
Subject: Land Mask data set available? (in lat and lon)
Posted by [Robert Stockwell](#) on Thu, 07 Feb 2002 21:38:14 GMT
[View Forum Message](#) <> [Reply to Message](#)

Greetings All,
I was just about to assimilate the land mask info into IDL, but for my purposes I need the land mask as a function of lat and lon (so as to branch my algorithm on whether or not a data point falls on land), rather than merely an image.

Thus I want to have something like
landmask = int(nx,ny)
lon = float(nx,ny)
lat = float(nx,ny)

that I can crunch into an array for my lat, lon sampling and then directly compare my data with the landmask value. (a simple water = 0, land = 1 mask is fine for me)

I am interested in the southern hemisphere (frinstance 40S to 80 south), and 1/2 degree by 1/2 degree or better.

Does someone have that in IDL?
(or rather, a data format that can be easily digested into IDL)

Cheers,
bob stockwell

PS

I am about to use the land=sea mask data from:
http://edcdaac.usgs.gov/1KM/land_sea_mask.html
that i found snooping through google. It looks like I'll have to grab their image which appears to be in a km by km sampling, and calculate the inverse transform from their map projection into lat and lon (ugh).

Or perhaps I can use the map commands i IDL and create an image, grab the image, convert from pixels to lat and lon.

I am hoping there is an easier way, or at least a "already done" way

Subject: Re: Land Mask data set available? (in lat and lon)
Posted by [wmconnolley](#) on Fri, 08 Feb 2002 09:43:36 GMT
[View Forum Message](#) <> [Reply to Message](#)

Robert Stockwell <stockwell@co-ra.com> wrote:
> I am interested in the southern hemisphere
> (frinstance 40S to 80 south), and 1/2 degree by 1/2 degree
> or better.

I have the ECMWF re-analysis mask, which is about 1x1 degree, if you like.

I also have just Antarctica at 0.25 degree.

-W.

--

William M Connolley | wmc@bas.ac.uk | <http://www.nerc-bas.ac.uk/icd/wmc/>
Climate Modeller, British Antarctic Survey | Disclaimer: I speak for myself
I'm a .signature virus! copy me into your .signature file & help me spread!

Subject: Re: Land Mask data set available? (in lat and lon)
Posted by [Kelly Dean](#) on Fri, 08 Feb 2002 19:24:39 GMT
[View Forum Message](#) <> [Reply to Message](#)

Try the 1km Global Land Cover Characteristics Database from USGS
([usgs2_0g.img.gz](#)). Water bodies (including lakes) have the byte value
of 16, but this should be easy to convert to the desired 1's and 0's.

http://edcdaac.usgs.gov/glcc/globdoc2_0.html

It is easy to compute the navigation --

```
lin = ( 89.99583333333334 - lat ) / 0.008333333333333  
ele = ( -179.99583333333334 - lon ) / 0.008333333333333
```

GTOPO30 is a good source for land/sea mask, but remember, these are 33
separate tiles. With 6 tiles covering your region of interest. However,
I do recall there is one separate tile covering Antarctic in a different
projection. The Global Land Cover Database is one big binary file.

Kelly Dean
CSU/CIRA

Robert Stockwell wrote:

> Greetings All,

> I was just about to assimilate the land mask info
> into IDL, but for my purposes I need the land mask
> as a function of lat and lon (so as to branch my
> algorithm on whether or not a data point falls on land),
> rather than merely an image.
>
> Thus I want to have something like
> landmask = int(nx,ny)
> lon = float(nx,ny)
> lat = float(nx,ny)
>
> that I can crunch into an array for my lat, lon sampling
> and then directly compare my data with the landmask value.
> (a simple water = 0, land = 1 mask is fine for me)
>
> I am interested in the southern hemisphere
> (frinstance 40S to 80 south), and 1/2 degree by 1/2 degree
> or better.
>
> Does someone have that in IDL?
> (or rather, a data format that can be easily digested
> into IDL)
>
> Cheers,
> bob stockwell
>
> PS
>
> I am about to use the land=sea mask data from:
> http://edcdaac.usgs.gov/1KM/land_sea_mask.html
> that i found snooping through google. It looks like
> I'll have to grab their image which appears to be in
> a km by km sampling, and calculate the inverse transform
> from their map projection into lat and lon (ugh).
>
> Or perhaps I can use the map commands i IDL and
> create an image, grab the image, convert from pixels to
> lat and lon.
>
> I am hoping there is an easier way, or at least a
> "already done" way

Subject: Re: Land Mask data set available? (in lat and lon)
Posted by [Klaus Scipal](#) on Mon, 11 Feb 2002 08:22:12 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi Bob

I am not quite sure if I am totally off, but why don't use following simple code to determine if a point is on land or not (I once got it from David and it works excellently for my purposes, however I have to admit that its resolution is rather coarse).

```
determine_land, lon, lat, land
```

```
; Fill window with map continents. Water = 0, Land = 1.
```

```
Window, XSize=3600, YSize=1800, /Free, /Pixmap  
Map_Set, /Cylindrical, 0, 0, Position=[0,0,1,1], /NoBorder, Color=0L
```

```
Map_Continents, /Fill, /Hires, Color=1L
```

```
image = TVRD()
```

```
; Convert location to device coordinates.
```

```
location = Convert_Coord(lon, lat, /Data, /To_Device)
```

```
land=reform(image[0. > location[0,*] < 3599., 0. > location[1,*] < 1799.]
```

```
; Delete window.
```

```
WDelete, !D.Window
```

```
END
```

Klaus

"Robert Stockwell" <stockwell@co-ra.com> wrote in message
news:3C62F3C6.3090502@co-ra.com...

