

Week 4: More NetCDF & Ferret

Ferret Homepage:

<http://ferret.pmel.noaa.gov/Ferret/>

Lets review NetCDF:

- † We can create a NetCDF file by 3 ways

- Write our own .cdl file and then use ncgen

- Programmatically generate the NetCDF File

- Copy a .ncl from an existing NetCDF File

- † Python can quickly manipulate NetCDF files.

- † Having the NetCDF file is only half the battle, we also need to plot it!

Enter Ferret

- † Ferret was developed to support large oceanographic and meteorologic datasets.
- † Ferret really likes NetCDF files, especially those that are COORDS compliant.
- † To run Ferret you need to source the Ferret environment file, much like GEMPAK.

```
source /usr/local/ferret_paths
```

Time to run some of the demos...

- † Look at the Online Demonstrations section of the Ferret website
- † You can run the demos via the command
 go demo_name
- †

How to script with Ferret

```
#!/bin/csh
```

```
source /usr/local/bin/ferret_paths
```

```
ferret -gif -nojnl << EOF
```

```
    use filename.nc
```

```
    contour variable
```

```
    frame/file=test.gif
```

```
quit
```

```
EOF
```

Another Example

```
#!/bin/csh
```

```
source /usr/local/bin/ferret_paths
```

```
ferret -gif -nojnl << EOF >& /tmp/ferret.log
```

```
use ${yyyymmdd}${hh}_output.nc
```

```
PALETTE rainbow
```

```
repeat/L=1:48 ( go bdeckt \ ` \ ` ${hh} )
```

```
quit
```

```
EOF
```

```
$ cat bdeckt.jnl
```

```
CONTOUR/FILL/LINE/KEY/lev=(-20,80,5)/L=` ($ + 1) ` \
```

```
  TITLE="Bridge Deck Surface Temperature [F]" \
```

```
  ((9.0/5.0)*(bdeckt - 273.0) + 32.0), lon, lat
```

```
go land_detail thick overlay black black
```

```
FRAME/FILE=bdeckt_` $ ` _` $ `.gif
```

Curvilinear Coordinate System

```
netcdf 2003111700_output {  
  dimensions:  
    i_cross = 45 ;  
    j_cross = 60 ;  
    time = UNLIMITED ; // (48 currently)  
  variables:  
    int time(time) ;  
        time:units = "minutes since 2003-11-17 00:00:00" ;  
    double i_cross(i_cross) ;  
        i_cross:units = "m" ;  
    double j_cross(j_cross) ;  
        j_cross:units = "m" ;  
    double lat(i_cross, j_cross) ;  
        lat:long_name = "latitude" ;  
        lat:units = "degrees_north" ;  
    double lon(i_cross, j_cross) ;  
        lon:long_name = "longitude" ;  
        lon:units = "degrees_east" ;  
    double bdeckt(time, i_cross, j_cross) ;  
        bdeckt:coordinates = "lon lat" ;  
}
```

Assignment for Next Time

Take your disk usage NetCDF file and generate a simple plot.

Don't worry about what the plot means. Work on having as much metadata showing up on the plot without hard coding it from Ferret.

It is time to start thinking about problems you would like to see addressed. We have one more week of planned topics...

Next time:

- Back to python. Working with Numeric arrays
- Calling FORTRAN from Python (really cool)...