

Tools and strategies for your satellite data project

NOAA Coastwatch Satellite Course



Accessing satellite data can be challenging

A short list of data servers

NASA Jet Propulsion Laboratory PO.DAAC

NASA Ocean Biology (OB.DAAC)

NASA Goddard Space Flight Center

NOAA Center for Satellite Applications and
Res.

NOAA CoastWatch Central Operations

NOAA Office of Satellite and Products

NOAA National Centers for Environmental
Info.

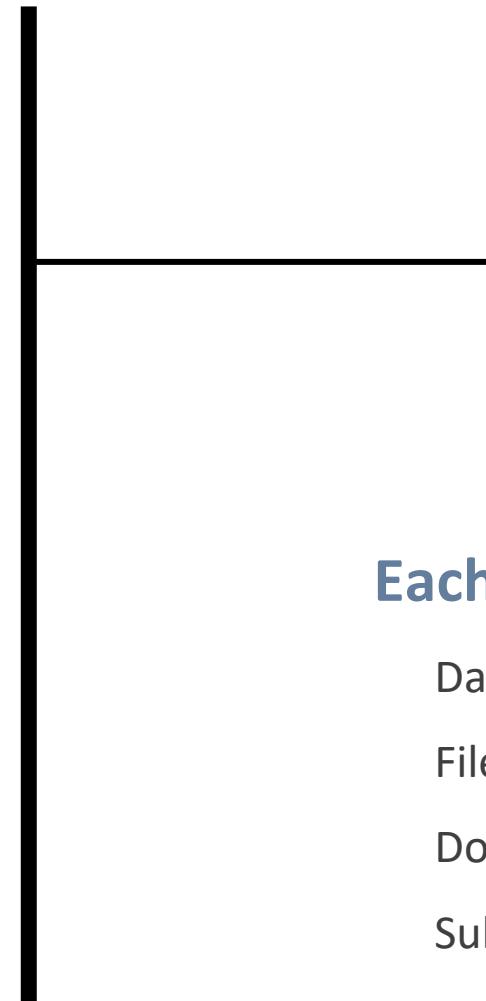
NOAA Comprehensive Large Array-data
Stewardship System

