Importing ASCII Grid Data into GIS/Image processing software

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Importing data into:

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 5226 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)-----

Step 1

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
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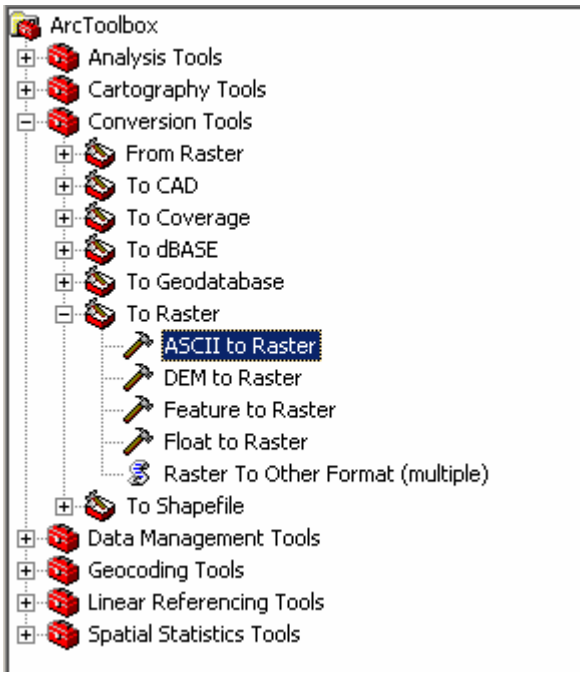
5609 5094 4333 5790 5763 5793 5863
5602 5499 5844 5811 5210 5436 5728
4749 5674 5419 2617 4012 5607 5219

Step 2

Importing the individual file **GRID_MOD13A2_A2005305 _1_km_16_days_NDVI.asc** into ArcGIS :

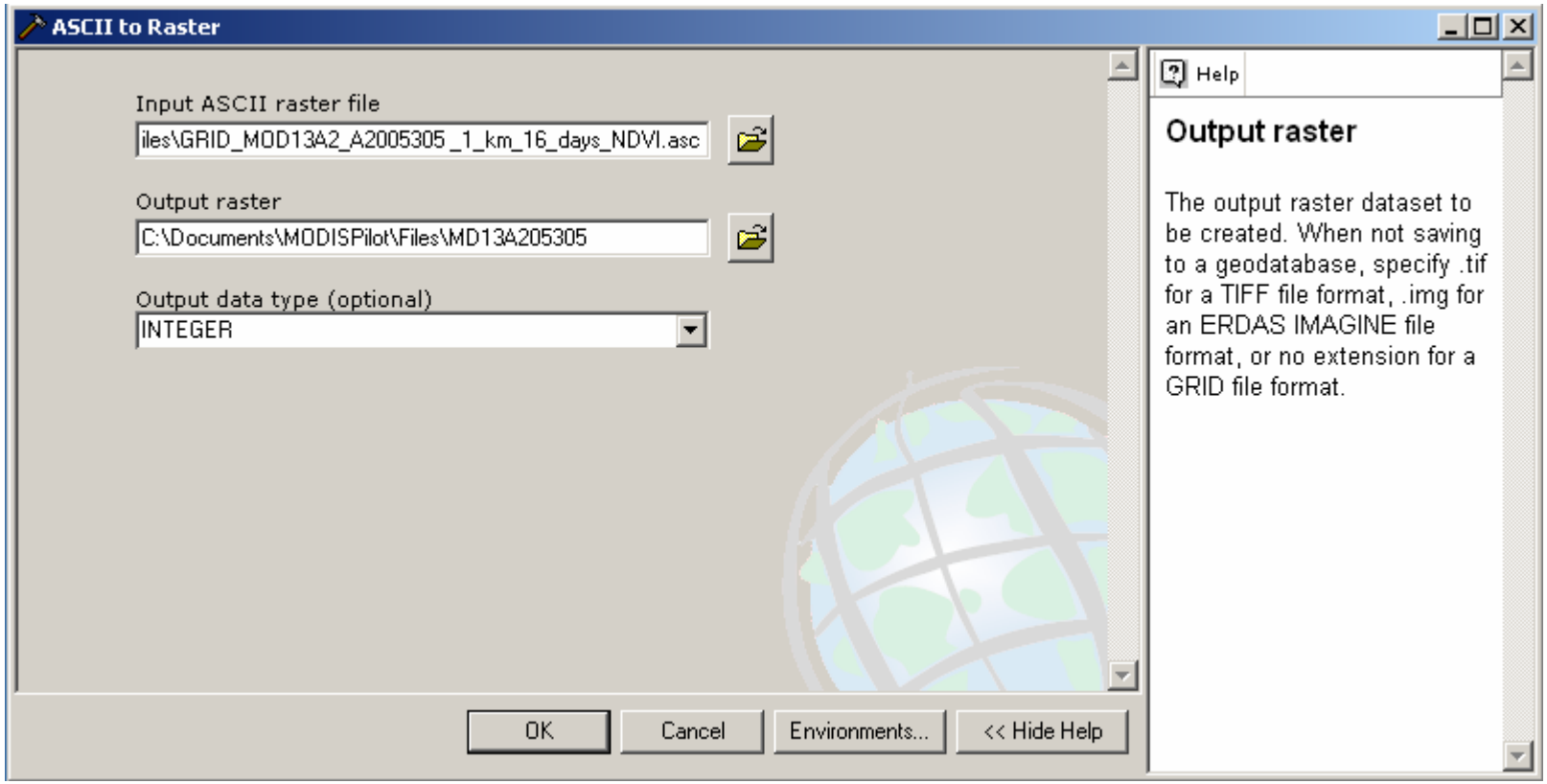
Using ArcToolbox from ESRI's ArcGIS 9.x software



