Subject: Re: how to composite a mapcoord object using geographic coordinate(no projection)
Posted by Yngvar Larsen on Tue, 25 Feb 2014 09:25:30 GMT
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On Tuesday, 25 February 2014 00:48:48 UTC+1, David Fanning wrote:
> Fabien writes:
>
>
>
>> I believe that these are also "standard" formats but less transparent.

These files are indeed TIFF 6.0 conformant, but the information in them do not contain enough GeoTIFF tags to have a uniquely defined grid without external information. Thus, you need ugly special cases in your GeoTIFF reader to handle this. Or a specific reader for each. I did the latter for SRTM tiles, which only contain "ModelPixelScaleTag" and "ModelTiepointTag", but no info on the coordinate system.

> I don't know. I've seen three files in the past three days that purport
> to be "GeoTiff" files, and not a one of them appears to have been
> written by someone who read the TIFF definitions and standards document.

You should not confuse GeoTIFF with TIFF. A conformant TIFF file can contain almost any imaginable tags/metadata (or not...). However, such extra information can be ignored a conformant TIFF _reader_. GeoTIFF is such extra information.

GCS_WGS_84 = 4326

> Can you just make it up and call it a GeoTiff?

I guess you can use at least one of the defined GeoTIFF tags, and call it a GeoTIFF file. But if you would like your file to be self contained, I would say you should at least follow the cookbooks in the spec:

 http://www.remotesensing.org/geotiff/spec/geotiff2.6.html#2. 6.3
 http://www.remotesensing.org/geotiff/spec/geotiff2.7.html#2. 7.3

Specifically, for the geographic coordinate systems discussed in this thread, you should do the following

"
case GEOGRAPHIC: Check the list of standard GCS's and use the
        corresponding code. To use a code both the Datum, Prime
        Meridian, and angular units must match those of the code.

        Store in: GeographicTypeGeoKey and skip to Step 4.
        If none of the coded GCS's match exactly, then this is a
        user-defined GCS. Check the list of standard datums,

Prime Meridians, and angular units to define your system.
Store in: GeogGeodeticDatumGeoKey, GeogAngularUnitsGeoKey,
   GeogPrimeMeridianGeoKey and skip to Step 4.

If none of the datums match your system, you have a
user-defined datum, which is an odd system, indeed. Use
the GeogEllipsoidGeoKey to select the appropriate ellipsoid
or use the GeogSemiMajorAxisGeoKey, GeogInvFlatteningGeoKey to
define, and give a reference using the GeogCitationGeoKey.
Store in: GeogEllipsoidGeoKey, etc. and go to Step 4.
"

The file that J. Zhou sent you contain the following information on the coordinate system:

 GEOGRAPHICTYPEGEOKEY
          INT   4326
 GEOGANGULARUNITSGEOKEY
          INT   9102
which means a standard GCS (WGS-84) and angular units (degrees) plus
 GTMODELTYPEGEOKEY
          INT   2
 GTRASTERTYPEGEOKEY
          INT   1
 which means Geographical coordinate system with "PixelIsArea". Thus, this is a well defined self
contained GeoTIFF file as far as I understand. On the other hand, the SRTM tile I sent you did not
contain any of this, and needs special treatment with external information.

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Yngvar