THEMIS Science Data Analysis Software Quick Reference Guide
June 2009

Software and Software Documentation Downloads

The THEMIS Software Web Page URL is http://themis.ssl.berkeley.edu/software.shtml/. The user can download released software and software documentation from this site. NOTE: The user can choose to download not yet released software (under 'Future Releases:'), but it is not recommended . While this software contains updates, enhancements, and bug fixes, full quality assurance testing has not been done. Use at your own risk.

System Requirements

The THEMIS Data Analysis Software requires an IDL developer's license for Windows or a UNIX-like operating system, e.g. Solaris, Linux, or Mac OS X. The software has been tested on IDL 6.3, 6.4 and 7.0 but should work on any level of IDL above 6.2.

Installation

For a new installation:
1. Download and expand the latest TDAS release .zip file. See section 2.3 THEMIS Science Software.
2. Create a directory called TDAS into which you will copy the latest software.
3. Move the tdas_x_xx folder into the TDAS directory you created.
4. Configure IDL to search the TDAS directory for IDL programs. See section 5.3.1 IDL PATH setup.

For an upgrade of an existing installation of TDAS, as per the above 4 steps:
1. Remove old tdas_x_xx from the TDAS directory.
2. Download and expand the latest TDAS release .zip file.
3. Copy the new tdas_x_xx directory into the pre-existing TDAS directory.
4. Re-start IDL.

CDF File Formats

It is important to note that there is a patch to IDL, which is recommended for best handling of the CDF file format that is used by the THEMIS data files. See: http://cdf.gsfc.nasa.gov/html/cdf_patch_for_idl6x_new.html If you are using IDL 6.2, Intel Mac with any version of IDL, or IDL 7.0 you must install this patch to read CDF files properly.   Special note for Mac: If there are problems with the files you downloaded from GSFC, please download them from the THEMIS ftp site http://themis-tmserver1.ssl.berkeley.edu/~themis/public_share/idl_mac/.
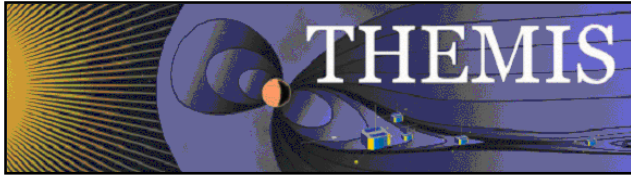
Mac OS X Notes

You need X11 to view plots and use the GUI in IDL. You can search for X11 in the Spotlight to see if the X11 application is installed on your system. X11 is available on your Mac installation disks, but may not be installed by default. There is a known problem, mentioned in the IDL 6.3 release notes, which affects all IDL users running Mac OS 10.4 (Tiger). The tlimit command will lock up IDL because the plot window will not receive any mouse clicks.

Workaround: Change the X11 start-up parameters. Do the following:
1. Open any terminal window (in X11 application menu bar, choose xterm from the applications menu)
2. Enter the following at the shell prompt: > defaults write com.apple.x11 wm_click_through -bool true
3. Quit X11 (if it is running).

The new default will take effect the next time you start X11, and it will persist from that point (i.e., you will not have to make the change again).

Linux Notes

There are problems with some versions of ubuntu and IDL graphic objects. If you find that widgets are not realized when opening a new window, you may need to turn visual effects off. This can be done using ubuntu system preferences and setting Visual effects to none.

IDL Setup (Unix, Linux or Mac OS X)

<u>Path</u>: For Windows or IDLDE on UNIX, you can use the File->Preferences widget to set up the path so IDL can find the THEMIS IDL files. For additional details on how to do this please see section 5.3, Installation and Configuration of the Software User's Guide.
<u>Command Line:</u> For the command line version of IDL, installation consists of setting up the IDL_PATH environment variable. For additional details on how to do this please see section 5.3, Installation and Configuration of the Software User's Guide.
The most common problem people have is with an improperly configured path.

Data Directory Setup

The THEMIS Data Analysis Software requires a local data directory in which THEMIS data files can be cached. The software will attempt to create the local data directory for you at the following default location, depending on your operating system.

OS	LOCAL_DATA_DIR
Windows	C:\data\themis
Solaris, Linux, Mac OS X	~/data/themis

Known Limitations

1. Incompatibilities with Solar Software (SSW). Some names clashe if both TDAS and SSW are on your IDL_PATH.
2. ASI data: ASF (full resolution ASI data) requires a 64-bit machine to load more than 1 hour's worth of data.
3. "Warning for IDL 7.0 users. A bug has been found with IDL 7.0 and CDFs that cause crashes on any operating system when loading CDF data. All IDL 7.0 users must go to: http://cdf.gsfc.nasa.gov/html/cdf_patch_for_idl6x_new.html and install this patch."
4. The IDL executive command .reset_session does not work for the THEMIS GUI software. Please use the command .full_reset_session to reset IDL sessions
5. If any command line procedure has an IDL stop or suspend within it, other code such as the GUI will stop until the user continues. Likewise, when the GUI has a modal panel up the themis or idl command line will not execute until the window is dismissed.

Getting Help

<u>Web Page</u>: From either the Software or Contact Us Web Pages the user can send comments, observations, problems or questions about data access, software or web site content. A help request form is available for your use.
<u>GUI:</u> By clicking on the "HELP" drop down menu on the GUI Main window or if the THEMIS Science Software GUI detects an error, a Help Request Form will be displayed. When you click 'Save', the error report form and history file will be saved. Please email error report forms, history files, or other information to the
THEMIS_Science_Support@ssl.berkeley.edu.

Graphical User Interface

To start the THEMIS GUI the user needs to start up IDL.
At the IDL command line type: idl> **themis_gui_new**
Once the main GUI window is open the user can select from several pull down menus and/or toolbar buttons.
<u>To Load Data:</u> From the File pull-down menu, select Load THEMIS Data or select the toolbar button Load Data.
<u>To Plot Data:</u> From the Graph pull down menu, select Plot/Layout Options.
<u>To Print:</u> From the File pull-down menu, select Export Image to File. Select encapsulated post script. Print resolution can be increased to publication quality by clicking the 'Options' button.