Select:

Conversion Tools → To Raster → ASCII to Raster

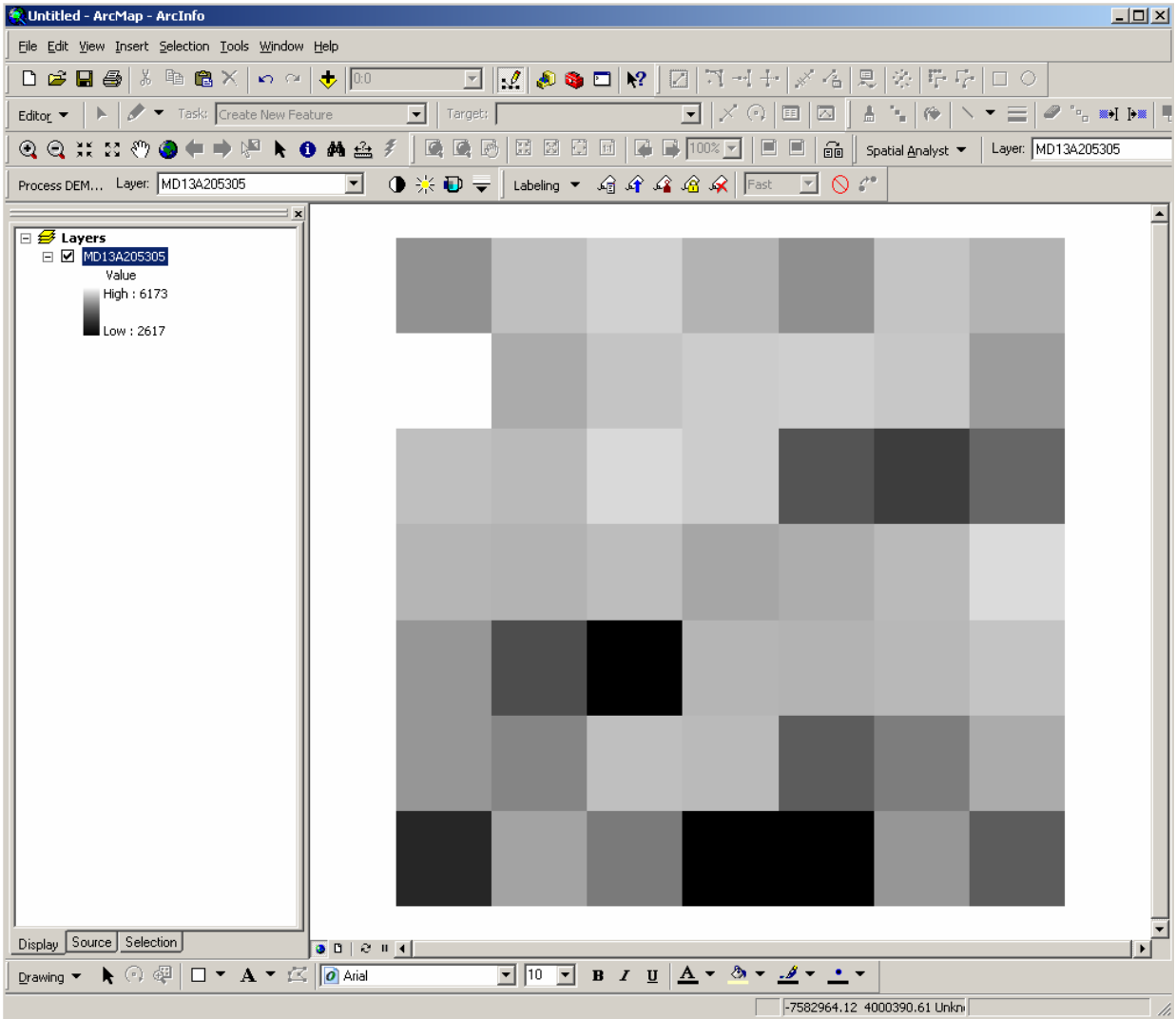
Step 3



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

Click OK

