
Subject: ncdf_varput for NetCDF coordinate axes

Posted by [MarioIncandenza](#) on Tue, 11 Oct 2016 22:35:03 GMT

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Hello IDL Wizards,

I wrote a routine to create a netCDF file, and I did it wrong:

```
; Create a new NetCDF file with the filename NCFILE
id = NCDF_CREATE(ncfilea, /CLOBBER)
<...>
; Create global attributes
NCDF_ATTPUT, id, /GLOBAL, 'COMMENT','Initial Implementation'
<...>
; Fill the file with default values:
NCDF_CONTROL, id, /FILL
; Create dimensions: CF convention is T,Z,Y,X
yid = NCDF_DIMDEF(id, 'y', sz[2]) ; Make dimensions.
xid = NCDF_DIMDEF(id, 'x', sz[1]) ; Make dimensions.
;create coordinates (1d variables for each DIMENSION)
latid = NCDF_VARDEF(id, 'Latitude', [yid], /FLOAT)
NCDF_ATTPUT, id, latid, 'standard_name', 'latitude_north'; CF
NCDF_ATTPUT, id, latid, 'long_name', 'latitude'; CF
NCDF_ATTPUT, id, latid, 'units', 'degrees_north'; CF convention
NCDF_ATTPUT, id, latid, 'axis', 'Y'; CF convention
lonid = NCDF_VARDEF(id, 'Longitude', [xid], /FLOAT)
NCDF_ATTPUT, id, lonid, 'standard_name', 'longitude_east'; CF
NCDF_ATTPUT, id, lonid, 'long_name', 'longitude'; CF
NCDF_ATTPUT, id, lonid, 'units', 'degrees_east'; CF convention
NCDF_ATTPUT, id, lonid, 'axis', 'X'; CF convention
<...>
; Put file in data mode:
NCDF_CONTROL, id, /ENDEF
; Input data for coordinate axes:
NCDF_VARPUT, id, yid, (findgen(540)/3.)-90+(1/6.); WRONG
NCDF_VARPUT, id, xid, (findgen(1080)/3.)-180+(1/6.); WRONG
```

Do you see the problem? The calls to VARPUT use XID|YID (from NCDF_DIMDEF) when they should be using LONID|LATID (from NCDF_VARDEF).

However, this incorrect code produces the correct result:

```
ncdump ncfilea:
netcdf ncfilea {
dimensions:
    y = 540 ;
    x = 1080 ;
```

variables:

```
float Latitude(y) ;  
  Latitude:standard_name = "latitude_north" ;  
  Latitude:long_name = "latitude" ;  
  Latitude:units = "degrees_north" ;  
  Latitude:axis = "Y" ;  
float Longitude(x) ;  
  Longitude:standard_name = "longitude_east" ;  
  Longitude:long_name = "longitude" ;  
  Longitude:units = "degrees_east" ;  
  Longitude:axis = "X" ;
```

<...>

data:

```
Latitude = -89.83334, -89.5, -89.16667, -88.83334, -88.5, -88.16667,  
-87.83334, -87.5, -87.16667, -86.83334, -86.5, -86.16667, -85.83334, <...>
```

Does anyone have an explanation for why this works? Is there magic related to the 'AXIS' attribute?

--Edward H.
