
Subject: Re: overlap of two polygons

Posted by [Chip Helms](#) on Mon, 20 May 2013 18:52:41 GMT

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I think something along the lines of the following would tell you where two regions overlap (although there is probably a more efficient way of doing this)

```
nROlarr = bytarr(1024,1024)
; add 1 to each roi pixel
;(I'm assuming the indices of the ROIs are in ROldex1 and ROldex2)
nROlarr[ROldex1]++
nROlarr[ROldex2]++
; overlapping points will be those with values of 2
overlapdex = where(nROlarr eq 2, nOverlap)

; and just to get even fancier...
; here's how you can define polygons outlining these overlapping regions
; using contour's path_xy and path_info keywords
; (word of warning...if you're polygon ends up with a height
; or width less than 2 pixels this might not work...also I should
; credit Ken Knapp with introducing me to this nifty piece of IDL magic)

; calculate the contours (no contour plot is drawn)
contour, nROlarr, path_info=pinfo, path_xy=pxy, /path_data_coords, level=[2]
; locate all overlap polygons (we're looking for contours around higher values)
polyloc = where(pinfo.hihg_low eq 1, npoly)
; initialize list to hold polygon indices
xpoly = list()
ypoly = list()
; loop through each overlapping region and unpack the contour polygons
for ip=0, npoly-1 do begin
    ; determine index of first point in polygon
    i1 = pinfo[polyloc[ip]].offset
    ; determine index of last point in contour
    i2 = i1 + pinfo[polyloc[ip]].n - 1
    ; grab and store contour position
    xpoly.Add, pxy[0,i1:i2]
    ypoly.Add, pxy[1,i1:i2]
endfor
```

Each elements of the xpoly and ypoly lists should be a vector containing the x and y coordinates of each vertex of the enclosing polygon, respectively.

On re-reading your post I think I'm not sure I covered the question you were asking (my overeagerness to share nifty IDL tricks strikes again). If you have a list of vertices, you can use the method I outlined above if you first use polyfillv:

```
nROlarr[polyfillv(xindex, yindex, 1024, 1024)] = 2
```

If they are lat/lon pairs and you have 1D lat and lon vectors corresponding to the rows and columns of the 1024x1024 array then you could do something like:

```
; lat, lon are the list of all lats and lons  
; vertlat and vertlon are the lat lons of the vertices  
nROIarr[polyfillv(value_locate(lon,vertlon),$  
    value_locate(lat,vertlat),1024,1024)] = 2
```

And with that I should probably stop procrastinating and get back to work.

Cheers,
Chip