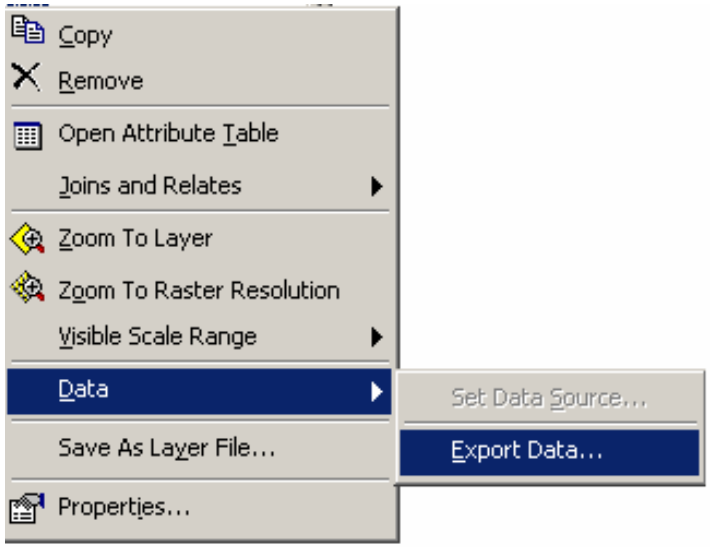
Step 4



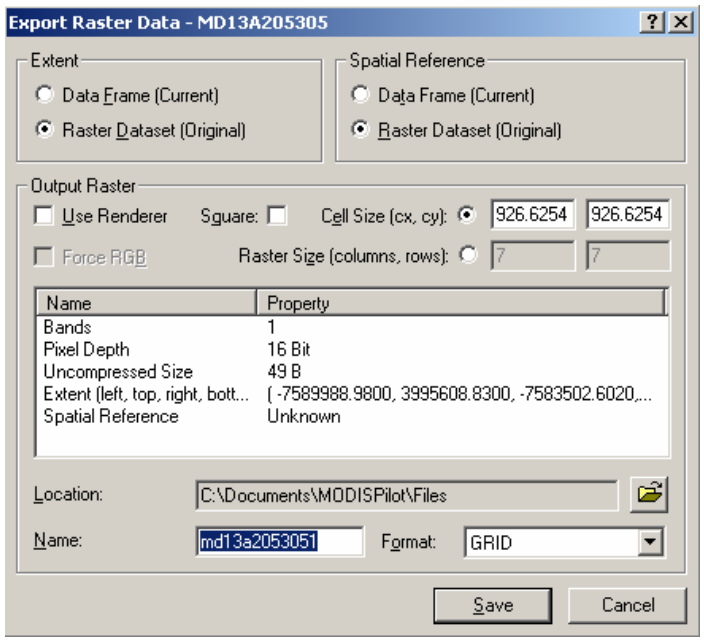
After converting to Raster the output raster **(MD13A205305)** would automatically load into ArcMap

