Subject: Re: CGMAP_GSHHS: problem with land/water colors
Posted by David Fanning on Wed, 14 Aug 2013 20:08:29 GMT
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Matteo writes:

> Run the program first with map_limits set to include some Gulf
> waters around Lousiana (map_limits = [29.,-95.,34.,-88]). Then
> comment in the 'land only' option to exclude the water at the
> lower latitudes. In the latter case I obtain a SKYBLUE rather
> than a TAN background, which is obviously wrong. Furthermore,
> the WATER_COLOR keyword only works for inland water bodies,
> therefore CGCOLORFILL must be used to start from a SKYBLUE background.

OK, here is the problem. To speed things up I assume that I don't want to draw polygons that are outside the plot area. So, I exclude any polygon in which all of its vertices are outside the drawing area. The polygon we want to draw in this zoomed-in case is, say, the United States polygon. But, all of its vertices are outside the drawing area, so it never gets drawn.

In this case, you can "fix" the problem by simply drawing with a tan color instead of a skyblue color before drawing the inland water polygons. In general, it would probably be a better idea to NOT use the GSHHS data base for drawing such zoomed in plots. I think I would have used cgMap_Continents instead, and used the GSHHS data for just the inland waterways, if I needed that much detail. In other words, I think this is a wrong tool for the job kind of problem. (Unless, of course, you have a coffee machine nearby and you don't really care now long it all takes.)

You have to "fill" oceans with the fill color before you start to draw because the GSHHS data doesn't include ocean polygons. In other words, the oceans are what's left (the negative space) after you fill all the other polygons in the file.

> You will also notice that having to reissue CGMAP_SET at the end to
> draw state borders (yellow) over everything leads to imperfect
> overlap with the black GSHHS shorelines, expected because of
> the different resolution.

You don't have to do this, and I don't know why you think so. I would just use cgMap_Continents and just draw the state outlines:

```
cgMap_Continents, /usa, color='yellow'
```

Here is the code I used to draw the "correct" plot in this particular instance.

```
PRO test_gshhs

   datafile='C:\IDL\data\gshhs\gshhs_2.2\gshhs\gshhs_i.b'

   ; include some water
   ;map_limits = [29.,-95.,34.,-88]
   ; land only
   map_limits = [31.,-95.,34.,-88]

   cgDisplay, 500, 350, /free
   pos = [0.1,0.1, 0.9, 0.8]

   ; set map projection
   cgmap_set, limit = map_limits, /mercator, position=pos

   ; set a SKYBLUE background
   cgColorfill, [pos[0], pos[0], pos[2], pos[2], pos[0]], $
      [pos[1], pos[3], pos[3], pos[1], pos[1]], $
      /Normal, Color='tan'

   ; issue CGMAP_GSHHS
   cgMap_GSHHS, datafile, Fill=1, Level=4, Color='black', $
      Land='tan', Water_color='skyblue'

   ; overdraw state borders
   cgMap_Continents, /usa, color='yellow'
END
```

Cheers,

David
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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.")
