

Importing ASCII Grid Data into GIS/Image processing software

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Importing data into:

- <u>ArcGIS 9.x</u>
- <u>ENVI</u>
- ArcView 3.x
- <u>GRASS</u>



Importing the ASCII Grid data into ArcGIS 9.x

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Prepared by Suresh Kumar on March 10th 2006, ORNL DAAC

Example File : GRID.MOD13A2.asc

MODIS ASCII Subsets: Data Visualization [MOD13A2] Terra Vegetation Indices (NDVI, EVI) USA, Walker Branch Watershed, Oak Ridge, Tennessee Centered on Latitude [35.958767] Longitude [-84.287433] 7 Kilometers [7 Pixels] Wide and 7 Kilometers [7 Pixels] High Requested Time Span November 2005 to November 2005 For a PRJ file, access http://daac.ornl.gov/cgi-bin/MODIS/GR_common/modis.prj For a prj.adf file, access http://daac.ornl.gov/cgi-bin/MODIS/GR_common/prj.adf

MODIS HDF Tile

MOD13A2.A2005305.h11v05.004.2005325075111.hdf

-----START Scientific Data Set (Band): 1_km_16_days_NDVI, MODIS Date: A2005305 (Nov. 1, 2005)----ncols 7 nrows 7 xllcorner -7589988.98 yllcorner 3995608.83 cellsize 926.62543305583381 nodata_value -9999999 5579 5846 5940 5769 5566 5869 5776 6173 5722 5876 5912 5920 5882 5632 5844 5812 5972 5904 5154 4966 5282 5786 5765 5822 5695 5739 5817 5992 5609 5094 4333 5790 5763 5793 5863 5602 5499 5844 5811 5210 5436 5728 4749 5674 5419 2617 4012 5607 5219 -----END Scientific Data Set (Band): 1_km_16_days_NDVI, MODIS Date: A2005305 (Nov. 1, 2005)-----

MODIS HDF Tile

MOD13A2.A2005321.h11v05.004.2005342022515.hdf

-----START Scientific Data Set (Band): 1_km_16_days_NDVI, MODIS Date: A2005321 (Nov. 17, 2005)----ncols 7 nrows 7 xllcorner -7589988.98 yllcorner 3995608.83 cellsize 926.62543305583381 nodata_value -9999999 5279 5480 5584 5584 5526 5248 5275 5781 5508 5517 5383 5347 5281 5051 5634 5554 5571 5511 4825 4557 5344 5635 5375 5293 5432 5298 5562 5581 5386 4646 4660 5279 5446 5480 5393 5396 5118 5750 5563 4825 5260 5587 4774 5425 5047 3500 4174 5187 4955 -----END Scientific Data Set (Band): 1_km_16_days_NDVI, MODIS Date: A2005321 (Nov. 17, 2005)-----

Copy contents between "-----START Scientific Data Set (Band)......" And "-----END Scientific Data Set (Band)....."

Into a separate file.

If there are more than one START-END entries, copy contents within each of the START-END statements into individual files like:

File GRID_MOD13A2_A2005305 _1_km_16_days_NDVI.asc from example file GRID.MOD13A2.asc

ncols 7 nrows 7 xllcorner -7589988.98 yllcorner 3995608.83 cellsize 926.62543305583381 nodata_value -9999999 5579 5846 5940 5769 5566 5869 5776 6173 5722 5876 5912 5920 5882 5632 5844 5812 5972 5904 5154 4966 5282 5786 5765 5822 5695 5739 5817 5992 5609 5094 4333 5790 5763 5793 5863 5602 5499 5844 5811 5210 5436 5728 4749 5674 5419 2617 4012 5607 5219

Importing the individual file GRID_MOD13A2_A2005305_1_km_16_days_NDVI.asc into ArcGIS :

Using ArcToolbox from ESRI's ArcGIS 9.x software



Select:

Conversion Tools \rightarrow To Raster \rightarrow ASCII to Raster

ASCII to Raster	
	🕐 Help
Input ASCII raster file	Output raster
iles\GRID_MOD13A2_A2005305_1_km_16_days_NDVI.asc Output raster C:\Documents\MODISPilot\Files\MD13A205305 Output data type (optional) INTEGER ▼	The output raster dataset to be created. When not saving to a geodatabase, specify .tif for a TIFF file format, .img for an ERDAS IMAGINE file format, or no extension for a GRID file format.
OK Cancel Environments << Hide Help	v

Provide path to ASCII file (GRID_MOD13A2_A2005305 _1_km_16_days_NDVI.asc) and Output Raster (MD13A205305)

Click OK



After converting to Raster the output raster (MD13A205305) would automatically load into ArcMap

Export this file (MD13A205305) into ArcGIS GRID

🖻 Сору	
🗙 <u>R</u> emove	
Open Attribute <u>T</u> able	
Joins and Relates	•
🔆 Zoom To Layer	
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xport Raster Data - MD13A205305	? ×
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Output Raster Use Renderer Sguare: (Force RGB Raster Size	Cell Size (cx, cy): 926.6254 926.6254 (columns, rows): 7 7
Name Property Bands 1 Pixel Depth 16 Bit Uncompressed Size 49 B Extent (left, top, right, bott (-75895) Spatial Reference Unknow	988.9800, 3995608.8300, -7583502.6020, vn
Location: C:\Documents\N Name: md13a2053051	10DISPilot\Files
	<u>S</u> ave Cancel

