
Subject: Re: UTM Map Projection Produces Incorrect Results
Posted by [David Fanning](#) on Tue, 01 Nov 2011 17:59:12 GMT
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Chris Torrence writes:

> Second, there was a bug in the GCTP library: for the
> UTM projection it did not let you pass in arbitrary
> semimajor/semiminor axis values. Instead, you could
> only use one of the predefined 20 ellipsoids, which
> did not include WGS84. In the IDL documentation for
> MAP_PROJ_INIT, ellipsoids 0-19 would work fine,
> while 20-24 would just default to the Clark 1866
> sphere. Now, ellipsoid #12 (Walbeck) is *identical*
> to WGS84, and will give you the *exact* same results
> as if you had used WGS84.

I note that the Walbeck ellipsoid is only identical
to WGS84 in IDL 8.x. It wasn't identical in IDL 7.1,
but it was so damn close that I'm not going to
quibble with you. I only mention it because of your
emphasis around the words "identical" and "exact". ;-)

> Third, in the !MAP structure, there is a !MAP.A and
> !MAP.E2 which should contain the semimajor and
> eccentricity(squared) values. If !MAP.E2 is zero,
> then you are using a spherical ellipsoid.

Well, they "should", but they don't always.

```
IDL> map = Map_Proj_Init(101, DATUM='WALBECK', ZONE=4)
IDL> Print, map.a, map.e2
      6370997.0    0.00000000
```

These numbers should be 6378137.0 and 0.00669438,
respectively. In this case the value of the
eccentricity in the map structure is misleading,
to say the least.

Cheers,

David

--

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Coyote's Guide to IDL Programming: <http://www.idlcoyote.com/>

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