Subject: non-rectangular array subset
Posted by jecca.baker on Fri, 17 Oct 2014 11:25:57 GMT
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Hello,

I have an array of global data (MODIS LAI) and need to select data from the Amazon basin only. Is there a way to do this by selecting a number of rectangular regions and concatenating them if the rectangular regions are different sizes? Eg, is it possible to concatenate the following?

0,0,0,0,0,0,0,0,
0,0,0,0,0,0,0,0
0,0,0,0,0,0,0,0

0,0,0,0,0,0
0,0,0,0,0,0

0,0,0
0,0,0

Or for a more sophisticated selection, is there a way to only select data that falls under an amazon basin shapefile?

Any tips would be much appreciated.
Many thanks,
Jess

Subject: Re: non-rectangular array subset
Posted by Fabzi on Fri, 17 Oct 2014 11:36:46 GMT
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Hi,

On 17.10.2014 13:25, jecca.baker@gmail.com wrote:
> is there a way to only select data that falls under an amazon basin shapefile?

IDLanROI is a tool designed for this purpose. You'll have to transform
the shape coordinates into your grid coordinates and then use IDLanROI:

http://www.exelisvis.com/docs/IDLanROI.html

Fabien

Subject: Re: non-rectangular array subset
Posted by Fabzi on Fri, 17 Oct 2014 11:39:07 GMT

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I forgot to answer to your first question about concatenation. Once you have non-regular subsets you have to work with masks and where() to access your data.

(e.g.: https://www.idlcoyote.com/ip_tips/xroi.html)

On 17.10.2014 13:25, jecca.baker@gmail.com wrote:
> Eg, is it possible to concatenate the following?

Subject: Re: non-rectangular array subset
Posted by jecca.baker on Fri, 17 Oct 2014 12:22:18 GMT
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Hi Fabien.
Thanks for your tips. Could you possibly expand on how to use masks and where for subsetting? My data isn't an image file, rather a large array containing a grid of data every month for several years, so not sure how I would get XROI to work in the way David Fanning uses in the example you posted.
Many thanks!

On Friday, October 17, 2014 12:39:09 PM UTC+1, Fabien wrote:
> I forgot to answer to your first question about concatenation. Once you
>
> have non-regular subsets you have to work with masks and where() to
>
> access your data.
>
>
>
> (e.g.: https://www.idlcoyote.com/ip_tips/xroi.html)
>
>
>
> On 17.10.2014 13:25,
>
>> Eg, is it possible to concatenate the following?

Subject: Re: non-rectangular array subset
Posted by Fabzi on Fri, 17 Oct 2014 13:42:03 GMT
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Hi,

A 2d grid of data is the same as an "image", and third or fourth
dimensions (e.g. time or atmospheric levels) are simply a "pile of images".

Depending on the size of your array you could do some dimension juggling
(https://www.idlcoyote.com/tips/rebin_magic.html, case study 1) or use a
loop over the other dimensions.

Fabien

Subject: Re: non-rectangular array subset
Posted by Chris Anderson on Fri, 17 Oct 2014 21:49:47 GMT
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Jess,

Subsetting your data using the 'where' function will allow you to subset your data from your image arrays into one-dimensional vectors that can then be concatenated together into a single array. I'm sure this can be done in a cleaner fashion, but one potential example, given two images and some sort of threshold could be:

```
index1=where(image1 gt threshold,cnt)
if (cnt gt 0) then output_data=image1[index1]

index2=where(image2 gt threshold,cnt)
if (cnt gt 0) then output_data=[output_data,image2[index2]]
```

Your output_data vector then will contain a one-dimensional array of the values you have subset from your original images. All of your LAI values for the regions you are using will be in one array.

On Friday, October 17, 2014 6:42:07 AM UTC-7, Fabien wrote:
> Hi,
>
>
>
> A 2d grid of data is the same as an "image", and third or fourth
>
> dimensions (e.g. time or atmospheric levels) are simply a "pile of images".
>
>
>
> Depending on the size of your array you could do some dimension juggling
>
> (https://www.idlcoyote.com/tips/rebin_magic.html, case study 1) or use a
>
> loop over the other dimensions.
>
>

>
> Fabien