
Subject: GeoTiff- grid

Posted by [robinson.inj](#) on Mon, 21 Jan 2008 21:59:04 GMT

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Dear all,

I was wondering if someone can show me how to extract lat and lon values for each pixel from a Geotiff image. Using ENVI i observed that my results were horrible.

Thanks

Robinson.

Subject: Re: GeoTiff- grid

Posted by [robinson.inj](#) on Tue, 22 Jan 2008 23:01:56 GMT

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On Jan 22, 4:47 pm, David Fanning <n...@dfanning.com> wrote:

> robinson....@gmail.com writes:

>> David, I followed your examples but still have problems. In the uv

>> space my corners IDL and ENVI aggred

>> UpperLeftCoordinate:(-167346.0185E, 3677892.5566N)

>> LowerRightCoordinate:(1222128.8184E,2983386.7945N)

>> My image has 3000 col x 1500 lin. The pix resolution is 463.3127

>> meters.

>

> I get an image resolution of 2999 x 1499 when I take

> the corner coordinates, subtract them, and divide

> by the pixel resolution. The fact that ENVI and IDL

> agree is a good thing, but in all of the GeoTIFF

> files I've been working, with doing this arithmetic

> gives me the image size exactly. So, that concerns

> me.

>

>> However in the lon/lat space i got:

>> IDL: UpperLeftCoordinate: (-98.555279E, 45.411655N)

>> LowerRightCoordinate: (-81.568627E,51.346972N)

>> ENVI: UpperLeftCoordinate: (-98.09914722E, 33.30501389N)

>> LowerRightCoordinate:(-84.82142500E, 27.55810278N)

>

> Unless you are using the *completely* wrong map projection

> (how did you determine what this is?), then it looks to me

> like you didn't convert the corners you thought you were

> converting.

>

> But I would like to see the listgeo output to know

> what I am dealing with here.

>

> Cheers,

>
> David
> --
> David Fanning, Ph.D.
> Fanning Software Consulting, Inc.
> Coyote's Guide to IDL Programming (www.dfanning.com)
> Sepore ma de ni thui. ("Perhaps thou speakest truth.")

I posted the listgeo list above.

Subject: Re: GeoTiff- grid
Posted by [David Fanning](#) on Tue, 22 Jan 2008 23:17:41 GMT
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robinson.inj@gmail.com writes:

> I posted the listgeo list above.

Well, now. Something is amiss. :-)

Humm. Do you notice that we use a CENTER_LATITUDE = 20
and in *neither* my calculations nor ENVIs do the
calculated latitudes bracket that value. That seems
exceedingly strange, don't you think?

Do you suppose that value is completely bogus?

Do you have any idea where this image is *suppose* to be?

Cheers,

David

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

Subject: Re: GeoTiff- grid
Posted by [David Fanning](#) on Tue, 22 Jan 2008 23:31:51 GMT
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Well, I tell you what. Here are the numbers I get when I use a
LAT=20 and LON=-96.5:

Corner Coordinates:

Upper Left: (-167346.019, 3677892.560)

Lower Left: (-167346.019, 2982923.485)

Upper Right: (1222592.132, 3677892.560)

Lower Right: (1222592.132, 2982923.485)

Corners in Lon/Lat

Upper Left: (-98.555, 51.338)

Lower Right: (-82.367, 45.408)

Here are the values I get (surprisingly close to ENVI's) when I use a LON of 2, instead of 20:

Corner Coordinates:

Upper Left: (-167346.019, 3677892.560)

Lower Left: (-167346.019, 2982923.485)

Upper Right: (1222592.132, 3677892.560)

Lower Right: (1222592.132, 2982923.485)

Corners in Lon/Lat

Upper Left: (-98.037, 33.346)

Lower Right: (-85.323, 27.832)

Are you sure you did the ENVI numbers correctly?

Here is the way I set up the map projection:

```
map = MAP_PROJ_INIT(9, $
    DATUM=5, $
    CENTER_LAT=20.0, $
    CENTER_LON=-96.5)
lonlat = MAP_PROJ_INVERSE([xorigin, xend],[yend, yorigin], $
    MAP_STRUCTURE=map)
```

Cheers,

David

--

David Fanning, Ph.D.

Fanning Software Consulting, Inc.

