

Instructions for covering ASTER HDF-EOS files to GeoTiff for import into Imagine or ArcGIS.

by Helen Cox, CSUN Geography Department.

IMAGINE has an Import utility which can be used to import a variety of image formats and convert them into Imagine format (.img). One of the listed formats is for ASTER HDF files. Unfortunately when used to import these files the Georeferencing information is lost, including the pixel size. This can be corrected for by “Correcting” the ASTER image upon import – which will give it lat, long coordinates and then re-projecting it to UTM and specifying pixel size within Imagine (see http://lpdaac.usgs.gov/aster/ASTER_GeoRef_FINAL.pdf). But this is cumbersome and involves interpolation of the recorded data. Alternatively a utility can be used which preserves the original georeferencing information and coordinates. This utility must be run outside Imagine, to convert from HDF to GeoTiff. Then the GeoTiff files can be imported in Imagine successfully (and stacked if desired, to create a single file with all bands). In order to do this you will need to download and install the utility, HEG.

Go to the web page: <http://newsroom.gsfc.nasa.gov/sdptoolkit/HEG/HEGHome.html>

Select “Download” from the top menu bar.

HEG - HDF to GeoTIFF Conversion Tool - Windows Internet Explorer

http://newsroom.gsfc.nasa.gov/sdptoolkit/HEG/HEGHome.html

File Edit View Favorites Tools Help

HEG - HDF to GeoTIFF Co... x California Science Center

Home Gallery Download Product List FAQ Contact Links

Home

The HDF-EOS To GeoTIFF Conversion Tool (HEG) is a tool developed to allow a user to reformat, re-project and perform stitching/mosaicing and subsetting operations on HDF-EOS objects. The output GeoTIFF file is ingestible into commonly used GIS applications. HEG will also write to HDF-EOS Grid & SWATH formats (i.e for Subsetting purposes) and native (or raw) binary. HEG presently works with MODIS (AQUA and TERRA), ASTER, MISR, AIRS, and AMSR-E HDF-EOS data sets.

Brief Summary of Features include:

- **Reprojection**
- **Spatial** (geolocation) **Subsetting**
- **Band** and **Parameter** (aka Field) **Subsetting** of HDF-EOS datasets
- Support for **MODIS, ASTER, MISR, AIRS, and AMSR-E** ([Check List of Supported Products for full details](#))
- **Format Conversion** of various output Format types: GeoTIFF, HDF-EOS GRID & SWATH, MultiBand GeoTIFF, Multi-Band HDF-EOS GRID & SWATH, and native binary.
- Format Conversions without reprojection or manipulation of input data. Allows data to remain in original unaltered state.
- **Stitching** (or **mosaicing**) HDF-EOS SWATH and GRID datasets

ASTER (AST_L1B)

MISR (MI1B2T)

ASTER (AST_L1B)

Then choose the Windows download, hegWINv2.7.zip

Download

Follow the directions below to download and install HEG Standalone v2.7

The list below offers the HEG Standalone v2.7 for different platforms. Please select the proper file(s) for your platform. Carefully review the files listed below to select the ones you want, then click the link(s) to download. You can also download the file(s) by moving your mouse cursor over the link, right click your mouse button, and select Save Target As. The HEG Users Guide in word or pdf format is also available. We have also provided instructions below on obtaining the software through our public ftp site.

HEG Standalone 2.7

[View Installation Instructions](#)

Platform	Download	Size
Windows	hegWINv2.7.zip	14.0 MB
Linux	hegLNXv2.7.tar.gz	17.8 MB
Sun	hegSUNv2.7.tar.Z	26.7 MB
Mac	hegMACv2.7.tar.gz	17.7 MB
Sgi	hegSGIv2.7.tar.Z	32.6 MB

HEG Standalone 2.7 Documentation

MODIS (MOD021KM)

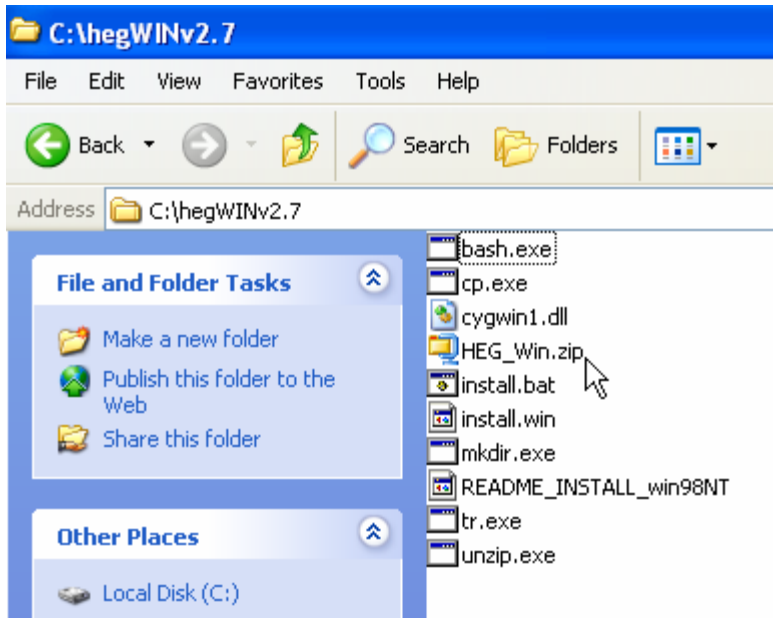
MISR (MI1B2T)

ASTER (AST_L1B)

