

IOOS Data Services with the THREDDS Data Server

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IOOS Recommended Web Services and Data Encodings

Data Type

Web Service

Encoding

In-situ data (buoys,
piers, towed sensors)

OGC Sensor
Observation Service
(SOS)

XML based on OGC
Observations and
Measurements (O&M)

Gridded data (model
outputs, satellite)

OPeNDAP with Climate
and Forecast
Conventions

DAP using Climate and
Forecast (CF)
conventions

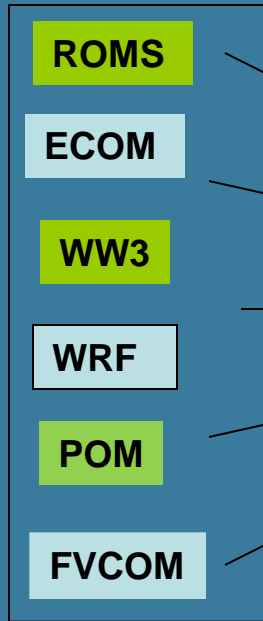
Images of data

OGC Web Map Service
(WMS)

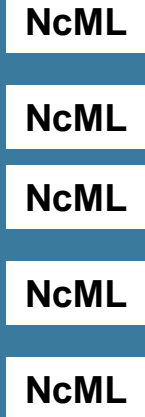
GeoTIFF, PNG etc.
-possibly with
standardized styles

IOOS Model Data Interoperability Design

Nonstandard
Model Output
Files (distributed)

