



THREDDS Data Server

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GEOSS Climate Workshop

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THREDDS Data Server (TDS)

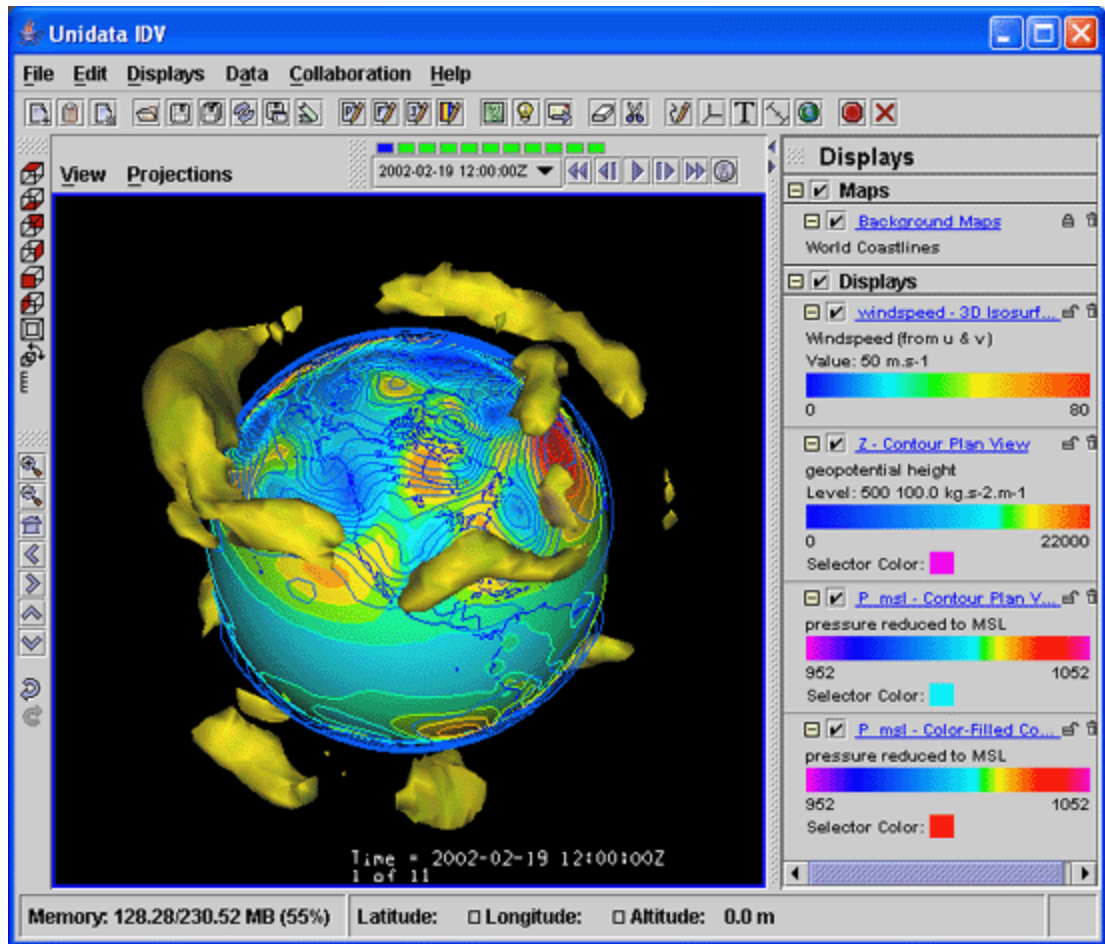
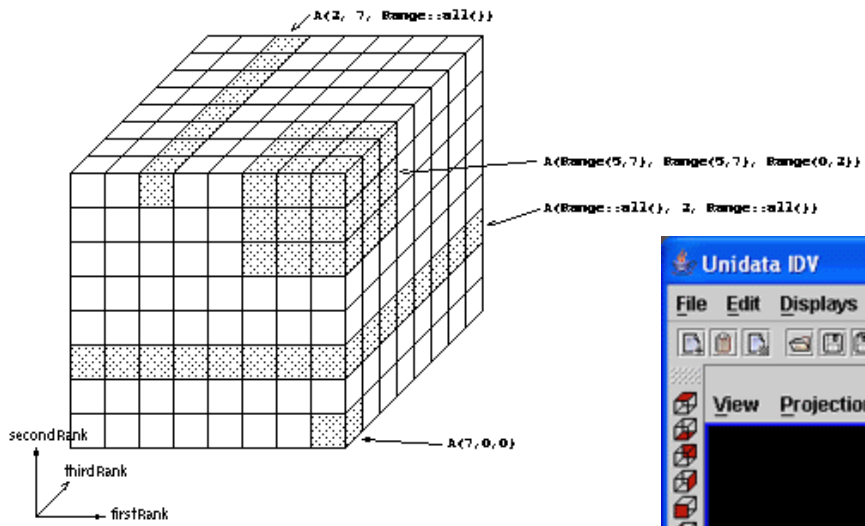
- Provides web services for scientific data
 - Catalogs available datasets
 - Data access/subset services
 - Dataset collections services
 - Metadata services