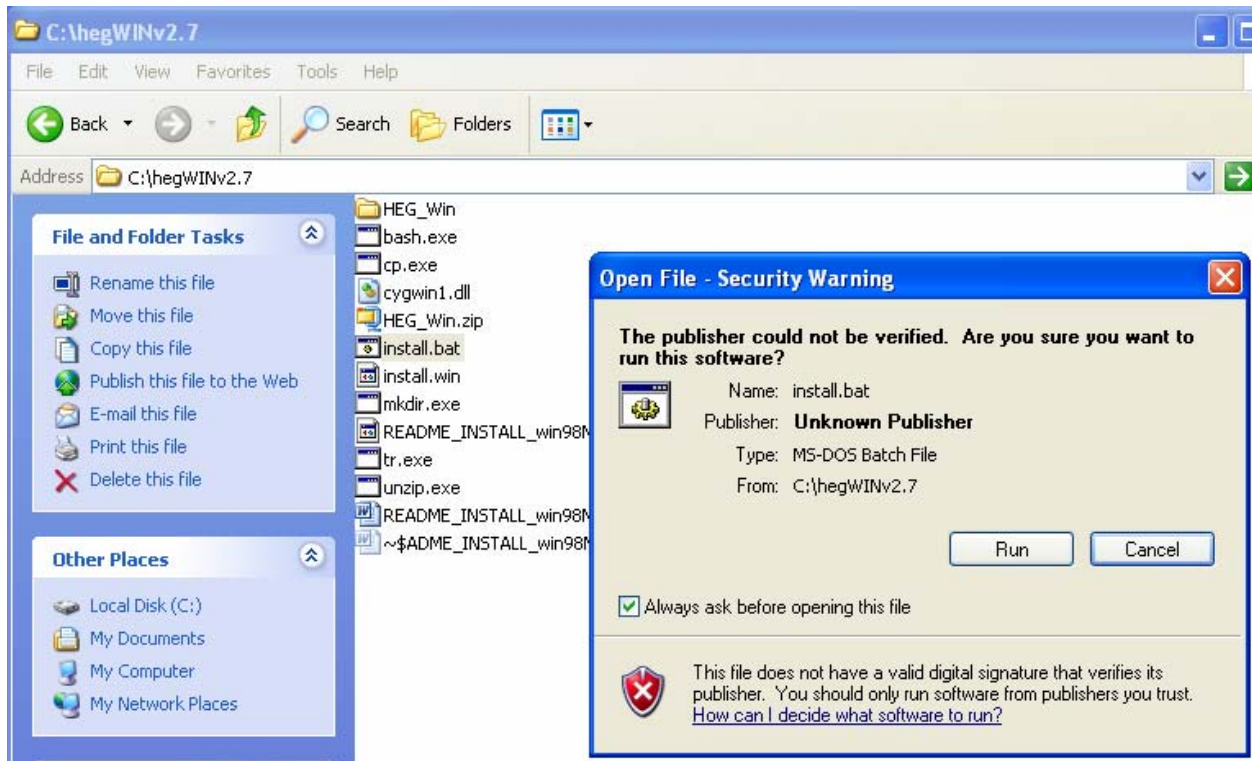
Save it to your hard drive under its own folder, HEG.

Do not save it to the "Program Files" folder (or any subfolder of this) or to anywhere that involves a space in the path name.

Unzip the hegWINv2.7.zip file. It will create a folder of the same name containing the following files:



Double click on “install.bat” file. You will see:



Press Run.
You will then see:

```
C:\WINDOWS\system32\cmd.exe
HDF-EOS To GIS Format Conversion Tool <HEG> Installation
-----
To install the HEG Tool:
1. The unzip executable and the HEG_Win.zip installation zip file
   must be present in the current directory.
2. You must know the directory path where the HEG is to be installed.
3. You must know the path to the Java bin directory on your system.

To determine the Java bin directory, click on the Windows Start button
and select Find, Files or Folders... Fill in the dialog box to search
all local hard drives for a file named java.exe. Make note of the
directory containing the most recent version of java.exe.

If java.exe does not appear in the Find Files listing, then Java may not be
installed on your system. You must install Java in order to run the HEG GUI.
Java software may be obtained on the World Wide Web at http://java.sun.com.

Do you wish to proceed with the HEG installation? [y/n]
```

Type y

Then type in your HEG directory path. Make sure the path has no spaces and be sure to replace backslashes with forward slashes.

```
C:\WINDOWS\system32\cmd.exe
y
Where would you like to install the HEG?

IMPORTANT!
1. Give an absolute path, without wildcards or other special characters.
2. Replace each backslash '\' with a forward slash '/'.
3. If you must use a blank space in a directory name (NOT recommended),
   then precede it with a backslash.

For example: c:/HEGtools
             c:/Program Files/HEG
             d:/HEGtools/HEG

To install the HEG into a HEG subdirectory in the current directory,
just press the Enter key.

Enter the HEG directory path:
c:/hegWINv2.7

Warning: Directory c:/hegWINv2.7 already exists.
Proceeding with install may overwrite existing files.

Proceed with install into c:/hegWINv2.7? [y/n]
y
```