Step 5

Export this file **(MD13A205305)** into ArcGIS GRID



Right Click on the file to Export



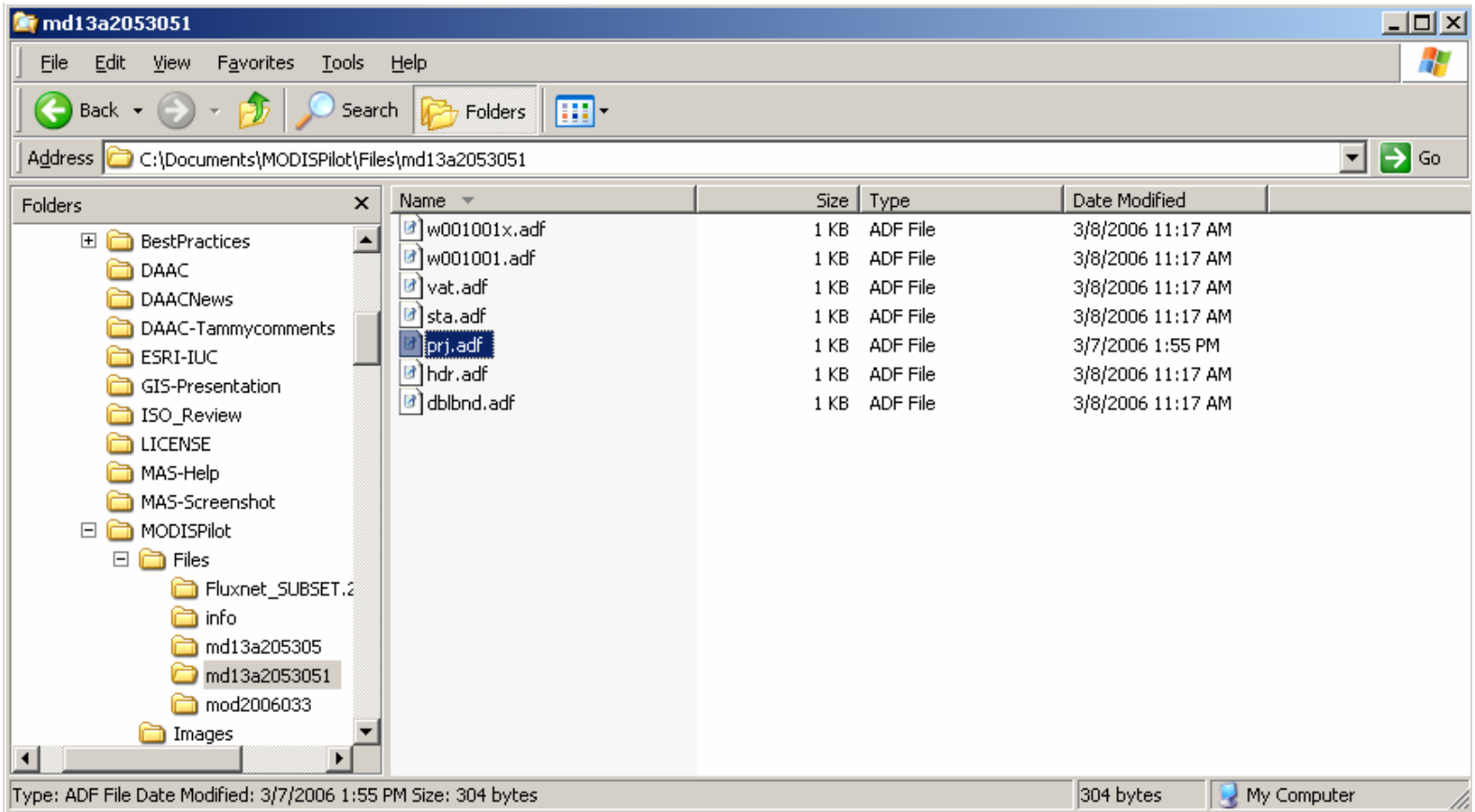
Provide output filename **(e.g. md13a2053051)** and format