Right Click on the file to Export

Provide output filename (e.g. md13a2053051) and format

Prepared by Suresh Kumar on March 10th 2006, ORNL DAAC

Setting up the projection

Download file prj.adf from http://daac.ornl.gov/cgi-bin/MODIS/GR_common/prj.adf

copy the prj.adf file into the GRID file directory (md13a2053051) created in the previous step

🄄 md13a2053051				<u>_ ×</u>		
Eile Edit View Favorites Tools	Help					
G Back + 🕥 - 🏂 🔎 Search 🎼 Folders 🛄 -						
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Type: ADF File Date Modified: 3/7/2006 1:55	PM Size: 304 bytes		304 bytes 🛛 🚽 My	Computer //		

Load the GRID file in ArcMap – Make sure that the projection is defined on the dataset



If the projection isn't defined, use the following file to define the projection.

Download file modis.prj from http://daac.ornl.gov/cgi-bin/MODIS/GR_common/modis.prj

Copy this file into

<ESRI installation Folder>\Coordinate Systems\Projected Coordinate Systems\World\Sphere-based and manually set the projection for the file



Importing the ASCII Grid data into ENVI 4.x

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Prepared by Suresh Kumar on March 10th 2006, ORNL DAAC

Example File : GRID.MOD13A2.asc

MODIS ASCII Subsets: Data Visualization [MOD13A2] Terra Vegetation Indices (NDVI, EVI) USA, Walker Branch Watershed, Oak Ridge, Tennessee Centered on Latitude [35.958767] Longitude [-84.287433] 7 Kilometers [7 Pixels] Wide and 7 Kilometers [7 Pixels] High Requested Time Span November 2005 to November 2005 For a PRJ file, access http://daac.ornl.gov/cgi-bin/MODIS/GR_common/modis.prj For a prj.adf file, access http://daac.ornl.gov/cgi-bin/MODIS/GR_common/prj.adf

MODIS HDF Tile

MOD13A2.A2005305.h11v05.004.2005325075111.hdf

-----START Scientific Data Set (Band): 1_km_16_days_NDVI, MODIS Date: A2005305 (Nov. 1, 2005)----ncols 7 nrows 7 xllcorner -7589988.98 yllcorner 3995608.83 cellsize 926.62543305583381 nodata_value -9999999 5579 5846 5940 5769 5566 5869 5776 6173 5722 5876 5912 5920 5882 5632 5844 5812 5972 5904 5154 4966 5282 5786 5765 5822 5695 5739 5817 5992 5609 5094 4333 5790 5763 5793 5863 5602 5499 5844 5811 5210 5436 5728 4749 5674 5419 2617 4012 5607 5219 -----END Scientific Data Set (Band): 1_km_16_days_NDVI, MODIS Date: A2005305 (Nov. 1, 2005)-----

MODIS HDF Tile

MOD13A2.A2005321.h11v05.004.2005342022515.hdf

-----START Scientific Data Set (Band): 1_km_16_days_NDVI, MODIS Date: A2005321 (Nov. 17, 2005)----ncols 7 nrows 7 xllcorner -7589988.98 yllcorner 3995608.83 cellsize 926.62543305583381 nodata_value -9999999 5279 5480 5584 5584 5526 5248 5275 5781 5508 5517 5383 5347 5281 5051 5634 5554 5571 5511 4825 4557 5344 5635 5375 5293 5432 5298 5562 5581 5386 4646 4660 5279 5446 5480 5393 5396 5118 5750 5563 4825 5260 5587 4774 5425 5047 3500 4174 5187 4955 -----END Scientific Data Set (Band): 1_km_16_days_NDVI, MODIS Date: A2005321 (Nov. 17, 2005)-----

Copy contents between "-----START Scientific Data Set (Band)......" And "-----END Scientific Data Set (Band)....."

Into a separate file.

If there are more than one START-END entries, copy contents within each of the START-END statements into individual files like:

File GRID_MOD13A2_A2005305 _1_km_16_days_NDVI.asc from example file GRID.MOD13A2.asc

ncols 7 nrows 7 xllcorner -7589988.98 yllcorner 3995608.83 cellsize 926.62543305583381 nodata_value -9999999 5579 5846 5940 5769 5566 5869 5776 6173 5722 5876 5912 5920 5882 5632 5844 5812 5972 5904 5154 4966 5282 5786 5765 5822 5695 5739 5817 5992 5609 5094 4333 5790 5763 5793 5863 5602 5499 5844 5811 5210 5436 5728 4749 5674 5419 2617 4012 5607 5219 Open ENVI and select the Open External File \rightarrow Generic Formats \rightarrow ASCII command