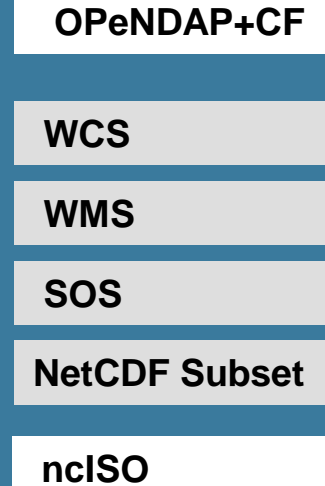


Standardized (CF)
Virtual Datasets

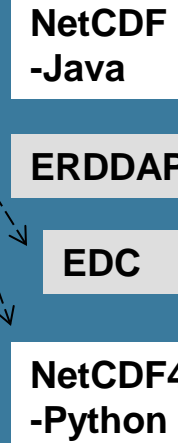


Common
Data Model
NetCDF-Java

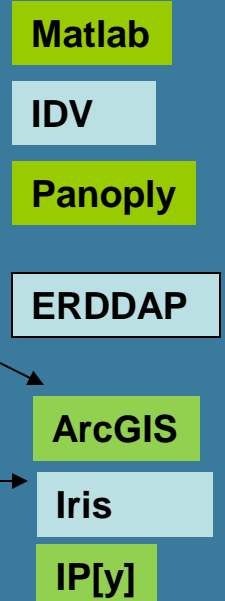
Web Services



Library or
Service

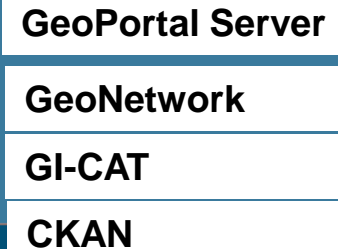


Clients



timeseries, point,
profile, trajectory, swath

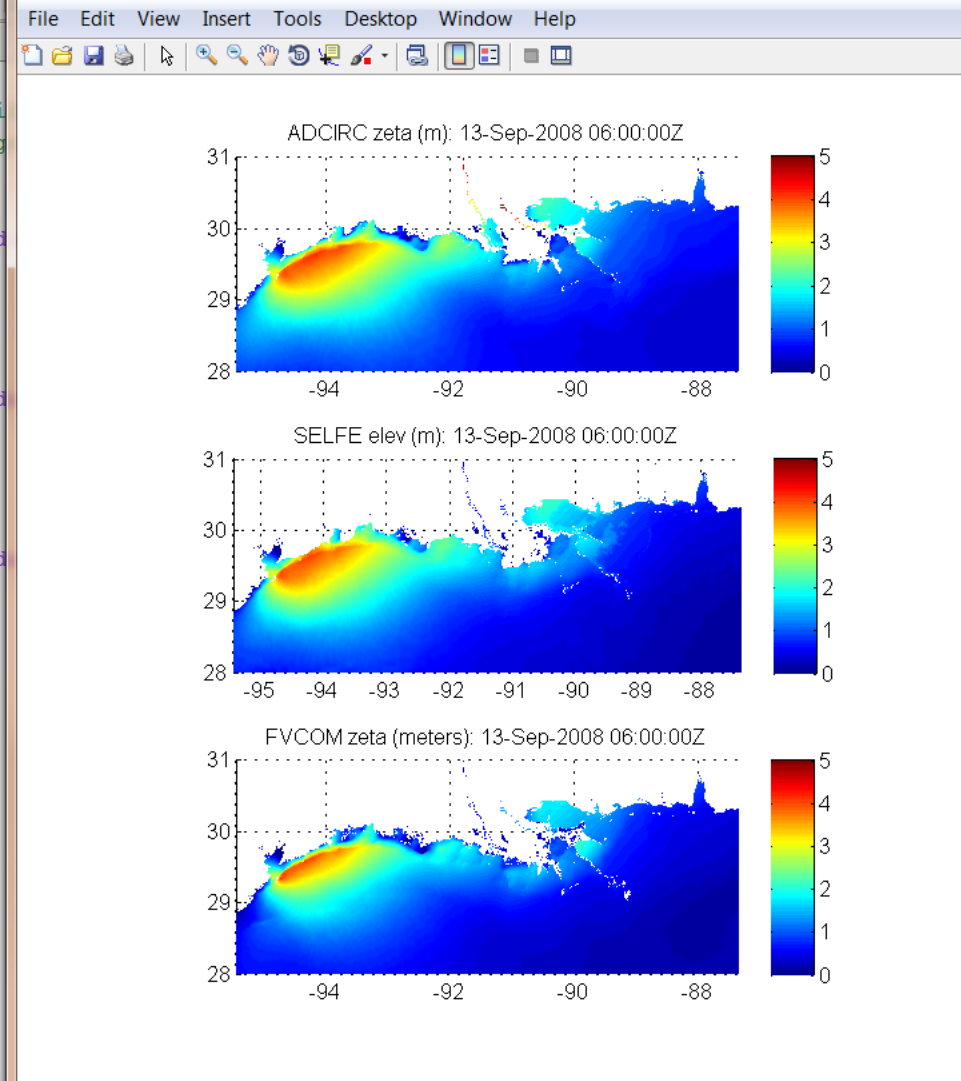
NcML, NetCDF-Java, Common Data Model
and THREDDS Data Server built and
supported by Unidata under NSF-support