Step 6

Setting up the projection

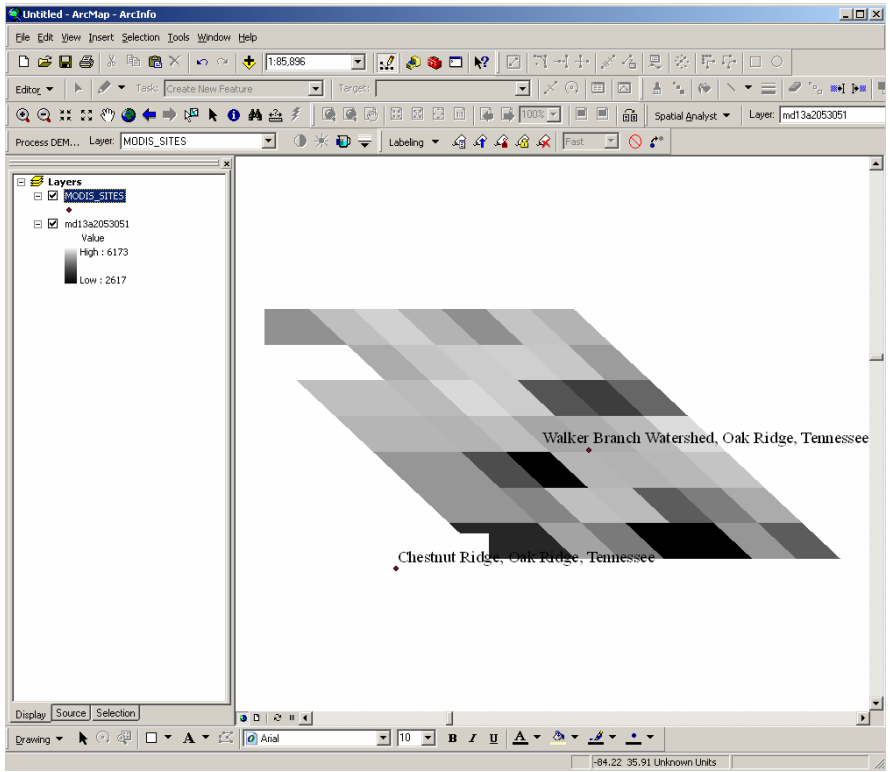
Download file prj.adf from http://daac.ornl.gov/cgi-bin/MODIS/GR_common/prj.adf

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



Step 7

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



Final output md13a2053051
with projection set, overlaid with the MODIS site locations

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
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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 5226 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)-----

Step 1

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
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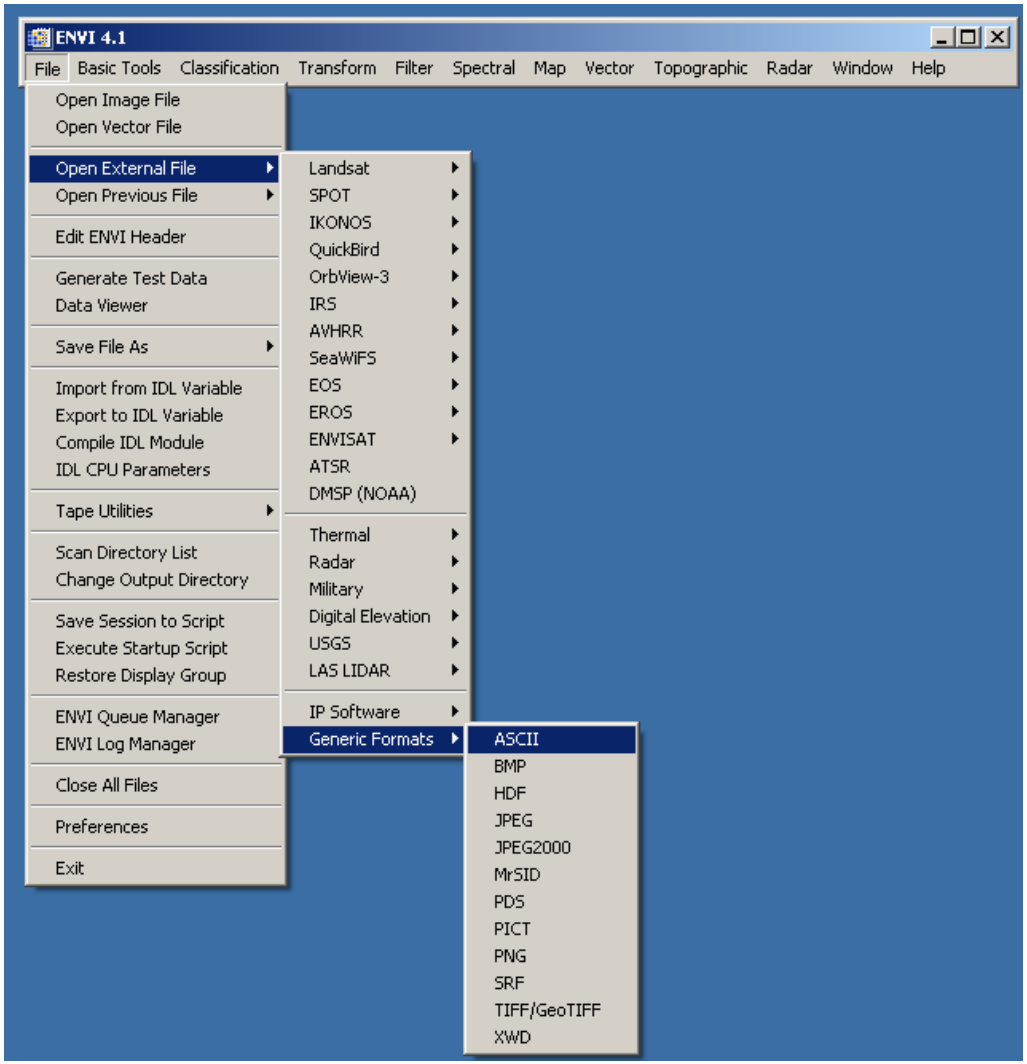
5786 5765 5822 5695 5739 5817 5992
5609 5094 4333 5790 5763 5793 5863
5602 5499 5844 5811 5210 5436 5728
4749 5674 5419 2617 4012 5607 5219

