
Subject: Drawing satellite pixels on maps?

Posted by [Philippe Peeters](#) on Tue, 19 Nov 1996 08:00:00 GMT

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I've already posted this question some time ago but did not get any answer. Here I go again:

I want to draw satellite data on a map. Each ground pixel is defined by the latitude and longitude of the 4 corners. It is not a regular rectangle or square and depend on the viewing geometry of the satellite instrument.

I have tried a simple polyfill, long, lat but I have serious problems with orthographic maps when the pixel is partly off the map. I got strange filled polygons from the edge of the map to the corner of the window. Someone on the net advice me to use a new polyfill routine which checks polygons boundaries before drawing it. Though slower than the original polyfill, it solved the problem.

But I still have another problem with several maps when the pixel to be drawn is at the edge, i.e. when one or several pixel corner is on one side of the map (lon > -180) and the other on the other side (lon < -180) of the map.

example longitude=[-179,-181,-179.5,-180.5] or [179,181,179.5,180.5]

The pixel is drawn from one side to the other of the map which is pretty ugly. Obviously this is a 'normal' way of drawing that kind of pixel, polyfill is not supposed to know that it has to cut the pixel into two. Does anybody know how to solve this problem.

And now a question related to the same topic. How can I resample the irregular ground pixels onto a regular (square or rectangle) grid?

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Subject: Re: Drawing satellite pixels on maps?

Posted by [Philippe Peeters](#) on Fri, 22 Nov 1996 08:00:00 GMT

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David Fanning wrote:

>

> Philippe Peeters <Philippe.Peeters@oma.be> writes:

>
>> [Question about rendering split pixels that I can't answer without research.]
>>
>> And now a question related to the same topic. How can I resample the
>> irregular ground pixels onto a regular (square or rectangle) grid?
>
> The easiest way to resample irregular ground pixels to a regular
> grid is to use the TRIANGULATE and TRIGRID routines that are
> built into IDL. The method is straightforward: the TRIANGULATE
> procedure takes your sample locations and returns a set of
> Delaunay triangles constructed from the locations. Passing the
> locations, the data itself, and the triangles to the TRIGRID function
> results in a gridded data set. You can specify the grid intervals.
>
> Depending upon the geographical extent of your data locations,
> you may prefer to perform spherical gridding (i.e. use spherical
> triangles rather than flat, 2D triangles). Be aware that the
> TRIANGULATE and TRIGRID routines are capable of this as
> well, although different keywords need to be used (e.g, see
> the SPHERE keyword to TRIANGULATE).
>

I have tried TRIANGULATE and TRIGRID. The plane interpolation seems to work ok if I only use the value (Z) at the center of each polygons and if polygons are far from the poles. I have also tried the spherical triangle gridding. It took around one hour of processing with the final error message :

% TRIGRID: Points are co-linear, no solution.

I have tried to process the same FVALUE as the plane case, i.e. evaluate at the center of each polygon. The total number of points to be triangulate is around 50,000 for a full Earth coverage. I guess it's too much for trigrd.

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Subject: Re: Drawing satellite pixels on maps?
Posted by [Liam Gumley](#) on Mon, 25 Nov 1996 08:00:00 GMT

Philippe Peeters wrote:

- > I want to draw satellite data on a map. Each ground pixel is defined by
- > the latitude and longitude of the 4 corners. It is not a regular
- > rectangle or square and depend on the viewing geometry of the satellite
- > instrument.

[attempts to solve problem with POLYFILL described]

This is a problem that I have also encountered - I have no solution.
Does anyone know if IDL 5.0 will address any of these map related
problems?

- > And now a question related to the same topic. How can I resample the
- > irregular ground pixels onto a regular (square or rectangle) grid?

You may wish to try my *hack* for solving this problem. I've found
it makes decent images for high resolution sensors such as AVHRR.
Look for "Image Mapping Tool" at <http://cimss.ssec.wisc.edu/~gumley>

Cheers,
Liam.