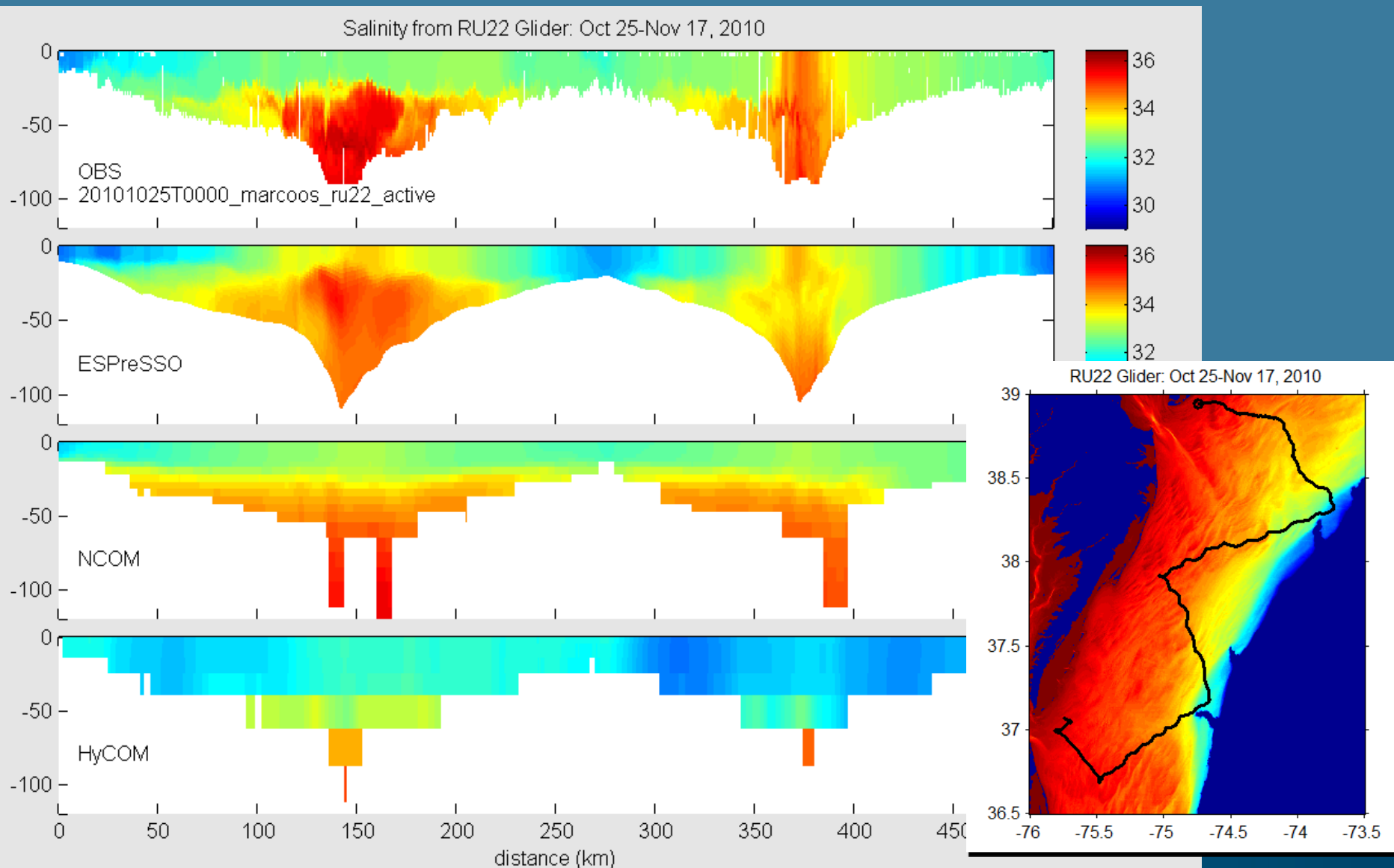
NCTOOLBOX: test_cf_ugrid3.m

```
C:\cygwin\home\rsignell\distro\nctoolbox\demos\contrib\test_cf_ugrid3.m
File Edit Text Go Cell Tools Debug Desktop Window Help
+ - 1.0 + 1.1 x
1 % TEST_CF_UGRID3
2 % Compare water levels from 3 different unstructured grid
3 % models that use UGRID conventions (http://bit.ly/cf_ugrid)
4 % comparison with no model specific code
5 titl{1}='ADCIRC';
6 uris{1}='http://testbedapps.sura.org/thredds/dodsC/inundation/';
7 vars{1}='zeta';
8 times{1}=[2008 9 13 06 00 0];
9
10 titl{2}='SELFE';
11 uris{2}='http://testbedapps.sura.org/thredds/dodsC/inundation/';
12 vars{2}='elev';
13 times{2}=[2008 9 13 06 00 0];
14
15 titl{3}='FVCOM';
16 uris{3}='http://testbedapps.sura.org/thredds/dodsC/inundation/';
17 vars{3}='zeta';
18 times{3}=[2008 9 13 06 00 0];
19 % bounding box for figures
20 ax=[-95.4519 -87.3856 28.0 31.0];
21 % color range for figures
22 cax=[0 5];
23
24 % There is nothing model specific in the loop below!
25 for i=1:length(uris)
26     tic
27     % Initialize dataset object
28     nc=ncgeodataset(uris{i});
29     %get geovariable object
30     zvar=nc.geovariable(vars{i});
31     % Find the coordinate variables
32     lon=zvar.getlndata(:);
```

