## *4.27 GMAG Raw Data File Inventory*

### 4.27.1 Description

Generate an inventory of the raw GMAG data files collected.

### 4.27.2 Main Scripts/Programs

A cronjob on astraea launches the following script:

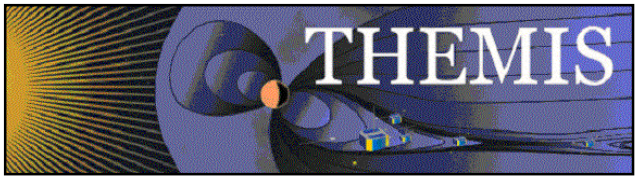
**/disks/socware/thmsoc_dp_current/src/ksh/make_gmag_raw_files.ksh,**
which loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/ground_mag.config.**

**make_gmag_raw_files.ksh** is the parent script which calls numerous sub-scripts that list files collected for each station.

Additional scripts:

**[1] /disks/socware/thmsoc_dp_current/src/ksh/list_gmag_epormds.ksh,**
loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/ground_mag.config,**
defining the environment variables
from [1] CONFIGDIR=${THMSOC}/src/config
LOCAL=/mydisks/home/thmsoc
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists
from [2] UCLA_MIRROR_HOME=/disks/themisdata/thg/mirrors/mag/ucla_rmd.
This script loops through the sites listed in
${CONFIGDIR}/ucla_rmd_site_list.txt
and checks the directory
${UCLA_MIRROR_HOME}/[SITE]
for RMD files. A list of the files is written to
${FILELISTS}/gmag_raw_epo_[SITE].txt

**[2] /disks/socware/thmsoc_dp_current/src/ksh/list_gmag_gbormds.ksh**
loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/ground_mag.config,**
defining the environment variables
from [1] CONFIGDIR=${THMSOC}/src/config
LOCAL=/mydisks/home/thmsoc
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists
from [2] UCAL_MIRROR_HOME=/disks/themisdata/thg/mirrors/mag/ucalgary_rmd.
This script loops through the sites listed in
${CONFIGDIR}/ucalgary_rmd_site_list.txt
and checks the directory
${UCAL_MIRROR_HOME}

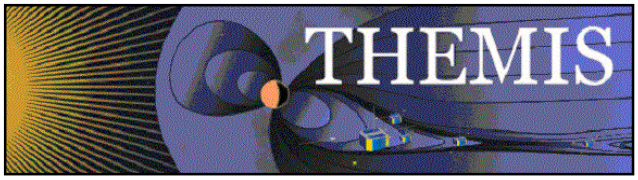



for RMD files. A list of the files is written to
${FILELISTS}/gmag_raw_gbo_[SITE].txt

**[3] /disks/socware/thmsoc_dp_current/src/ksh/list_gmag_ualbascii.ksh**
loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/ground_mag.config,**
defining the environment variables
from [1] CONFIGDIR=${THMSOC}/src/config
LOCAL=/mydisks/home/thmsoc
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists
from [2] UCLA UALB_MIRROR_HOME=/disks/themisdata/thg/mirrors/mag/ualberta_ascii.
This script loops through the sites listed in
${CONFIGDIR}/ ualberta_ascii_site_list.txt
and checks the directory
${UALB_MIRROR_HOME}
for *.gz files. A list of the files is written to
${FILELISTS}/gmag_raw_alb_[SITE].txt

**[4] /disks/socware/thmsoc_dp_current/src/ksh/list_gmag_ualkncdf.ksh**
loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/ground_mag.config,**
defining the environment variables
from [1] CONFIGDIR=${THMSOC}/src/config
LOCAL=/mydisks/home/thmsoc
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists
from [2] UALA_MIRROR_HOME=/disks/themisdata/thg/mirrors/mag/ualaska_netcdf.
This script loops through the sites listed in
${CONFIGDIR}/ ualaska_netcdf_site_list.txt
and checks the directory
${UALA_MIRROR_HOME}
for files. A list of the files is written to
${FILELISTS}/gmag_raw_alk_[SITE].txt

**[5] /disks/socware/thmsoc_dp_current/src/ksh/list_gmag_greenland.ksh**
***(Note: this script only checks the site NAQ/NRSQ. As NAQ is now included with the other Greenland/Norway/Denmark sites it is unnecessary to continue running this script)***
loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/ground_mag.config,**
defining the environment variables
from [1] CONFIGDIR=${THMSOC}/src/config
LOCAL=/mydisks/home/thmsoc
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists
from [2] GRNL_MIRROR_HOME=/disks/themisdata/thg/mirrors/mag/greenland_ascii.
This script loops through the sites listed in
${CONFIGDIR}/greenland_ascii_site_list.txt
and checks the directory
${ GRNL_MIRROR_HOME }




for  files. A list of the files is written to
${FILELISTS}/gmag_raw_grnl_[SITE].txt

**[6] /disks/socware/thmsoc_dp_current/src/ksh/list_gmag_maccs.ksh**
loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/ground_mag.config,**
defining the environment variables
from [1] CONFIGDIR=${THMSOC}/src/config
LOCAL=/mydisks/home/thmsoc
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists
from [2] MACCS_MIRROR_HOME=/disks/themisdata/thg/mirrors/mag/maccs_ascii.
This script loops through the sites listed in
${CONFIGDIR}/ maccs_site_list.txt
and checks the directory
${ MACCS_MIRROR_HOME }
for *.sec files. A list of the files is written to
${FILELISTS}/gmag_raw_maccs_[SITE].txt

**[7] /disks/socware/thmsoc_dp_current/src/ksh/gen_gmag_raw_list.ksh**
loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/ground_mag.config,**
defining the environment variables
from [1] CONFIGDIR=${THMSOC}/src/config
LOCAL=/mydisks/home/thmsoc
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists.
This script generates an ascii table of all raw files available by iterating through all dates listed in
${CONFIGDIR}/date_list.txt
and sites listed in
${CONFIGDIR}/lc_site_list.txt
(being all EPO, GBO, Alberta, Alaska, MACCS, and Greenland site NRSQ, and (as of Sep 2011) Athabasca sites) and looking to see whether the date is listed in
${FILELISTS}/gmag_raw_*_[SITE].txt.
The final table is saved to
${FILELISTS}/gmag_raw_list.txt

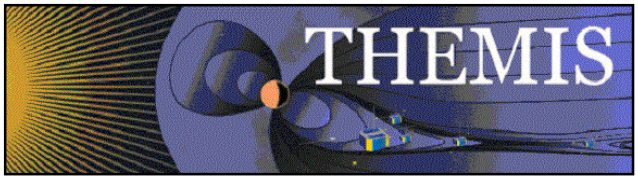
### 4.27.3 Products and Storage

Lists are kept in the following files:

**/disks/themisdata/workdir/filelists/gmag_raw_gbo_[site].txt**
**/disks/themisdata/workdir/filelists/gmag_raw_alb_[site].txt**
**/disks/themisdata/workdir/filelists/gmag_raw_alk_[site].txt**
**/disks/themisdata/workdir/filelists/gmag_raw_epo_[site].txt**
**/disks/themisdata/workdir/filelists/gmag_raw_maccs_[site].txt**
**/disks/themisdata/workdir/filelists/gmag_raw_grnl_nrsq.txt**

These files are used to build an ASCII display of data availability. This file is:

**/disks/themisdata/workdir/filelists/gmag_raw_list.txt**




### 4.27.4 Process Logs

None.

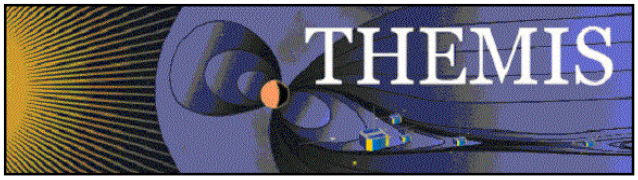
### 4.27.5 Database Information

None.

### 4.27.6 Web Information

The raw gmag data availability display can be viewed at:

http://themis.ssl.berkeley.edu/data_inventory/ground_data/mag/gmag_raw_list.txt.




## *4.28 GMAG CDF Data File Inventory*

### 4.28.1 Description

Generate an inventory of the CDF and ASCII GMAG data files that have been produced.

### 4.28.2 Main Scripts/Programs

A cronjob on astraea launches the following script:

**/disks/socware/thmsoc_dp_current/src/ksh/make_gmag_cdf_files.ksh,**
loading the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/ground_mag.config.**

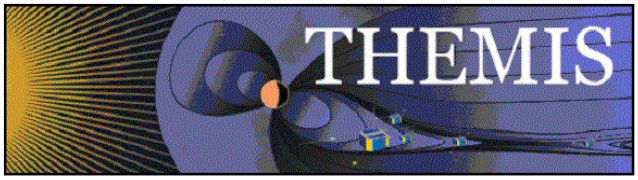
**make_gmag_cdf_files.ksh** is the parent script which calls numerous sub-scripts that list files collected for each station.

Additional scripts:

**[1] /disks/socware/thmsoc_dp_current/src/ksh/list_gmag_cdfs.ksh**
loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/ground_mag.config**
defining the environment variables
from [1] CONFIGDIR=${THMSOC}/src/config
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists
LOCAL=/mydisks/home/thmsoc
from [2] DATA_ROOT=/disks/themisdata
L2MAGDIR=${DATA_ROOT}/thg/l2/mag.
This script loops through all sites in
${CONFIGDIR}/lc_site_list.txt
(being EPO, GBO, Alberta, Alaska, MACCS, and Greenland site NRSQ, and (as of Sep 2011) Athabasca sites) creating a file
${FILELISTS}/gmag_cdf_list_[site].txt
that contains a list of the dates of all CDFs in
${L2MAGDIR}/[site].

**[2] /disks/socware/thmsoc_dp_current/src/ksh/list_gmag_ascii.ksh**
loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/ground_mag.config**
defining the environment variables
from [1] CONFIGDIR=${THMSOC}/src/config
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists
LOCAL=/mydisks/home/thmsoc
from [2] DATA_ROOT=/disks/themisdata
ASCIIMAGDIR=${DATA_ROOT}/thg/ascii_data/mag

This script loops through all sites in




${CONFIGDIR}/lc_site_list.txt
(being EPO, GBO, Alberta, Alaska, MACCS, and Greenland site NRSQ, and (as of Sep 2011) Athabasca sites) creating a file
${FILELISTS}/gmag_ascii_list_[site].txt
that contains a list of the dates of all txt files in
${ASCIIMAGDIR}/[site].

