
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, $      ; (RasterPixellsArea)
          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

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David Fanning, Ph.D.

Coyote's Guide to IDL Programming (www.dfanning.com)

Sepore ma de ni thui. ("Perhaps thou speakest truth.")
