Subject: Re: Reading GrADS data file in IDL
Posted by msienkiewicz on Mon, 29 Jan 2001 19:32:17 GMT
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In article <3A70F0A5.575F123@pacific.met.fsu.edu>,
  Kyong Hwan Seo <khseo@pacific.met.fsu.edu> wrote:
> msienkiewicz@my-deja.com wrote:
>
>>
>> The basic GrADS file format is very simple. The data are stored as
>> a sequence of unformatted floating point arrays. If your '.ctl'
file does
>> not have any special options specified (i.e. 'options sequential',
>> 'options byteswapped', 'options bigendian' or the like) and you are
>> planning to read it on a computer that has the same 'endianness'
>> as the computer that generated it - well you can just use the ASSOC
>> command and access those arrays directly from the disk. To advise
>> further, we'd need to have a look at your .ctl file.
>>
>
>>
>> Meta
>>
>
> Thanks, Meta
>
> I believe the ctl file is pretty much usual one.
> Could you show me one example of using ASSOC command(function) for my
> case.
>
> Thanks again,
>
> Seo
>
> (Note that the z dimensions for variables are different (16 or 10).)
> Below is the ctl file:
>
> DSET csf_rNCEP_flux.data
> undef -9999.
> TITLE CSEOFs of NCEP reanalysis
> * -- ------
> XDEF 47 LINEAR 45.0 5.0
> *
> YDEF 47 LINEAR -57.5 2.5
> *
> ZDEF 16 LEVELS 925 850 700 600 500 400 300 250 200 150 100 70 50 30 20
> 10
> *

> TDEF 96 LINEAR Jan1958 1mo
> *
> vars 33
> xubup 16 35,100,0 ** x1
> xupup 16 35,100,0 ** x2
> xvbup 16 35,100,0 ** x3
> xvpub 16 35,100,0 ** x4
> xvpup 16 35,100,0 ** x5
> xwbup 10 35,100,0 ** x6
> xwpub 10 35,100,0 ** x7
> xwpup 10 35,100,0 ** x8
> xtbup 16 35,100,0 ** x9
> xtpub 16 35,100,0 ** x10
> xtpup 16 35,100,0 ** x11
> yubvp 16 35,100,0 ** y1
> yupvb 16 35,100,0 ** y2
> yupvp 16 35,100,0 ** y3
> yvbvp 16 35,100,0 ** y4
> yvpvp 16 35,100,0 ** y5
> ywbvp 10 35,100,0 ** y6
> ywpvb 10 35,100,0 ** y7
> ywpvp 10 35,100,0 ** y8
> ytbvp 16 35,100,0 ** y9
> ytpvb 16 35,100,0 ** y10
> ytpvp 16 35,100,0 ** y11
> zubwp 10 35,100,0 ** z1
> zupwb 10 35,100,0 ** z2
> zupwp 10 35,100,0 ** z3
> zvbwp 10 35,100,0 ** z4
> zvpwb 10 35,100,0 ** z5
> zvpwp 10 35,100,0 ** z6
> zwbwp 10 35,100,0 ** z7
> zwpwp 10 35,100,0 ** z8
> ztbwp 10 35,100,0 ** z9
> ztpwb 10 35,100,0 ** z10
> ztpwp 10 35,100,0 ** z11
> ENDVARS
>
> --
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>
I'm assuming still that this is a regular GrADS file with unformatted
binary arrays. (I'm not familiar with the "35,100,0" notation in
the third column... so I could be missing something here.)

The control file says that you have a number of arrays dimensioned 47 x 47 saved in the file. In the GrADS format all the vertical levels for a single variable at a given time are stored consecutively. The first sixteen arrays should be the 16 levels of your variable 'xubup', the next 16 are 'xupup', etc.

What I would try then is something like this:

```
; Open the file as unit 1
;
open,1,'csf_rNCEP_flux.data'
;
; Make an associated variable
;
arr = assoc(1,fltarr(47,47))
;
; Draw a contour plot of the first variable at the first level
;
contour, arr(0)
;
; Try reading in the 47x47x10 array 'xwpub'
;
skip = 5*16+10
xwpub = fltarr(47,47,10)
for j=0,9 do xwpub(*,*,j) = arr(skip+j)
;
; try reading the 47x47x10 array 'xwpub' at time 5
; "skipt" is the number of grids at a single time period to skip over
skipt = 16*16 + 17*10
for j = 0,9 do xwpub(*,*,j) = arr(5*skipt+skip+j)
```

... or something like that anyway. It's what I would try first, anyway. Hope this helps.

Meta