**[3] /disks/socware/thmsoc_dp_current/src/ksh/gen_gmag_cdf_list.ksh** .
loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/ground_mag.config**
defining the environment variables
from [1] CONFIGDIR=${THMSOC}/src/config
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists
LOCAL=/mydisks/home/thmsoc.
The script loops through all dates in
${CONFIGDIR}/date_list.txt
and sites in
${CONFIGDIR}/lc_site_list.txt
(being EPO, GBO, Alberta, Alaska, MACCS sites, and Greenland site NRSQ, and (as of Sept 2011) Athabasca sites) and creates a table in the file
${FILELISTS}/gmag_cdf_list.txt
that shows the dates that CDFs exist for all of the sites.

### 4.28.3 Products and Storage

Lists are kept in the following files:

**/disks/themisdata/workdir/filelists/gmag_cdf_list_[site].txt**
**/disks/themisdata/workdir/filelists/gmag_ascii_list_[site].txt**

These files are used to build an ASCII display of data availability (currently only CDFs). This file is:

**/disks/themisdata/workdir/filelists/gmag_cdf_list.txt**

### 4.28.4 Process Logs

None.

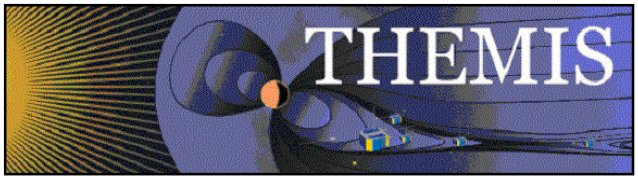
### 4.28.5 Database Information

None.

### 4.28.6 Web Information

The raw gmag data availability display can be viewed at:

http://themis.ssl.berkeley.edu/data_inventory/ground_data/mag/gmag_cdf_list.txt




## *4.29 GMAG Stack Plot Data File Inventory*

***These scripts are no longer run automatically.***

### 4.29.1 Description

Generate an inventory of the GMAG stack plots that have been produced.

### 4.29.2 Main Scripts/Programs

A cronjob on astraea launches the following scripts:

**/disks/socware/thmsoc_dp_current/src/ksh/list_gmag_stackplots.ksh**
**/disks/socware/thmsoc_dp_current/src/ksh/gen_gmag_stack_list.ksh**

### 4.29.3 Products and Storage

Lists are kept in the following files:

**/disks/themisdata/workdir/filelists/gmag_stack_list_[type].txt**

These files are used to build an ASCII display of stack plot availability. This file is:

**/disks/themisdata/workdir/filelists/gmag_stack_list.txt**

### 4.29.4 Process Logs

None.

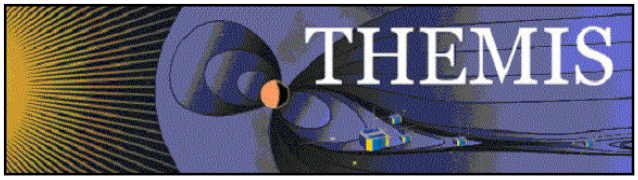
### 4.29.5 Database Information

None.

### 4.29.6 Web Information

The raw gmag data availability display can be viewed at:

http://themis.ssl.berkeley.edu/data_inventory/ground_data/mag/gmag_stack_list.txt




## *4.30 GMAG EPO JPEG Plot File Inventory*

### 4.30.1 Description

Generates lists of what EPO JPEG files have been collected or generated and creates the web display for this information.
NB: Spectral plots were not archived past March 2010.

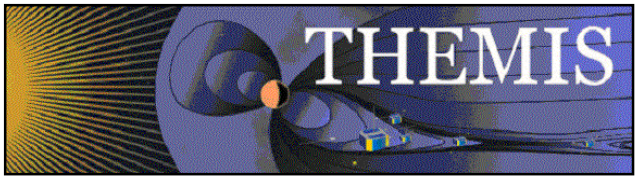
### 4.30.2 Main Scripts/Programs

A cronjob on astraea launches the following scripts (moved from /home/thmsoc/software_dev/ksh September 2011):

**/disks/socware/thmsoc_dp_current/src/ksh/list_gmag_epojpgs.ksh**
**/disks/socware/thmsoc_dp_current/src//ksh/gen_gmag_jpg_list.ksh**

The script **list_gmag_epojpgs.ksh** loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/thmsoc_epo.config**
defining the environment variables
from [1] CONFIGDIR=${THMSOC}/src/config
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists
from [2] EPO_HOME=/disks/horae/raid1/themis_epo
SCHOOL CCNV PINE PTRS UKIA FYTS RMUS SWNO LOYS DRBY HOTS BMLS MCGR KIAN
The script loops through all the schools looking for files in
$EPO_HOME/[site]
and writing a list of the filenames to
${FILELISTS}/[site]_[type]_list.txt

The script **gen_gmag_jpg_list.ksh** loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/thmsoc_epo.config**
defining the environment variables
from [1] CONFIGDIR=${THMSOC}/src/config
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists
from [2] SCHOOL CCNV PINE PTRS UKIA FYTS RMUS SWNO LOYS DRBY HOTS BMLS MCGR KIAN.
The script creates an ascii file showing the jpg file availability for each school, looping through all dates in
${CONFIGDIR}/date_list.txt,
hours in
${CONFIGDIR}/hour_list.txt,
and datatypes in
${CONFIGDIR}/gmag_epojpg_tstype.txt
and
${CONFIGDIR}/gmag_epojpg_dstype.txt.
The information is written to the files
${FILELISTS}/[site]_gmag_epojpg_TSList.txt
${FILELISTS}/[site]_gmag_epojpg_DSList.txt




### 4.30.3 Products and Storage

Lists are kept in the following files:

**/disks/themisdata/workdir/filelists/[site]_[type]_list.txt**

(previously found at **/disks/thmsoc/software_dev/file_lists/[site]_[type]_list.txt)**

Where type = TS1, TS2, TS3, TS123, DS1, DS2, DS3, DS123, TSB, TSD, TSH, TSBDH, DSB, TSD, DSH, DSBDH, TSpectra, DSpectra

These files are used to build ASCII displays of jpeg file availability. These files are found at:

**/disks/themisdata/workdir/filelists**

(previously found at **/disks/thmsoc/software_dev/file_lists).**

Filenames take the form:

**[SITE]_gmag_epojpg_[TYPE].txt**

Where TYPE = TSList or DSList

NB: The files [SITE]_day_list and [SITE]_hr_list found in

**/disks/danaid/home/www/html/data_inventory/ground_data/mag/epo_jpg_lists**

(and mapped to the URL

http://themis.ssl.berkeley.edu/data_inventory/ground_data/mag/epo_jpg_lists)

are symbolic links to the above files at /disks/themisdata/workdir/filelists.

### 4.30.4 Process Logs

None.

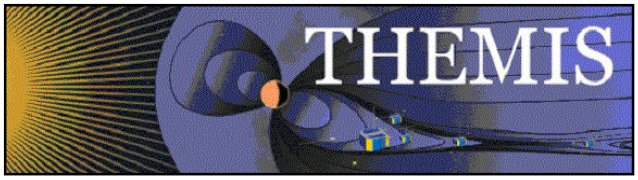
### 4.30.5 Database Information

None.

### 4.30.6 Web Information

The raw gmag data availability displays can be viewed at:

http://themis.ssl.berkeley.edu/data_inventory/ground_data/mag/epo_jpg_lists




## *4.31 All Sky Imager (ASI) Low-Rate Data Collection – THEMIS GBO*

### 4.31.1 Description

Low rate ASI data is initially collected by the University of Calgary and stored on a data server. A wget (previously rsync) process at UCB pulls new and updated files from this server.
Note: As of November 2011 there are 21 active ASI sites. All data goes through the University of Calgary regardless of who 'owns' the site.

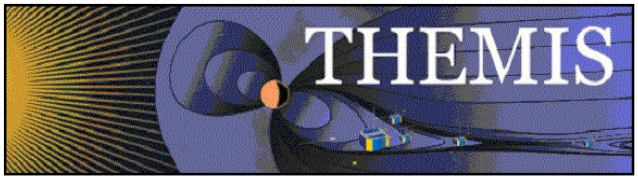
### 4.31.2 Main Scripts/Programs

A cronjob on gaia launches the following script:

**/disks/socware/thmsoc_dp_current/src/ksh/gbo_asi_rt_mirror_batch.ksh,**
which loads the configuration file
**/disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config.**

This script sets the time period arguments and calls the main rsync script
**/disks/socware/thmsoc_dp_current/src/ksh/gbo_asi_rt_mirror.ksh,**
loading the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/gbo_asi_rt_mirror.config,**
defining the environment variables
from [1] SOC_EMAIL="jimm@ssl.berkeley.edu pcruce@igpp.ucla.edu jwl@ssl.berkeley.edu lphilpott@igpp.ucla.edu"
from [2] UCB_MIRROR_HOME=${THEMISDATA}/thg/mirrors/asi/low_res_rsync
LOGDIR=${THEMISDATA}/process_logs/gbo
LOGFILE=$LOGDIR/GBO_ASI_RT_MIRROR_$(date '+%y%m%d')
WLOGFILE=$LOGDIR/WGET_GBO_ASI_RT_MIRROR_$(date '+%y%m%d')
WEBSITE_NAME="http://aurora.phys.ucalgary.ca/data/themis/imager"
DB_INPUT_FILES=${THEMISDATA}/workdir/db_input_files
This script runs wget to download any new or updated files. A record of the files is written to the database gbo_asi_rt_mirror using the script
**/disks/socware/thmsoc_dp_current/src/php/update_asi_rt_tbl.php.**
When rsync was used for the download process a record of the rsync statistics was also written to the database using
**/disks/socware/thmsoc_dp_current/src/php/gbo_asi_rt_mirror_tbl_input_stats.php.**
It is more difficult to get useful download statistics from wget, so this php script is no longer run.

**Additional scripts:**
A cronjob on gaia launches the following script:
**/disks/socware/thmsoc_dp_current/src/ksh/rsync_gbo_cleanup.ksh,**
loading the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/gbo_asi_rt_mirror.config,**
defining the environment variable
from [2] LOGDIR=${THEMISDATA}/process_logs/gbo.
This script removes all files in the log directory beginning RSYNC that are older than 10 days (this includes gmag download files from other networks).




