Subject: Re: IDL to write GrADS netCDF (SDF)
Posted by Brian Wolven on Wed, 14 Sep 2011 19:47:02 GMT
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I'd suggest looking at the example in the IDL documentation for NCDF_VARPUT, leaving out some of the "extra" stuff in the middle where they rename a dimension, etc. That example has all of the basic commands.

Subject: Re: IDL to write GrADS netCDF (SDF)
Posted by Rich Bantges on Thu, 15 Sep 2011 08:51:27 GMT
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On Sep 14, 8:47 pm, Brian Wolven <brian.wol...@gmail.com> wrote:
> I'd suggest looking at the example in the IDL documentation for NCDF_VARPUT, leaving out some of the "extra" stuff in the middle where they rename a dimension, etc. That example has all of the basic commands.

Hi Brian,

Thanks, but when I follow that example (without the dimension etc.)
GrADS reports:
ga-> sdfopen test_grads_file.nc
Scanning self-describing file: test_grads_file.nc
gadsdf: SDF file has no discernable X coordinate.

If you could paste an example that does work, that would be great.

Rich

Subject: Re: IDL to write GrADS netCDF (SDF)
Posted by msienkiewicz on Thu, 15 Sep 2011 15:15:42 GMT
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On Sep 15, 4:51 am, Rich Bantges <rbant...@gmail.com> wrote:
> On Sep 14, 8:47 pm, Brian Wolven <brian.wol...@gmail.com> wrote:
>
>> I'd suggest looking at the example in the IDL documentation for NCDF_VARPUT, leaving out some of the "extra" stuff in the middle where they rename a dimension, etc. That example has all of the basic commands.
>
> Hi Brian,
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> ga-> sdfopen test_grads_file.nc

> Scanning self-describing file: test_grads_file.nc
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>
> If you could paste an example that does work, that would be great.
>
> Rich

Rich, it sounds like the netCDF files that you are creating are not
COARDS compliant. Maybe you could try using 'xdfopen' in GrADS
(http://www.iges.org/grads/gadoc/gradcomdxdfopen.html) and use a data
descriptor file to help GrADS interpret your file.

Subject: Re: IDL to write GrADS netCDF (SDF)
Posted by David Fanning on Thu, 15 Sep 2011 15:33:04 GMT
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msienkiewicz writes:

> Rich, it sounds like the netCDF files that you are creating are not
> COARDS compliant. Maybe you could try using 'xdfopen' in GrADS
> (http://www.iges.org/grads/gadoc/gradcomdxdfopen.html) and use a data
> descriptor file to help GrADS interpret your file.

If it is just a COARDS compliant file you need to
create, I believe I know how to do that. If you
send me the file you are creating, I could have
a quick look for you.

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: IDL to write GrADS netCDF (SDF)
Posted by Rich Bantges on Fri, 16 Sep 2011 08:33:03 GMT
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On Sep 15, 4:33 pm, David Fanning <n...@dfanning.com> wrote:

> msienkiewicz writes:
>> Rich, it sounds like the netCDF files that you are creating are not
>> COARDS compliant. Maybe you could try using 'xdfopen' in GrADS
>> (http://www.iges.org/grads/gadoc/gradcomdxdfopen.html) and use a data
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>
> If it is just a COARDS compliant file you need to
> create, I believe I know how to do that. If you
> send me the file you are creating, I could have
> a quick look for you.
>
> Cheers,
>
> David
>
> --
> David Fanning, Ph.D.
> Fanning Software Consulting, Inc.
> Coyote's Guide to IDL Programming:http://www.idlcoyote.com/
> Sepore ma de ni thui. ("Perhaps thou speakest truth.")
>
>

Hi David,

Thanks again for your offer of help. Appended below is the IDL code I've written that essentially restores and IDL save file and then attempts to write them in a GrADS compatible netCDF file - this works ok, but if I try and make "vid = NCDF_VARDEF(id, 'MEAN_AOD', [zid, xid, yid], /FLOAT)" GrADS with the sdfopen command won't read the variables (obviously making the mean_aod a 3D array).

