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Subject: Re: on reading NCDF files

Posted by [Paul Van Delst\[1\]](#) on Tue, 20 Jan 2004 18:07:32 GMT

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Sangwoo wrote:

```
>
> Hi everyone!
>
> I'm gonna read a NCDF file. It may contain several variables within
> itself. When I extract a variable named "image", the procedure is as
> follows:
>
> cid=ncdf_open('test.nc')
> vid=ncdf_varid(cid,'image')
> ncdf_varget,cid,vid,image
>
> But suppose I don't know the name of each variable unfortunately. Is
> there any way to figure out the details of the included
> variables(name, dimension, etc.)? The second command fails when I put
> a wrong variable. And is there any way to read the included variables
> all at once? (something like /all keyword)
>
> I wonder if there's any way to figure out all details of the included
> variables from an NCDF file directly.
```

Yes, there is. For me at least, that's the point of netCDF.

I have a simple-minded read\_ncdf() function that may do what you want. You can read all the variable data by default:

```
IDL> error_status=read_ncdf('sndr_g12.EmisCoeff.nc',x,/quiet)
% Compiled module: READ_NCDF.
% Compiled module: IS_NCDF.
% Loaded DLM: NCDF.
IDL> help, x, /struct
** Structure <82417b4>, 10 tags, length=37856, data length=37856, refs=1:
RELEASE      LONG      2
VERSION      LONG      2
THETA_OFFSET DOUBLE    0.10000000
THETA_MAX    DOUBLE    65.100000
NCEP_SENSOR_ID LONG    Array[18]
WMO_SATELLITE_ID
      LONG    Array[18]
WMO_SENSOR_ID LONG    Array[18]
SENSOR_CHANNEL LONG    Array[18]
WIND_SPEED   DOUBLE    Array[13]
EMIS_COEFFICIENTS
      DOUBLE    Array[4, 5, 18, 13]
```

Or just the data you want:

```
IDL> error_status=read_ncdf('sndr_g12.EmisCoeff.nc',x,variable_list=['Wind_Speed'],/quiet)
IDL> help, x, /struct
** Structure <82468d4>, 1 tags, length=104, data length=104, refs=1:
    WIND_SPEED    DOUBLE    Array[13]
```

Or just the global attributes:

```
IDL> error_status=read_ncdf('sndr_g12.EmisCoeff.nc',x,/global_attributes,/quiet)
IDL> help, x, /struct
** Structure <8240f34>, 7 tags, length=84, data length=84, refs=1:
    WRITE_MODULE_HISTORY
        STRING    '$Id: write_emiscoeff_netcdf.pro,v 2.0 2003/06'...
    CREATION_DATE_AND_TIME
        STRING    'Tue Sep 16 16:53:38 2003'
    TITLE          STRING    'Emissivity fit coefficients for GOES-12 SOUND'...
    HISTORY        STRING    '$Id: compute_emissivity_coefficients.pro,v 2.'...
    SENSOR_NAME    STRING    'SOUNDER'
    PLATFORM_NAME  STRING    'GOES-12'
    COMMENT        STRING    'Sensor emissivity created by Convolution:Spec'...
```

or all the variables and their attributes:

```
IDL> error_status=read_ncdf('sndr_g12.EmisCoeff.nc',x,/variable_attributes,/quiet)
IDL> help, x, /struct
** Structure <8241f2c>, 10 tags, length=38024, data length=38024, refs=1:
    RELEASE        STRUCT    -> <Anonymous> Array[1]
    VERSION        STRUCT    -> <Anonymous> Array[1]
    THETA_OFFSET    STRUCT    -> <Anonymous> Array[1]
    THETA_MAX       STRUCT    -> <Anonymous> Array[1]
    NCEP_SENSOR_ID STRUCT    -> <Anonymous> Array[1]
    WMO_SATELLITE_ID
        STRUCT    -> <Anonymous> Array[1]
    WMO_SENSOR_ID  STRUCT    -> <Anonymous> Array[1]
    SENSOR_CHANNEL STRUCT    -> <Anonymous> Array[1]
    WIND_SPEED     STRUCT    -> <Anonymous> Array[1]
    EMIS_COEFFICIENTS
        STRUCT    -> <Anonymous> Array[1]
IDL> help, x.emis_coefficients, /struct
** Structure <8240f3c>, 3 tags, length=37464, data length=37464, refs=2:
    DATA          DOUBLE    Array[4, 5, 18, 13]
    LONG_NAME       STRING    'Emissivity model fit coefficients.'
    UNITS           STRING    'None.'
```

And you can use the tag\_names routine to act on just the variables.

cheers,

paulv

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