European Space Agency

Japan Aerospace Exploration Agency



CoastWatch West Coast Node



Each with its own

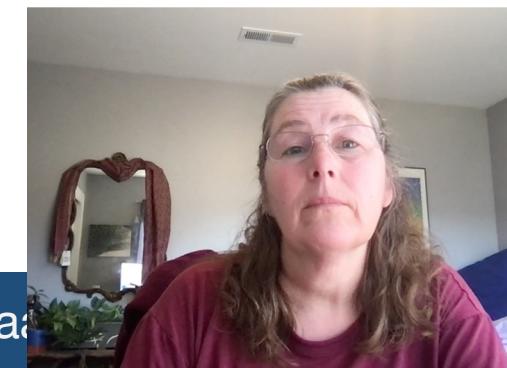
Data products

File formats

Download protocols

Subsetting abilities

Previewing abilities



<http://coastwatch.pfeg.noaa.gov>

Getting data should not be difficult

THE TOPICS TO COVER IN THIS PRESENTATION

Data viewers and file formats

Introduction to tools for the course



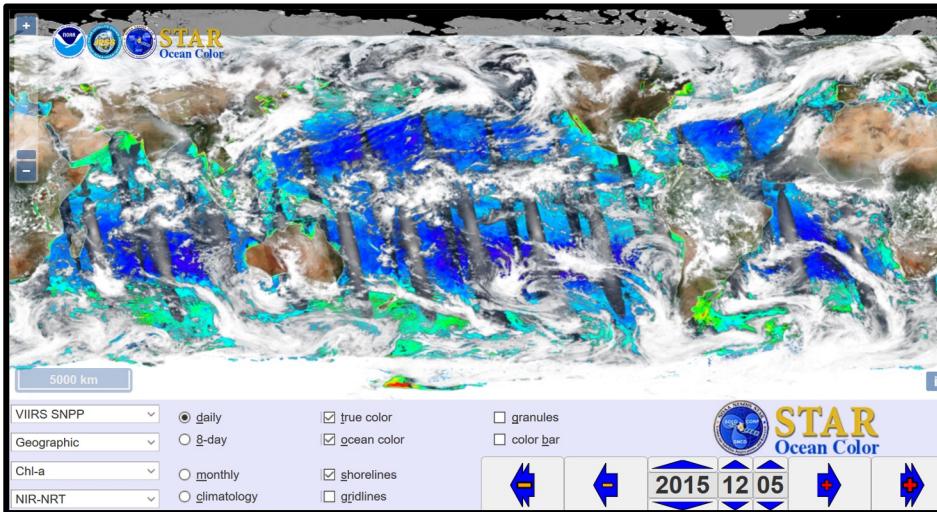
Advanced tools

Class participation – Using the ERDDAP data server



Data Viewers are a good place to start for exploring data

OCView



CoastWatch Data Viewer

coastwatch.noaa.gov/cw_html/cwViewer.html

OCView (NOAA/NESDIS STAR)

star.nesdis.noaa.gov/sod/mecb/color/ocview/ocview.html

State of the Ocean - SOTO (NASA PO.DAAC)

podaac-tools.jpl.nasa.gov/soto/

Worldview (NASA EOSDIS)

worldview.earthdata.nasa.gov/

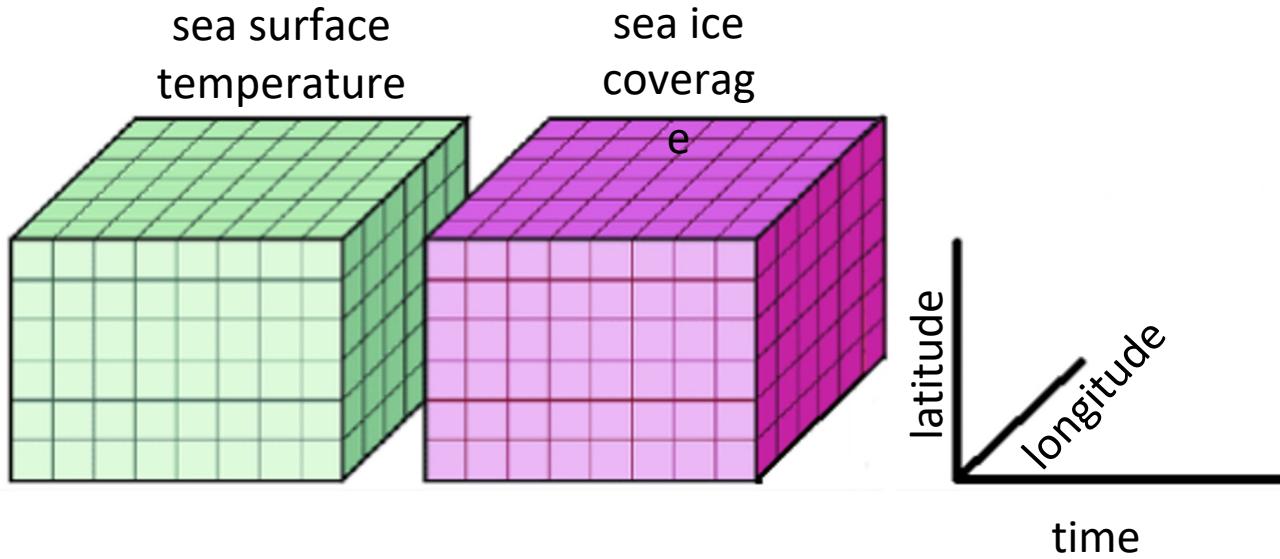
OceanViewer (CoastWatch Caribbean/GOM)

cwcgom.aoml.noaa.gov/cgom/OceanViewer.html



NetCDF¹ file format: Most satellite data are distributed in NetCDF

WHY?



