Subject: Point Observations from NARR output
Posted by B.J. Baule on Thu, 07 Apr 2011 20:25:46 GMT
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Hello all,

This is probably a really simple problem however my inexperience with IDL has left me baffled. I'm relatively new to IDL programming and have a question regarding getting grid point values from NARR reanalysis output. I can get the data to open, read in, and make a map. However, I would like to get point observations from the reanalysis data set (Ex. July Temperature for Barrow, AK Lat: 71.2905556 Lon:-156.7886111).

The three variables that I've pulled from the netCDF file file are air temp (air), latitude, longitude. With the HELP function in IDL, I find that the dimensions of the arrays are: air = ARRAY[349, 277, 12], rlats = ARRAY[349,277], rlons = ARRAY[349,277]. As I understand it, the Lambert Conformal Conic Grid is a 349x277 grid. It has been suggested to me that I should be working in x y coordinates. When I try and pull x and y from the netcdf file, I get arrays but they are both 277 element single dimension arrays. I'd expected the x array to be 349 elements and y to be 277 elements. If I could get a 349 element x array and a 277 element y array, then maybe I could use MAP_PROJ_INVERSE to get lat lon values for these grid points?

Sorry if this is an elementary question that has an easy solution that I'm overlooking. Does anyone have experience doing this? Any help would be greatly appreciated.

Thanks,
B.J.

(I've attached a copy of the code I've tried to build, sorry about the lack of comments):

```
PRO TRYIT_XY

Compile_Opt defint32
;define number of latitudes/longitudes
nlons=349
nlats=277

vararray2 = fltarr(nlons,nlats)
vararray = fltarr(nlons,nlats,12)
vararryin = fltarr(nlons,nlats)
rlons  = fltarr(nlons,nlats)
```

```
rlats  = fltarr(nlons,nlats)

;Open file get variable id's
infile =  '/Users/snr-wbaule/Desktop/Reanalysis_Data/air.2m.mon.ltm.nc '
nunit = ncdf_open(infile,/nowrite)
ivarid   = ncdf_varid(nunit,'air')
ilatid   = ncdf_varid(nunit,'y')
ilonid   = ncdf_varid(nunit,'x')

;Get scale and offset attributes from netCDF file
NCDF_ATTGET,nunit,'air','add_offset', add_offset
NCDF_ATTGET,nunit,'air','scale_factor',xscale

; apply offset and scale factor to air temp data for all months
for itime = 0,11,1 do begin
  offset   = [0,0,itime]
  count    = [nlons,nlats,1]

  ncdf_varget,nunit,ivarid,temp, OFFSET=offset
  vararray[*,*,itime] = vararray2 + (xscale*FLOAT(temp)) + add_offset


endfor
; get lat and lon arrays from file
ncdf_varget,nunit,ilatid,rlats,OFFSET=[0,0],$
  count = [nlons,nlats]
ncdf_varget,nunit,ilonid,rlons,OFFSET=[0,0],$
  count = [nlons,nlats]

HELP, vararray ,rlats, rlons

 ;reproject data with parameters found in netCDF file
result = MAP_PROJ_INIT(104, CENTER_LATITUDE=0,
CENTER_LONGITUDE=-107,STANDARD_PAR1=50.0,$
 STANDARD_PAR2=50.0, DATUM=8, /GCTP, LIMIT=[12.2, -133.5, 54.5, -152.,
57.3, -49.4, 14.3,-65.1]); FALSE_EASTING=5632642.22547,
FALSE_NORTHING=4612545.65137)
;convert to x y
result2 = MAP_PROJ_FORWARD(rlons, rlats, MAP_STRUCTURE=result)
;convert x y to lat lon to check values.
result3 = MAP_PROJ_INVERSE(result2, MAP_STRUCTURE=result)


END
```