You also need to do the same thing for the java.exe file. (Again - make sure the path has no spaces and be sure to replace backslashes with forward slashes.)

```
C:\WINDOWS\system32\cmd.exe
inflating: c:/hegWINv2.7/HEG_Win/TOOLKIT_MTD/database/common/ID/leapsec.dat
inflating: c:/hegWINv2.7/HEG_Win/TOOLKIT_MTD/runtime/configfile.dat
inflating: c:/hegWINv2.7/HEG_Win/TOOLKIT_MTD/runtime/LogStatus

Unzip executed successfully.

Updating C:\AUTOEXEC.BAT (old version saved as AUTOEXEC.HEG).

=====

Where is the Java bin directory located on your system?
(This is the directory in which the file java.exe is stored.)

IMPORTANT!
1. Give an absolute path, without wildcards or other special characters.
2. Replace each backslash '\' with a forward slash '/'.
3. Precede each space with a backslash: '\ '.

For example: c:/windows
              c:/Program\ Files/JavaSoft/JRE/1.3.0_02/bin
              c:/jdk1.3/bin

Please enter the path to your Java bin directory:
c:/WINDOWS/system32
```

It should proceed ok. Enter some name as a user when asked.

```
C:\WINDOWS\system32\cmd.exe
3. Precede each space with a backslash: '\ '.

For example: c:/windows
              c:/Program\ Files/JavaSoft/JRE/1.3.0_02/bin
              c:/jdk1.3/bin

Please enter the path to your Java bin directory:
c:/WINDOWS/system32

Found c:/WINDOWS/system32/java.exe. Testing Java version.

java version "1.4.2_04"
Java(TM) 2 Runtime Environment, Standard Edition (build 1.4.2_04-b05)
Java HotSpot(TM) Client VM (build 1.4.2_04-b05, mixed mode)

IMPORTANT! The Java version must be 1.2 or greater.

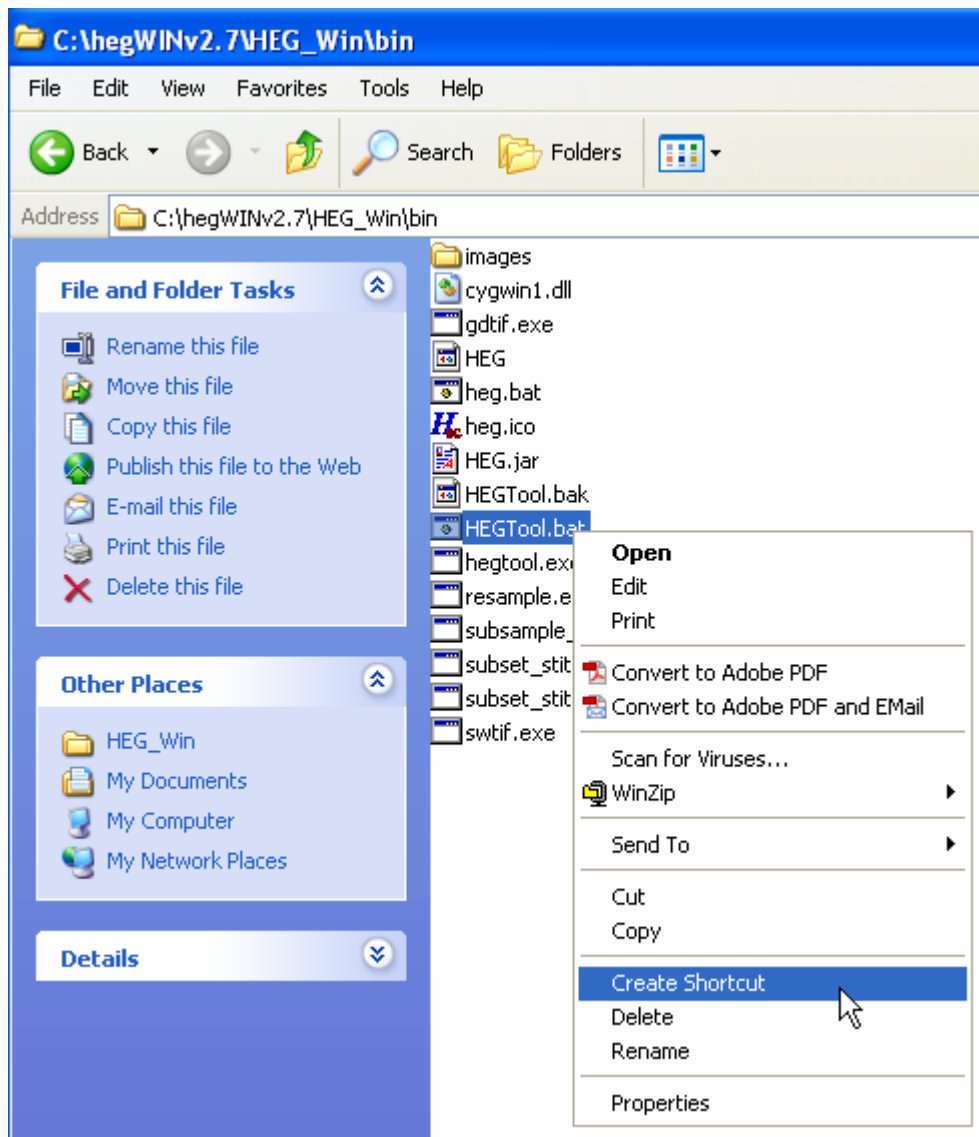
If your Java version is less than 1.2, please install a newer version
of Java, and then reinstall the HEG.

Java software may be obtained on the World Wide Web at http://java.sun.com.

Please enter a username used internally by HEG (i.e. SHARON):
Helen_
```

HEG should now be installed. You can run it by going into the HEG_Win\bin subfolder under your HEG folder and double-clicking HEGTool.bat.

You might prefer to create a shortcut for it on your desktop by right-clicking on HEGTool.bat and selecting "Create Shortcut".

