
Subject: Re: dimensional headache

Posted by [Kenneth P. Bowman](#) on Sat, 02 Apr 2005 00:10:10 GMT

[View Forum Message](#) <> [Reply to Message](#)

In article <1112374157.893164.86500@l41g2000cwc.googlegroups.com>, "Margrethe" <margrethewold@hotmail.com> wrote:

> I'm developing a two-dimensional model and to save computational time
> I've tried to avoid for-loops wherever I could and used matrices
> instead. I thought I had it all figured out, but I'm doing something
> wrong...I'd be grateful if someone could tell me what's wrong with the
> following:

Have a look at the CONVOL and SHIFT functions. They may allow you to do what you need without loops.

Ken Bowman

Subject: Re: dimensional headache

Posted by [Margrethe](#) on Sat, 02 Apr 2005 17:17:24 GMT

[View Forum Message](#) <> [Reply to Message](#)

thank you! I will look into that!

M.

Subject: Re: dimensional headache

Posted by [Andrew\[2\]](#) on Wed, 06 Apr 2005 06:57:57 GMT

[View Forum Message](#) <> [Reply to Message](#)

Hi again,

after a second look at your new code that you posted I think you can get away with the following. This is assuming that it is the values in d that are being returned incorrectly in your code

```
;get the distance array first  
d=SHIFT(DIST(160),xmod,ymod)
```

then carry on from your WhereToMulti procedure (seems like a waste of a nice WHERE statement however, which will give you the array locations you want)

Cheers
Andrew

Subject: Re: dimensional headache

Posted by [Andrew\[2\]](#) on Wed, 06 Apr 2005 07:01:59 GMT

[View Forum Message](#) <> [Reply to Message](#)

Hi Margrethe,

I am not sure what some of the things you have in your code do (aka calls to ther functions), nor do I know how easily you might be able to modify them, but I had a crack at the code and made some reasonably hefty assumptions. Some of this may be completly useless to you. The distance array d works a treat though and lets you get away from the whole sqrt, squared buisness. As for the rest of it, I am not sure since I dont know if you are heavily restricted in your array sizes (I also am not sure what are scalars and arrays in a couple of cases). I also noticed in you second attempt at the code that their are still what appear to be loop markers k and l. So i am not entirely sure what will be applicable here. I would imagine that the [indx] markers can be removed if I have stuck them in the wrong places for the things that are scalars rather than arrays. I hope this helps in some small way.

```
;get the distance array first
d=SHIFT(DIST(160),xmod,ymod)
```

```
;don't take the wings of the psf into account
indx = where (d lt (3. * (fwhm/2.35) ) ,ct)
```

```
;only do the calculations where the above criteria has been met
IF (ct NE 0) THEN BEGIN
;assumes here that vel_p,vel_sys, and v_rad are all 160x160 arrays
;if vel_sys isnt then just remove the [indx] part
vel_p[indx] = ( vel_sys[indx] + v_rad[indx] )
```

```
;I assume the original psf returned a scalar value at the location i,j
;psf = gaussfunc(st_dev,xgrid(i),ygrid(j),xmod,ymod )
```

```
;not sure what do do here as I dont really know what psf returns
;can you return it as a 160x160 array if needed. yes?
;i assumed here that the xgrid and ygrid parameters can
;be merged and passed as the complete array size (im guessing)
psf[indx] = gaussfunc(st_dev,FINDGEN(160,160),xmod,ymod )
```

```
    lineprof[indx] = lineprof[indx] + total ( psf[indx] * image[indx]
* $
    exp( (vel - vel_p[indx])^2./(-2.*v2)) )
ENDIF
```

Cheers
Andrew

Subject: Re: dimensional headache
Posted by [Andrew\[2\]](#) on Wed, 06 Apr 2005 07:46:45 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi again,

please ignore both of the previous posts by me. They dont work, DIST was completly wrong. Dont know what I was thinking. Sorry. But you can reduce what you do in the loops. For example the code below (and I made sure this worked properly) runs in 16 milliseconds (pretty quick). Then you can still do the rest of the code that I had before, or alternatively your own code from your WhereToMulti statement.

```
t1=systime(/seconds)
d=findgen(160,160)
xgrid=findgen(160)
ygrid=findgen(160)

;i just assumed a central position here
xmod=79
ymod=79

dx=(xmod-xgrid)^2
dy=(ymod-ygrid)^2

for i=0,159 do for j=0,159 do d[i,j]=SQRT(dx[i]+dy[j])
t2=systime(/seconds)
print,t2-t1
```

Sorry about the dud answers before. I hope this one helps a bit even if it didnt get rid of the loops.

Cheers
Andrew