Coyote's Guide to IDL Programming (www.dfanning.com)

Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: GeoTiff- grid

On Jan 22, 5:31 pm, David Fanning <n...@dfanning.com> wrote:

> Well, I tell you what. Here are the numbers I get when I use a
> LAT=20 and LON=-96.5:
>
> Corner Coordinates:
> Upper Left: (-167346.019, 3677892.560)
> Lower Left: (-167346.019, 2982923.485)
> Upper Right: (1222592.132, 3677892.560)
> Lower Right: (1222592.132, 2982923.485)
> Corners in Lon/Lat
> Upper Left: (-98.555, 51.338)
> Lower Right: (-82.367, 45.408)
>
> Here are the values I get (surprisingly close to
> ENVI's) when I use a LON of 2, instead of 20:
>
> Corner Coordinates:
> Upper Left: (-167346.019, 3677892.560)
> Lower Left: (-167346.019, 2982923.485)
> Upper Right: (1222592.132, 3677892.560)
> Lower Right: (1222592.132, 2982923.485)
> Corners in Lon/Lat
> Upper Left: (-98.037, 33.346)
> Lower Right: (-85.323, 27.832)
>
> Are you sure you did the ENVI numbers correctly?
>
> Here is the way I set up the map projection:
>
> map = MAP_PROJ_INIT(9, \$
> DATUM=5, \$
> CENTER_LAT=20.0, \$
> CENTER_LON=-96.5)
> lonlat = MAP_PROJ_INVERSE([xorigin, xend],[yend, yorigin], \$
> MAP_STRUCTURE=map)
>
> Cheers,
>
> David
>
> --
> David Fanning, Ph.D.
> Fanning Software Consulting, Inc.
> Coyote's Guide to IDL Programming (www.dfanning.com)
> Sepore ma de ni thui. ("Perhaps thou speakest truth.")

strange. My map does not have any lat 2 value. converting the tiff image in a image with header i got:

ENVI

```
description = {  
  File Resize Result, x resize factor: 1.000000, y resize factor:  
  1.000000.  
  [Thu Jan 17 15:57:16 2008]}  
samples = 3000  
lines   = 1500  
bands   = 1  
header offset = 0  
file type = ENVI Standard  
data type = 2  
interleave = bsq  
sensor type = Unknown  
byte order = 0  
x start = 4380  
y start = 1880  
map info = {GEOTIFF (Mercator), 1.0000, 1.0000, -167346.0185,  
3677892.5566, 4.6331271653e+002, 4.6331271653e+002, WGS-84,  
units=Meters}  
projection info = {20, 6378137.0, 6356752.3, 20.000000, -96.500000,  
0.0, 0.0, WGS-84, GEOTIFF (Mercator), units=Meters}  
wavelength units = Unknown  
band names = {  
  Resize (Band 1:MOD09GHK_A2005125_B4.tif)}
```

Subject: Re: GeoTiff- grid

Posted by [robinson.inj](#) on Wed, 23 Jan 2008 15:15:58 GMT

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On Jan 23, 7:08 am, robinson....@gmail.com wrote:

> On Jan 22, 5:31 pm, David Fanning <n...@dfanning.com> wrote:

>

>

>

>

>

>> Well, I tell you what. Here are the numbers I get when I use a

>> LAT=20 and LON=-96.5:

>

>> Corner Coordinates:

>> Upper Left: (-167346.019, 3677892.560)

>> Lower Left: (-167346.019, 2982923.485)

>> Upper Right: (1222592.132, 3677892.560)

>> Lower Right: (1222592.132, 2982923.485)

```

>> Corners in Lon/Lat
>> Upper Left: (-98.555, 51.338)
>> Lower Right: (-82.367, 45.408)
>
>> Here are the values I get (surprisingly close to
>> ENVI's) when I use a LON of 2, instead of 20:
>
>> Corner Coordinates:
>> Upper Left: (-167346.019, 3677892.560)
>> Lower Left: (-167346.019, 2982923.485)
>> Upper Right: (1222592.132, 3677892.560)
>> Lower Right: (1222592.132, 2982923.485)
>> Corners in Lon/Lat
>> Upper Left: (-98.037, 33.346)
>> Lower Right: (-85.323, 27.832)
>
>> Are you sure you did the ENVI numbers correctly?
>
>> Here is the way I set up the map projection:
>
>> map = MAP_PROJ_INIT(9, $
>>     DATUM=5, $
>>     CENTER_LAT=20.0, $
>>     CENTER_LON=-96.5)
>> lonlat = MAP_PROJ_INVERSE([xorigin, xend],[yend, yorigin], $
>>     MAP_STRUCTURE=map)
>
>> Cheers,
>
>> David
>
>> --
>> David Fanning, Ph.D.
>> Fanning Software Consulting, Inc.
>> Coyote's Guide to IDL Programming (www.dfanning.com)
>> Sepore ma de ni thui. ("Perhaps thou speakest truth.")
>
> strange. My map does not have any lat 2 value. converting the tiff
> image in a image with header i got:
>
> ENVI
> description = {
>   File Resize Result, x resize factor: 1.000000, y resize factor:
>   1.000000.
>   [Thu Jan 17 15:57:16 2008]}
> samples = 3000
> lines   = 1500
> bands   = 1