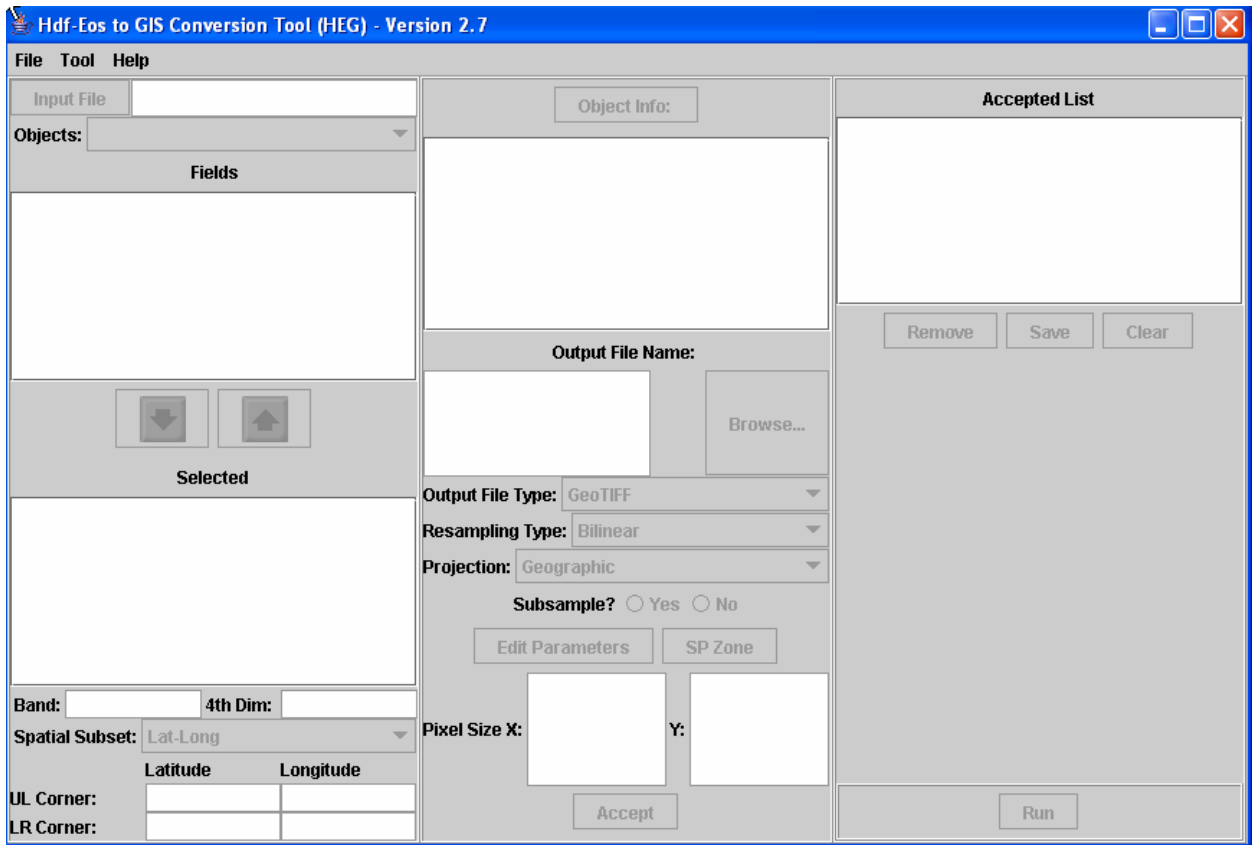


Then drag the shortcut to your desktop.

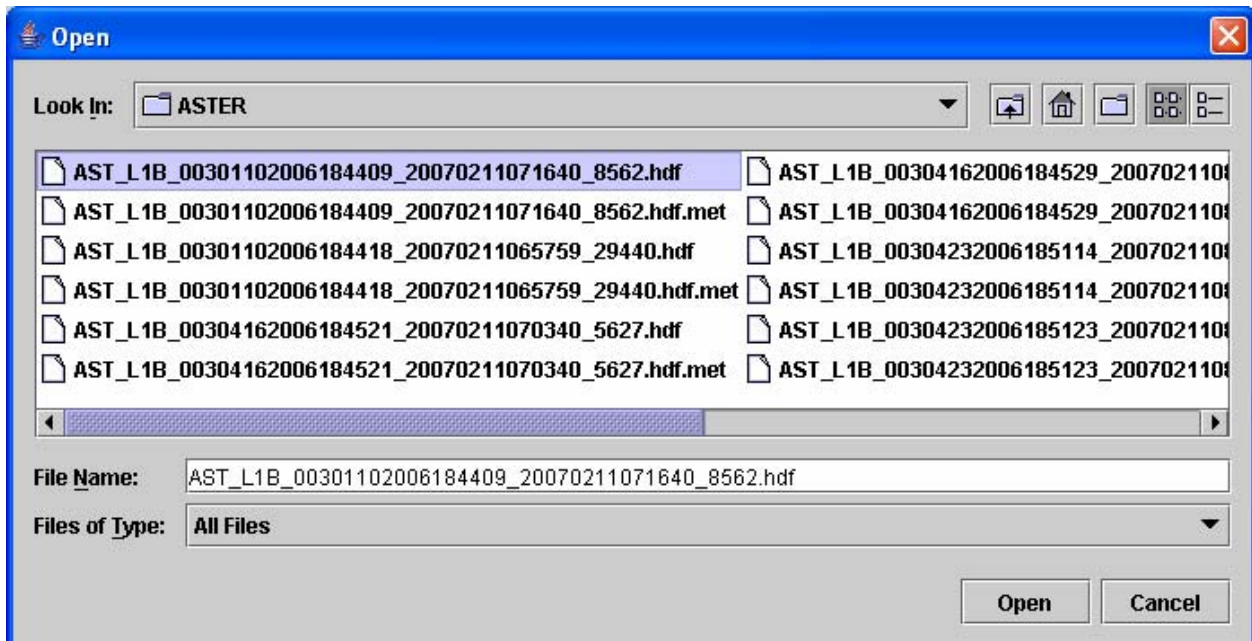


Double-click it on your desktop to run it.