Figure 1



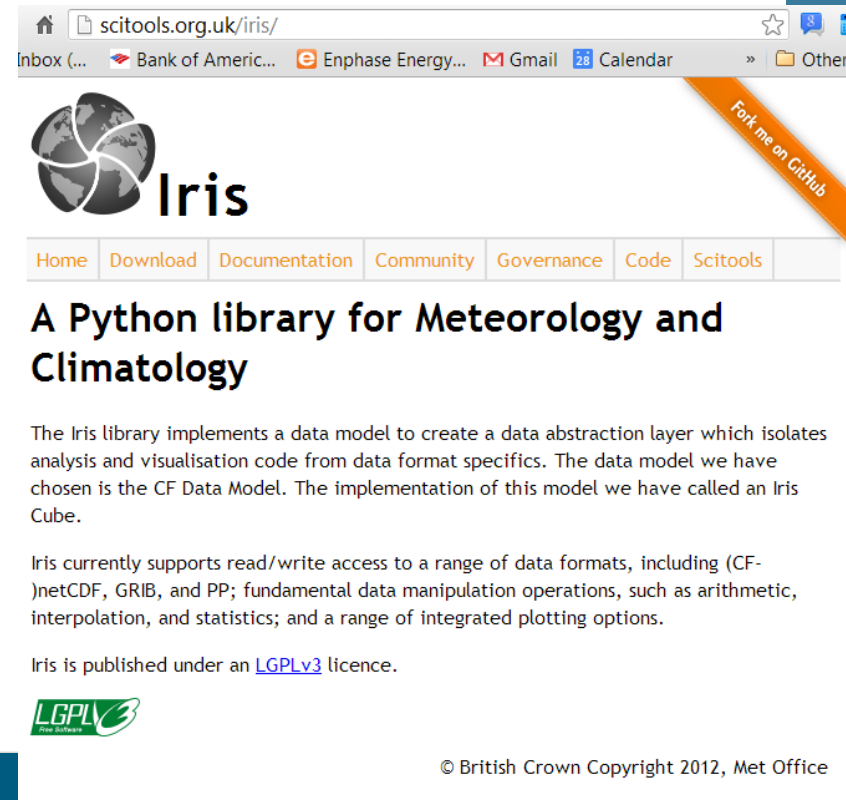
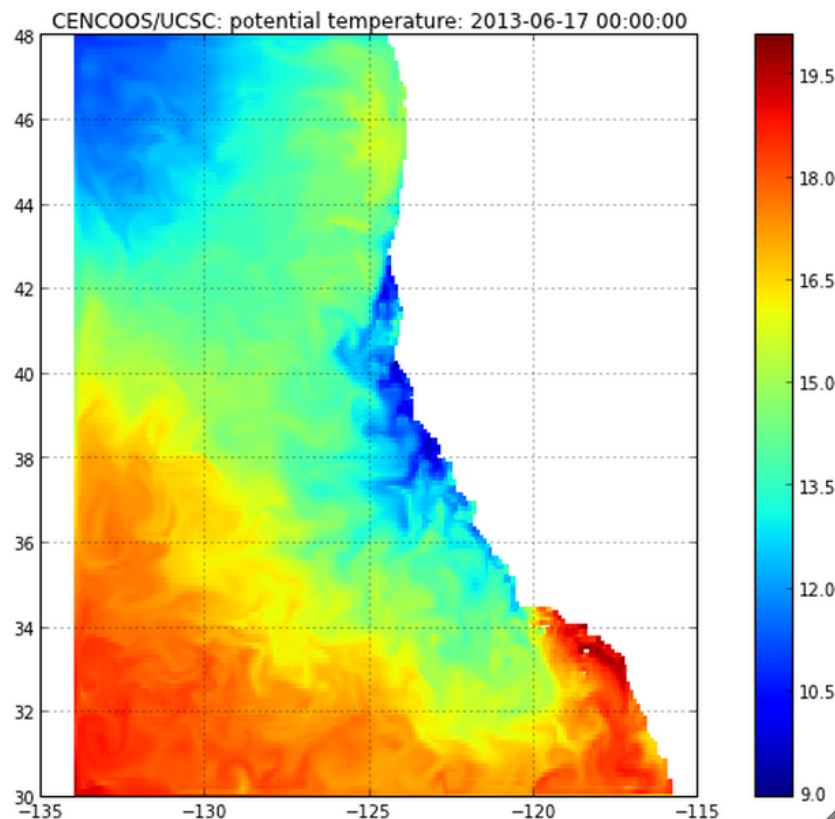
Glider Comparison with nc_genslice.m



