Subject: Re: cgDrawVectors over map problem?
Posted by David Fanning on Sun, 02 Nov 2014 17:23:15 GMT

View Forum Message <> Reply to Message

Dave writes:

>
> Hi David:
>
>   I want to use cgDrawVectors to draw wind over map, like this:
>
> mapNorth = Obj_New('cgMap', 'Polar Stereographic', Limit=[0, -180, 90, 180], /NoBorder)
> mapNorth -> Draw
>
> cgMap_Continents, Color='black', map_structure=mapNorth
> cgMap_Grid, LatDel=15, LonDel=15, LineStyle=1, Color='charcoal', /label, lonlabel=2,
map_structure=mapNorth
>
> cgDrawVectors, 10, 0, 140, 40, vecColors='black', /Overplot, referencevector=10, /solid,
thick=2, MapCoord=mapNorth
>
> In this example, the wind (u=10,v=0) should blow towards east. But the plotted wind blow
towards right.
>
> That's to say, the wind direction does not fellow the map projection. So why. Very thanks!

Yikes! Bit of a problem here! :-(

This took quite a lot of thinking on my part. I don't think I got much
sleep last night. :-)

I understood my original mistake. I calculated the angle of the wind
vectors after I set up the map projection space. What I needed to do was
find a second point in the direction of the wind vectors, then transform
those two points into the map projection space, before calculating the
angle between them.

But then I couldn't figure out how to scale this vector to the reference
vector in the map space! Sigh...

Anyway, a couple more hours playing with this after coffee (LOTS of
coffee!) and I managed to get it working to my satisfaction. You can
find an updated program here:

   http://www.idlcoyote.com/programs/cgdrawvectors.pro

I also added a map example (well, your example!) in the documentation
header. I've tried it with several other (and as perverse as I could

make them) map projections, and they all seem to work correctly.

Cheers,

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