THREDDS Data Server (TDS)

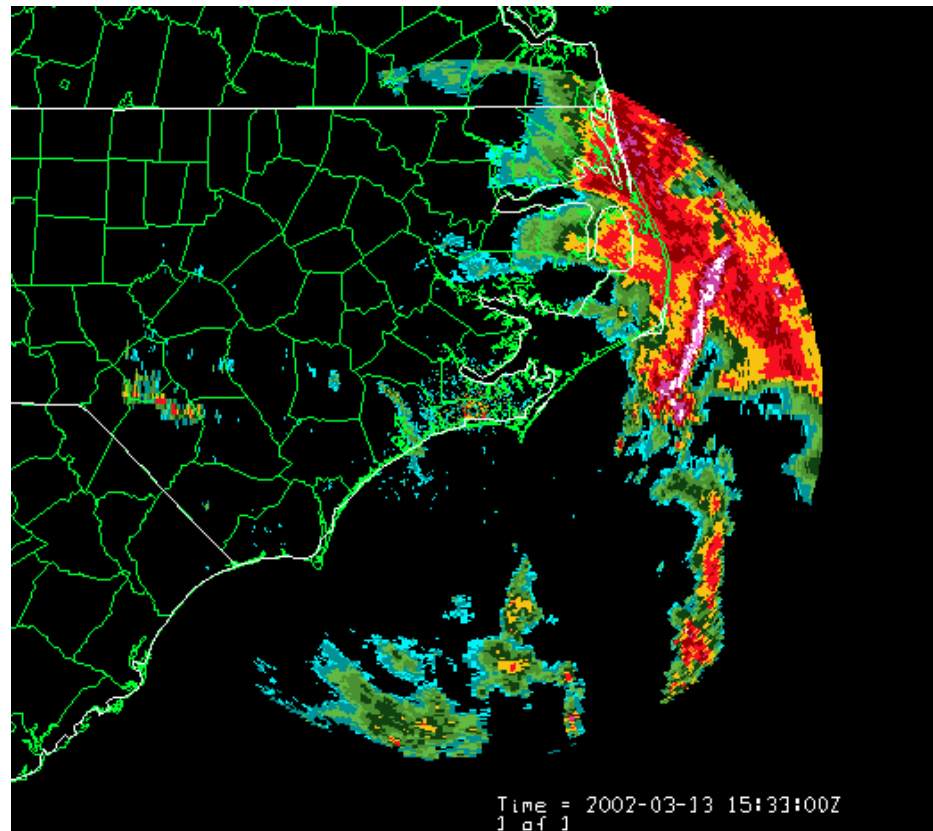
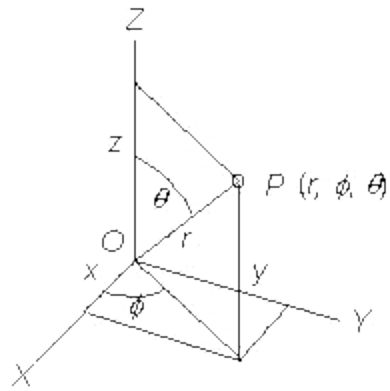
- Built on the netCDF-Java library
 - Reads various data formats:
 - netCDF-3, netCDF-4
 - GRIB-1, GRIB-2, BUFR
 - HDF-4, HDF-5, HDF-EOS
 - ...
 - Recognizes various Scientific Feature Types
 - Gridded Data; Radial Data; Swath Data
 - Discrete Sampling Features:
 - Point Data; Station Data; Profile Data
 - Trajectory (e.g., aircraft track) Data

