

Access to Marine Data Sets Over the Web

Requirements to Support Research Users

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Outline

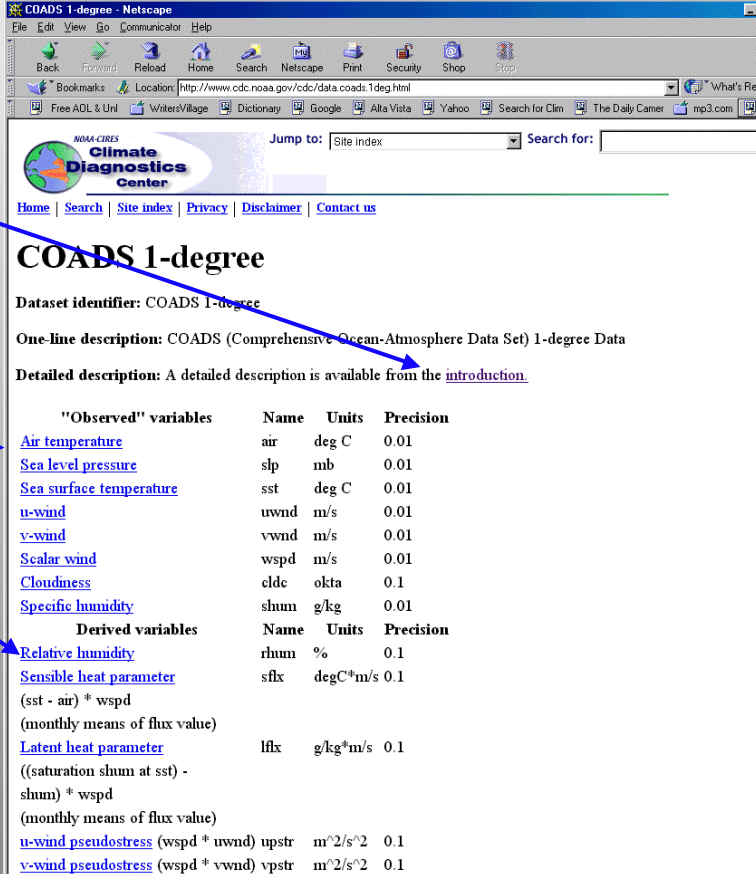
- **Current web interfaces for data access**
 - CDC's Data Pages
 - COADS Live Access Server
- **The big picture**
 - NVOADS
- **Discussion of future directions**
 - Feedback from research users

CDC Data Pages

- **Detailed documentation with live links to basic analysis, plotting and data retrieval**
- **Data set and variable based searching**
- **Analysis (e.g. composites and correlations) for selected data sets**

Detailed Documentation

- Detailed descriptions
- Links to data plotting, analysis and retrieval



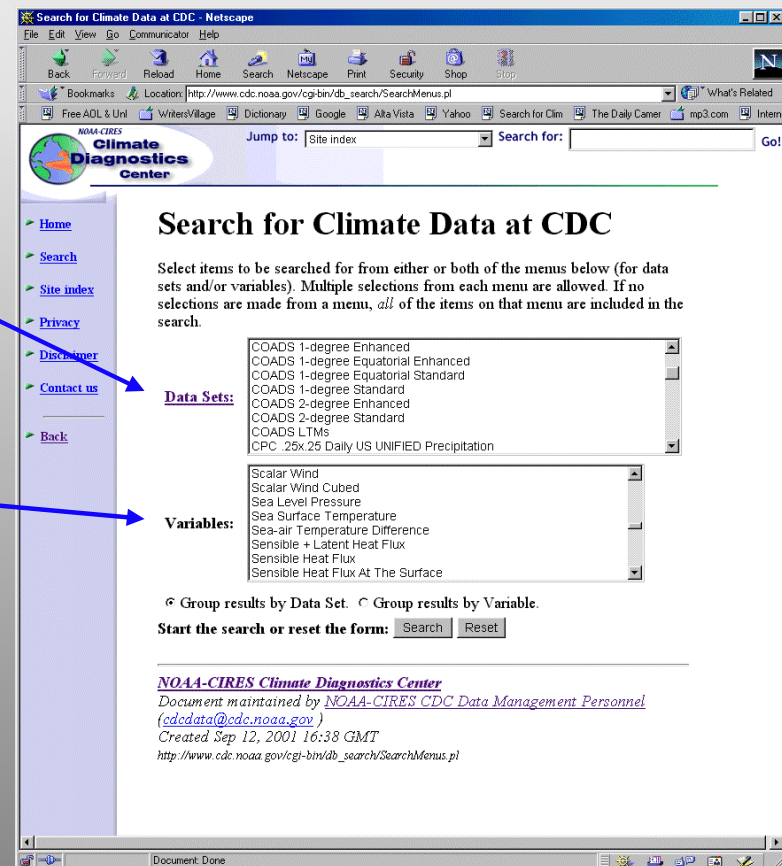
The screenshot shows a Netscape browser window displaying the NOAA-CIRES CDC website. The page title is "COADS 1-degree". The main content includes a "Dataset identifier" section, a "One-line description", and a "Detailed description" section. The "Detailed description" section contains two tables: "Observed" variables and "Derived variables".