ENVI 4.1	:f:	Turneform	Tille an	Gaaalwal	M	lla akan	Tananakia	Dadau	111°= d=	
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Data Viewer		IRS		•						
Save File As	•	AVHRR SeaWiFS		;						
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Export to IDL Variat	ole	EROS		•						
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				PDS	;					
				PIC	т					
				PNG	i					
				SRF	:					
				TIF	F/GeoT	IFF				
				XWI	D					

Select the file **GRID_MOD13A2_A2005305**_1_km_16_days_NDVI.asc

🟭 Input ASCII File 🛛 🔀
File: C:\Documents\M0DISPilot\Files\I Number of Samples: 7 Number of Lines : 7
Interleave B5Q
Data Type Floating Point
Number of Bands 1
OK Cancel

A message box similar to one shown above should display

The Number of samples and Lines in this message box should match with the Requested Data Area

Click OK

After the image has been loaded into display – Edit the header information to set the Projection parameters



Right click on the file \rightarrow Edit Header

Select Edit Attributes \rightarrow Map Info



Set the projection parameters using the GRID_MOD13A2_A2005305 _1_km_16_days_NDVI.asc file

🎒 Edit Map Information	×
Registration	
Image Coord × 1.0000 Y 8.0000	
Pixel Size × 926.62543306 Y 926.62543306	1
Map Rotation 0.000000	
↓↑ Proj : Sinusoidal Datum: <none></none>	
-7589988.9800 E Change Proj	
3995608.8300 N Units: Meters	
OK Cancel	

•Pixel Size is the "Cell Size" from the ASCII file GRID_MOD13A2_A2005305 _1_km_16_days_NDVI.asc

•Easting is the xllcorner •Northing is the yllcorner •Image Coord X is 1.0000 and •Image Coord Y is (nrows +1)



In the above step If the sinusoidal projection isn't defined, use the following file to define the projection.

Download file modis.prj from http://daac.ornl.gov/cgibin/MODIS/GR_common/modis.prj





Importing the ASCII Grid data into ArcView 3.x

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Prepared by Suresh Kumar on March 10th 2006, ORNL DAAC

Example File : GRID.MOD13A2.asc

MODIS ASCII Subsets: Data Visualization [MOD13A2] Terra Vegetation Indices (NDVI, EVI) USA, Walker Branch Watershed, Oak Ridge, Tennessee Centered on Latitude [35.958767] Longitude [-84.287433] 7 Kilometers [7 Pixels] Wide and 7 Kilometers [7 Pixels] High Requested Time Span November 2005 to November 2005 For a PRJ file, access http://daac.ornl.gov/cgi-bin/MODIS/GR_common/modis.prj For a prj.adf file, access http://daac.ornl.gov/cgi-bin/MODIS/GR_common/prj.adf

MODIS HDF Tile

MOD13A2.A2005305.h11v05.004.2005325075111.hdf

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MOD13A2.A2005321.h11v05.004.2005342022515.hdf

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Open ArcView and activate the Spatial Analyst extension

MrSID image Support
NITF Image Support
Report Writer
🛭 Spatial Analyst 📃 🗖 Make Def
TIFF 6.0 Image Support

Invoke "Import Data Source" tool

😫 ArcView GIS 3.2		
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Manage Data Sources		
Import Data Source		
Export Data Source		
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Script:	<u>.</u>	
nports files to data sources that	can be used with ArcView	15

Select "ASCII Raster" file type

🍳 Import Data Source		×
Select import file type:		OK
ASCII Raster	¥	Cancel



Select the ASCII raster file **GRID_MOD13A2_A2005305 _1_km_16_days_NDVI.asc** and import it as a Theme into the View.



Importing the ASCII Grid data into GRASS

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Prepared by Suresh Kumar on March 10th 2006, ORNL DAAC

Example File : GRID.MOD13A2.asc

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NAME *r.in.arc* - Convert an ESRI ARC/INFO ascii raster file (GRID) into a (binary) raster map layer. (GRASS Raster Data Import Program)

SYNOPSIS

r.in.arc r.in.arc help r.in.arc input=name output=name [title="phrase"] [mult=multiplier]

DESCRIPTION

r.in.arc allows a user to create a (binary) GRASS raster map layer from an ESRI ARC/INFO ascii GRID file with (optional) title.

OPTIONS

Parameters:

input=name

Name of an existing ASCII raster file to be imported.

output=name

Name to be assigned to resultant binary raster map layer.

title="phrase"

Title to be assigned to resultant raster map layer.

mult=multiplier

Multiply all raster cell values by *multiplier. multiplier* is a floating point value, and has a default value of 1.0.

The **input** file has a header section which describes the location and size of the data, followed by the data itself.

The header has 6 lines:

ncols: nrows: xllcorner: yllcorner: cellsize: or alternatively (not supported in r.in.arc, but in <u>r.in.gdal</u>): ncols: nrows: xllcenter: yllcenter: cellsize:

NOTES

r.in.arc handles floating point cell values. The **mult** option allows the number of significant figures of a floating point cell to be increased before importing. Multiples of ten are the most functional multipliers.

SEE ALSO r.in.gdal r.out.arc Source: http://grass.itc.it/gdp/html_grass5/html/r.in.arc.html