### 4.31.3 Products and Storage

The low-rate data files are stored locally at:

**/disks/themisdata/thg/mirrors/asi/low_res_rsync/YYYY/MM/DD/[site]/utHH/**
(note that the directory name remains rsync although download now uses wget).

### 4.31.4 Process Logs

**/disks/themisdata/process_logs/gbo/GBO_ASI_RT_MIRROR_YYMMDD**
**/disks/themisdata/process_logs/gbo/WGET_GBO_ASI_RT_MIRROR_YYMMDD_stream[1-3]_[pid]**

### 4.31.5 Database Information

The database gbo_asi_rt_mirror is found on the DB MySQL server on astraea. It contains tables for each GBO station listing the ASI files collected for each. Also, there's a table listing rsync statistics.

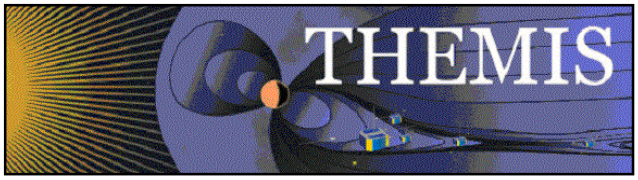
### 4.31.6 Web Information

Status on the latest collected files can be found at:

http://themis.ssl.berkeley.edu/data_processing_check/ground_data_mirrors/asi_rt_calgary.php

A full inventory of collected files can be found at:

http://themis.ssl.berkeley.edu/data_inventory/ground_data/asi/asi_lowrate_files




## *4.32 All Sky Imager (ASI) High-Rate Data Collection – THEMIS GBO*

### 4.32.1 Description

Disk drives containing the high resolution image data are recovered on a quarterly basis and are shipped to UC Berkeley for offloading of data onto the main THEMIS data server. This is the main process for retrieving the high resolution files. However, particular periods of interest, or data gaps can filled in with intermittent downlinks over the internet (script mentioned below).

### 4.32.2 Main Scripts/Programs

The following file details all of the major steps in the collection process:

**/home/thmsoc/software_dev/ksh/gbo_harddrives_readme.ksh**

The process begins with mounting the USB drives on sunshine in room 236, SSL-Addition. After mounting the drive, the following script is run manually:

**/home/thmsoc/software_dev/ksh/cp_asi_hardrive.ksh**

This script copies data off the hard drive on to a scratch location. At the beginning and end of the copy process the script notifies users via email.

When cp_asi_hardrive.ksh is finished the following script is run manually:

**/home/thmsoc/software_dev/ksh/chk_asi_gunzip.ksh**

This script checks gzipped files for errors before moving them to their final location on the data server.

When **chk_asi_gunzip.ksh** is finished, run the following script:

**/home/thmsoc/software_dev/ksh/update_asi_hires_tbl.ksh**

This script will load file information into a database on the DP MySQL server.

The high resolution ASI files can also be downloaded over the internet using the following script:

**/disks/socware/thmsoc_dp_current/src/ksh/gbo_asi_full_mirror.ksh**

### 4.32.3 Products and Storage

The high-rate data files are stored locally at:

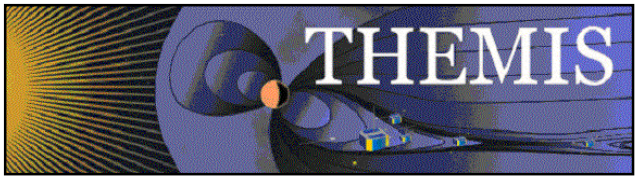
**/disks/themisdata/thg/mirrors/asi/hi_res_copy/YYYY/MM/DD/[site]/utHH/**

### 4.32.4 Process Logs

**/home/thmsoc/software_dev/logs/ASI_HD_COPY_LogYYMMDD**

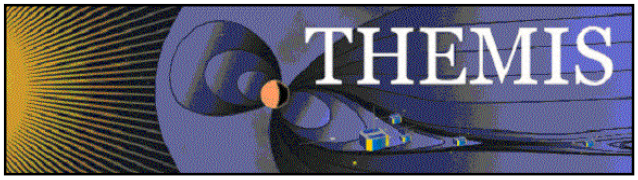
### 4.32.5 Database Information

The database gbo_asi_hires_mirror is found on the DB MySQL server on astraea. It contains tables for each GBO station listing the ASI files collected for each.




### 4.32.6 Web Information

TBD




## *4.33 All Sky Imager (ASI) Low-Rate Data File Inventory*

### 4.33.1 Description

Generate an inventory of the low-rate ASI data files collected.

### 4.33.2 Main Scripts/Programs

A cronjob on astraea launches the following scripts:

**/disks/socware/thmsoc_dp_current/src/ksh/list_lowrate_asi_files.ksh**
**/disks/socware/thmsoc_dp_current/src/ksh/gen_lowrate_asi_display.ksh**
**/disks/socware/thmsoc_dp_current/src/ksh/gen_lowrate_asi_display_summary.ksh**
**/disks/socware/thmsoc_dp_current/src/ksh/chk_lowrate_asi_files.ksh** ***(this does not appear to run automatically anymore)***

These scripts will generate file lists, create displays, and check on file reception.

1. **list_lowrate_asi_files.ksh**

This script loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/ground_asi_config**
defining the environment variables
from [1] CONFIGDIR=${THMSOC}/src/config
LOCAL=/mydisks/home/thmsoc
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists
from [2] LOWRES_RSYNC_DIR=${MIRROR_MAIN}/low_res_rsync.
This script loops through the current and previous months, and each site in
**/disks/socware/thmsoc_dp_current/src/config/lc_asi_site_list.txt.**
For each datatype in
**/disks/socware/thmsoc_dp_current/src/config/asi_dtype_list.txt**
the script writes a list of files to
**/disks/themisdata/workdir/filelists/asi_lowrate_list_${site}_${dtype}_${yearMonth}.txt.**
NB: It is also possible to pass year, month and site arguments to this script.

2. **gen_lowrate_asi_display.ksh**

This script loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/ground_asi_config**
defining the environment variables
from [1] CONFIGDIR=${THMSOC}/src/config
LOCAL=/mydisks/home/thmsoc
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists.
The script loops through all the sites in
**/disks/socware/thmsoc_dp_current/src/config/lc_asi_site_list.txt,**
all dates up to the current date in
**/disks/socware/thmsoc_dp_current/src/config/date_list.txt,**
and all datatypes in
**/disks/socware/thmsoc_dp_current/src/config/asi_dtype_list.txt.**

For all hours in
**/disks/socware/thmsoc_dp_current/src/config/asi_hour_list.txt**
it checks for the existence of files in the lists
**/disks/themisdata/workdir/filelists/asi_lowrate_list_${site}_${dtype}_${yyyymm}.txt**
and creates an ascii table showing file availability
**/disks/themisdata/workdir/filelists/asi_lowrate_display_${site}.txt.**

3. **gen_lowrate_asi_display_summary.ksh**

This script loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/ground_asi_config**
defining the environment variables
from [1] CONFIGDIR=${THMSOC}/src/config
LOCAL=/mydisks/home/thmsoc
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists.
The script loops through all the sites in
**/disks/socware/thmsoc_dp_current/src/config/lc_asi_site_list.txt,**
all dates up to the current date in
**/disks/socware/thmsoc_dp_current/src/config/date_list.txt,**
and all datatypes in
**/disks/socware/thmsoc_dp_current/src/config/asi_dtype_list.txt.**
The number of files of each type for each date is written to the ascii table
**/disks/themisdata/workdir/filelists/asi_lowrate_display_${site}_sum.txt.**

### 4.33.3 Products and Storage

Lists are kept in the following files:

**/disks/themisdata/workdir/filelists/asi_lowrate_list_[site]_[type].txt**

These files are used to build ASCII displays of data availability. These files are:

**/disks/themisdata/workdir/filelists/asi_lowrate_display_[site].txt**
**/disks/themisdata/workdir/filelists/asi_lowrate_display_[site]_sum.txt/**

### 4.33.4 Process Logs

None.

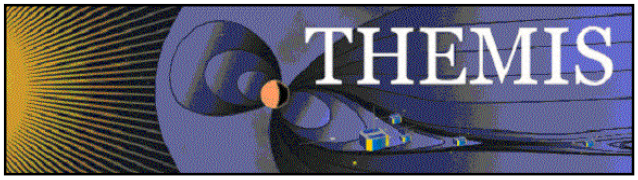
### 4.33.5 Database Information

None.

### 4.33.6 Web Information

ASI low-rate data availability displays can be viewed at:

http://themis.ssl.berkeley.edu/data_inventory/ground_data/asi/asi_lowrate_files




## *4.34 All Sky Imager (ASI) High-Rate Data File Inventory*

### 4.34.1 Description

Generate an inventory of the high-rate ASI data files collected.

### 4.34.2 Main Scripts/Programs

A cronjob on astraea launches the following scripts:

**/disks/socware/thmsoc_dp_current/src/ksh/make_hi_asi_file_list.ksh**
**/disks/socware/thmsoc_dp_current/src/ksh/gen_hirate_asi_display_daily.ksh**

These scripts will generate file lists and create ascii displays.

1. **make_hi_asi_file_list.ksh**

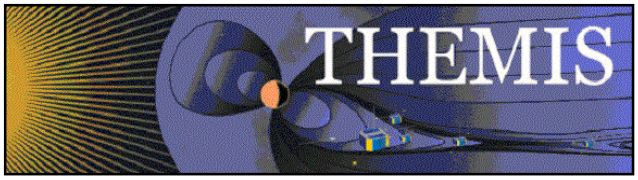
This script loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/ground_asi_config**
defining the environment variables
from [1] CONFIGDIR=${THMSOC}/src/config
LOCAL=/mydisks/home/thmsoc
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists.
from [2] HIRES_COPY=${MIRROR_MAIN}/hi_res_copy.
For the current and previous month this script loops through all sites in the list
**/disks/socware/thmsoc_dp_current/src/config/lc_asi_site_list.txt**
and writes a list of hi res files for that site and month to the list
**/disks/themisdata/workdir/filelists/asi_hirate_list_${site}_YYYYMM.txt.**

2. **gen_hirate_asi_display_daily.ksh**

This script loads the configuration file
**/disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
defining the environment variables
CONFIGDIR=${THMSOC}/src/config
LOCAL=/mydisks/home/thmsoc
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists.
For each date up to the current date in
**/disks/socware/thmsoc_dp_current/src/config/date_list.txt,**
and each hour in
**/disks/socware/thmsoc_dp_current/src/config/asi_hour_list.txt**
the script loops through all sites in
**/disks/socware/thmsoc_dp_current/src/config/lc_asi_site_list.txt,**
and creates a table showing how many hires files are available for that site and month
**/disks/themisdata/workdir/filelists/asi_hirate_display.txt**

### 4.34.3 Products and Storage

Lists are kept in the following files:



**/disks/themisdata/workdir/filelists/ asi_hirate_list_${site}_YYYYMM.txt**

These files are used to build an ASCII display of data availability. The files is:

**/disks/themisdata/workdir/filelists/ asi_hirate_display.txt**

### 4.34.4 Process Logs

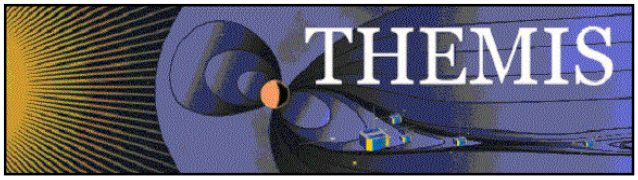
None.