Many thanks,
Rich

```
; Program to read in the IDL save file containing the AODs
; and then write these out in GrADS compatible NetCDF format
;
; AUTHOR: R Bantges
; Date: 5 Sept 2011
; VERSION 1: Original
;
; DEPENDENCIES: [1] Called from convert_idl_grads.pro
;
; INPUTS: [1] Requires the filename and various definitions from the
calling routine
;
; NOTES: [1] Region is defined for the KAUST specific project (25W to
```

```
65E, by 0 to 50N)

  PRO write_grads_netcdf

; Restore the IDL file
; Restored arrays will be: frac_ir[days, frac, nlon, nlat]  - frac
refers to the number of pixels in bin (0.01) is 0th index
;                        mean_aod055_ir[days, frac, nlon, nlat]  -
the mean is the mean over the bin
;                        nir            - nir is the number of
contributing pixels
;                        sd_aod055_ir    - standard deviation of
mean

  RESTORE, '/work/bantges/dust_processing/aod_output/res01/2009/02/
seviri_aod_200902_0800_res01.sav'
; Determine number of days
  ndays = N_ELEMENTS(mean_aod055_ir[*,0,0,0])
  z = 1 + INDGEN(ndays)
  nz = ndays

; Temporary test (just select a single day, ideally want
REFORM(mean_aod055_ir[*,0,0,*]) and similarly for sd_aod055_ir)
  mean_aod = REFORM(mean_aod055_ir[0,0,*,*])
  sd_aod = REFORM(sd_aod055_ir[0,0,*,*])

; Base the output_filename on the input filename
  output_filename = '/work/bantges/test_aod.nc'

; Define the standard longitude and latitude
  nx = 900  ; Number of 'x' coordinates (longitude)
  ny = 500  ; Number of 'y' coordinates (latitude)

  xmin = -25.  ; Minimum longitude
  xmax = 65.   ; Maximum longitude
  dx = (xmax - xmin)/(nx - 1) ; Longitude spacing
  x = xmin + dx*FINDGEN(nx) ; Compute x-coordinates

  ymin = 0.0 ;Minimum latitude
  ymax = 50.0 ;Maximum latitude
  dy = (ymax - ymin)/(ny - 1) ; Latitude spacing
  y = ymin + dy*FINDGEN(ny) ; Compute y-coordinates

; Now convert to netCDF
  PRINT,'Creating netCDF..'
; Open the a new netCDF file
  id = NCDF_CREATE(output_filename, CLOBBER = clobber)     ; Create
netCDF output file
```

```
; Define the dimensions
  xid = NCDF_DIMDEF(id, 'XAX1D', nx)        ; Define x-dimension
(longitude)
  yid = NCDF_DIMDEF(id, 'YAX1D', ny)        ; Define y-dimension
(latitude)
  zid = NCDF_DIMDEF(id, 'ZAX1D', nz)        ; Define z-dimension (day
of month)

; Define the variables
  vid = NCDF_VARDEF(id, 'XAX1D', xid, /FLOAT)  ; Define longitude
variable
  vid = NCDF_VARDEF(id, 'YAX1D', yid, /FLOAT)  ; Define latitude
variable
  vid = NCDF_VARDEF(id, 'ZAX1D', zid, /SHORT)  ; Define day variable
  vid = NCDF_VARDEF(id, 'MEAN_AOD', [xid, yid], /FLOAT)  ; Define
aod_055 variable
  vid = NCDF_VARDEF(id, 'SD_AOD', [xid, yid], /FLOAT)    ; Define
aod_055 variable

; Assign attributes to the variables
  NCDF_ATTPUT, id, 'XAX1D', 'units', 'degrees_east'  ;Write longitude
units attribute
  NCDF_ATTPUT, id, 'YAX1D', 'units', 'degrees_north' ;Write latitude
units attribute
  NCDF_ATTPUT, id, 'ZAX1D', 'units', 'none'          ;Write latitude
units attribute
  NCDF_ATTPUT, id, 'MEAN_AOD', 'units', 'none' ;Write pressure units
attribute
  NCDF_ATTPUT, id, 'SD_AOD', 'units', 'none' ;Write pressure units
attribute
  NCDF_CONTROL, id, /ENDEF ;Exit define mode

  NCDF_VARPUT, id, xid, x ;Write longitude to file
  NCDF_VARPUT, id, yid, y ;Write latitude to file
  NCDF_VARPUT, id, zid, z ;Write days to file
  NCDF_VARPUT, id, 'MEAN_AOD', mean_aod ; Write mean AOD to file
  NCDF_VARPUT, id, 'SD_AOD', sd_aod   ; Write STDDEV AOD to file
  NCDF_CLOSE, id ; Close netCDF output file

STOP

END
```

Subject: Re: IDL to write GrADS netCDF (SDF)
Posted by David Fanning on Fri, 16 Sep 2011 14:01:28 GMT

Rich Bantges writes:

> Thanks again for your offer of help. Appended below is the IDL code
> I've written that essentially restores and IDL save file and then
> attempts to write them in a GrADS compatible netCDF file - this works
> ok, but if I try and make "vid = NCDF_VARDEF(id, 'MEAN_AOD', [zid,
> xid, yid], /FLOAT)" GrADS with the sdfopen command won't read the
> variables (obviously making the mean_aod a 3D array).

The COARDS standards can provide endless hours of
fun as you argue with your colleagues about what
they actually *mean*, but they do have to be followed,
apparently.

One of the standards has to do with the Order of Dimensions,
which apparently is Time, Latitude, Longitude. I can't test
this, because I don't have the data, but it seems to me
your variable dimensions are [lon,lat]. You might check
to see if that is causing a problem.

Cheers,

David

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David Fanning, Ph.D.
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Subject: Re: IDL to write GrADS netCDF (SDF)
Posted by Kenneth P. Bowman on Fri, 16 Sep 2011 14:11:39 GMT

In article <MPG.28dd04a587f2cf7698980e@news.giganews.com>,
David Fanning <news@dfanning.com> wrote:

> One of the standards has to do with the Order of Dimensions,
> which apparently is Time, Latitude, Longitude. I can't test
> this, because I don't have the data, but it seems to me
> your variable dimensions are [lon,lat]. You might check
> to see if that is causing a problem.

Be careful. I don't follow the COARDS standard myself (never

found a need to), but they are probably referring to the
C-language convention, where the last index varies fastest.

This is what you see when you use ncdump. You need to remember
to reverse the apparent order for IDL and Fortran.

Ken Bowman