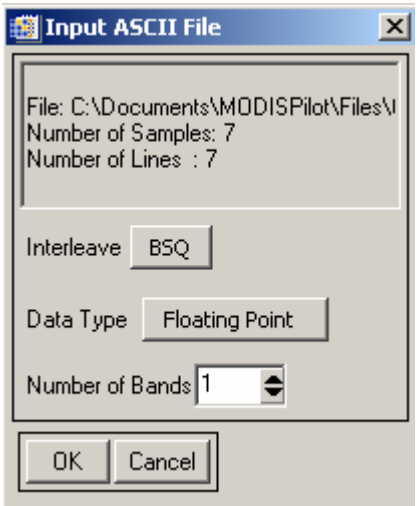
Step 2

Open ENVI and select the Open External File → Generic Formats → ASCII command



Step 3

Select the file **GRID_MOD13A2_A2005305 _1_km_16_days_NDVI.asc**



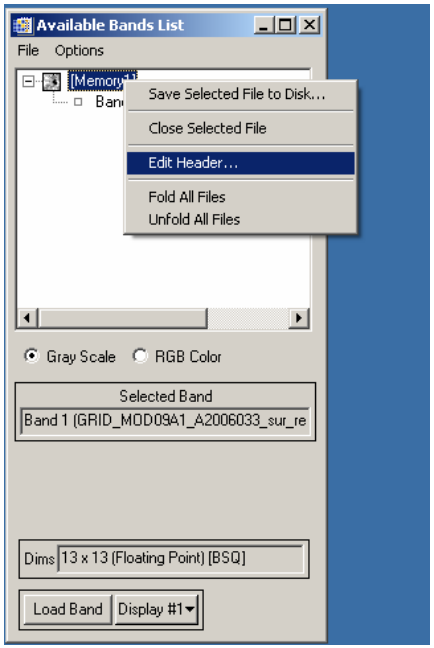
A message box similar to one shown above should display

