Subject: Re: More histogram magic help please!
Posted by Yngvar Larsen on Fri, 01 Apr 2016 22:35:08 GMT
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On Friday, 1 April 2016 12:12:46 UTC+2, rj...@le.ac.uk wrote:
> I still haven't quite got my head around all the histogram magic that's possible but fairly sure it'll massively help me speed this up.
>
>
> for i=0L, n_elements(lons)-1 do begin
> for j=0L, n_elements(lats)-1 do begin
>
> find=where(longitude GE lons[i] and longitude LT lons[i]+1 AND $
> latitude GE lats[j] and latitude LT lats[j]+1)
>
> if find[0] NE -1 then assigned_value[find]=data[i,j]
>
> endfor
> endfor
>
> I have a large 2 million+ element 1D array that has a latitude/longitude associated with each point.
>
> I also have a second 2D gridded array and I want to work out which of the grid boxes each value of the large array falls into.
>
> I just can't seem to get the histogram syntax quite right!
>
> Thanks in advance

There are two cases:

1) Regular bin size

This is quite trivial:

```
dlon = lons[1]-lons[0]
dlat = lats[1]-lats[0]
ilon = (longitude-lons[0])/dlon
ilat = (latitude-lats[0])/dlat
assigned_value = data[ilon, ilat]
```

2) Irregular bin size

For binning into bins of different sizes, you want VALUE_LOCATE.

http://www.harrisgeospatial.com/docs/VALUE_LOCATE.html

ilon = value_locate(lons, longitude)
ilat = value_locate(lats, latitude)
assigned_value = data[ilon, ilat]

Neither of 1) and 2) try to detect out of bounds values, nor do they handle bins that cross the date line. This is left as an exercise to the reader :)

--
Yngvar