### 4.34.5 Database Information

None.

### 4.34.6 Web Information

ASI high-rate data availability displays can be viewed at:
http://themis.ssl.berkeley.edu/data_inventory/ground_data/asi/asi_highrate_files/asi_hirate_display.txt




## *4.35 All Sky Imager (ASI) Level 1 (L1) CDF Data File Inventory*

### 4.35.1 Description

Generate an inventory of the CDF data files that have been produced.

### 4.35.2 Main Scripts/Programs

A cronjob on astraea launches the following scripts:

**/disks/socware/thmsoc_dp_current/src/ksh/list_l1_ast_cdfs.ksh**
**/disks/socware/thmsoc_dp_current/src/ksh/gen_ast_l1_cdf_list.ksh**
**/disks/socware/thmsoc_dp_current/src/ksh/list_l1_asf_cdfs.ksh**
**/disks/socware/thmsoc_dp_current/src/ksh/gen_asf_inventory_display.ksh**
**/disks/socware/thmsoc_dp_current/src/ksh/list_l1_ask_cdfs.ksh**
**/disks/socware/thmsoc_dp_current/src/ksh/gen_ask_l1_cdf_list_display.ksh**

1. **list_l1_ast_cdfs.ksh**

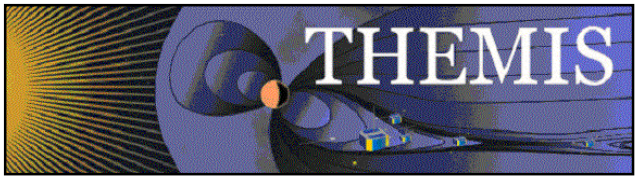
This script loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/ground_asi.config,**
defining the environment variables
from [1] CONFIGDIR=${THMSOC}/src/config
LOCAL=/mydisks/home/thmsoc
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists
from [2] L1ASIDIR=${DATA_ROOT}/thg/l1/asi.
For each of the current and previous month, the script loops through each site in
**/disks/socware/thmsoc_dp_current/src/config/lc_asi_site_list.txt**
and generates a list of the days that the l1 ast cdfs are available for that site for that month:
**/disks/themisdata/workdir/filelists/ast_l1_cdf_list_${site}_YYYYMM.txt**
(entries in the form YYYYMMDD).

2. **gen_ast_l1_cdf_list.ksh**

This script loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/ground_asi.config,**
defining the environment variables
from [1] CONFIGDIR=${THMSOC}/src/config
LOCAL=/mydisks/home/thmsoc
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists.
This script loops through all dates up to the current date in
**/disks/socware/thmsoc_dp_current/src/config/date_list.txt,**
and all sites in
**/disks/socware/thmsoc_dp_current/src/config/lc_asi_site_list.txt,**
generating an ascii table showing l1 ast file availability for each site and date:
**/disks/themisdata/workdir/filelists/ast_l1_cdf_list.txt.**

3. **list_l1_asf_cdfs.ksh**

This script loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**




**[2] /disks/socware/thmsoc_dp_current/src/config/ground_asi.config,**
defining the environment variables
from [1] CONFIGDIR=${THMSOC}/src/config
LOCAL=/mydisks/home/thmsoc
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists
from [2] L1ASIDIR=${DATA_ROOT}/thg/l1/asi.
For each of the current and previous month, the script loops through each site in
**/disks/socware/thmsoc_dp_current/src/config/lc_asi_site_list.txt**
and generates a list of the days that the l1 asf cdfs are available for that site for that month:
**/disks/themisdata/workdir/filelists/asf_l1_cdf_list_${site}_YYYYMM.txt**
(entries in the form YYYYMMDD).

4. **gen_asf_inventory_display.ksh**

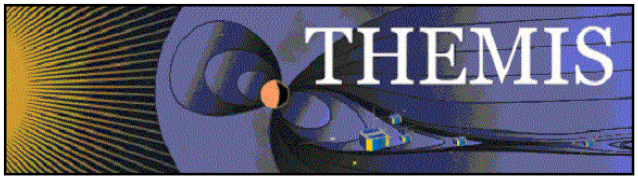
This script loads the configuration file
**/disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
defining the environment variables
CONFIGDIR=${THMSOC}/src/config
LOCAL=/mydisks/home/thmsoc
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists.
This script loops through all dates up to the current date in
**/disks/socware/thmsoc_dp_current/src/config/date_list.txt,**
all hours in
**/disks/socware/thmsoc_dp_current/src/config/asi_hour_list.txt,**
and all sites in
**/disks/socware/thmsoc_dp_current/src/config/lc_asi_site_list.txt,**
checking in the file
asf_l1_cdf_list_${site}_YYYYMM.txt
to determine if a file is available for that date, and generating an ascii table showing the availability of asf l1 cdfs for each site and each date:
**/disks/themisdata/workdir/filelists/asf_l1_cdf_list.txt**

5. **list_l1_ask_cdfs.ksh**

This script loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/ground_asi.config,**
defining the environment variables
from [1] LOCAL=/mydisks/home/thmsoc
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists.
This script writes a list of l1 ask files to
**/disks/themisdata/workdir/fileslists/ask_l1_cdf_list.txt.**

6. **gen_ask_l1_cdf_list_display.ksh**

This script loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/ground_asi.config,**
defining the environment variables
from [1] CONFIGDIR=${THMSOC}/src/config
LOCAL=/mydisks/home/thmsoc
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists.




The script loops through all dates up to the current date in
**/disks/socware/thmsoc_dp_current/src/config/date_list.txt,**
and checks the list
**/disks/themisdata/workdir/fileslists/ask_l1_cdf_list.txt,**
to determine whether files are available for each date, generating the ascii table
**/disks/themisdata/workdir/filelists/ask_l1_cdf_list_display.txt.**

### 4.35.3 Products and Storage

Lists are kept in the following files:

**/disks/themisdata/workdir/filelists/ast_l1_cdf_list_${site}_YYYYMM.txt**
**/disks/themisdata/workdir/filelists/asf_l1_cdf_list_${site}_YYYYMM.txt**
**/disks/themisdata/workdir/fileslists/ask_l1_cdf_list.txt**

These files are used to build an ASCII display of data availability. These files are:

**/disks/themisdata/workdir/filelists/ast_l1_cdf_list.txt**
**/disks/themisdata/workdir/filelists/asf_l1_cdf_list.txt**
**/disks/themisdata/workdir/filelists/ask_l1_cdf_list_display.txt**

### 4.35.4 Process Logs

None.

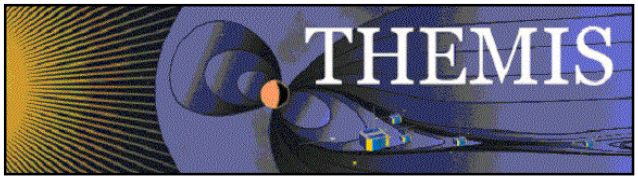
### 4.35.5 Database Information

None.

### 4.35.6 Web Information

ASI low-rate data availability displays can be viewed at:

http://themis.ssl.berkeley.edu/data_inventory/ground_data/asi/
(mapped from /disks/danaid/home/www/html/data_inventory/ground_data/asi, where the cdf list files are symbolic links to the above mentioned files in /disks/themisdata/workdir/filelists/).




## *4.36 All Sky Imager (ASI) Site Summaries*

### 4.36.1 Description

Generates lists of the low rate asi summary files (files like {SITE}.YYYY.MM.DD.HH.MM.gif).

### 4.36.2 Main Scripts/Programs

A cronjob on astraea launches the following scripts:

**/disks/socware/thmsoc_dp_current/src/ksh/list_asi_site_summaries.ksh**
**/disks/socware/thmsoc_dp_current/src/ksh/gen_asi_site_summary_display.ksh**
**/disks/socware/thmsoc_dp_current/src/ksh/list_asi_allsite_summaries.ksh**
**/disks/socware/thmsoc_dp_current/src/ksh/gen_asi_allsite_summary_display.ksh**
**/disks/socware/thmsoc_dp_current/src/ksh/gen_grand_asi_display.ksh**

1. **list_asi_site_summaries.ksh**

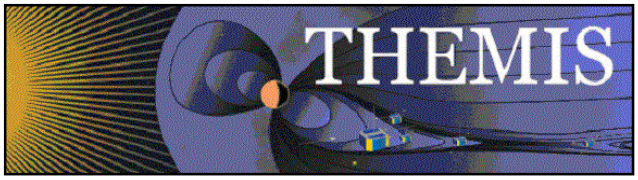
This script loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/ground_asi.config,**
defining the environment variables
from [1] CONFIGDIR=${THMSOC}/src/config
LOCAL=/mydisks/home/thmsoc
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists
from [2] DATA_ROOT=/disks/themisdata
L0ASIDIR=${DATA_ROOT}/thg/l0/asi.
For each of the current and previous month, the script loops through each site in
**/disks/socware/thmsoc_dp_current/src/config/uc_asi_site_list.txt**
and generates a list of the asi summary files that are available for that site for that month:
**/disks/themisdata/workdir/filelists/asi_summary_list_${site}_YYYYMM.txt.**

