
Subject: 2D Histogram error

Posted by [mitali1203](#) on Fri, 31 Mar 2017 11:58:09 GMT

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Hello,

I am a newbie to IDL. I am currently working on event files (which are similar to FITS files) in IDL. I have written a code which will sort out event files from a list of directories and then compute detector plane histograms (DPH) (2D Histograms, basically) for each of those event files. In the process, I have also set up a 4-D array (4,25,64,64) and run a 'for' loop to save all DPH's to this array.

However, I keep getting this error "Expression must be an array in this context:H", at the line where I have used 'hist_2d' function. I heard this is because there may not be any events in that particular file; hence IDL does not have any data values to create histogram. I guess I have to put a conditional loop (if..else) in order to detect such null event files. I am getting confused as to how this problem can be solved. It would be of great help if someone can troubleshoot this problem. Here is the code I have written- The line containing hist_2d function is where the error is-

```
function compute_dph, infile, outpath
```

```
dph=fltarr(4,25,64,64)
```

```
for quad=0,3 do begin
```

```
    data=mrdfits(infile,quad+1, /unsigned,/dscale)
```

```
    for ebin=0,24 do begin
```

```
        index=where(data.energy gt 5+ebin*10 and data.energy le 5+(ebin+1)*10)
```

```
        ;result= sxpar(H,'NAXIS2')
```

```
        ;if result = 0 then dph(0,0,0,0)=qdph
```

```
        ;endelse
```

```
        qdph=hist_2d(data(index).detx,data(index).dety,MAX1=63,MAX2= 63,MIN1=0,MIN2=0)
```

```
        dph(quad,ebin,*,*)=qdph
```

```
    ;tv,bytsc1(rebin(qdph,320,320,/sample))
```

```
    endfor
```

```
endfor
```

```
names=strsplit(infile,'/', /EXTRACT)

stem=names(N_ELEMENTS(names)-1)

outfile=strmid(stem,0,srtlen(stem)-3)+'dph'

outfile=outpath+outfile

save,dph,filename=outfile


print,infile,outpath

return,0

end
```

Subject: Re: 2D Histogram error
Posted by [wlandsman](#) on Fri, 31 Mar 2017 14:21:49 GMT
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You need at least a 2 elements array to obtain a histogram.

```
IDL> print,hist_2d(-1,-1)
% HISTOGRAM: Expression must be an array in this context: H.
% Execution halted at: $MAIN$
```

So don't call hist_2d() unless you have at least 2 elements. --Wayne

```
if N_elements(index) GE 2 then begin
```

```
    qdph=hist_2d(data(index).detx,data(index).dety,MAX1=63,MAX2= 63,MIN1=0,MIN2=0)
    dph[quad,ebin,*,*]=qdph
```

```
endif
```

Subject: Re: 2D Histogram error
Posted by [Markus Schmassmann](#) on Fri, 31 Mar 2017 14:58:54 GMT
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On 03/31/2017 01:58 PM, mitali1203@gmail.com wrote:
> I am a newbie to IDL. I am currently working on event files (which

```

> are similar to FITS files) in IDL. I have written a code which will sort out
> event files from a list of directories and then compute detector plane
> histograms (DPH) (2D Histograms, basically) for each of those event
> files. In the process, I have also set up a 4-D array (4,25,64,64) and
> run a 'for' loop to save all DPH's to this array.
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> file; hence IDL does not have any data values to create histogram. I
> guess I have to put a conditional loop (if..else) in order to detect
> such null event files. I am getting confused as to how this problem can
> be solved. It would be of great help if someone can troubleshoot this
> problem.
> Here is the code I have written- The line containing hist_2d
> function is where the error is-
>
> function compute_dph, infile, outpath
>
> dph=fltarr(4,25,64,64)
> for quad=0,3 do begin
>   data=mrdfits(infile,quad+1, /unsigned,/dscale)
>   for ebin=0,24 do begin
>     index=where(data.energy gt 5+ebin*10 and data.energy le 5+(ebin+1)*10)
>     qdph=hist_2d(data(index).detx,data(index).dety,MAX1=63,MAX2= 63,MIN1=0,MIN2=0)
>     dph(quad,ebin,*,*)=qdph
>   endfor
> endfor
>
> names=strsplit(infile,'/', /EXTRACT)
> stem=names(N_ELEMENTS(names)-1)
> outfile=strmid(stem,0,srtlen(stem)-3)+'dph'
> outfile=outpath+outfile
> save,dph,filename=outfile
>
> print,infile,outpath
> return,0
> end
Hi,

```

the following within the innermost loop should work:

```

index=where( (data.energy gt 5+ebin*10) and (data.energy le
5+(ebin+1)*10) ,cnt)
if cnt ne 0 then
  dph[quad,ebin,*,*]=hist_2d(data(index).detx,data(index).dety
,MAX1=63,MAX2=63,MIN1=0,MIN2=0)

```

or assuming $0 \leq \text{detx}, \text{dety} \leq 63$ & detx, dety are integers you could put instead of the inner loop

```
dat=64L*27L*data.dety+27L*data.detx+(0L>ceil((data.energy-5)/10) <26L)
dat=[reform(dat,n_elements(dat),/overwrite),64L*64L*27L-1L]
dph[0,*,*]= ( reform(histogram(dat),[27,64,64]) )[1:25,*,*]
```

The latter I have not debugged.

I hope this helps, Markus

Subject: Re: 2D Histogram error

Posted by [Markus Schmassmann](#) on Fri, 31 Mar 2017 15:14:05 GMT

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On 03/31/2017 04:21 PM, wlandsman wrote:

> You need at least a 2 elements array to obtain a histogram.

IDL> hist_2d([1],[2])

doesn't fail

Subject: Re: 2D Histogram error

Posted by [mitali1203](#) on Sat, 01 Apr 2017 15:50:26 GMT

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Thanks a lot! This worked. Thank you once again