"Observed" variables	Name	Units	Precision
Air temperature	air	deg C	0.01
Sea level pressure	slp	mb	0.01
Sea surface temperature	sst	deg C	0.01
u-wind	uwnd	m/s	0.01
v-wind	vwnd	m/s	0.01
Scalar wind	wspd	m/s	0.01
Cloudiness	cldc	okta	0.1
Specific humidity	shum	g/kg	0.01

Derived variables	Name	Units	Precision
Relative humidity	rhum	%	0.1
Sensible heat parameter	sflx	degC*m/s	0.1
(sst - air) * wspd (monthly means of flux value)			
Latent heat parameter	lflx	g/kg*m/s	0.1
((saturation shum at sst) - shum) * wspd (monthly means of flux value)			
u-wind pseudostress (wspd * uwnd) upstr		m ² /s ²	0.1
v-wind pseudostress (wspd * vwnd) vpstr		m ² /s ²	0.1

Search for Data

- Select one or more data sets
- Select one or more variables



Example analysis: Composites

- Select from many data sets including the NCEP Reconstructed SST
- Create monthly mean composites of selected years or a range of years

Center

Monthly Mean Composites

NEW! Back option retains inputs for easier multiple plots

Plot seasonal composites (averages) of the mean or anomalies (mean - total mean) of variables from the NCEP reanalysis and other datasets. Total means are based on **1968-1996**. Data is available from **Jan 1948** for most variables, **Jan 1958** for some others to (Apr 98 for div,vor,chi and psi; Dec 1996 for other sigma level variables)

- [Details](#) on years, variables, levels and plotting options.
- Monthly [atmospheric and ocean indices](#) are a useful reference for analysis.
- Plot [correlations](#) with atmosphere/ocean timeseries instead of composites.

Enjoy!

Mailing List: Email me at cas@cdc.noaa.gov if you would like to be notified of data and feature updates. Please mention NCEP Composite Page

Which variable? Reynolds Reconstructed SST **Analysis level?** 1000mb

Beginning month of season Jan **Ending month** Jan

Enter Years for composites (from 1 to 16) e.g. 1972. For seasons that span a year (e.g. DJF), please enter year of the **LAST** month.

To subtract one set of years from another, use a minus sign (-) before the years that are to be subtracted.

