Subject: Re: Reproject MODIS automatically using IDL
Posted by James Kuyper on Fri, 02 Sep 2005 17:06:27 GMT
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zamri79@gmail.com wrote:
> Hallo,
>
> Can someone give some instruction or maybe some function/code to
> reproject MODIS data automatically?

What kind of MODIS data are you looking at?

The Level 2 products are arranged in 5-minute granules, and have the same organization as the raw images that the were developed from: 203 or 204 scans per granule, 1354 1km frames per scan, 10 detectors/frame of data collected for each 1km band, 20 detectors by 2 samples/frame collected for each 500m band, and 40 detectors by 4 samples/frame collected for each 250m band.

For best results with level 2 products, be sure to use the Geolocation data at 1km resolution that is present in the MOD03 (Terra) or MYD03 (Aqua) files. Keep in mind that each scan should be treated as a seperate image: consecutive scans overlap each other by 0% at the middle of the scan, increasing steadily with distance from the center to 100% at each end of the scan. It makes absolutely no sense to interpolate anything across scan boundaries. If you need any resolution higher than 5km, you should NOT interpolate the 5km geolocation sub-set that is present in the MOD021KM and MYD021KM files; the interpolation will inherently mis-represent the overlap of consecutive scans.

The MODIS products at level 3 and higher are generally gridded, using the HDF-EOS Grid constructs. IDL provides wrappers for the HDF-EOS routines that will provide you with all the information you need to determine the parameters of the map projection on which the grid points appear as a uniformly spaced rectangular grid. It's fairly straight forward, to use EOS_GD_INTERPOLATE to interpolate the data to an arbitrary set of positions, and in particular to interpolate it to grid points for a different map projection.

As the person responsible for MODIS geolocation, I've had surprisingly little need to actually display images. The only code I could give you is hopelessly specific to the problem I was trying to solve. It was also my first (and so far, only) attempt at a sophisticated widget program, and it stopped working shortly after I stopped needing it, when we upgraded our version of IDL. I don't think it's really a good example for you to copy. Luckily, there are other people on this newsgroup who almost certainly will be responding soon with more specific help on this issue.

Subject: Re: Reproject MODIS automatically using IDL
Posted by George N. White III on Fri, 02 Sep 2005 21:08:30 GMT
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On Fri, 2 Sep 2005, James Kuyper wrote:

> zamri79@gmail.com wrote:
>> Hallo,
>>
>> Can someone give some instruction or maybe some function/code to
>> reproject MODIS data automatically?
>
> What kind of MODIS data are you looking at?

Excellent question -- so far I've encountered at 3 types:

1) MODAP? data from standard land/atmosphere processing also early ocean data

2) MODIS ocean data processed with NASA's SeaDAS (much of which is written in IDL)

3) direct broadcast

When someone comes into your office holding a CD labelled "MODIS DATA" how do you know what they have?

--
George N. White III <aa056@chebucto.ns.ca>

Subject: Re: Reproject MODIS automatically using IDL
Posted by zamri79@gmail.com on Mon, 05 Sep 2005 04:03:33 GMT
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I looking at Modis 1B. I want to do a reproject to WGS84 (Malaysia Datum).
So i need to this everyday automatically. I'm new in IDL and and i need you all to assist me or give some instruction or maybe some coding to do that.

Subject: Re: Reproject MODIS automatically using IDL
Posted by zamri79@gmail.com on Mon, 05 Sep 2005 07:34:53 GMT
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I looking at Modis 1B. I want to do a reproject to WGS84 (Malaysia Datum).

So i need to this everyday automatically. I'm new in IDL and and i need
you all to assist me or give some instruction or maybe some coding to
do that.

Subject: Re: Reproject MODIS automatically using IDL
Posted by James Kuyper on Tue, 06 Sep 2005 00:54:08 GMT
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zamri79@gmail.com wrote:
> I looking at Modis 1B. I want to do a reproject to WGS84 (Malaysia
> Datum).
> So i need to this everyday automatically. I'm new in IDL and and i need
> you all to assist me or give some instruction or maybe some coding to
> do that.

I'm familiar with WGS84 as a spheroid, and the geolocation that was
copied into the MODIS L1B was calculated using the WGS84 spheroid. Is
WGS84 also a map projection? I'm not familiar with that projection.

Subject: Re: Reproject MODIS automatically using IDL
Posted by peter.albert@gmx.de on Tue, 06 Sep 2005 05:56:43 GMT
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If you have to do serious reprojection tasks, it might be worth having
a close look at proj (http://www.remotesensing.org/proj/). It has
nothing to do with IDL, though, but is probably the tool you are
looking for. As far as I know, IDL only supports WGS84 datum, and if
you have to do datum shifts, you can't do it with IDL. However, I am
also curious to know what the difference is between "classical" WGS84
and "Malaysia Datum" ...

Regards,

Peter

Subject: Re: Reproject MODIS automatically using IDL
Posted by James Kuyper on Tue, 06 Sep 2005 15:07:52 GMT
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zamri79@gmail.com wrote:
> I looking at Modis 1B. I want to do a reproject to WGS84 (Malaysia
> Datum).

I don't know anything about "Malaysia Datum". However, the keyword

DATUM=8 causes MAP_PROJ_INIT to use the WGS84 Datum for map projections. If you're using MAP_SET, it's a little trickier, because you have to use the ELLIPSOID keyword, and you have to know the actual numbers that correspond to the WGS84 Datum, and the ELLIPSOID keyword only affects the Transverse Mercator and Lambert Conic projections. The following IDL code is supposed to set up suitable contents for a WGS84 ellipsoid, but it hasn't been independently verified:

f = 1-6356752.300000/6378137.000000
eccentricity = 2*f-f2
ellipsoid = [6378137.000000, eccentricity, 0.999600]