```

> header offset = 0
> file type = ENVI Standard
> data type = 2
> interleave = bsq
> sensor type = Unknown
> byte order = 0
> x start = 4380
> y start = 1880
> map info = {GEOTIFF (Mercator), 1.0000, 1.0000, -167346.0185,
> 3677892.5566, 4.6331271653e+002, 4.6331271653e+002, WGS-84,
> units=Meters}
> projection info = {20, 6378137.0, 6356752.3, 20.000000, -96.500000,
> 0.0, 0.0, WGS-84, GEOTIFF (Mercator), units=Meters}
> wavelength units = Unknown
> band names = {
> Resize (Band 1:MOD09GHK_A2005125_B4.tif)}- Hide quoted text -
>
> - Show quoted text -

David, using the GCTP keyword I solved the problem. Thank you very much for all your assistance.

Subject: Re: GeoTiff- grid

Posted by [David Fanning](#) on Wed, 23 Jan 2008 15:29:22 GMT

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robinson.inj@gmail.com writes:

> David, using the GCTP keyword I solved the problem. Thank you very
> much for all your assistance.

Well, using the keyword *where*, exactly. :-)

Cheers,

David

--

David Fanning, Ph.D.

Fanning Software Consulting, Inc.

Coyote's Guide to IDL Programming: <http://www.dfanning.com/>

Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: GeoTiff- grid

Posted by [David Fanning](#) on Wed, 23 Jan 2008 15:49:30 GMT

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robinson.inj@gmail.com writes:

> David, using the GCTP keyword I solved the problem. Thank you very
> much for all your assistance.

Coitus interruptus.

What was "solved" here? Does my article work as advertised?
Do my results match ENVI's? Are ENVI's results so bad as
to be ludicrous? What!?

Cheers,

David

--

David Fanning, Ph.D.

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Subject: Re: GeoTiff- grid

Posted by [robinson.inj](#) on Wed, 23 Jan 2008 18:52:00 GMT

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On Jan 23, 9:49 am, David Fanning <n...@dfanning.com> wrote:

> robinson....@gmail.com writes:

>> David, using the GCTP keyword I solved the problem. Thank you very

>> much for all your assistance.

>

> Coitus interruptus.

>

> What was "solved" here? Does my article work as advertised?

> Do my results match ENVI's? Are ENVI's results so bad as

> to be ludicrous? What!?

>

> Cheers,

>

> David

> --

> David Fanning, Ph.D.

> Fanning Software Consulting, Inc.

> Coyote's Guide to IDL Programming: <http://www.dfanning.com/>

> Sepore ma de ni thui. ("Perhaps thou speakest truth.")

hey, 99.999999999999% i did was based on your article :-)

Subject: Re: GeoTiff- grid

Posted by [David Fanning](#) on Wed, 23 Jan 2008 19:00:23 GMT

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robinson.inj@gmail.com writes:

> hey, 99.999999999999% i did was based on your article :-)

Yes, but my results didn't match ENVI's. (They were off by 20+ degrees of latitude. A considerable distance if you are in a boat searching for land.)

How did you resolve that little problem? :-)

Cheers,

David

--

David Fanning, Ph.D.

Fanning Software Consulting, Inc.

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Subject: Re: GeoTiff- grid

Posted by [robinson.inj](#) on Thu, 24 Jan 2008 07:35:03 GMT

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On Jan 23, 1:00 pm, David Fanning <n...@dfanning.com> wrote:

> robinson....@gmail.com writes:

>> hey, 99.999999999999% i did was based on your article :-)

>

> Yes, but my results didn't match ENVI's. (They were off by 20+ degrees of latitude. A considerable distance if you are in a boat searching for land.)

>

> How did you resolve that little problem? :-)

>

> Cheers,

>

> David

>

> --

> David Fanning, Ph.D.

> Fanning Software Consulting, Inc.