2. **gen_asi_site_summary_display.ksh**

This script loads the configuration file
**/disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
defining the environment variables
CONFIGDIR=${THMSOC}/src/config
LOCAL=/mydisks/home/thmsoc
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists.
This script loops through all dates up to the current date in
**/disks/socware/thmsoc_dp_current/src/config/date_list.txt,**
and all sites in
**/disks/socware/thmsoc_dp_current/src/config/uc_asi_site_list.txt,**
counting entries in the files
**/disks/themisdata/workdir/filelists/asi_summary_list_${site}_YYYYMM.txt**
generating an ascii table showing the number of asi summary files for each site and date:
**/disks/themisdata/workdir/filelists/asi_site_summary_display.txt.**

3. **list_asi_allsite_summaries.ksh**

This script loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**




**[2] /disks/socware/thmsoc_dp_current/src/config/ground_asi.config,**
defining the environment variables
from [1] CONFIGDIR=${THMSOC}/src/config
LOCAL=/mydisks/home/thmsoc
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists
from [2] DATA_ROOT=/disks/themisdata
L0ASIDIR=${DATA_ROOT}/thg/l0/asi.
For each of the current and previous month, the script loops through each of the following types:
average, keograms, summary, orbit, themis_foot, themis_south
and generates a list of the files of that type for the given month:
**/disks/themisdata/workdir/filelists/asi_summary_list_TYPE_YYYYMM.txt**

**4. gen_asi_allsite_summary_display.ksh**
This script loads the configuration file
**/disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
defining the environment variables
CONFIGDIR=${THMSOC}/src/config
LOCAL=/mydisks/home/thmsoc
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists.
This script loops through all dates up to the current date in
**/disks/socware/thmsoc_dp_current/src/config/date_list.txt,**
and through each of the following types:
average, keograms, summary, orbit, themis_foot, themis_south,
checking the files
**/disks/themisdata/workdir/filelists/asi_summary_list_TYPE_YYYYMM.txt**
to determine the number of files of each type for each month, and creating the ascii display file
**/disks/themisdata/workdir/filelists/asi_allsite_summary_display.txt**

**5. gen_grand_asi_display.ksh**
This script loads the configuration file
**/disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
defining the environment variables
CONFIGDIR=${THMSOC}/src/config
LOCAL=/mydisks/home/thmsoc
WORKDIR=${THEMISDATA}/workdir
FILELISTS=${WORKDIR}/filelists.
This script loops through all dates up to the current date in
**/disks/socware/thmsoc_dp_current/src/config/date_list.txt,**
and all sites in the list
**/disks/socware/thmsoc_dp_current/src/config/lc_asi_site_list.txt.**
It loops through all datatypes in the list
**/disks/socware/thmsoc_dp_current/src/config/asi_dtype_list.txt,**
looking in the files
**/disks/themisdata/workdir/filelists/asi_lowrate_list_SITE_TYPE_YYYYMM.txt**
to determine the number of files of each type.
It also looks through the files of type
**/disks/themisdata/workdir/filelists/asi_summary_list_SITE_YYYYMM.txt**
to determine the number of summary files.
Finally, for each of the types:
average keograms summary

the script looks in the files

**/disks/themisdata/workdir/filelists/asi_summary_list_TYPE_YYYYMM.txt**

to determine the number of files for that type.
This information is displayed in the ascii file

**/disks/themisdata/workdir/filelists/asi_grand_display.txt**

### 4.36.3 Products and Storage

Lists are kept in the following files:

**/disks/themisdata/workdir/filelists/ asi_summary_list_${site}_YYYYMM.txt**
**/disks/themisdata/workdir/filelists/ asi_summary_list_TYPE_YYYYMM.txt**

These files are used to build an ASCII display of data availability. These files are:

**/disks/themisdata/workdir/filelists/ asi_site_summary_display.txt**
**/disks/themisdata/workdir/filelists/ asi_allsite_summary_display.txt**
**/disks/themisdata/workdir/filelists/ asi_grand_display.txt**

### 4.36.4 Process Logs

None.

### 4.36.5 Database Information

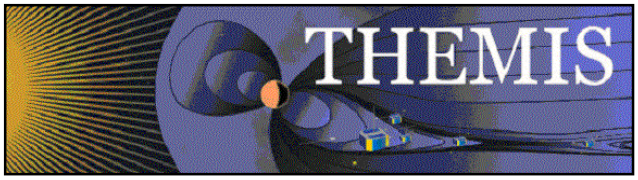
None.

### 4.36.6 Web Information

ASI low-rate data availability displays can be viewed at:

http://themis.ssl.berkeley.edu/data_inventory/ground_data/asi/

(mapped from /disks/danaid/home/www/html/data_inventory/ground_data/asi, where the list files are symbolic links to the above mentioned files in /disks/themisdata/workdir/filelists/).




## *4.37 All Sky Imager (ASI) Products*

### 4.37.1 Description

Generate and reprocess ASI cdf products and gif products.

### 4.37.2 Main Scripts/Programs

A cronjob on auxo launches the following scripts:

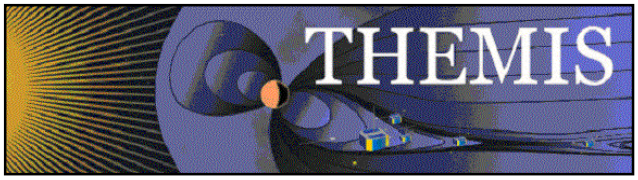
**/disks/socware/thmsoc_dp_current/src/ksh/make_asi_products.ksh**
**/disks/socware/thmsoc_dp_current/src/ksh/reprocess_asi.ksh**

1. **make_asi_products.ksh**

This script calls the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/setup_themis.bourne**
defining the environment variables
from [1] THEMISDATA="/disks/themisdata"
LOGDIR=${THEMISDATA}/process_logs
SCRATCH=${THEMISDATA}/scratch
SOC_EMAIL="jimm@ssl.berkeley.edu pcruce@igpp.ucla.edu jwl@ssl.berkeley.edu lphilpott@igpp.ucla.edu"
from [2] IDL_BASE_DIR=$THMSOC/idl
IDL_THMSOC_DIR=${IDL_BASE_DIR}/thmsoc.
This script calls the idl batchfile
**/disks/socware/thmsoc_dp_current/idl/thmsoc/asi/batchfile,**
compiling a number of IDL routines:
@compile_cdaweb
.run IDLmakecdf (compile the routines necessary for writing cdfs)
.run thm_asi_create_ask_cdf
.run thm_asi_create_ast_cdf
.run thm_asi_create_asf_cdf
.run thg_asi_imager_readfile
.run thg_asi_thumbs
.run istp_cdf_readfile
.run thg_asi_getimage
and running the script
.run thg_asi_daily_script (this is a main program that generates a variety of products)
NB: the routine thg_asi_setup.init run from within these routines sets up a number of variables including the output file directories.
thg_asi_daily_script.pro calls a number of IDL routines to generate ASI products, including:
themis_daily_overview (generate gif: summary.YYYY.MM.DD.gif)
themis_full_overview (generate gif: average.YYYY.MM.DD.gif)
themis_daily_keograms_new (generate gif: keograms.YYYY.MM.DD.gif)
thm_asi_create_ask_cdf (generate ask cdf)
automatic_script (incls calls to make_hour_plots to generate hourly overview plots [SITE].YYYY.MM.DD.HH.(MM).gif and thm_asi_create_ast_cdf to generate ast cdfs)
(products are generated for three days prior to the current date).

2. **reprocess_asi.ksh**

This script calls the configuration files




**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/setup_themis.bourne**

and calls the scripts

**check_ask_files.ksh**
**check_ast_files.ksh**

using the function

**/disks/socware/thmsoc_dp_current/src/ksh/funcs/pn_day**

to calculate the start and end dates (4 and 3 days before the present) to pass to the scripts.
**check_ask_files.ksh/check_ast_files.ksh** use the script **gen_idl_line.ksh** to create an IDL batch file to run the IDL procedures **check_ask_files.pro/check_ast_files.pro,** which check for ask/ast cdf files and attempt to generate any that are missing.

### 4.37.3 Products and Storage

ASI cdfs:

/disks/themisdata/thg/l1/asi/[SITE]/YYYY/MM/thg_l1_ast_SITE_YYYYMMDD_v01.cdf
(/disks/themisdata/thg/l1/asi/[SITE]/YYYY/MM/thg_l1_asf_SITE_YYYYMMDD_v01.cdf)
/disks/themisdata/thg/l1/asi/ask/YYYY/thg_l1_ask_YYYYMMDD_v01.cdf

Image products

/disks/themisdata/thg/l0/asi/YYYY/MM/average.YYYY.MM.DD.gif
/disks/themisdata/thg/l0/asi/YYYY/MM/keograms.YYYY.MM.DD.gif
/disks/themisdata/thg/l0/asi/YYYY/MM/summary.YYYY.MM.DD.gif
/disks/themisdata/thg/l0/asi/YYYY/MM/DD/[SITE]/[SITE].YYYY.MM.DD.HH.gif
/disks/themisdata/thg/l0/asi/YYYY/MM/DD/[SITE]/[SITE].YYYY.MM.DD.HH.MM.gif

### 4.37.4 Process Logs

ASI products logs:

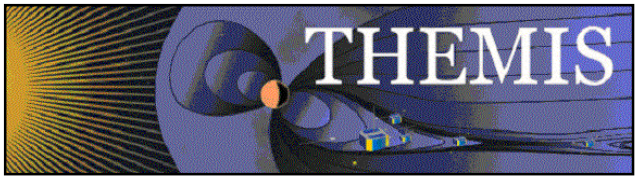
/disks/themisdata/process_logs/asi/asi_processing_log_YYMMDD.txt

### 4.37.5 Database Information

None.

### 4.37.6 Web Information

None.




## *4.38 All Sky Imager (ASI) Orbits*

### 4.38.1 Description

Generate orbit gif products.

### 4.38.2 Main Scripts/Programs

A cronjob on auxo launches the following script:

**/disks/socware/thmsoc_dp_current/src/ksh/make_asi_orbits.ksh**

This script calls the configuration files

**[1] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
**[2] /disks/socware/thmsoc_dp_current/src/config/setup_themis.bourne**

defining the environment variables

from [1] THEMISDATA="/disks/themisdata"
LOGDIR=${THEMISDATA}/process_logs
SCRATCH=${THEMISDATA}/scratch
SOC_EMAIL="jimm@ssl.berkeley.edu pcruce@igpp.ucla.edu jwl@ssl.berkeley.edu lphilpott@igpp.ucla.edu"
from [2] IDL_BASE_DIR=$THMSOC/idl
IDL_THMSOC_DIR=${IDL_BASE_DIR}/thmsoc.

