The CoastWatch Utilities 2024 Update

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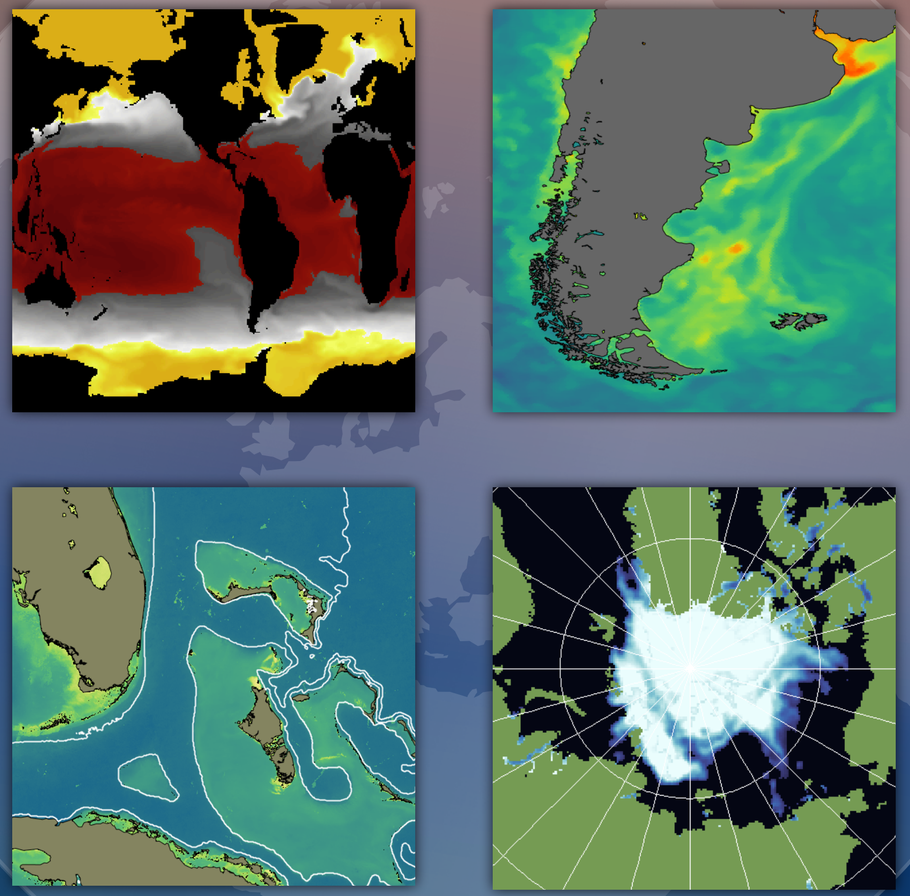
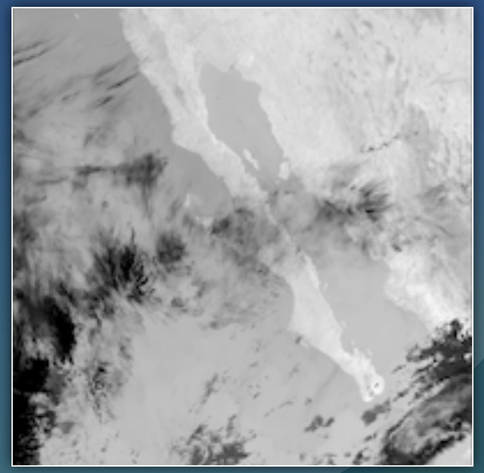
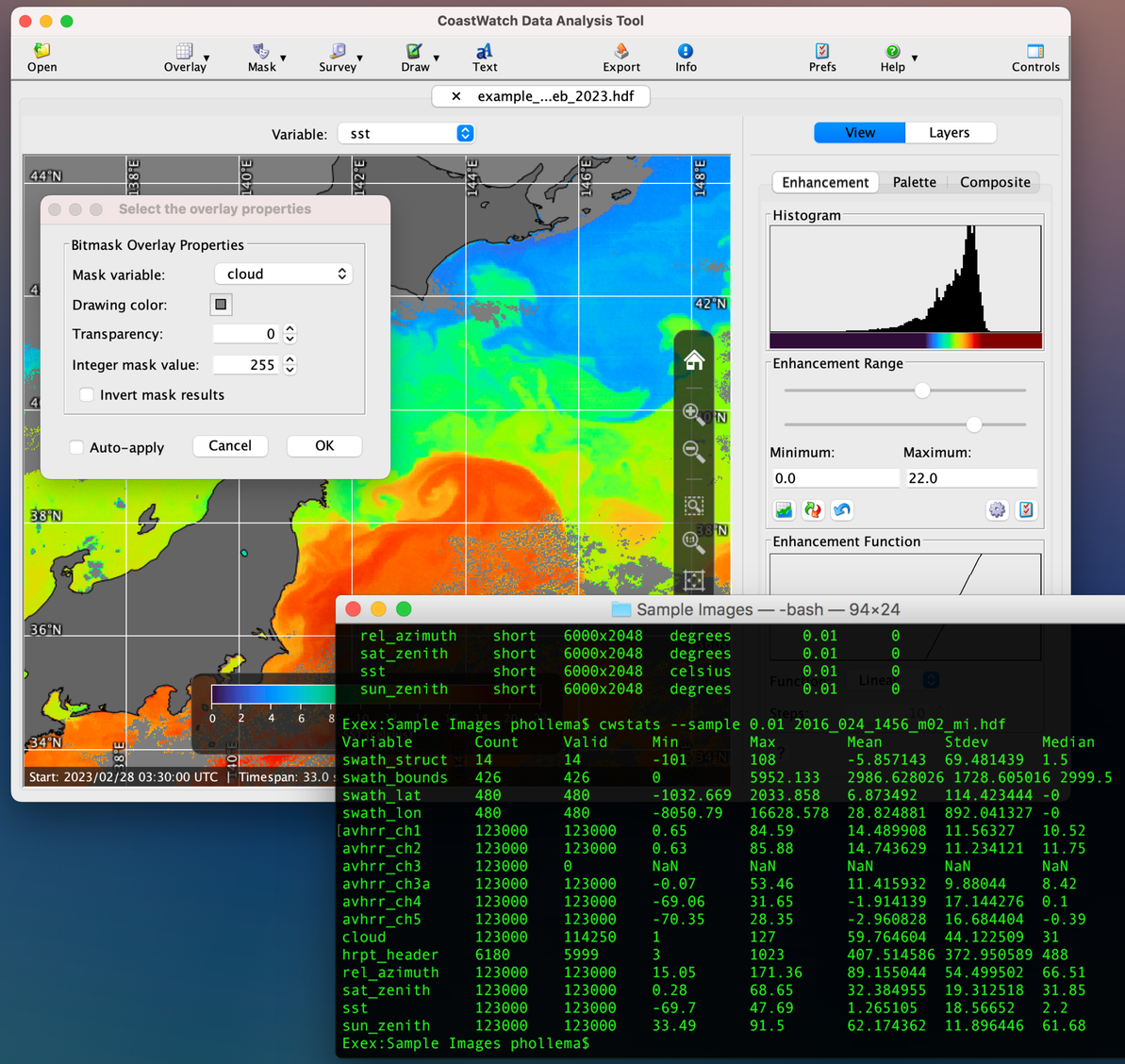