> Coyote's Guide to IDL Programming: <http://www.dfanning.com/>

> Sepore ma de ni thui. ("Perhaps thou speakest truth.")

well, my 0.00000000001% was:

```
mrCMap=map_projection_init('Mercator', DATUM=8, /GCTP, $
    SEMIMAJOR_AXIS=0, SEMIMINOR_AXIS=0, $; porbably datum 8 deals
with this
    CENTER_LONGITUDE=-96.5, TRUE_SCALE_LATITUDE=20, $
    FALSE_EASTING=0, FALSE_NORTHING=0)
```

Subject: Re: GeoTiff- grid

Posted by [David Fanning](#) on Thu, 24 Jan 2008 13:40:35 GMT

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robinson.inj@gmail.com writes:

```
> well, my 0.00000000001% was:
> mrCMap=3Dmap_projection_init('Mercator', DATUM=3D8, /GCTP, $
>     SEMIMAJOR_AXIS=3D0, SEMIMINOR_AXIS=3D0, $; porbably datum 8 deals
> with this
>     CENTER_LONGITUDE=3D-96.5, TRUE_SCALE_LATITUDE=3D20, $
>     FALSE_EASTING=3D0, FALSE_NORTHING=3D0)
```

Well, now. I think this is a *little* more important than that!

Of course, I ran into the same problem. There are two "Mercator" projections available in IDL, and they take different keywords. Moreover, they give you results that differ by 20+ degrees of latitude. Aren't you just the least little bit curious about that? I know I am. :-)

Plus, the one that apparently "works" is the one I can't get to work from my knowledge of what is in the GeoTiff file. It seems specialized knowledge has been called into play here. I'd like to know how I was suppose to discover that. Anyone have any ideas?

Cheers,

David

--

David Fanning, Ph.D.

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Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: GeoTiff- grid

Posted by [robinson.inj](#) on Thu, 24 Jan 2008 14:29:31 GMT

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On Jan 24, 7:40 am, David Fanning <n...@dfanning.com> wrote:

> robinson....@gmail.com writes:

>> well, my 0.00000000001% was:

>> mrcMap=3Dmap_projection_init('Mercator', DATUM=3D8, /GCTP, \$

>> SEMIMAJOR_AXIS=3D0, SEMIMINOR_AXIS=3D0, \$; porbably datum 8 deals

>> with this

>> CENTER_LONGITUDE=3D-96.5, TRUE_SCALE_LATITUDE=3D20, \$

>> FALSE_EASTING=3D0, FALSE_NORTHING=3D0)

>

> Well, now. I think this is a *little* more important than

> that!

>

> Of course, I ran into the same problem. There are two

> "Mercator" projections available in IDL, and they take

> different keywords. Moreover, they give you results that

> differ by 20+ degrees of latitude. Aren't you just the

> least little bit curious about that? I know I am. :-)

>

> Plus, the one that apparently "works" is the one I can't

> get to work from my knowledge of what is in the GeoTiff

> file. It seems specialized knowledge has been called into

> play here. I'd like to know how I was suppose to discover

> that. Anyone have any ideas?

>

> Cheers,

>

> David

> --

> David Fanning, Ph.D.

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> Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Absolutly. I am very curious about that. but after 2 days trying to undertsand the big difference I am just going to use the GCTP keyword if I were in a boat :-).

I think that in IDL mercator the center_LATITUDE must be located into the image. However I can dicide to cut the image if it were too big. I took a short latitude range from a big image (by preserving the same longitude range). Probably USGS mercator (GCTP) have already thought about this possibility. It is just a idea.

Subject: Re: GeoTiff- grid

Posted by [David Fanning](#) on Thu, 24 Jan 2008 14:48:26 GMT

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robinson.inj@gmail.com writes:

> Absolutly. I am very curious about that. but after 2 days trying to
> undertsand the big difference I am just going to use the GCTP keyword
> if I were in a boat :-).

I don't blame you. I think of Frank Worsley, navigating
for Shackleton, in a 20 foot open boat in the Southern
Ocean, trying to find South Georgia Island by dead reckoning.
I think he would use the GCTP keyword, too. :-)

I'll ask the map experts at work today to see if
they can come up with something.

Cheers,

David

--

David Fanning, Ph.D.

Fanning Software Consulting, Inc.

Coyote's Guide to IDL Programming: <http://www.dfanning.com/>

Sepore ma de ni thui. ("Perhaps thou speakest truth.")