Gridded Data

Declaration of the array object:
Array<int, 3> A(8,8,8);

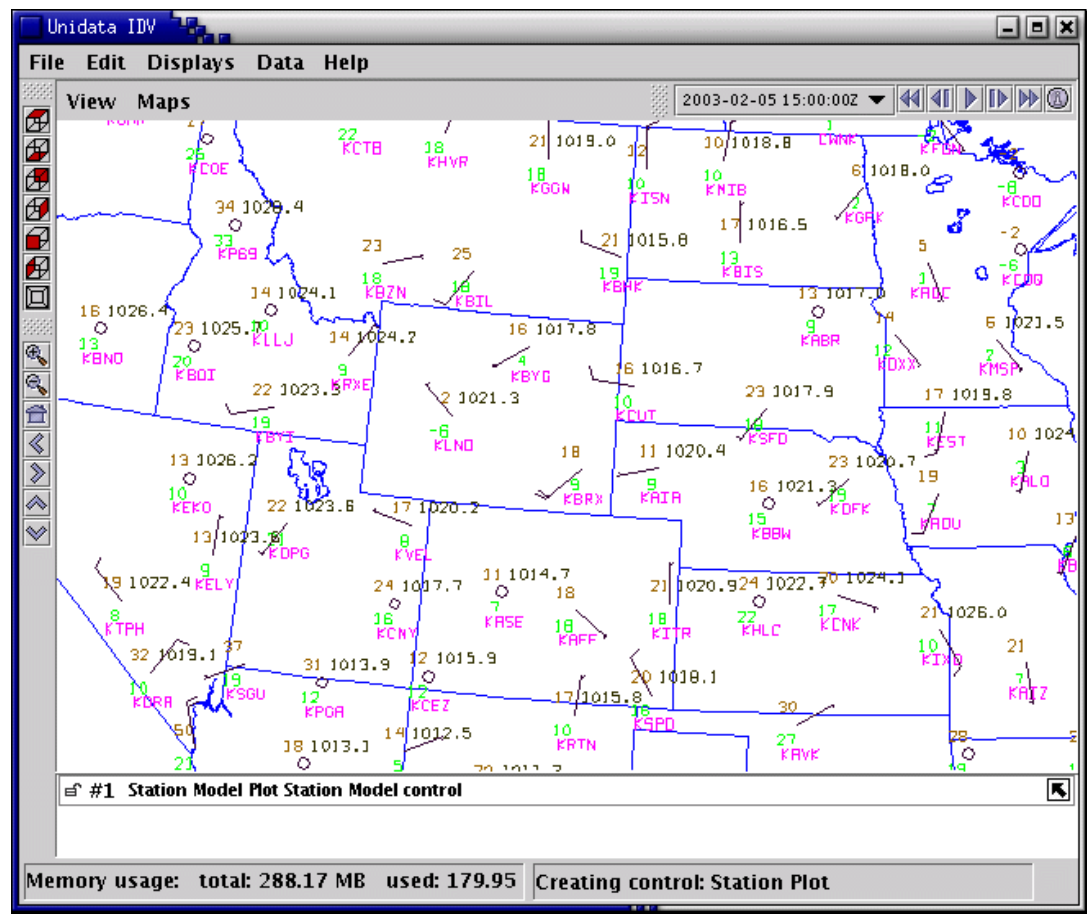
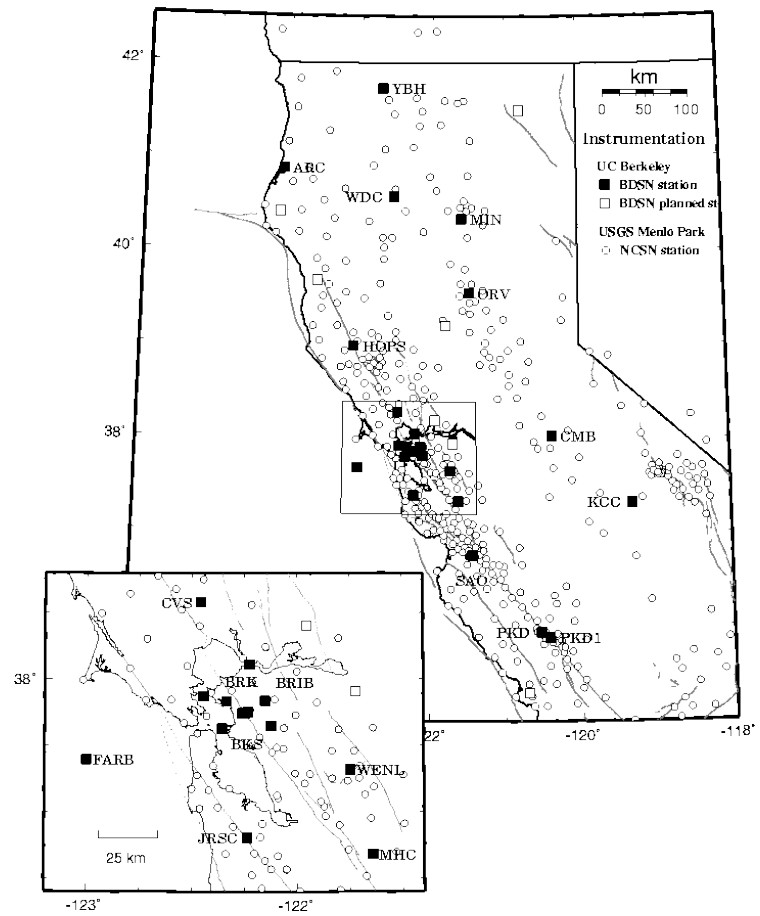


