Unified Access Framework

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The Unified Access Framework (UAF)

- A Global Earth Observation Integrated Data Environment (GEO-IDE) project
- Spawned from NOAA’s Data Management and Integration Team (DMIT)
- An attempt to improve scientific data management and access
NOAA has LOTS of data
• Where can I find recent SST data?
• What exactly is in this SST dataset?
• What the $#&@ is grib format?
• Can I explore the data?
• UAF is taking a “modern” approach
• An ‘agile’ approach
• Don’t solve problems, copy success
• Do proven solutions exist?
Projects: (too many to name)

Data formats:

- netCDF
- GRIB
- HDF
- ...

Applications:

- Matlab
- ArcGIS
- Ferret
- GrADS
- Google Earth
- IDV
- LAS
- ERDDAP
- ...

Users: (too many to name)
Projects: (too many to name)

Data formats:
- netCDF
- GRIB
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- ...

Service stack:
- netCDF-CF-DAP-THREDDS-WMS

Applications:
- Matlab
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- ERDDAP
- ...

Users: (too many to name)
Lots of data already being served through this stack

UAF “clean” catalog

5000+ OPeNDAP URL’s (Datasets) available through master catalog
• compliance with CF conventions is inconsistent
• files commonly are not aggregated into logical datasets
• metadata are often in need of enhancement

Perspective – this is not an unusual situation:
• Standards compliance problems are *the norm*
• Divergent dialects often pile up (e.g. GRIB, BUFR)
UAF tools offer a solution …
NCML CAN BE USED TO REPAIR PROBLEMS

Improve CF compliance by adding “standard_name”

```xml
<variable name="vorticity">
  <attribute
    name="standard_name"
    value="atmosphere_absolute_vorticity"
  />
</variable>
```

Improve dataset utility by aggregating where feasible

```xml
<aggregation type="joinExisting" dimName="TimeAxis">
  <netcdf location="year1.nc" ncoords="365"/>
  <netcdf location="year2.nc" ncoords="365"/>
  <netcdf location="year3.nc" ncoords="365"/>
</aggregation>
```
Using *existing* technology:

- Data providers make their data available
- Data centers can harvest discovery metadata
- Users can:
  - Search for data
  - Browse data holdings
  - Explore data
  - Immediately begin to interact with data
Global Earth Observation Integrated Data Environment
Unified Access Framework for Environmental Data

Search
Search metadata content, e.g., title:SST; use + to require keywords, e.g., +water +temperature; use **“** to search for an exact phrase, e.g., “water temperature”

Cornillon Climatology, 0.1 degrees, Global, test

Additional Options
WHEN
- Dates overlap range
- Dates within range
From: [ ] (yyyy-mm-dd)
To: [ ] (yyyy-mm-dd)

WHERE
- Zoom the map to desired area and choose “intersecting” or “fully within”
- You can zoom the map by shift-click-dragging a bounding box
- Anywhere
- Intersecting
- Fully within

Formed Ocean
North Pacific
North Atlantic
South Atlantic
South Pacific
Antarctic

Results 1-25 of 1646 record(s)

Expand results

Zoom To

AVHRR SST is compared with the climatology:

WMS ERDDAP WCS LAS WCT OPeNDAP Zoom To

SST Anomaly, NOAA POES AVHRR, Casey and Cornillon Climatology, 0.1 degrees, Global
NOAA CoastWatch distributes SST anomaly data using a combination of the POES AVHRR Global Area Cover and data from a climatological database by Casey and Cornillon. AVHRR SST is compared with the climatology for the region and time period...

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Create an interoperable system for all NOAA data
Improve NOAA data offerings:
• standards compliant
• complete metadata
• available via data services
Thank you!

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UAF:  http://geo-ide.noaa.gov/