The script runs the IDL batch files

**/disks/socware/thmsoc_dp_current/idl/thmsoc/asi/orbit_batchfile**
**/disks/socware/thmsoc_dp_current/idl/thmsoc/asi/lunar_orbit_batchfile**
**/disks/socware/thmsoc_dp_current/idl/thmsoc/asi/lunar_orbit_sse_batchfile**

**orbit_batchfile** calls

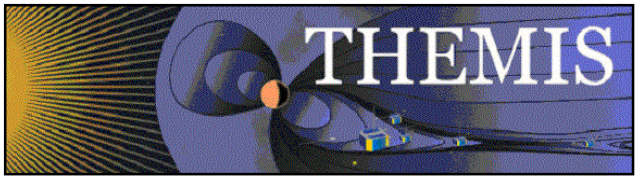
.run map_themis_state_t96
.run map_themis_state_south_t96
.run compass
.run istp_cdf_readfile
.run t96_mgnp
.run bshock_2
.run mpause_2
.run thg_asi_state_daily_script

to compile the various scripts, and calls the IDL procedure **process_modified _orbit_dates.pro.** **lunar_orbit_batchfile** and **lunar_orbit_sse_batchfile** call **process_modified_orbit_dates.pro** with keywords /lunar and /sse_lunar respectively.
map_themis_state_t96.pro generates the gifs themis_foot_YYYY-MM-DD.gif
map_themis_state_south_t96.pro generates the gifs themis_south_YYYY-MM-DD.gif
process_modified_orbit _dates.pro generates orbit gifs:

orbit_moon_YYYY-MM-DD_HHHH.gif (where the first HH is the start hour and the second HH is the end hour).
orbit_moon_sse_YYYY-MM-DD_HHHH.gif (HHHH as above)
orbit_YYYY-MM-DD_HHHH.gif (HHHH as above)

### 4.38.3 Products and Storage

/disks/themisdata/thg/l0/asi/YYYY/MM/themis_foot_YYYY-MM-DD.gif
/disks/themisdata/thg/l0/asi/YYYY/MM/themis_south_YYYY-MM-DD.gif
/disks/themisdata/thg/l0/asi/YYYY/MM/orbit_moon_YYYY-MM-DD_HHHH.gif
/disks/themisdata/thg/l0/asi/YYYY/MM/orbit_moon_sse_YYYY-MM-DD_HHHH.gif
/disks/themisdata/thg/l0/asi/YYYY/MM/orbit_YYYY-MM-DD_HHHH.gif




### 4.38.4 Process Logs

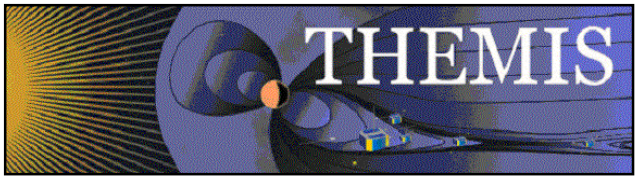
/disks/themisdata/process_logs/orbits/idl_orbits_YYMMDD
/disks/themisdata/process_logs/orbits/idl_lunar_orbits_YYMMDD
/disks/themisdata/process_logs/orbits/idl_lunar_orbits_sse_YYMMDD

### 4.38.5 Database Information

None.

### 4.38.6 Web Information

None.




## *4.39 All Sky Imager (ASI) Mosaic Image Production*

### 4.39.1 Description

Create or update the ASI Mosaic plots using the latest data.

### 4.39.2 Main Scripts/Programs

A cronjob on thailo launches the following script:

**/disks/socware/thmsoc_dp_current/src/ksh/run_asi_mosaic.ksh**

This script creates and runs an IDL batch file which creates or updates the mosaic files.
The script loads the configuration files
**[1] /disks/socware/thmsoc_dp_current/src/config/asi_mosaic_setup.bourne**
**[2] /disks/socware/thmsoc_dp_current/src/config/soc_it_to_me.config**
defining the environment variables
from [2] THEMISDATA="/disks/themisdata"
LOGDIR=${THEMISDATA}/process_logs
MOSAICWORK=/home/thmsoc/asi_mosaic_cronjob.
The script runs the idl routine
**run_create_themis_mosaics_hr.pro,**
which itself runs
**create_themis_mosaics_hr.pro**
to generate the ASI mosaics that eventually end up at
**/disks/themisdata/thg/l0/asi/YYYY/MM/DD/MOSA/MOSA.YYYY.MM.DD.HH.MM.SS.gif**

### 4.39.3 Products and Storage

The mosaic file naming convention takes the form:

**MOSA.YYYY.MM.DD.HH.MM.SS.gif**

These files are stored at:

**/disks/themisdata/thg/l0/asi/YYYY/MM/DD/MOSA/**

### 4.39.4 Process Logs

Log files for this process take the form:

**/disks/themisdata/process_logs/mosaics/make_mosaic_YYMMDD**

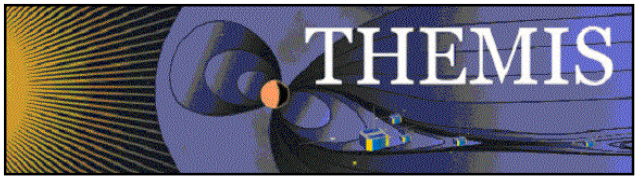
### 4.39.5 Database Information

None.

### 4.39.6 Web Information

The mosaic plots can be viewed at:

http://themis.ssl.berkeley.edu/gbo/display.py




# 5. Website Activities

## *5.1 Process Web Server Logs*

### 5.1.1 Description

The THEMIS Web server logs are archived and processed for information relating to data usage by external users.

### 5.1.2 Main Scripts/Programs

A cronjob on danaid (the THEMIS web server) launches the following scripts:

**/disks/socware/thmsoc_dp_current/src/ksh/grab_weblog.ksh**
**/disks/socware/thmsoc_dp_current/src/ksh/process_weblogs.ksh**

The first script copies the logs from the temporary server location. The second script parses information from the logs and places it into a database on the DP MySQL server.

Additional Scripts:

**/disks/socware/thmsoc_dp_current/src/ksh/process_weblog4sum.ksh** – searches log for information related to summary/tohban plot usage.

**/disks/socware/thmsoc_dp_current/src/ksh/process_weblog4data.ksh** – searches log for information related to usage of the web interface for downloading CDF data.

**/disks/socware/thmsoc_dp_current/src/ksh/process_weblog4swdl.ksh** – searches the log for information related to the usage of THEMIS Data Analysis Software (TDAS) for downloading data.

**/disks/socware/thmsoc_dp_current/src/php/update_weblog_cdf_access.php** – archives usage information in database on DP MySQL server.

### 5.1.3 Products and Storage

The THEMIS web server log files are renamed to:

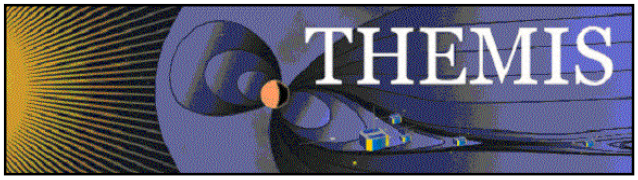
**thmweb_accesslog_StartStop**
where StartStop=DayMonthDayMonthYear
example: thmweb_accesslog_24Feb02Mar08

Data derived from the log files is stored in separate files, broken up by usage:

**mysql_thmweb_accesslog_DayMonthDayMonthYear_type**
where type = sum, data, or swdl

These files are initially stored at:

**/disks/themisdata/weblogs**




### 5.1.4 Process Logs

None.

### 5.1.5 Database Information

The database web_usage is found on the DB MySQL server on astraea. It contains tables for each usage type listing access statistics.

### 5.1.6 Web Information

Currently, there are 2 high level views of usage. A mission level view:

http://themis.ssl.berkeley.edu/data_processing_check/ground_data_mirrors/webstats_summary.php

And a view of related to UAlberta/CARISMA data usage:

http://themis.ssl.berkeley.edu/data_processing_check/ground_data_mirrors/webstats_carisma_summary.php

## *5.2 Website Maintenance*

### 5.2.1 THEMIS – Critical Site Files

The THEMIS site root directory is located on the SSL server: **/disks/danaid/home/www/html**

Critical files for site operation are located in the following subdirectories:

**/common/css/ themisStyles.css**: Cascading style sheet (CSS) for entire site layout, graphical and type formatting, and front/content page header configurations.

**/common/js/**: Javascript source files for file pre-loading, menu formatting, summary plot script functions.

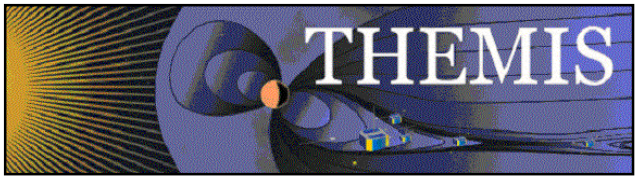
**/includes/ navigation-scripts-css.lbi**: site main menu source code, to revise menu links.

**/menu/ themis-menu.css**: site main menu layout and text formatting (do not edit).

Note: The web related php scripts in the subdirectories data_processing_check, EPO_Access, and vc_check are symbolic links to the master versions of these scripts at /disks/socware/thmsoc_dp_current/src/php/webserver_scripts/.
When updates to these scripts are necessary the scripts should be checked in to SVN and pushed into the production version.

### 5.2.2 THEMIS – Beta Test Page

All updates and/or edits to THEMIS web images and content pages must first be saved into the Beta subdirectory in the site root folder, which contains a mock-up of all “live” content. First, open the “live” source file in the appropriate root directory, then save a copy to the corresponding folder in the Beta subdirectory, overwriting the existing Beta copy if necessary. After testing and formatting is complete, links to the Beta pages should be submitted to David King and the PI (or source of update request) for approval. The approved Beta file(s) may then be transferred to the root directory, either overwriting the




original or saving the original file with an appended date if needed for version tracking. Alternatively, the source code may also be copied from the Beta file and carefully pasted to the appropriate section in the root directory file.

