
Subject: Map pixel areas

Posted by [khyde](#) on Fri, 09 May 2014 16:12:21 GMT

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Hello,

I was hoping someone could help me figure out how to calculate the size of a pixel from a given map projection. For example, I use the following MAP_SET command to create a global 4096x2048 equidistant map. In theory (if I understand it correctly), the pixel sizes should all be the same since it is an equidistant map.

```
MAP_SET, /CYLINDRICAL, 0, 0, ISOTROPIC = 1, POSITION=[0.0, 0.0, 1.0, 1.0],/NOBORDER
```

Conversely, this map should have pixel areas of varying sizes.

```
MAP_SET, /MOLLWEIDE, 0, 0, ISOTROPIC = 1, POSITION=[0.0, 0.0, 1.0, 1.0],/NOBORDER
```

So, what I would like to do is determine the area of each pixel based on the given map projection. I have tried MAP_2POINTS, but I think this gives me the actual distance from point A to point B based on the coordinates on a globe and not the projected pixel, which has been distorted because of the map projection.

I apologize if I am not explaining my question very well, but hopefully someone understands mapping well enough to help me figure this out.

Thank you,
Kim

Subject: Re: Map pixel areas

Posted by [David Fanning](#) on Fri, 09 May 2014 16:44:12 GMT

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kjwh writes:

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mapping well enough to help me figure this out.

I understand map projections well enough to understand that if you want a projected XY grid of known resolution (which is what I **think** you want), Map_Set is about the **last** IDL routine you want to be fooling around with. :-)

I would seriously investigate Map_Proj_Init. (Or, if you want something easier to use, the cgMap object from the Coyote Library.)

Do you have a map projected image you are trying to establish a map projection for? I think it is odd (and probably not that useful) to want to know the area of a pixel.

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.")

Subject: Re: Map pixel areas

Posted by [khyde](#) on Tue, 13 May 2014 14:14:27 GMT

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On Friday, May 9, 2014 12:44:12 PM UTC-4, David Fanning wrote:

> kjwh writes:

>

>

>

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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.")

Hello David,

The reason I am trying to figure out the pixel areas is I need to know the difference between a the "projected" area of a specified region of interest and the "true" area of the ROI. I have several dozen maps that have been created using MAP_SET and are used to remap satellite derived data. I have never used MAP_PROJ_INIT and will look into it more, but if I can figure out how to do this with the maps I already have that would be great.

The main thing I am trying to do is determine the areal production within a subsetted area of the map. Because we are using the sum of the pixels in the ROI, I need to know both the "projected" size and the "actual" size (which I already know), to get an accurate areal estimate. Again, I am not sure I am explaining this very well, but I do appreciate any suggestions.

Thank you,
Kim

Subject: Re: Map pixel areas
Posted by [David Fanning](#) on Tue, 13 May 2014 14:42:21 GMT
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kimberly.hyde@noaa.gov writes:

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Why would you be concerned with the "projected" area if you know the actual area? Isn't one a visualization, a figment of the imagination, and the other a real, actual, physically meaningful quantity?

In any case, I really don't have a clue how this could be done with Map_Set. Sorry. :-(

Cheers,

David

--

David Fanning, Ph.D.

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