
Subject: Re: IDL - Extracting data from within boundary defined by shapefile
Posted by [penteado](#) on Sat, 27 Nov 2010 14:41:33 GMT

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If you mean to select the points that fall into the boundary, you could create an IDLanROI, defined by the vertices from the shapefile. Then use its containspoints() method to find those inside it. That is, assuming that Earth's curvature is not relevant. If it is, you might have to change the data from lat/lon to some suitable projection.

On Nov 27, 10:04 am, katie <katie.l.pi...@gmail.com> wrote:

> Hello all,

>

> I am using IDL 6.1, and was wondering if it's possible to extract data
> (defined by lat and long gridpoints) from within a boundary defined by
> a shapefile. For example, I have a contour map of global soil
> moisture, but would only like to look at the data within the
> Mississippi River Basin. I have the shapefile for this basin, and have
> overplotted it onto the contour map so I can see the basin outline and
> note that it is properly projected on top of my data, but I do not
> know where to go from there.

>

> Any advice would be great!

> Thanks,

> Katie

Subject: Re: IDL - Extracting data from within boundary defined by shapefile
Posted by [katie](#) on Tue, 30 Nov 2010 07:01:39 GMT

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Thanks for your timely advice! I've never dealt with objects in IDL, so it took me a while to figure out what you meant, and a while longer to put it all together, but I think I've got it for the most part. However, I'm still being held up with the ContainsPoints part. What I have so far is below.

```
mr_b_shapefile = 'mr_b.shp'
mr_b_shape = obj_new('IDLffShape',mr_b_shapefile)
mr_b_shape->IDLffShape::GetProperty, N_ENTITIES=num_ent,
ENTITY_TYPE=ent_type,$
ATTRIBUTE_INFO=attr_info
```

```
for i = 0L, (num_ent-1) do begin
ent = mr_b_shape -> IDLffShape::GetEntity(i)
x = (*ent.vertices)[0,*]
```

```

y  = (*ent.vertices)[1,*]
endfor

mrb_roi = obj_new('IDLanROI',x,y)
mrb_points = mrb_roi->IDLanROI::ContainsPoints(lon,lat)

obj_destroy,mrb_shape
obj_destroy,mrb_roi

```

When I run this, I get the error, "IDLANROI::CONTAINSPOINTS: Number of LON does not match number of LAT."

The terms lon and lat are the longitudes and latitudes associated with the soil moisture for the entire globe. There are 64 lat's and 128 lon's. So yes, they do not match, but I'm not sure what else I should be using in the ContainsPoints function.

Another possible conflict I see here is that the longitudes within x are negative (for being West), but the longitudes of my soil moisture data are 0 to 360. Although, when I used MAP_SET to plot my soil moisture data, and plot the mrb shapefile (using David Fanning's DRAWSHAPES function) on top of it, it came out fine.

Any suggestions for the lat/lon confusion here?

Many thanks,
Katie

On Nov 27, 6:41 am, Paulo Penteado <pp.pente...@gmail.com> wrote:

```

> If you mean to select the points that fall into the boundary, you
> could create an IDLanROI, defined by the vertices from the shapefile.
> Then use its containspoints() method to find those inside it. That is,
> assuming that Earth's curvature is not relevant. If it is, you might
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>> Mississippi River Basin. I have the shapefile for this basin, and have
>> overplotted it onto the contour map so I can see the basin outline and
>> note that it is properly projected on top of my data, but I do not

```

>> know where to go from there.
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>> Any advice would be great!
>> Thanks,
>> Katie

Subject: Re: IDL - Extracting data from within boundary defined by shapefile
Posted by [David Fanning](#) on Tue, 30 Nov 2010 14:36:32 GMT
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katie writes:

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> LON does not match number of LAT."
>
> The terms lon and lat are the longitudes and latitudes associated with
> the soil moisture for the entire globe. There are 64 lat's and 128
> lon's. So yes, they do not match, but I'm not sure what else I should
> be using in the ContainsPoints function.

You actually have 64*128 points that you want to check,
so you have to make that many lats and lons:

```
latpts = Rebin(Reform(lat, 1, 64), 128, 64)  
lonpts = Rebin(lon, 128, 64)
```

>
> Another possible conflict I see here is that the longitudes within x
> are negative (for being West), but the longitudes of my soil moisture
> data are 0 to 360. Although, when I used MAP_SET to plot my soil
> moisture data, and plot the mrb shapefile (using David Fanning's
> DRAWSHAPES function) on top of it, it came out fine.
>
> Any suggestions for the lat/lon confusion here?

They should be consistent, although some mapping routines,
not all, will recognize the problem and do the conversion for
you. But here is an article that describes how to covert
longitude coordinates that are in 0 to 360 to -180 to 180.
It is not as straightforward as I might appear at first
glance. :-)

http://www.dfanning.com/map_tips/lonconvert.html

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: IDL - Extracting data from within boundary defined by shapefile
Posted by [penteado](#) on Tue, 30 Nov 2010 14:46:55 GMT
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On Nov 30, 5:01 am, katie <katie.l.pi...@gmail.com> wrote:

Also, this loop is pointless:

```
> for i = 0L, (num_ent-1) do begin  
>   ent = mrb_shape -> IDLffShape::GetEntity(i)  
>   x   = (*ent.vertices)[0,*]  
>   y   = (*ent.vertices)[1,*]  
> endfor
```

You are just overwriting x and y, and out of the loop you will only have the x and y from the last entity.