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

Click OK

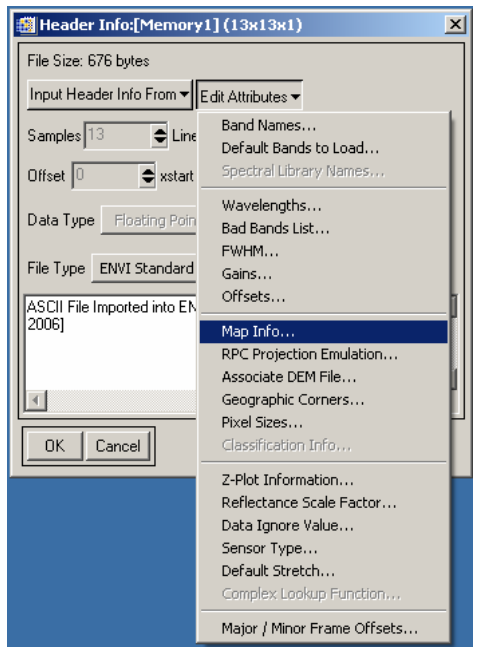
Step 4

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



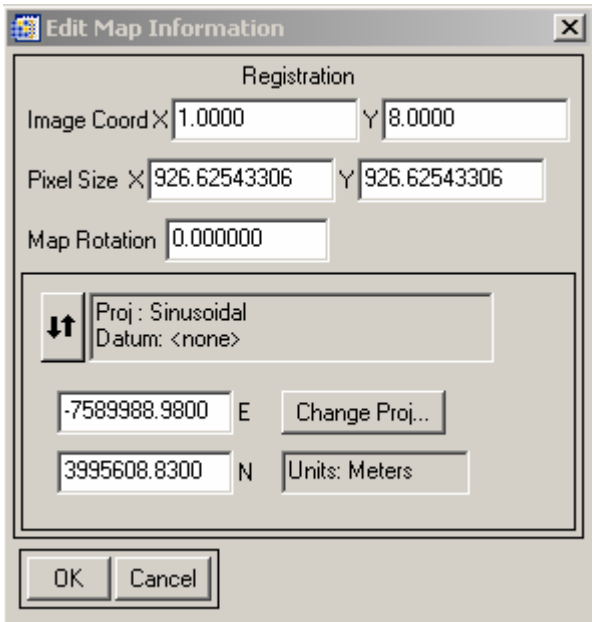
Right click on the file → Edit Header

Select Edit Attributes → Map Info



Step 4

Set the projection parameters using the **GRID_MOD13A2_A2005305 _1_km_16_days_NDVI.asc** file

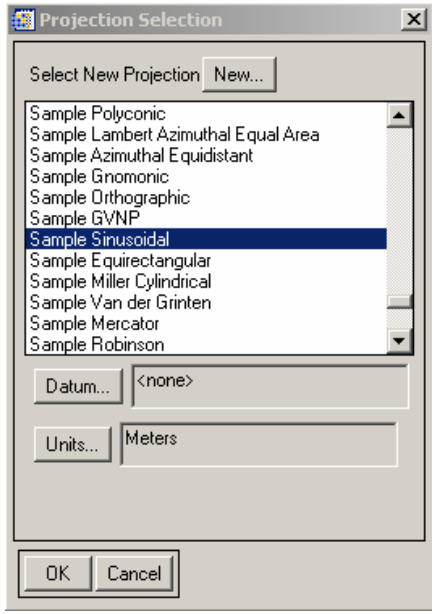


•Pixel Size is the "Cell Size" from the ASCII file GRID_MOD13A2_A2005305 _1_km_16_days_NDVI.asc

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

Step 5

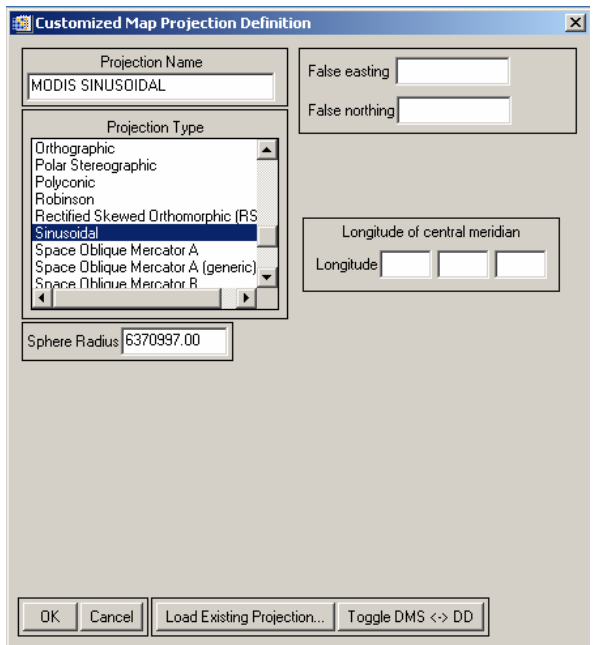
Change Projection to sinusoidal →



Click OK twice to display image and export the file into any format of choice

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/cgi-bin/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

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nodata_value -9999999
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5609 5094 4333 5790 5763 5793 5863
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4749 5674 5419 2617 4012 5607 5219
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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)-----
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xllcorner -7589988.98
yllcorner 3995608.83
cellsize 926.62543305583381
nodata_value -9999999
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Step 1

Copy contents between
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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**