Self-Describing

Contains the information and metadata that you need to use the data

Portable

Can be used by all computer platforms
(Mac, OC, Linux)

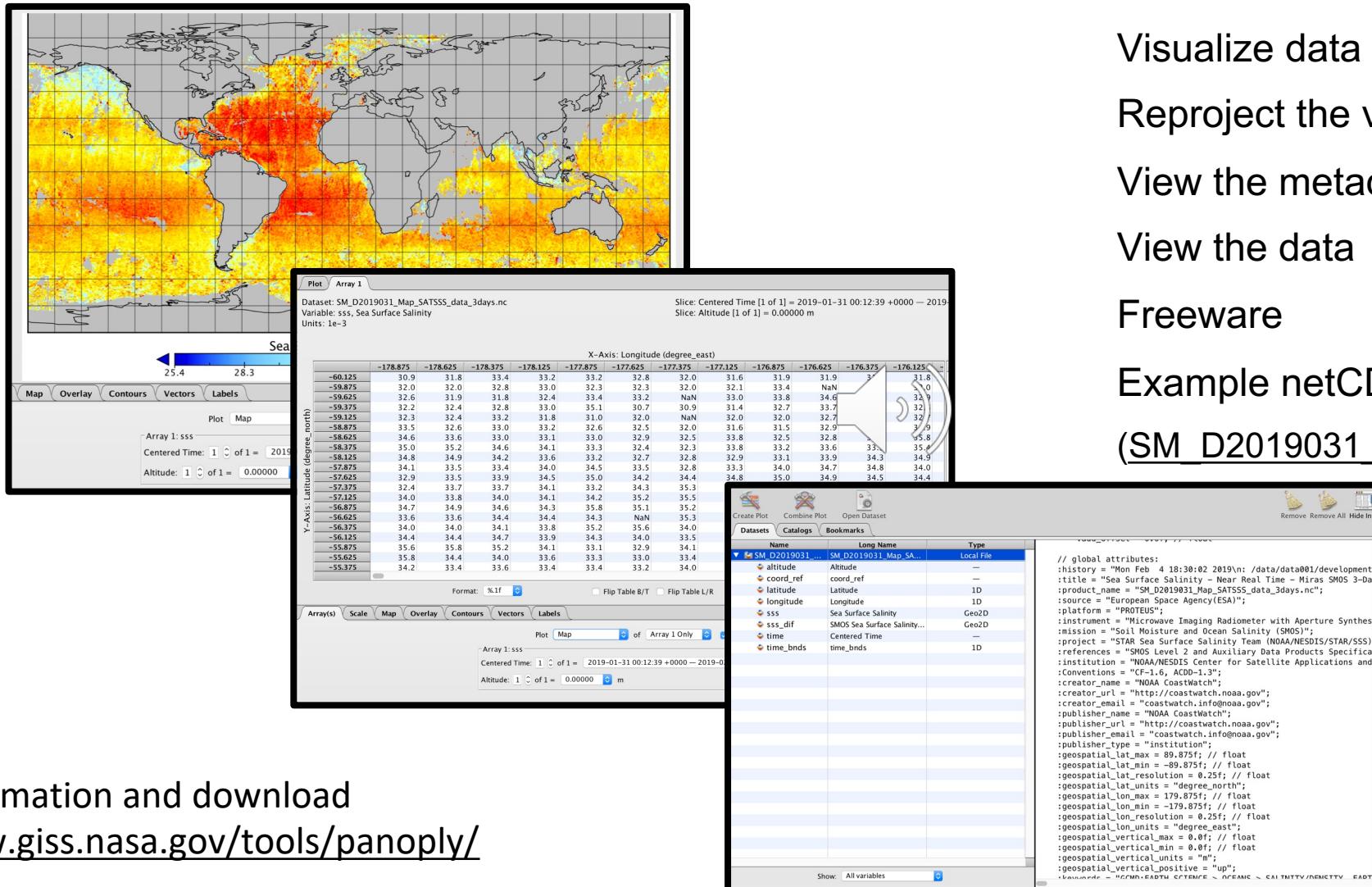
Compact

Binary data and com

¹Network Common Data Format



Software for visualizing NetCDF files – NASA Panoply

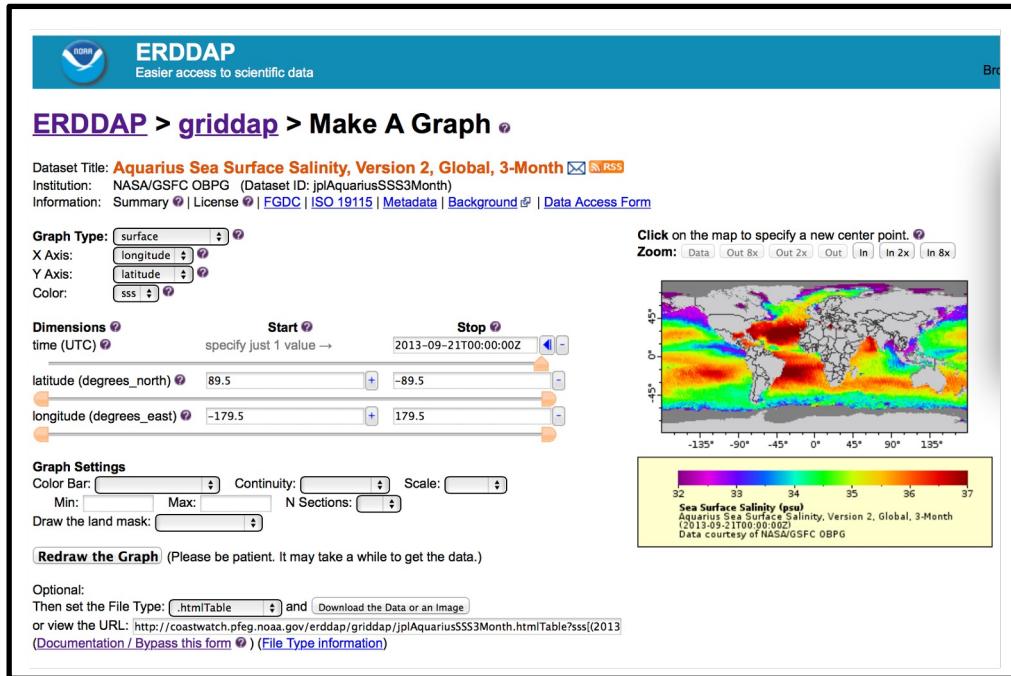


Information and download