### 5.2.3 THEMIS – News Updates

Updates to news items must be performed on both the root directory files "index.shtml" and "news.shtml"

Any news text must be first added to the homepage index file inside the  and <p class="news"> tags, adding the date of entry and front page headline text up to 400 characters.** The accompanying news image must be placed inside , no wider than 128px and no taller than 200px for the caption to fit.

Any additional text and images/video beyond the 400 character front page limit must be added to the "news.shtml" content page inside the <P class="pageTitle"> tag, below the header "<h1>THEMIS News</h1>." Include a news item summary title and the phrase "(continued from home page):" followed by the press release date and additional news text. All images or videos should be scaled to 300px wide, with figure caption and appropriate media source credit. Include citation and shortcut PDF links to all published papers.

**Please note: before adding a new front page news entry to "index.shtml," the previous entry's front page headline must be appended to the corresponding entry in the "news.shtml" page for archiving.

### 5.2.4 THEMIS – GBO Station Updates

The latest GBO station details should be uploaded to:

**/ images/ASI/THEMIS_GMAG_Station_List_mmm_yyyy.xlsx**

The corresponding link to this file must also be updated on the following pages:

**instrument_gmags.shtml**
**asi_map.shtml**

Additionally, any updates to station counts, affiliations, or classifications should be made here:

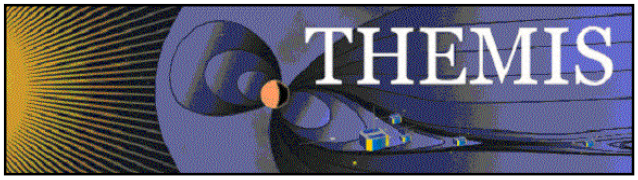
**instrument_gmags.shtml**
**gmag_desc.shtml**

### 5.2.5 THEMIS – Publications

Recent publications (2011-2012) are stored on the SSL server:

**/disks/danaid/home/www/html/pubs/20XX_refereed**

for peer-reviewed articles and all others under "pubs/20XX_nonrefereed." Publications are entered in both HTML and Excel formats in each folder and must be listed in alphabetical order, with author last name and first initial, month and year of acceptance, journal name, and then the full citation, with a link to the abstract, or if unavailable, to the publisher's "in press" article page.




Older publications (pre-2010) are stored on the IGPP server RESEARCH1, using the same format:

**//research1/research1/space_emergency/obitwo/cache5/data3/public/THEMIS/SCI/Pubs/**

Regardless of source location, each year of publications must be correctly linked via the file "publications.shtml," in the Themis site root directory.

### 5.2.6 THEMIS – Nuggets

THEMIS nuggets, or research summaries, are currently stored on the IGPP server RESEARCH1:

Summary page:
**//research1/research1/space_emergency/obitwo/cache5/data3/public/THEMIS/SCI/Pubs/Nuggets/ /nuggets_20YY/nuggets_YY.html**

The summary page should list nuggets in reverse chronological order by month of acceptance, most recent first. Each summary should be in lay language and no more than 2-3 sentences, with a 100px square image, linking to the detailed nugget.

Nugget page:
**//research1/research1/space_emergency/obitwo/cache5/data3/public/THEMIS/SCI/Pubs/Nuggets/ /nuggets_20YY/author/author_YY.html**

Each nugget should follow the same format with Title, Author, Introduction, Results, Conclusion, Reference, and Biographical Note. Figures should be thumbnailed to 300px wide and link to the full size image (no larger than 1000px wide), and should be accompanied by a detailed caption.

Each year of nugget summaries must be correctly linked via the page "publications.shtml," in the Themis site root directory.

Additional nugget images may be added to the slideshow on the THEMIS front page by editing "index.shtml" under the section , following the existing javascript slidelink script format. Slideshow source images and an Adobe Photoshop PSD template can be found on the SSL site:

**/disks/danaid/home/www/html/images/index.table/nuggets**

### 5.2.7 ARTEMIS – Critical Site Files

All ARTEMIS site files are located on the SSL server: **/disks/danaid/home/www/artemis**

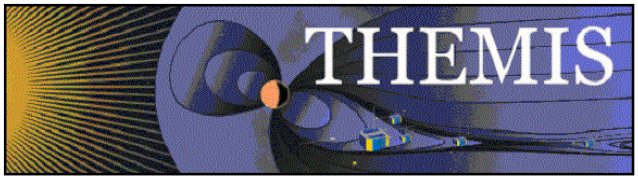
Critical files for site operation are located in the following subdirectories:

**/common/css/ artemis_styles.css**: Cascading style sheet (CSS) for entire site layout, graphical and type formatting, front/content page header configurations.

**/common/js/**: Javascript source files for file pre-loading, menu formatting, summary plot script functions.

**/includes/ navigation-scripts-css.lbi**: site main menu source code, to revise menu links.

**/menu/ themis-menu.css**: site main menu layout and text formatting (do not edit).




### 5.2.8 ARTEMIS – Beta Test Page

All updates and/or edits to ARTEMIS web images and content pages must first be saved into the Beta subdirectory in the site root folder, which contains a mock-up of all "live" content. First, open the "live" source file in the appropriate root directory, then save a copy to the corresponding folder in the Beta subdirectory, overwriting the existing Beta copy if necessary. After testing and formatting is complete, links to the Beta pages should be submitted to David King and the PI (or source of update request) for approval. The approved Beta file(s) may then be transferred to the root directory, either overwriting the original or saving the original file with an appended date if needed for version tracking. Alternatively, the source code may also be copied from the Beta file and carefully pasted to the appropriate section in the root directory file.

### 5.2.9 ARTEMIS – News Updates

Updates to news items must be performed on both the root directory files "index.shtml" and "news.shtml"

Any news text must be first added to the homepage index file inside the  and <p class="news"> tags, adding the date of entry and front page headline text up to 400 characters.** The accompanying news image must be placed inside , no wider than 128px and no taller than 200px for the caption to fit.

Any additional text and images/video beyond the 400 character front page limit must be added to the "news.shtml" content page inside the <p class="pageTitle"> tag, below the header "<h1>ARTEMIS News</h1>." Include a news item summary title and the phrase "(continued from home page):" followed by the press release date and additional news text. All images or videos should be scaled to 300px wide, with figure caption and appropriate media source credit. Include citation and shortcut PDF links to all published papers.

**Please note: before adding a new front page news entry to "index.shtml," the previous entry's front page headline must be appended to the corresponding entry in the "news.shtml" page for archiving.

### 5.2.10 ARTEMIS – Publications

Recent publications (2011-2012) are stored on the SSL server:

**/disks/danaid/home/www/artemis/pubs/20XX_refereed**

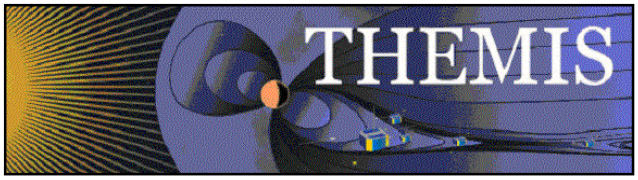
for peer-reviewed articles and all others under "pubs/20XX_nonrefereed." Publications are entered in both HTML and Excel formats in each folder and must be listed in alphabetical order, with author last name and first initial, month and year of acceptance, journal name, and then the full citation, with a link to the abstract, or if unavailable, to the publisher's "in press" article page.

Older publications (pre-2010) are stored on the IGPP server RESEARCH1, using the same format:

**//research1/research1/space_emergency/obitwo/cache5/data3/public/THEMIS/SCI/Pubs/artemis**

Regardless of source location, each year of publications must be correctly linked via the file "publications.shtml," in the ARTEMIS site root directory.

### 5.2.11 ARTEMIS – Nuggets




ARTEMIS nuggets, or research summaries, are currently stored on the SSL server:

Summary page:
**/disks/danaid/home/www/artemis/nuggets/nuggets_20YY/nuggets_YY.html**

The summary page should list nuggets in reverse chronological order by month of acceptance, most recent first. Each summary should be in lay language and no more than 2-3 sentences, with a 100px square image, linking to the detailed nugget.

Nugget page:
**/disks/danaid/home/www/artemis/nuggets/nuggets_20YY/author/author_YY.html**

Each nugget should follow the same format with Title, Author, Introduction, Results, Conclusion, Reference, and Biographical Note. Figures should be thumbnailed to 300px wide and link to the full size image (no larger than 1000px wide), and should be accompanied by a detailed caption.

Each year of nugget summaries must be correctly linked via the page "publications.shtml," in the Themis site root directory.

Additional nugget images may be added to the slideshow on the ARTEMIS front page by editing "index.shtml" under the section , following the existing javascript slidelink script format. Slideshow source images and an Adobe Photoshop PSD template can be found on the SSL site:

**/disks/danaid/home/www/artemis/images/index.table/nuggets**

# 6. Software Distribution Administration

## 1.1 SVN Repository

The Themis Data Analysis Software (TDAS) is part of a Subversion (SVN) repository, residing on ambrosia.ssl.berkeley.edu. (For information regarding SVN, go to http://subversion.tigris.org/ .) Access to the SVN repository is restricted, For access, developers are required to connect via SSH keys. Setup for SVN access is documented at http://themis.ssl.berkeley.edu/downloads/thm_crib_svn_cmdline.txt for command line users and http://themis.ssl.berkeley.edu/downloads/thm_crib_svn_gui.txt, for GUI users.

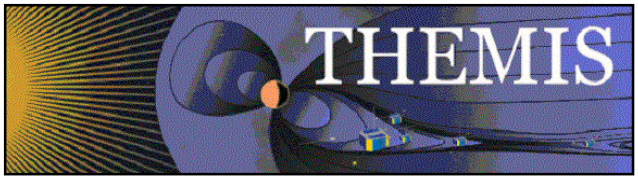
This section will discuss administration of the SVN repository. SVN administration is done by the THMSW user, which developers can access using SSH. (This is possible only from a local SSL workstation; type ssh thmsw@ambrosia and input your passphrase.) Once the developer has THMSW access, then he can access the THMSVN account.

The home directory of the THMSW user is /disks/socware. A number of shell scripts are located here which are used for administration.

## 6.2 THMSW Shell Scripts

Currently a number of shell scripts are used:

Thm_snapshot.sh creates the nightly build of TDAS software for distribution. This is called in a cronjob each day.