The following window will appear.

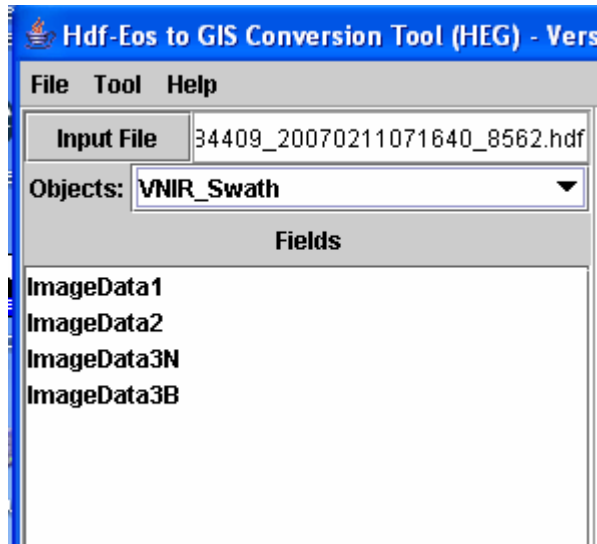


Press File -> Open, and navigate to your ASTER HDF file.

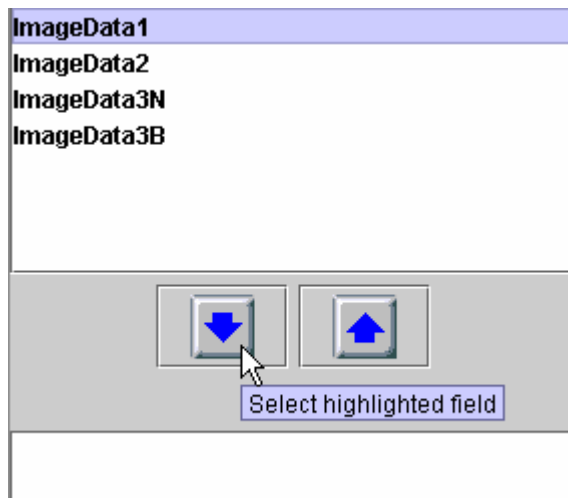


Press Open.

In the Objects window there is a pull-down feature which allows the selection of one of three band selections (VNIR, SWIR and TIR). The corresponding bands of data for the swath you select will appear in the “Fields” window below.



You can highlight one of these and move it to the “Selected” window below using the arrow. (You can move it back using the up arrow, but only one band can be selected at a time.) Select ImageData1 (band 1).



The lat, long coordinates appear in the bottom left window. An output file name is automatically assigned to the “Output File Name” box. (You can edit this if you wish.) It will go into the same folder as your Input File unless you “Browse” and move to another folder.

You have a choice of file type (**MAKE SURE THIS IS Multi-Band GeoTIFF NOT just GeoTIFF**). Leave the resampling as Nearest Neighbor. **Change the projection to UTM.** Press Accept.

Object Info:

SWATH Name: VNIR_Swath
 Upper Left Corner: 35.13319 -117.937502
 Lower Right Corner: 34.461064 -117.017825
 Pixel Size X: 1.64E-4 degrees
 Pixel Size Y: 1.35E-4 degrees
 Pixel Size X: 15.0 meters
 Pixel Size Y: 15.0 meters
 Num Fields: 4

Output File Name:

4327_6080_VNIR_Swath.tif Browse...

Output File Type: Multi-Band GeoTIFF

Resampling Type: Nearest Neighbor

Projection: UTM

Subsample? Yes No

Edit Parameters SP Zone

Pixel Size X: 15.0 Y: 15.0

Accept Accept input values

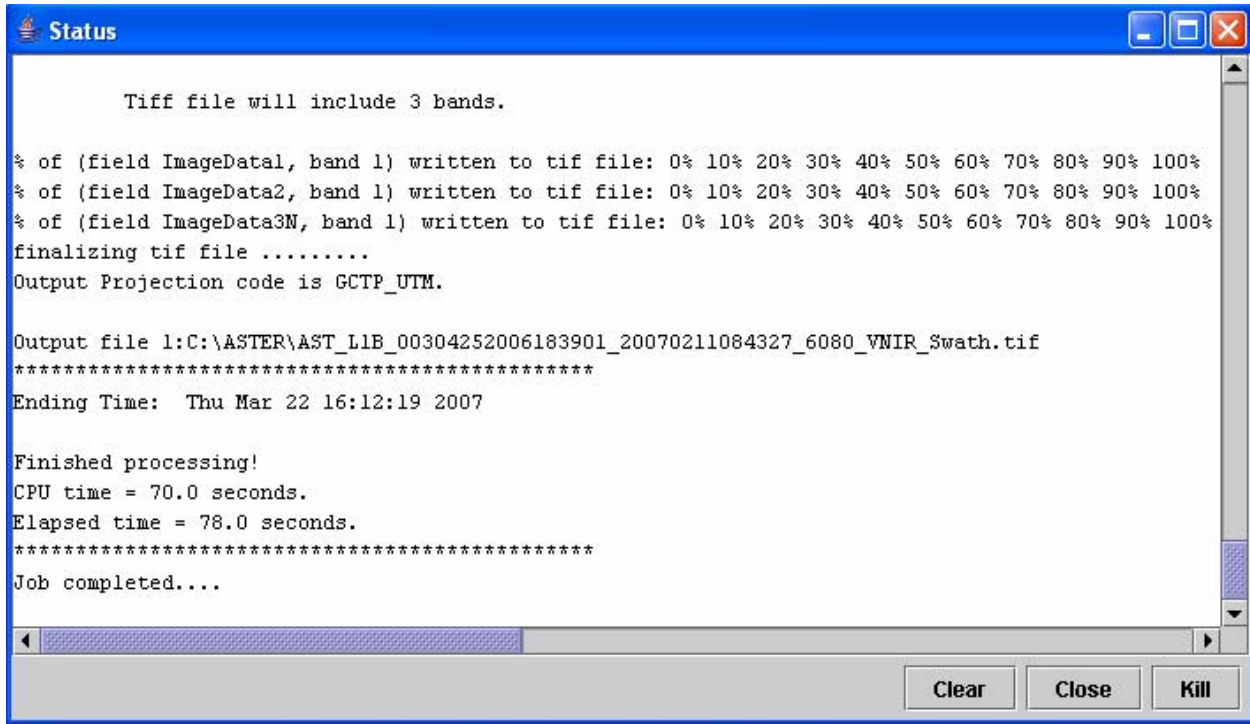
Select bands 2 and 3N in this manner. Your accepted list should then look like:

Accepted List

VNIR_Swath -> ImageData1
 VNIR_Swath -> ImageData2
 VNIR_Swath -> ImageData3N

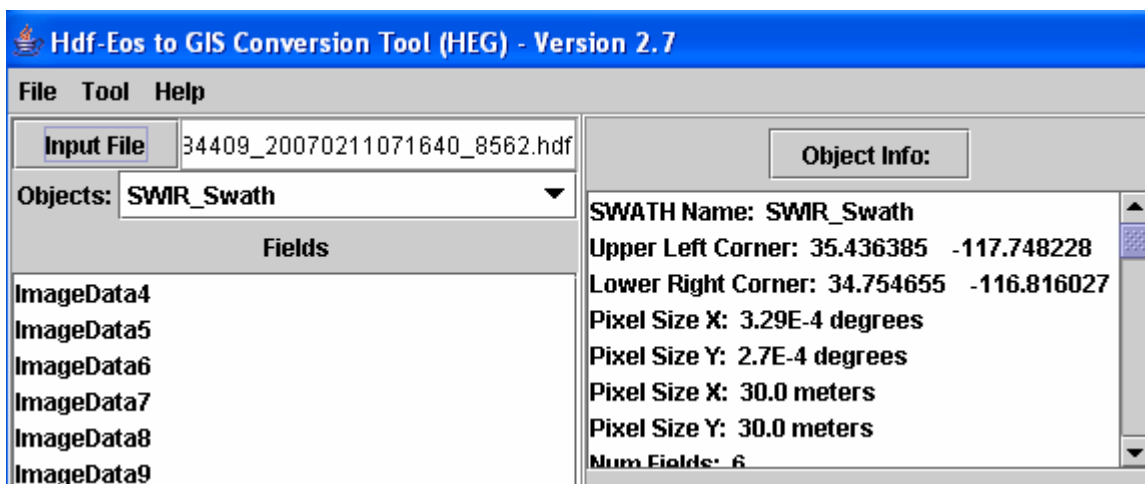
Press Run.

A status window will appear. It will process the 3 bands one by one. When the job completes, close the Status window.

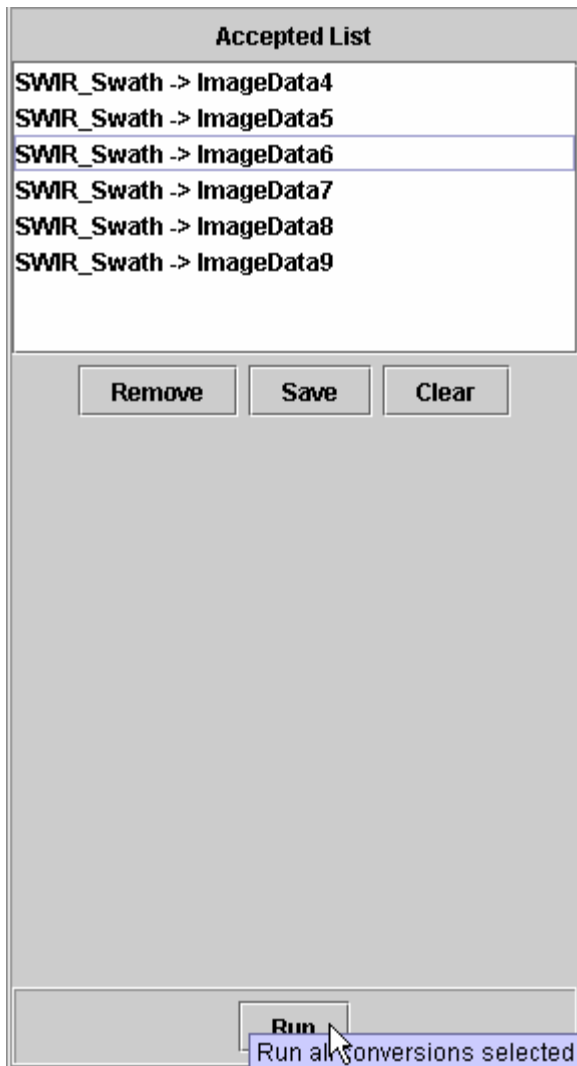


Two new files should now be present in your folder. The GeoTIFF file and a corresponding .met (metadata) file.