www.giss.nasa.gov/tools/panoply/

- Visualize data from netCDF and HDF files
- Reproject the visualization
- View the metadata
- View the data
- Freeware
- Example netCDF salinity file
(SM_D2019031_Map_SATSSS_data_3days.nc)



The ERDDAP data server simplifies data access



WC Node's ERDDAP server gives you:

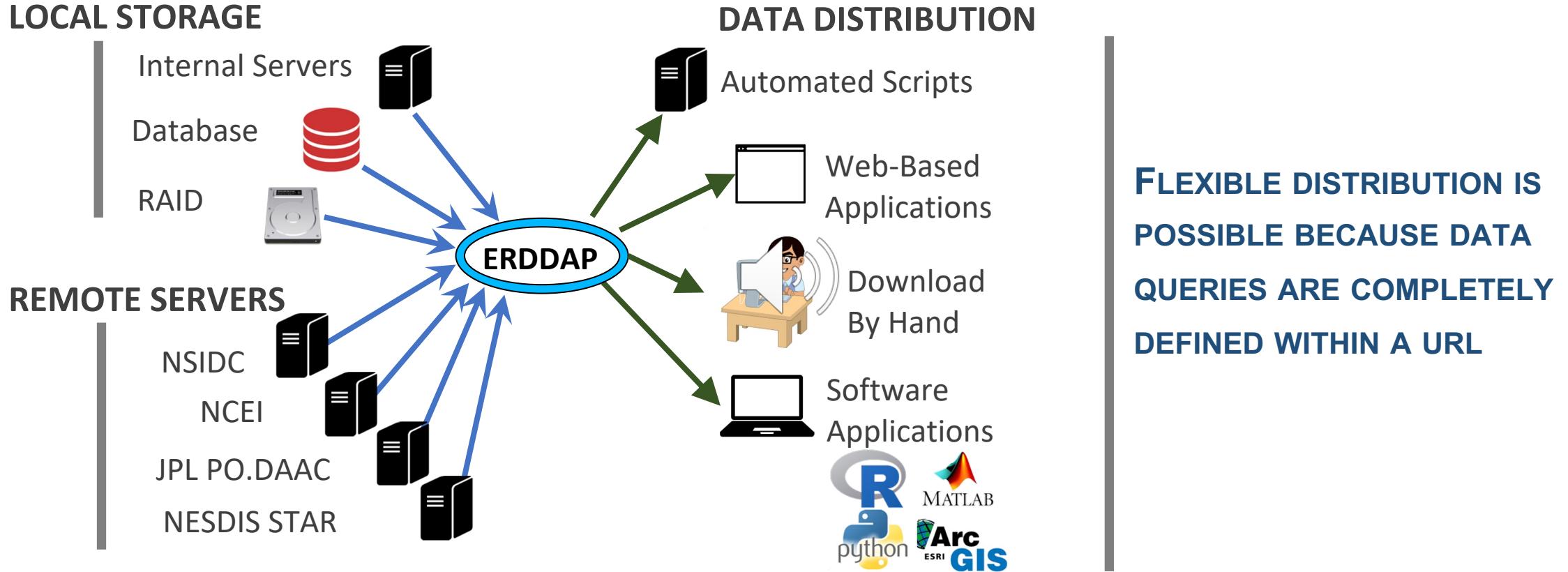
A simple, consistent way to download data