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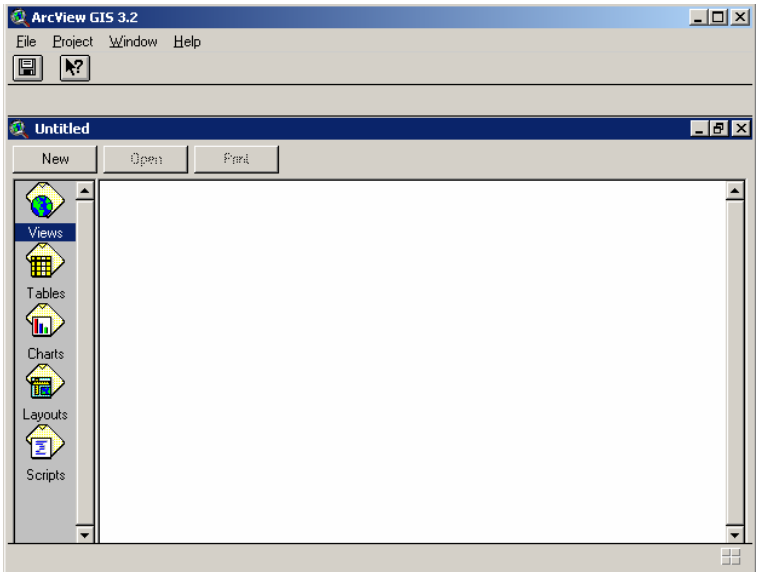
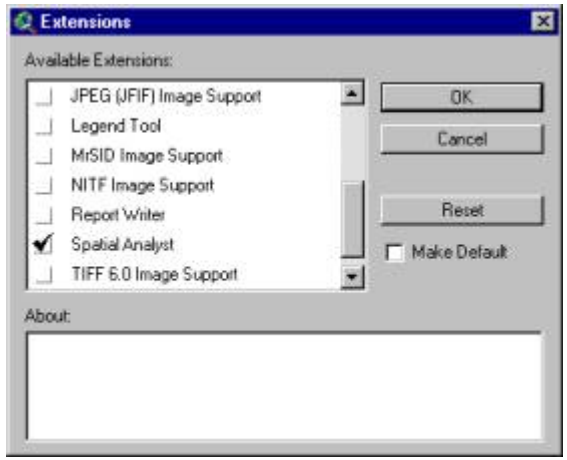
5609 5094 4333 5790 5763 5793 5863
5602 5499 5844 5811 5210 5436 5728
4749 5674 5419 2617 4012 5607 5219

Step 2

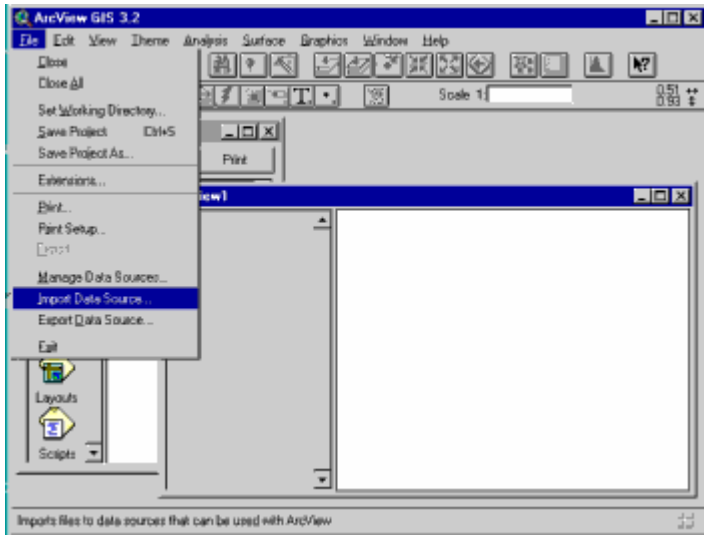




Open ArcView and activate the Spatial Analyst extension

Step 3

Invoke “Import Data Source” tool



Select “ASCII Raster” file type

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

MODIS ASCII Subsets: Data Visualization
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5602 5499 5844 5811 5210 5436 5728
4749 5674 5419 2617 4012 5607 5219

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 r.in.gdal): 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.

Source:
http://grass.itc.it/gdp/html_grass5/html/r.in.arc.html

SEE ALSO

r.in.gdal *r.out.arc*