Access with Python using Iris


```
In [33]: model='CENCOOS/UCSC'
url='http://oceanmodeling.pmc.ucsc.edu:8080/thredds/dodsC/ccsnrt/fmrc/CCSNRT_Aggregation_best.ncd'
var='potential temperature'
lev=-1
slice=var_lev_date(url=url,var=var, mytime=mytime, lev=lev)
myplot(slice,model=model)
```

slice retrieved in 297.561164 seconds



scitools.org.uk/iris/

Inbox (... Bank of Americ... Enphase Energy... Gmail 28 Calendar » Other

 Iris


Home Download Documentation Community Governance Code Scitools

A Python library for Meteorology and Climatology

The Iris library implements a data model to create a data abstraction layer which isolates analysis and visualisation code from data format specifics. The data model we have chosen is the CF Data Model. The implementation of this model we have called an Iris Cube.

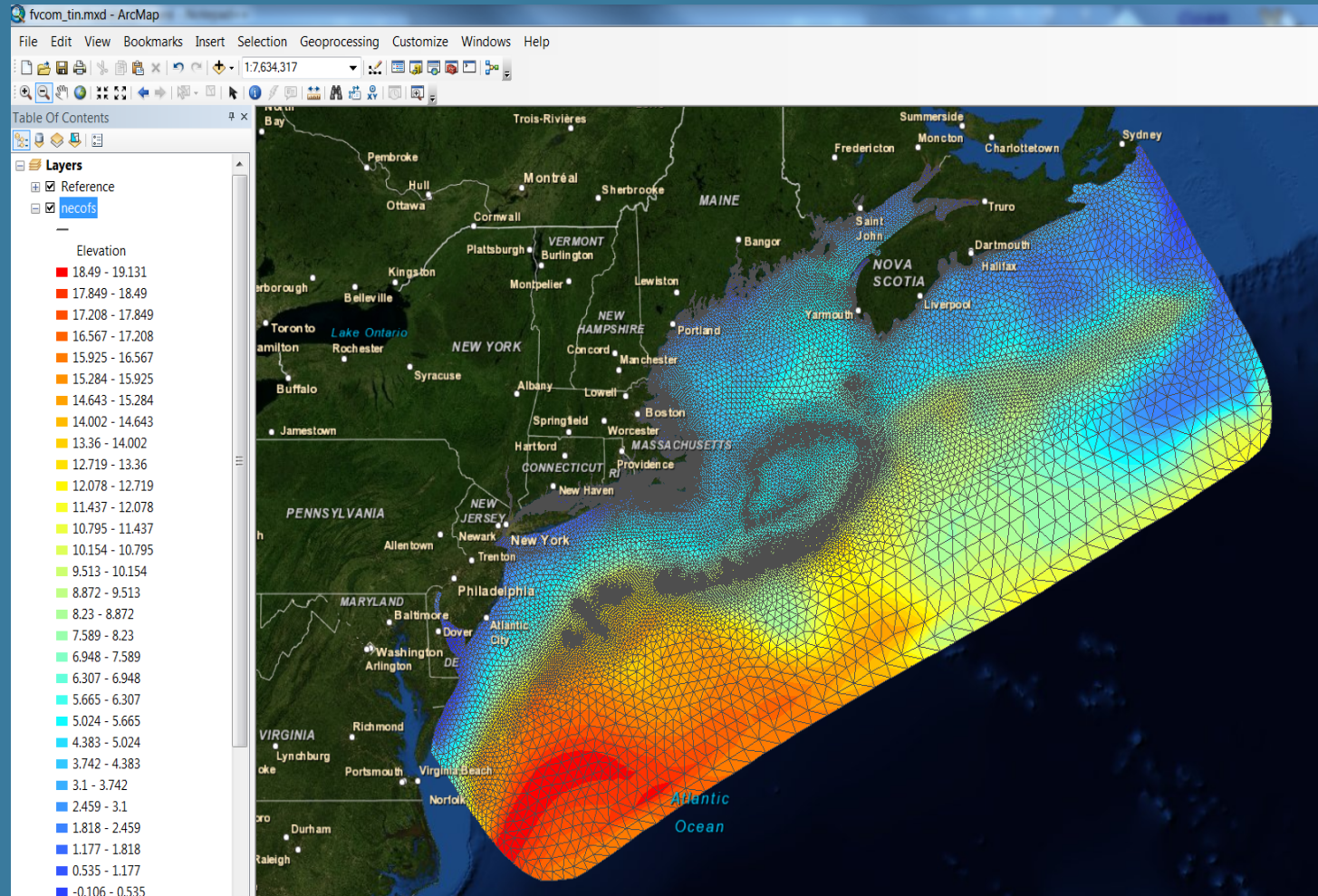
Iris currently supports read/write access to a range of data formats, including (CF-)netCDF, GRIB, and PP; fundamental data manipulation operations, such as arithmetic, interpolation, and statistics; and a range of integrated plotting options.