Radial Data

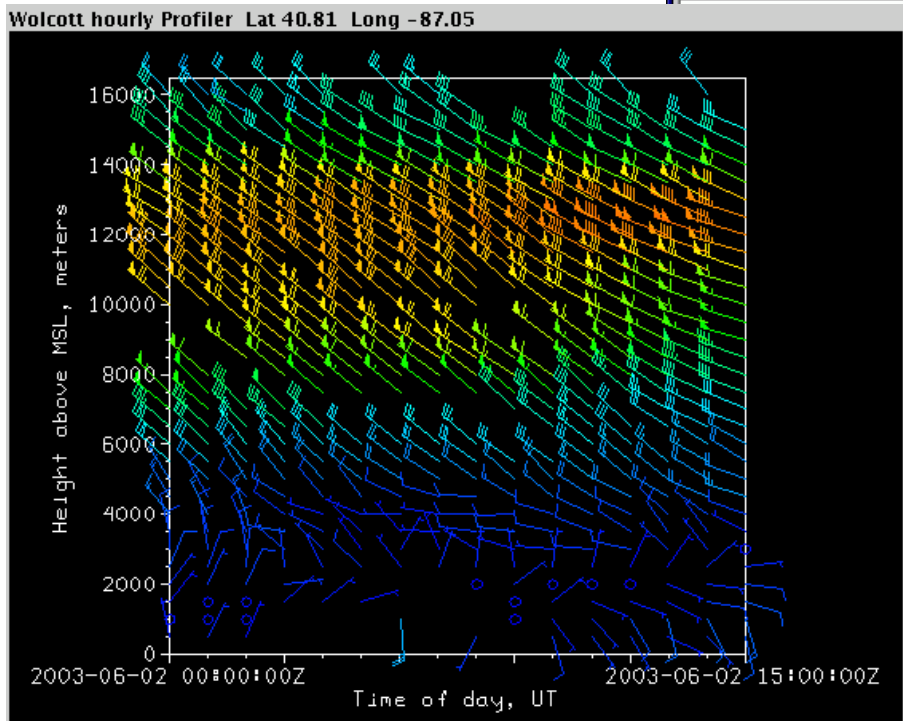
