
Subject: Re: 3-dimensional integration? [IDL 5.4]
Posted by [Timm Weitkamp](#) on Mon, 23 Jun 2003 13:36:11 GMT
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Hi Ingo,

Today at 12:37, you wrote:

> I am dealing with 3-dimensional experimental data of x-ray diffraction pole
> figures. I read-in the data, graphical representation (x,y,int) and analysis
> works fine with SURFACE... Now I would very much like to get the volume of
> certain regions of my figure, i.e. circles or squares around a certain point
> (x,y) in order to be able to compare the total intensities of peaks
> belonging together. Could anybody give me a hint with which approach I could
> solve that? Is MESH_VOLUME a senseful idea?

I don't know if this is what you're looking for, but to integrate your data over a square of $(2n+1)^2$ pixels around the pixel with the indices [x,y], just do

```
tot = TOTAL(data[x-n:x+n, y-n:y+n])
```

Circular regions take more than one line, but are easily doable too. Assume that r is the radius of the circle over which you want to integrate (in pixels). Then you should do something like this:

```
dim = SIZE(data, /DIMENSIONS) ; Find out size of data array
```

```
; Get x and y coordinate for each pixel
```

```
xarr = findgen(dim[0]) # (1+fltarr(dim[1]))  
yarr = findgen(dim[1]) ## (1+fltarr(dim[0]))
```

```
; Get radial coordinate around (x,y) for each pixel
```

```
rarr = SQRT((xarr-x)^2 + (yarr-y)^2)
```

```
; Find out which pixels are inside a circle r around (x,y)
```

```
idxList = WHERE(rarr LE r, npix)
```

```
; Integrate over those pixels
```

```
IF npix NE 0 THEN tot = TOTAL(data[idxList])
```

Hope this helps,
Timm

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Timm Weitkamp <<http://people.web.psi.ch/weitkamp>>