- For the area and time period of interest
- In the format that works with your analysis tools

ERDDAP works for humans and machines

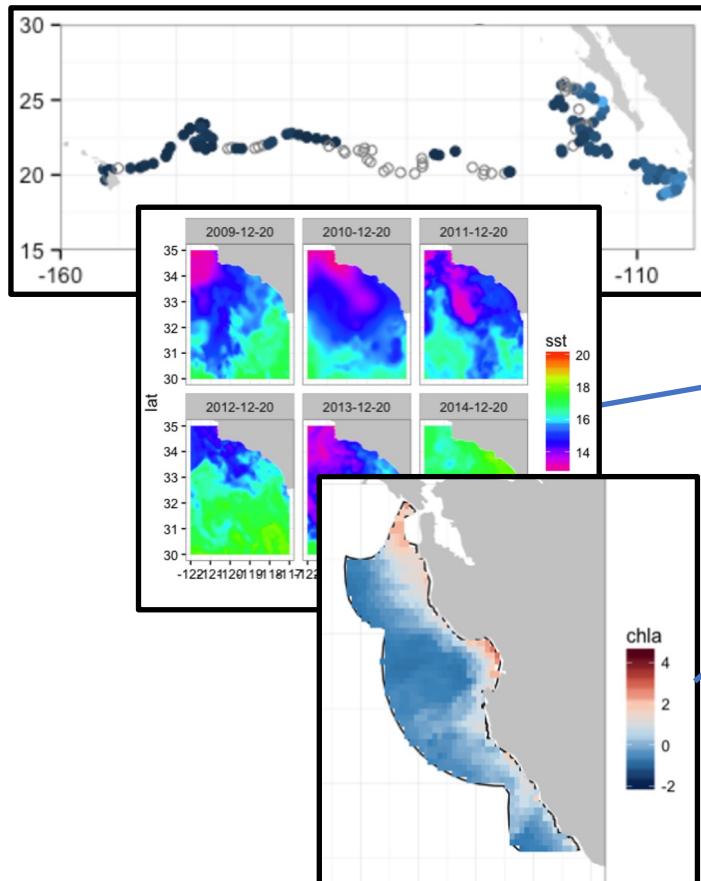


ERDDAP allows one-stop data shopping



Xtractomatic R scripts talk to ERDDAP for you

CREATE AND EXECUTE ERDDAP DATA REQUESTS - DO COMMON TASKS



Premade scripts that perform common functions

Extract data around ship stations or animal tracks

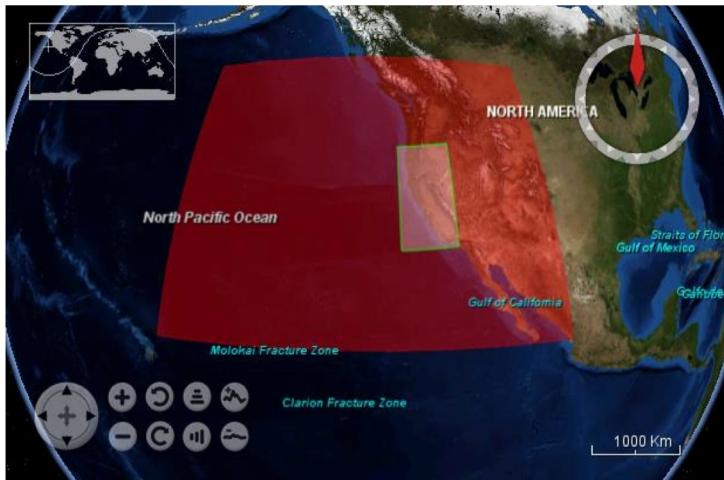


Extract data for rectangular area over time

Extract data for any area (polygon) over time



Environmental Data Connector: a plug-in for ArcGIS users



Free graphical interface for browsing, sub-setting, and downloading data from OPeNDAP, SOS, THREDDS, and ERDDAP