Now repeat the process for the SWIR swath, “accepting” each band one by one. Make sure the file name now has `_SWIR` appended instead of `VNIR`. The pixel size here is 30m (as opposed to the 15m for the VNIR bands). (Note that with the multi-band GeoTIFF file, once you have chosen the filename, projection etc for the first band you can’t change this when you add the subsequent bands.)



The output file name should be the same as before but with the postfix `_SWIR` instead of `_VNIR`.



Press Run to create the new files.

Repeat for the thermal infrared bands (TIR). These have a 90m pixel size.

Close HEG.

To create Imagine files you must now Import the files into Imagine and then “stack” them.

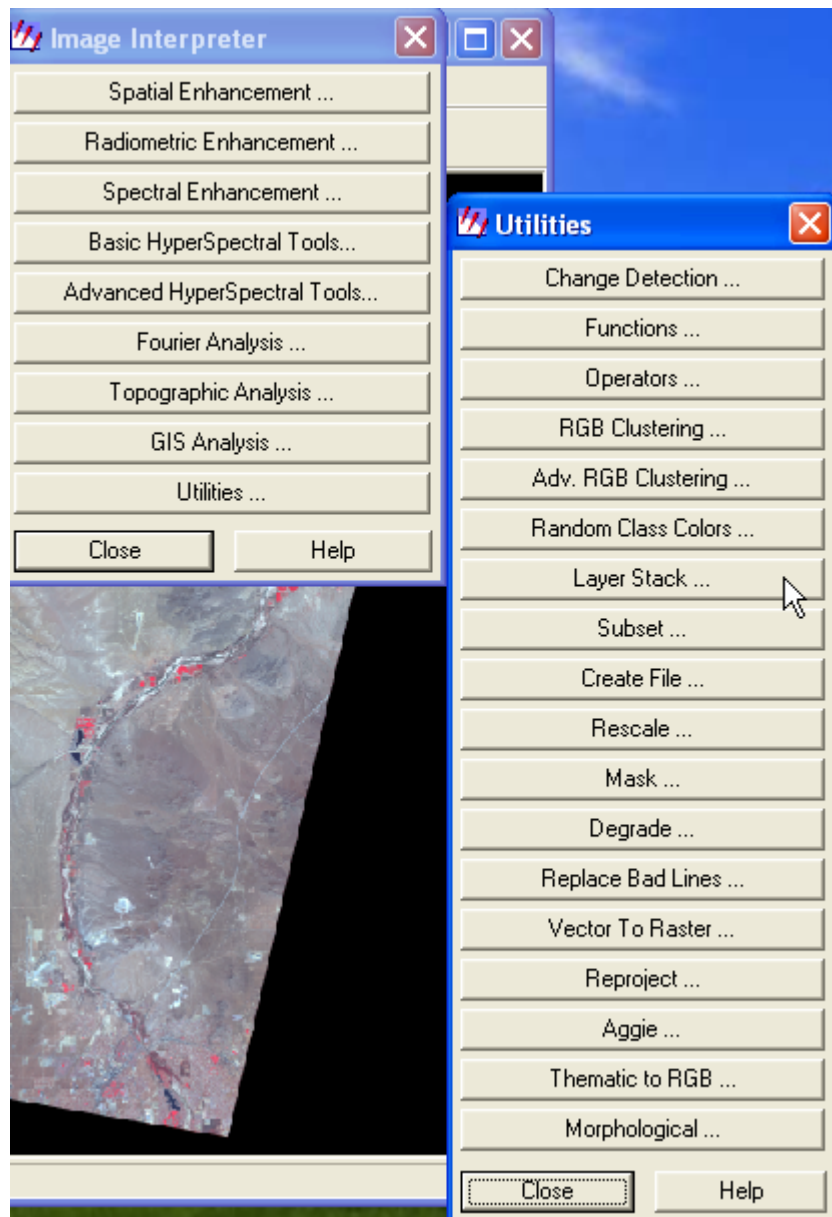
Use the instructions contained in page 2 of:

http://www.csun.edu/~hmc60533/CSUN_407_690D/S2007_exercises/ex4B_download_stack.pdf

When Imagine imports the files it should show you the number of bands. Be sure that the VNIR file has 3 bands, the SWIR has 6 bands and the TIR has 5 bands.

When the import is done you will have 3 separate .img files.

These can be stacked using the utility under: Interpreter -> Utilities -> Layer Stack

