Subject: Re: Converting map altitude coordinates (Z)
Posted by David Fanning on Sun, 06 Feb 2011 00:37:39 GMT
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mankoff writes:

> I can use the MAP_PROJ routines to convert a lat/lon vector from one
> coordinate system (WGS84) to another (IDL Cylindrical). But if I have
> a 3rd vector of altitude, how do I convert this?
>
> The coordinates are currently WGS84 and the altitude is -28 m over the
> ocean, so I think this is a spheroid issue, and converting to a
> different system should give 0 m over the ocean. I could just add 28
> to everything, but I presume there is a more 'official' method.

I don't know the answer to this question, exactly,
but I do thing your thinking (or maybe only your
explanation) is a bit fuzzy. WGS84 is a datum, not
a map projection. (A map projection consists of a
datum and a data coordinate system.) The MAP_PROJ
routines will convert from one map projection to
another, and I presume if there is a datum transformation
(for example, from WGS84 to a spherical datum) they
might handle some of that for you, but it isn't
exposed to you.

I find it a little hard to know what "altitude" would
mean in terms of a datum transformation. What is the
altitude measured from? Is it the height above the
datum, or the height above the geoid (which is different
from the datum and typically represents the mean sea
level). You would have to know, I would think, to make
sense of this question.

If you are looking for a good book to explain all this,
I *highly* recommend Datums and Map Projections, 2nd Ed.,
by Jonathan Iliffe and Roger Lott. Very clear, very
thorough treatment of a confusing and difficult subject.

Cheers,

David

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