User guide and download

 coastwatch.pfeg.noaa.gov/EDC/index.html

Tutorial

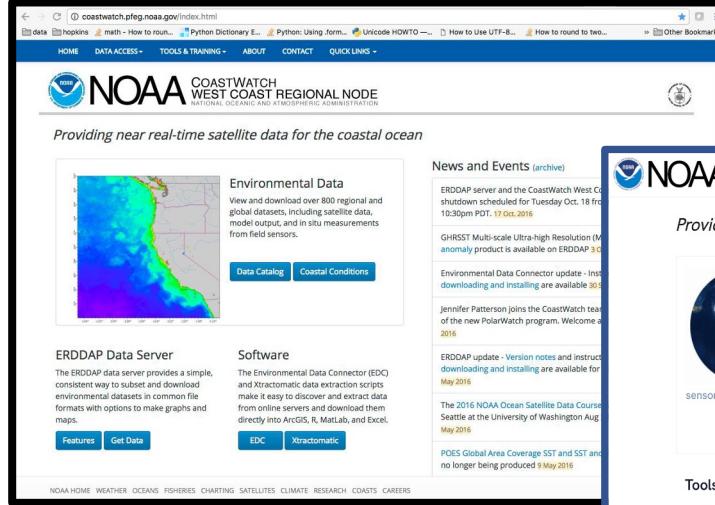
www.youtube.com/watch?v=czr6M0877gE



Visit the CoastWatch Websites

FOR DATA, INFORMATION, TUTORIALS, SOFTWARE, AND MORE

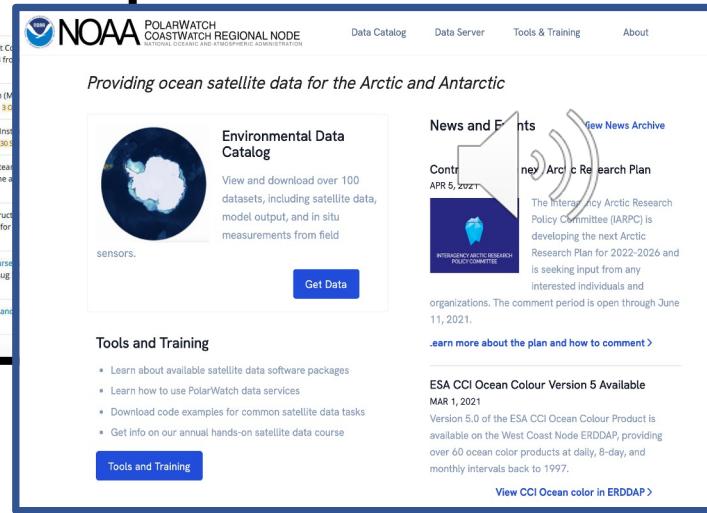
West Coast Node



The screenshot shows the homepage of the NOAA CoastWatch West Coast Regional Node. It features a map of the West Coast of North America with satellite imagery. Below the map are sections for "Environmental Data", "ERDDAP Data Server", and "Software". A "Data Catalog" button is prominently displayed.

coastwatch.pfeg.noaa.gov

PolarWatch



The screenshot shows the homepage of the NOAA PolarWatch website. It features a large image of the Arctic and Antarctic regions. Below the image are sections for "Environmental Data Catalog", "Tools and Training", and "News and Events". A "Get Data" button is located at the bottom right.

polarwatch.noaa.gov

Any CoastWatch Node

Central Pacific

oceancatch.pifsc.noaa.gov

Caribbean

cwcaribbean.aoml.noaa.gov

East Coast

eastcoast.coastwatch.noaa.gov

Great Lakes

coastwatch.glerl.noaa.gov

CoastWatch Central

coastwatch.noaa.gov