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

OR Enter range of years

to (optional minus to)

The Live Access Server (LAS)

- **Software framework that provides a single entry point to plotting, subset creation (with many output formats) and data comparison**
- **Interface can point to both local and remote data via DODS (a.k.a. OPeNDAP).**
- **Whatever documentation is available from the data provider is linked to the interface**

More Details About LAS

- **Select a view**
- **Compute a difference**
- **Multiple output formats including plots, ASCII files and spreadsheet input.**

COADS LAS at CDC

- **Radio buttons are used to select:**

- **Dataset**
- **Statistic**
- **Variable**

The screenshot shows the 'Comprehensive Ocean-atmosphere Data Set (COADS)' interface. It features three main sections for selection:

- Data Sets:** A list of radio buttons for selecting a dataset. The first option, 'COADS 1-degree Enhanced', is selected. Other options include 'COADS 1-degree Equatorial Enhanced', 'COADS 1-degree Equatorial Standard', 'COADS 1-degree Standard', 'COADS 2-degree Enhanced', 'COADS 2-degree Standard', and 'COADS 2-degree LTMs'.
- Statistics:** A list of radio buttons for selecting a statistical measure. The 'Mean' option is selected. Other options include 'Number of Observations', 'Standard Deviation', 'Fraction of Observations in Daylight', 'Mean Day of Month of Observations', 'Mean Latitude (Off SW Corner of Box) of Observations', 'Mean Longitude (Off SW Corner of Box) of Observations', 'First Sextile', 'Third Sextile (Median)', and 'Fifth Sextile'.
- Observed Variables:** A list of radio buttons for selecting a specific variable. The 'Air Temperature' option is selected. Other options include 'Sea Level Pressure', 'Sea Surface Temperature', and 'u-wind'.

Demonstration of COADS LAS

- [The COADS LAS Server.](#)
- **Create a plot.**
 - XY
 - XY comparison plot
 - Time series
 - Hovmuller
- **Download XYT-slice into a spreadsheet.**

NVODS Vision

- **An end-to-end ocean observing system.**
- **For science users:**
 - **Catalog-level search (topic, keywords, region).**
 - **Evaluate in your browser.**
 - **Use it immediately in your preferred application.**

NVODS Vision

- **For value-added product producers:**
 - **Reliable data access directly from software**
- **For suppliers:**
 - **Minimal effort to contribute data to the system**

NVODS Partners

- **Federal, state, academic, commercial, and non-profit institutions involved in NVODS project or technical development**

NVODS Partners

- Climate Diagnostics Laboratory, NOAA
- Coastal Services Center, NOAA
- COLA
- BMRC, Australia
- DMEFS
- DODS
- ESRI (GIS)
- GCMD, NASA
- George Mason University
- Goddard DAAC, NASA
- IPSL (France)
- JPL, NASA
- LabNet
- Lamont Doherty (Columbia U.)
- Maine, State of
- MIT
- NCAR/HAO (*not ocean data)
- NGDC, NOAA
- NRL & GODAE , Navy
- OPeNDAP
- Oregon State University
- PMEL, NOAA
- SAIC
- Texas A&M University
- UNIDATA
- USGS Coastal and Marine Programs

NVODS Components

Existing technology for Data Access

- DODS -- the foundation
- Live access server (LAS) -- web-based browse
- Searching partnerships -- GCMD, THREDDS
- **“Enabling technologies” for metadata**
 - Allow users and third parties to improve metadata
 - Ancillary information service (AIS)
 - Stitch multiple files into single data sets
 - Aggregation servers (AS)

DODS

- **Distributed Oceanographic Data System**
- **Server software and client API libraries that allow programs to read data via standard interfaces across the network.**
- <http://www.unidata.ucar.edu/packages/dods/index.html>

NVODS Demonstration

- Top map show traffic between LAS server and DODS data servers.
- Bottom map show Web traffic between LAS user interface and scientists browser.



NVODS Demonstration

- **NVODS LAS Site**
- **Begin search at GCMD DODS Portal**
 - **<http://ferret.wrc.noaa.gov/nopp/>**
 - **Plot FSU pseudo stress climatology.**
 - **Plot of COADS 2-degree pseudo stress.**
 - **Plot difference.**

Data Service Evolution

- **Local data descriptions and services.**
- **Live Access Server as local service.**
- **Distributed and cooperative efforts using search systems and Live Access Server.**

Final Thoughts

- **Provide feedback to each of these efforts so the evolution occurs in the light.**
- **Consider participating by sharing data when appropriate.**