Subject: Re: Create a GEOTiff image
Posted by David Fanning on Wed, 03 Sep 2008 20:07:08 GMT
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titan writes:

> I have 3 .txt files containig LAT, LONG, and Pressure.
> Is there the possibility to create a GEOTiff image using IDL in order
> to obtain a warped map of the datum (the pressure), depending on LAT
> and LONG .txt files,that maintains geographic info?
> I'm already able to project this data using the map tools of IDL but
> my output is "only" a .png file without any geographic informations..

In principle, creating a GeoTiff file is as straightforward
as it gets. Just create a structure with the proper GeoTiff tags
in it, filled out with the proper values, and pass it along with
the image to the WRITE_TIFF routine via the GEOTIFF keyword.

Of course, you will get *no* help from IDL filling out the
tags properly, nor will you learn which tags you probably
need (and they will vary somewhat from one projection to another,
etc.). You will have to get this information elsewhere, probably
on one of the GeoTiff web pages:

http://www.remotesensing.org/geotiff/geotiff.html

Here is an example we have used around here:

```
g_tags = { ModelPixelScaleTag: [ 25000.d, 25000.d, 0d ], $
           ModelTiepointTag: [0d, 0d, 0d,-3850000.d,5850000.d, 0 ], $
           GTModelTypeGeoKey: 1s, $         ; (ModelTypeProjected)
           GTRasterTypeGeoKey: 1s, $        ; (RasterPixelIsArea)
           GeographicTypeGeoKey: 32767s, $       ; (user-defined)
           GeogGeodeticDatumGeoKey: 32767s, $    ;  User-Defined
           GeogLinearUnitsGeoKey: 9001s, $       ; Linear_Meter
           GeogAngularUnitsGeoKey: 9102s, $      ; Angular_Degree
           GeogSemiMajorAxisGeoKey: 6378273.0d,  $         ;
           GeogSemiMinorAxisGeoKey:6356889.449d, $         ;
           ProjectedCSTypeGeoKey: 32767s, $ ; User-Defined
           ProjCoordTransGeoKey: 15s, $    ;  CT_PolarStereographic
           ProjLinearUnitsGeoKey: 9001s, $ ;  Linear_Meter
           ProjNatOriginLatGeoKey: 70.d, $ ;
           ProjFalseEastingGeoKey: 0d, $   ; 0
           ProjFalseNorthingGeoKey: 0d, $  ;
           ProjCenterLongGeoKey: -45.0d, $
           ProjCenterLatGeoKey: 90.0d $
         }
```

(Don't copy the actual values here, they will have to match YOUR

map projection, etc. This is just to give you the flavor of the
problem.)

Once you have the tags filled out properly, you just write the
geoTIFF file:

```
WRITE_TIFF, 'example_geotif.tif', image, /float, geotiff=g_tags
```

GeoTiff files do have one significant problem that complicates our
lives here at the Snow and Ice Data Center. They assume that the
datum you use to specify the latitude and longitude values of your
data is identical to the ellipsoid you are going to use for your
map projection (normally WGS84). Unfortunately, that is not always
the case. Here, we use a spherical datum to create our lat/lon values,
and the WGS84 ellipsoid to project the data into a map projection.
Thus, we have to use little known keywords to proj.4 to do
a datum transformation, before we can project the data and create
a GeoTiff file. As far as I know, datum transformations are
not possible in IDL, although a 3-point datum transformation is
possible in ENVI. proj.4 uses the standard 7-point datum transformation.

Cheers,

David
--
David Fanning, Ph.D.
Coyote's Guide to IDL Programming (www.dfanning.com)
Sepore ma de ni thui. ("Perhaps thou speakest truth.")