Thm_release_tdas_6.sh creates a “release” of the current software, note that this MUST be called with arguments. E.g.,

/bin/csh thm_release_tdas_6.sh  tdas_6_00 tdas_6_00 tdas_6_00-COMMENT

The shell scripts:

thm_update_idx_exclude.sh
thm_update_production_calibration.sh
thm_update_production_config.sh
thm_update_production_gmag_mastercdf.sh
thm_update_production_idl.sh
thm_update_production_ksh.sh
thm_update_production_php.sh

are used to update various production directories.

## 6.3 TDAS Releases

TDAS occasionally is released with a version number. A release version of TDAS has gone through an intensive QA process and is expected to perform without undue bugs, and without difficult to understand “features”.  To release a version of TDAS, issue the following commands as the THMSW user. This example is the script for releasing TDAS_7_00:

```
# removing and creating tdas_7_00 from scratch . DO THIS IF YOU ARE REPLACING A RELEASE
#DURING QA
svn delete $SOCREPOS/thmsoc/branches/tdas_7_00 -m "deleting tdas_7_00 branch, rebuild from scratch"
svn delete $SOCREPOS/idl_socware/branches/tdas_7_00 -m "deleting tdas_7_00 branch"
svn delete $SOCREPOS/ssl_general/branches/tdas_7_00 -m "deleting tdas_7_00 branch"
svn delete $SOCREPOS/tdas/branches/tdas_7_00 -m "deleting tdas_7_00 branch"
rm -rf /disks/socware/tdas_7_00
rm -rf /disks/themisdata/socware/tdas_7_00
svn delete $SOCREPOS/tdas/tags/tdas_7_00 -m "Deleting tdas_7_00 tag"
svn delete $SOCREPOS/thmsoc/tags/tdas_7_00 -m "Deleting tdas_7_00 tag"
svn delete $SOCREPOS/ssl_general/tags/tdas_7_00 -m "Deleting tdas_7_00 tag"
svn delete $SOCREPOS/idl_socware/tags/tdas_7_00 -m "Deleting tdas_7_00 tag"

# Start here if there is no branch already
svn copy $SOCREPOS/thmsoc/trunk $SOCREPOS/thmsoc/branches/tdas_7_00 -m "Creating tdas_7_00
branch"
svn copy $SOCREPOS/ssl_general/trunk $SOCREPOS/ssl_general/branches/tdas_7_00 -m "ssl_general
7_00 branch"
svn mkdir $SOCREPOS/idl_socware/branches/tdas_7_00 -m "Create directory for tdas_7_00 branch"
svn copy $SOCREPOS/idl_socware/trunk/external $SOCREPOS/idl_socware/branches/tdas_7_00/external
-m "Create tdas_7_00 branch"
svn mkdir $SOCREPOS/tdas/branches/tdas_7_00 -m "creating dir for tdas_7_00 in tdas/branches"
svn mkdir $SOCREPOS/tdas/branches/tdas_7_00/external -m "creating dir for tdas_7_00 in tdas/branches"

# Once you have a branch, and only want to release the new version, start here.
```

/bin/csh thm_release_tdas_6.sh tdas_7_00 tdas_7_00 tdas_7_00-jmm_20120227
#version 9888

The appropriate zip file will be available at the URL
http://themis.ssl.berkeley.edu/socware/tdas_7_00/tdas_7_00.zip

The final step to the release is to change the link pointing to the latest release in the THEMIS Web software page:

http://themis.ssl.berkeley.edu/software.shtml

## 6.4 Adding New Users

The thmsw account is for building the /idl/socware distributions, and is the gateway to svn administration. It is not necessary for users to have access to it to use svn.

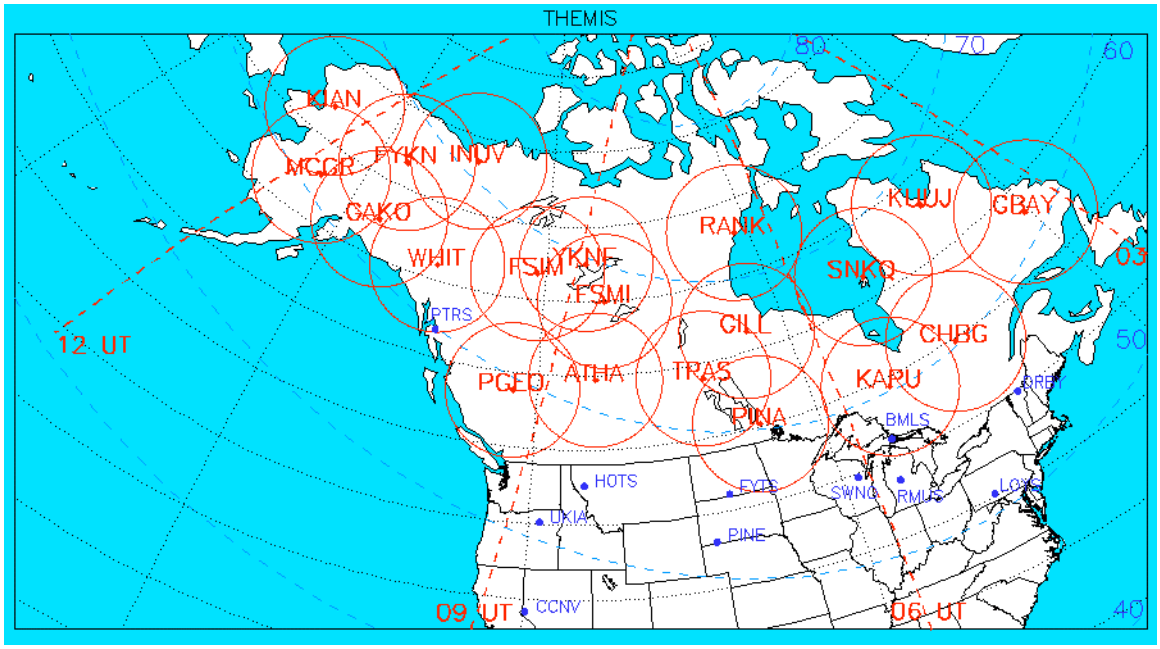
To log in as thmsvn, first log in to the thmsw account, then type "thmsvn", which is an alias for ssh using a key that is restricted to svn use. Then cd to the .ssh directory and follow the examples/instructions in the thmsvn authorized_keys file to add the new user. The user will provide a public SSH key for this purpose.

To add a new user's email address to the notification message list, edit the file /home/thmsvn/repos/hooks/post-commit.

# 7. Appendix

## 7.1 GBO/EPO Site Map

The following map shows the location of the GBO and EP installations:




## 7.2 THEMIS Data Mirror Sites

The following are mirror sites where THEMIS/ARTEMIS data can be accessed:

**US-East Coast – Space Physics Data Facility – Goddard Space Flight Center**
THEMIS Data Mirror Site - http://cdaweb.gsfc.nasa.gov/data/themis/

Curator: Tami Kovalick: tamara.j.kovalick@nasa.gov

**Japan – Institute of Space & Astronautical Science (ISAS) at JAXA**

ISAS/JAXA THEMIS data mirror site - http://themis.stp.isas.jaxa.jp/data/themis/
Data accessible via any HTTP client tool (wget)

THEMIS Data Mirror Site at DARTS - http://darts.isas.jaxa.jp/stp/themis/
Data available via DARTS:

- THA-THE spacecraft level-0 to 2 data : fully mirrored
- GBO GMAG geomagnetic field level-2 data : fully mirrored

- GBO ASI all-sky imager level-1 data: partially mirrored - thg_ast (thumbnail) and thg_ask (keogram)
- Greenland geomagnetic field data

THEMIS data access via TDAS:
Set "Remote data directory" under File -> Configuration Settings of the TDAS GUI to http://themis.stp.isas.jaxa.jp/data/themis/

Administrators: Dr. Iku Shinohara: iku@stp.isas.jaxa.jp
darts-admin@ML.isas.jaxa.jp

**France – Plasma Physics Data Center (CDPP) at Center for Space Radiation Studies (CERS)**

CDPP THEMIS data mirror site - http://cdpp.cesr.fr/themisdata/
Data accessible via any HTTP client tool (wget)

CERS web-based THEMIS data analysis tools:
- CLWEB - http://clweb.cesr.fr/ (for detailed studies)
- AMDA - http://cdpp-amda.cesr.fr/DDHTML/index.html (visualisation, data mining, managing "simple" data)

THEMIS data access via TDAS:
Set "Remote data directory" under File -> Configuration Settings of the TDAS GUI to http://cdpp.cesr.fr/themisdata/

Administrators: Emmanuel Penou: penou@cesr.fr
Myriam Bouchemit: myriam.bouchemit@irap.omp.eu

**UCLA – Site under construction**

Mirror site URL: TBD
Administrators: Todd King: tking@igpp.ucla.edu - 310.206.7120,
Bill Harris: bharris@igpp.ucla.edu - 310.825.9320

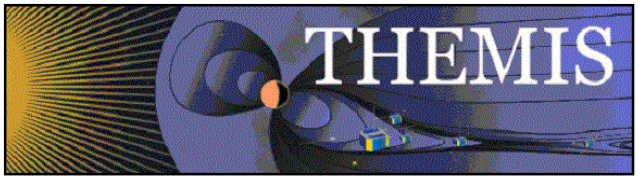
## *7.3 Software Extensions for TDAS*

The following missions are providing packages/plug-ins which are (to be) included in the TDAS distribution:

a) Energization and Radiation in Geospace (ERG) Mission (plug-in)
Contacts: Yoshizumi Miyoshi (miyoshi@.stelab.nagoya-u.ac.jp),
erg-sc-core@st4a.stelab.nagoya-u.ac.jp
ERG site: http://gemsissc.stelab.nagoya-u.ac.jp/erg/

b) Inter-university Upper atmosphere Global Observation NETwork (IUGONET)
Contact: Tomoaki Hori Stel (horit@stelab.nagoya-u.ac.jp)
UDAS site: http://www.iugonet.org/en/software.html

c) Radiation Belt Storm Probes (RBSP) – will be part of TDAS
Contact: Peter Schroder (peters@ssl.berkeley.edu)
RBSP site: http://rbsp.jhuapl.edu/




## 7.4 IDL Technical Support

IDL Vendor - Exelis (IDL was formerly owned by ITT)
Exelis IDL Technical Support Page - http://www.exelisvis.com/language/en-US/Support.aspx

| | | |
|---|---|---|
| Sales Rep: Brian Farr | 303-402-4670 | email: Brian.Farr@exelisvis.com |
| Technical Support: | 303-413-3920 | email: support@exelisvis.com |