Iris is published under an [LGPLv3](#) licence.

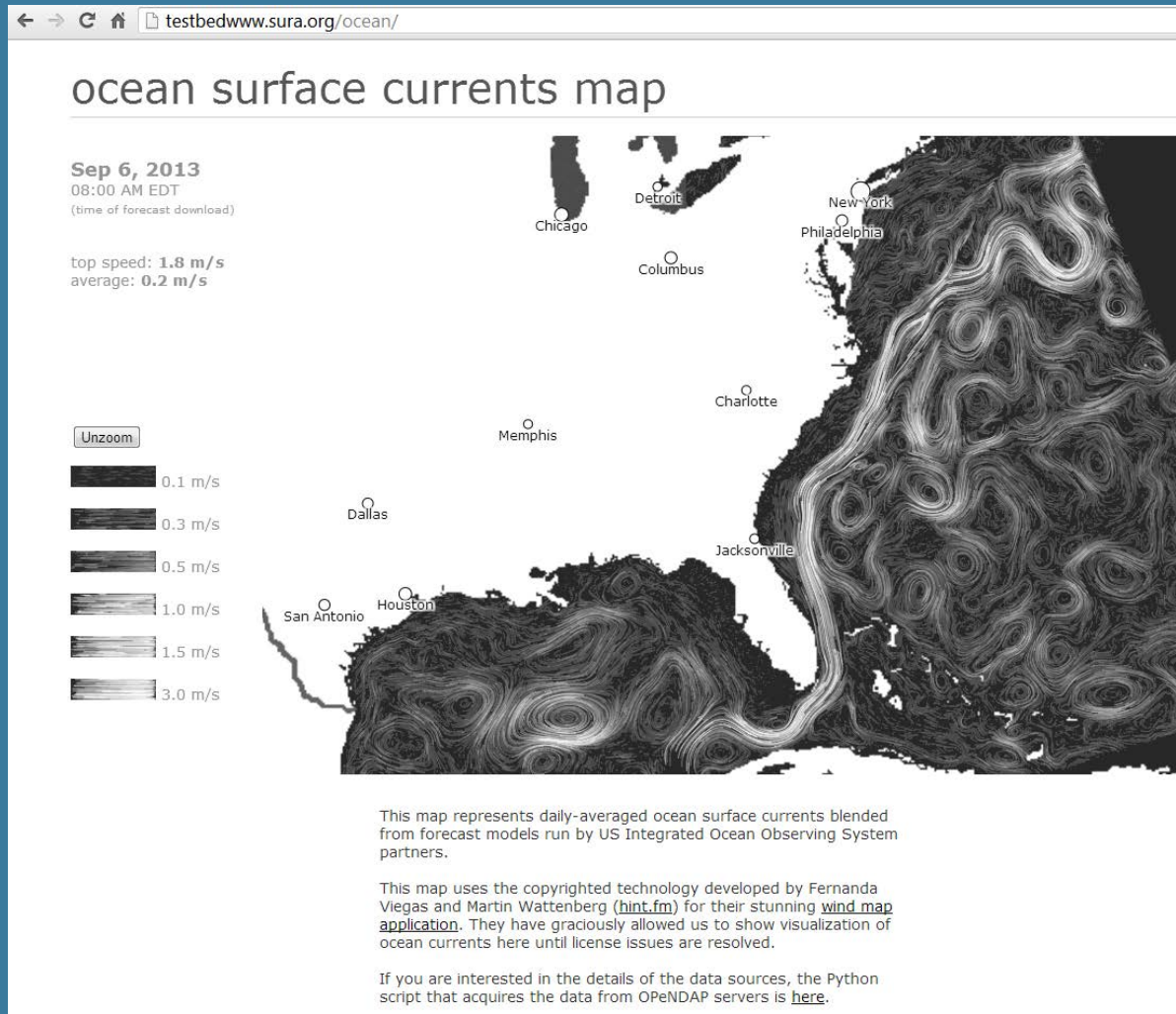


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NECOFS Access in ArcGIS (using the dap2arc python toolbox)

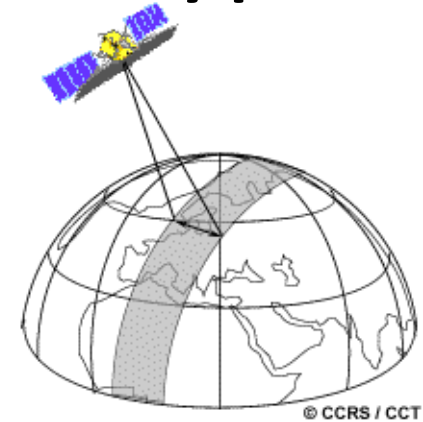
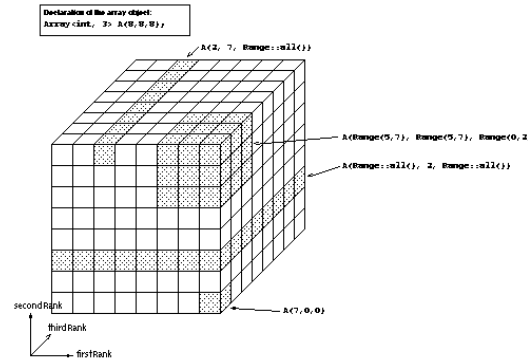


Ocean Surface Currents Map

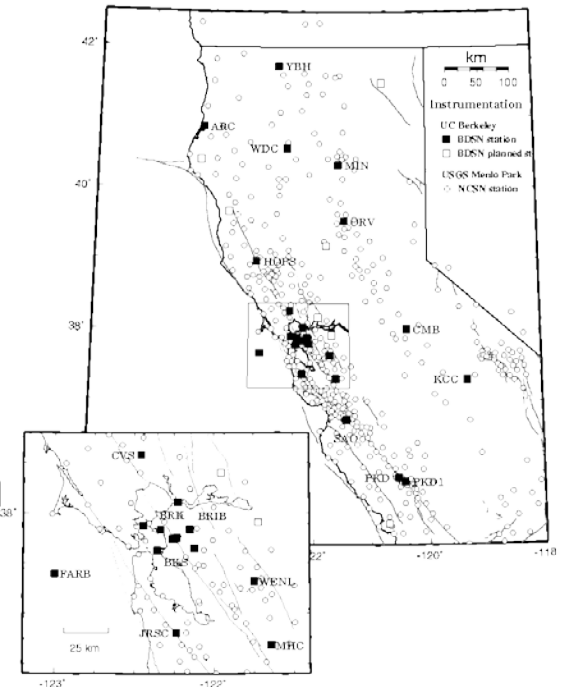


CDM: Scientific Feature Types

- Gridded Data
- Radial Data
- Swath Data
- Discrete Sampling Features
 - Point data
 - Station data
 - Profile data
 - Trajectory (e.g., aircraft track) data



Northern California Seismic Monitoring



Feature Types

- **point**: a single data point (having no implied coordinate relationship to other points)
- **timeSeries**: a series of data points at the same spatial location with monotonically increasing times
- **trajectory**: a series of data points along a path through space with monotonically increasing times
- **profile**: an ordered set of data points along a vertical line at a fixed horizontal position and fixed time
- **timeSeriesProfile**: a series of profile features at the same horizontal position with monotonically increasing times
- **trajectoryProfile**: a series of profile features located at points ordered along a trajectory

Setting up THREDDS catalogs

- Examples of setting up model output
- Example setting up time series data
- Where to document THREDDS/NcML best practices and examples?
- Let's try github and gis.stackexchange.com