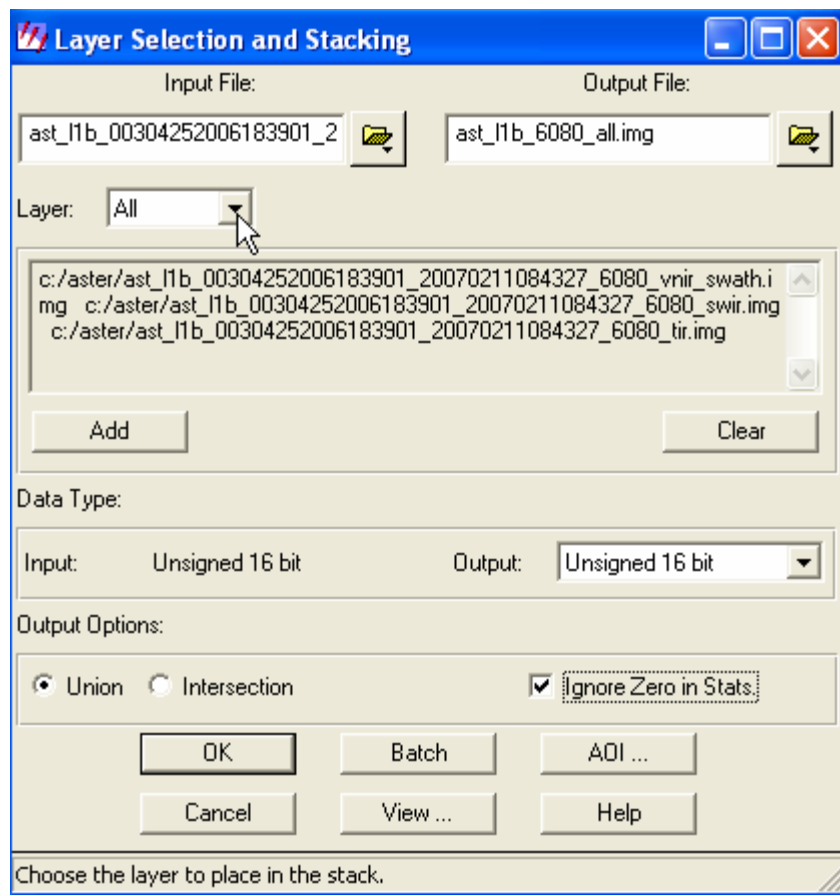


Navigate to the first file. On the “Layer” pull-down menu select “All”. Check the “Ignore Zero in Stats” box. Click “Add”.

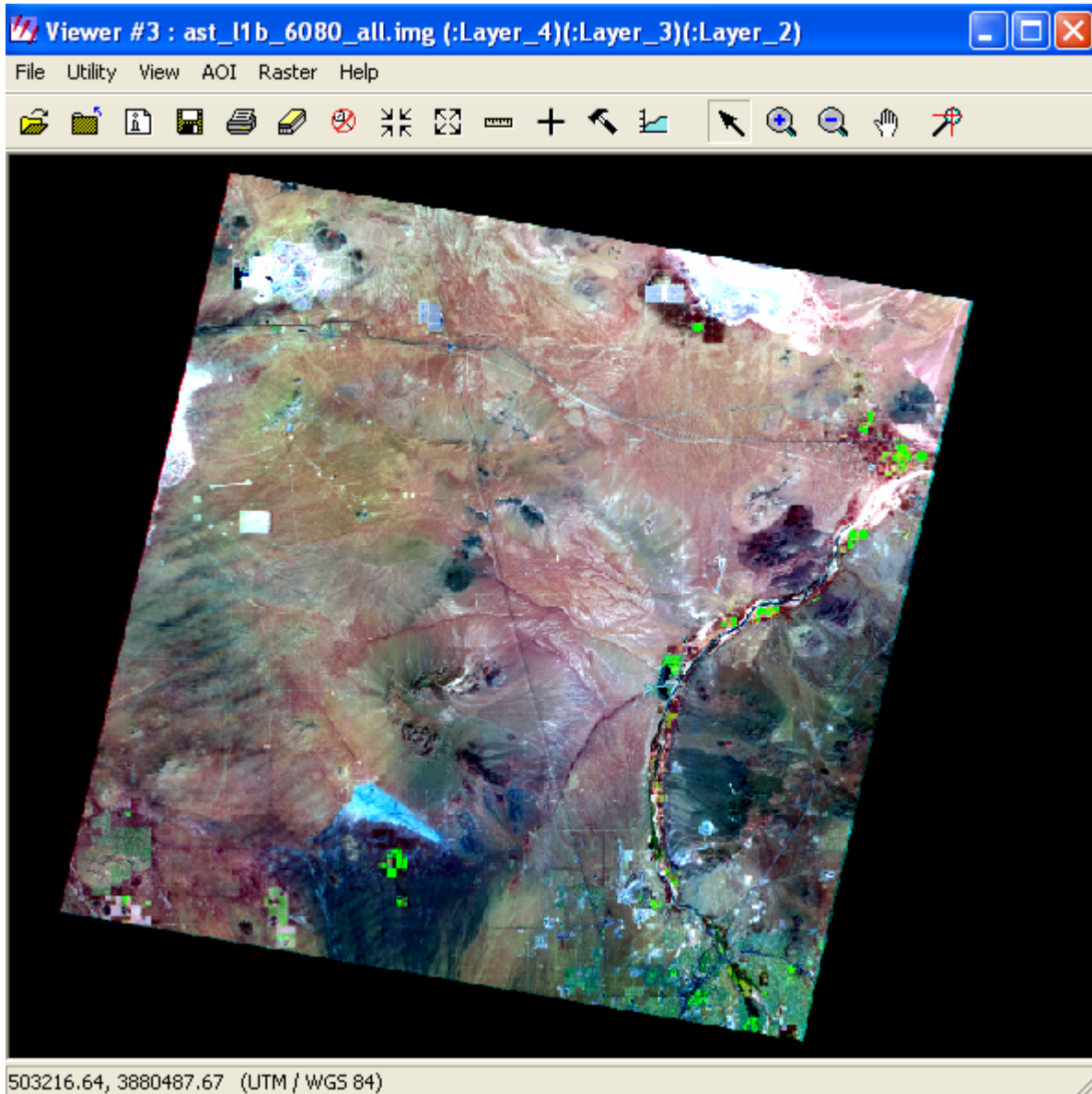
Now do this for the next file. **YOU MUST** select “all” in the “Layer” option **FOR EACH FILE** otherwise you will get only the first band from each file!)

Give the final file an output name.

Press OK.



You can then open your image as a Raster layer. It may look something like this:



You have 14 bands to choose from!