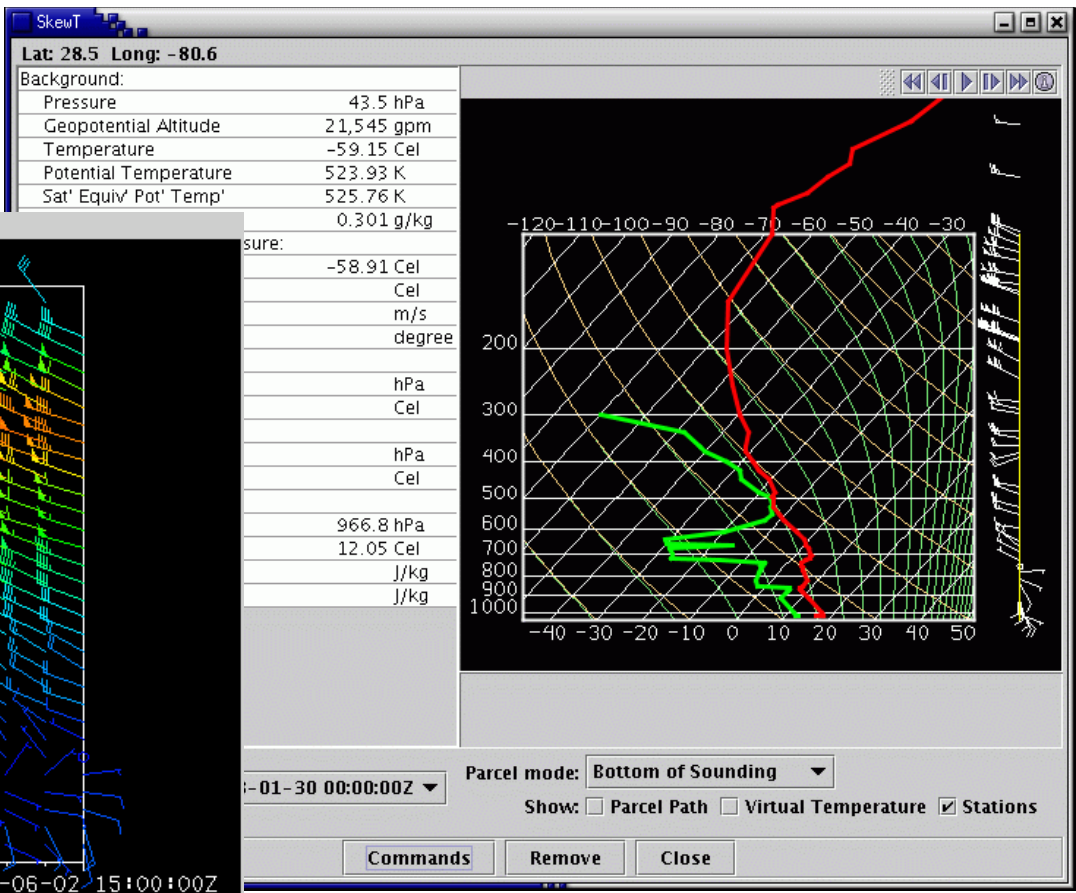
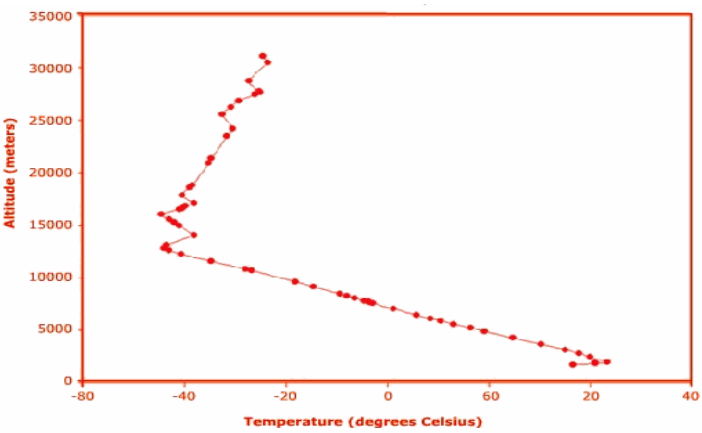