> Greetings All,

> I was just about to assimilate the land mask info
> into IDL, but for my purposes I need the land mask
> as a function of lat and lon (so as to branch my
> algorithm on whether or not a data point falls on land),
> rather than merely an image.

>

> Thus I want to have something like

> landmask = int(nx,ny)

> lon = float(nx,ny)

> lat = float(nx,ny)

>

> that I can crunch into an array for my lat, lon sampling
> and then directly compare my data with the landmask value.
> (a simple water = 0, land = 1 mask is fine for me)

>
> I am interested in the southern hemisphere
> (frinstance 40S to 80 south), and 1/2 degree by 1/2 degree
> or better.
>
>
> Does someone have that in IDL?
> (or rather, a data format that can be easily digested
> into IDL)
>
> Cheers,
> bob stockwell
>
>
> PS
>
> I am about to use the land=sea mask data from:
> http://edcdaac.usgs.gov/1KM/land_sea_mask.html
> that i found snooping through google. It looks like
> I'll have to grab their image which appears to be in
> a km by km sampling, and calculate the inverse transform
> from their map projection into lat and lon (ugh).
>
> Or perhaps I can use the map commands i IDL and
> create an image, grab the image, convert from pixels to
> lat and lon.
>
> I am hoping there is an easier way, or at least a
> "already done" way
>
>
>

Subject: Re: Land Mask data set available? (in lat and lon)
Posted by [Robert Stockwell](#) on Mon, 11 Feb 2002 13:08:10 GMT
[View Forum Message](#) <> [Reply to Message](#)

Mark Hadfield wrote:

> "Robert Stockwell" <rgs1967@hotmail.com> wrote in message
> news:3C63E83E.8000700@hotmail.com...
>
>> Mark Hadfield wrote:
>>
>>
>>> I don't have a land-mask data set, but I do have a routine that
>>> calculates a land mask (in fact a land fraction) for a specified

>>> grid using vector shoreline data from the GSHHS data set:
>>>
>>> <http://www.ngdc.noaa.gov/mgg/shorelines/gshhs.html>
>>>
>>
>> Thanks for the info Mark. I took a look at the webpage, and it looks
>> promising. Is your routine entirely in IDL, partly in IDL, or C.
>> (do you use the C code to read the data that they provide?)
>>
>
> It appears that there are other datasets more suitable for your
> purposes, but for the record my GSHHS routines are written entirely in
> IDL.

Cool! Are these files available on your webpage? What are their names?
Thanks a lot.

Cheers,
bob

> --
> ---
> Mark Hadfield
> m.hadfield@niwa.co.nz <http://katipo.niwa.co.nz/~hadfield>
> National Institute for Water and Atmospheric Research
>
>
>
>

Subject: Re: Land Mask data set available? (in lat and lon)
Posted by [Robert Stockwell](#) on Mon, 11 Feb 2002 13:20:08 GMT
[View Forum Message](#) <> [Reply to Message](#)

Klaus Scipal wrote:

> Hi Bob
>
> I am not quite sure if I am totally off, but why don't use following simple
> code to determine if a point is on land or not (I once got it from David and
> it works excellently for my purposes, however I have to admit that its
> resolution is rather coarse).
>
>

```
> determine_land, lon, lat, land
>
> ; Fill window with map continents. Water = 0, Land = 1.
>
> Window, XSize=3600, YSize=1800, /Free, /Pixmap
> Map_Set, /Cylindrical, 0, 0, Position=[0,0,1,1], /NoBorder, Color=0L
>
> Map_Continents, /Fill, /Hires, Color=1L
>
> image = TVRD()
>
> ; Convert location to device coordinates.
> location = Convert_Coord(lon, lat, /Data, /To_Device)
> land=reform(image[0. > location[0,*] < 3599., 0. > location[1,*] < 1799.])
>
> ; Delete window.
> WDelete, !D.Window
>
> END
>
>
> Klaus
>
```

Thanks Klaus! Very nice solution.

It seems that it would do a pretty good job.

Perhaps adding the use of /coasts in the map_continents would be useful to get the offshore islands (especially important for the west coast of the southern tip of south america).

(There do seem to be a couple of errant lines around antartica however when one uses /coasts.)

Thanks again!

Cheers,
bob

Subject: Re: Land Mask data set available? (in lat and lon)
Posted by [Mark Hadfield](#) on Mon, 11 Feb 2002 19:54:03 GMT
[View Forum Message](#) <> [Reply to Message](#)

"Robert Stockwell" <rgs1967@hotmail.com> wrote in message
news:3C67C23A.2070609@hotmail.com...

>>> Mark Hadfield wrote:

>> It appears that there are other datasets more suitable for your
>> purposes, but for the record my GSHHS routines are written
>> entirely in IDL.

>
> Cool! Are these files available on your webpage? What are their
> names? Thanks a lot.

They are not available on my WWW page because they are specific to my system & file layout. (I keep my data files on a volume that migrates its files to tape so I have to jump through some hoops to get them back.) However it should be very easy to isolate the system-specific stuff. If you or anyone else wants me to I can do this. Just say the word.

Mark Hadfield
m.hadfield@niwa.co.nz <http://katipo.niwa.co.nz/~hadfield>
National Institute for Water and Atmospheric Research