Point/Station Data

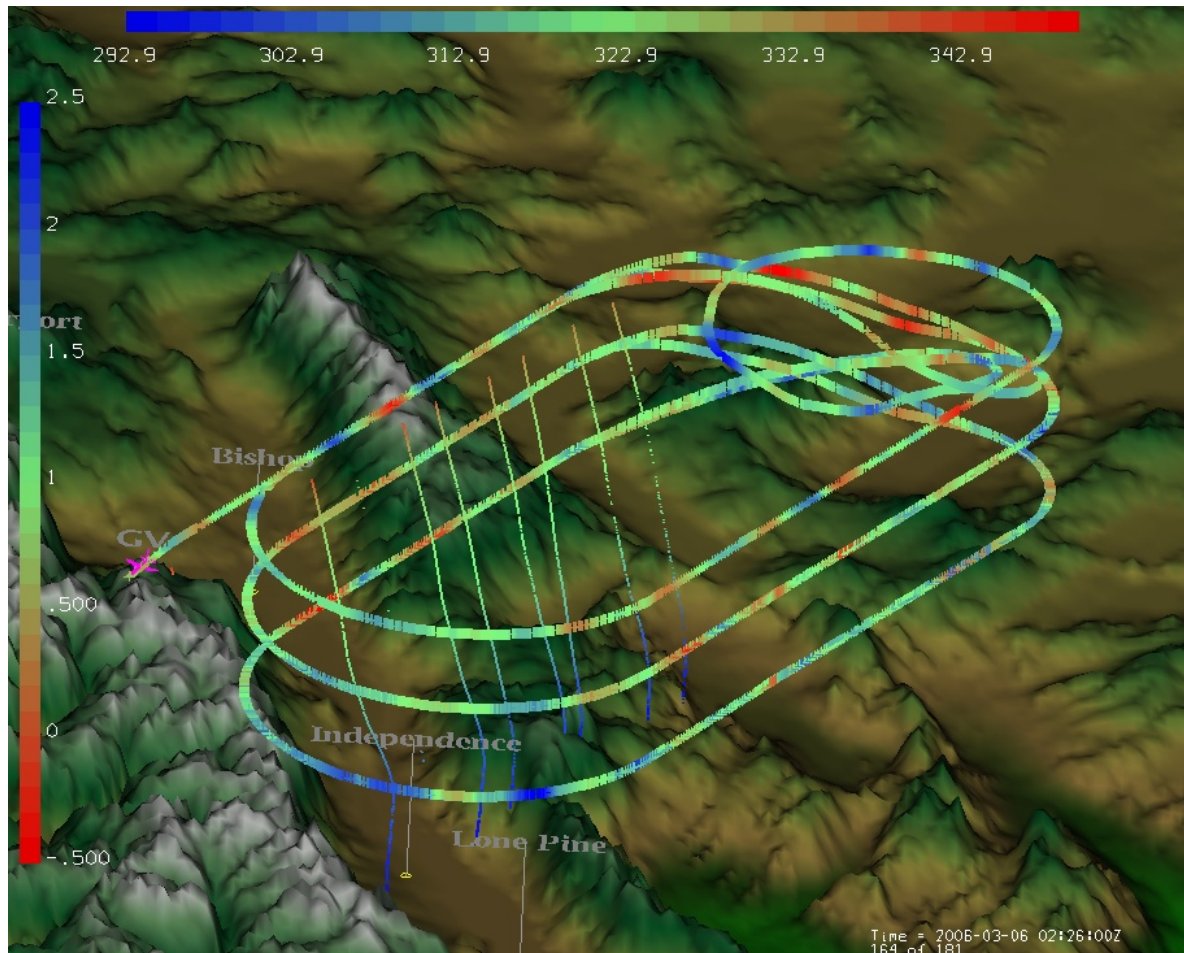
Northern California Seismic Monitoring



Profile Data



Trajectory/Track Data



THREDDS Data Server (TDS)

- Catalogs of available datasets:
 - Hierarchical presentation of dataset collections
 - Advertises services available for each datasets
 - Contains metadata about each dataset

THREDDS Data Server (TDS)

- Data access services:
 - HTTP file download
 - OPeNDAP
 - WMS (1.1.1 & 1.3.0) and WCS (1.0.0)
 - NetCDF Subset Service (NCSS)
 - Feature Collection Subset Services
 - Point/Station Collections
 - Radar Station Collections

THREDDS Data Server (TDS)

- Data collection services
 - Aggregation
 - Point/station collection
- Metadata services
 - THREDDS
 - ncISO: ISO, UDDC, NcML

Climate & Forecast (CF) Metadata Conventions

- Standard names for data variables
- Coordinate variables and CRS
- Scientific Feature Types
- Climatological statistics
- Calendars (e.g., years made up of 360 days)

Future Work

- Coordinate Reference Systems
 - CF doesn't require some important details (e.g., datums).
 - CF has limited ability to specifying vertical datums
- Calendars: e.g., 360 day year
 - Supported in CF
 - Not currently supported by netCDF-Java/TDS.
However, it will be supported in netCDF-Java/TDS 4.3
 - Not sure about support in OGC services
- Describing climate anomalies
- Describing ensemble model data

Questions?

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- netCDF-Java
 - <http://www.unidata.ucar.edu/software/netcdf-java>
 - netcdf-java@unidata.ucar.edu
- THREDDS Data Server
 - <http://www.unidata.ucar.edu/software/tds>
 - thredds@unidata.ucar.edu