CoastWatch Annual Meeting
College Park, MD, May 2024

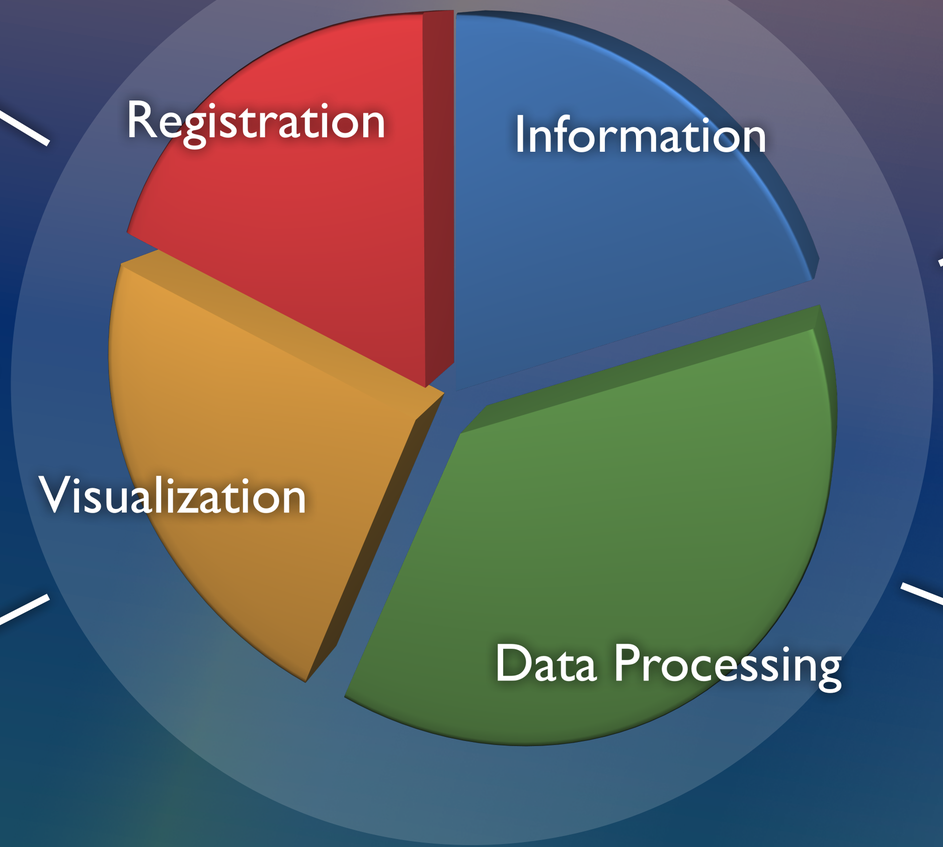
The CoastWatch Utilities are designed to process and transform satellite data in useful ways for data producers and users.





The software is actively used by a number of groups and forms an essential part of data processing systems.

Functionality



NOAA Users

Commercial Data Users

CDAT Users

CoastWatch Nodes

CoastWatch Central Operations

ACSPO Regional Monitor for SST

New versions are created twice a year and distributed from the CoastWatch central operations website.

~6-12 month release
as needed

Windows

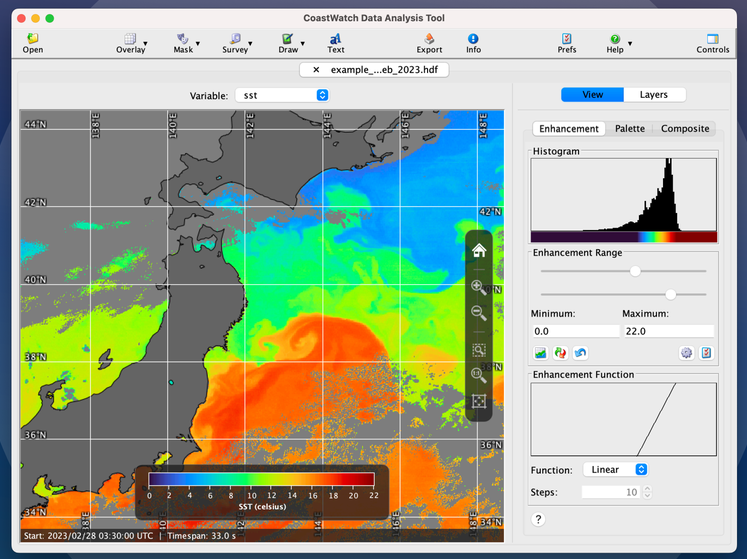
Mac

Linux

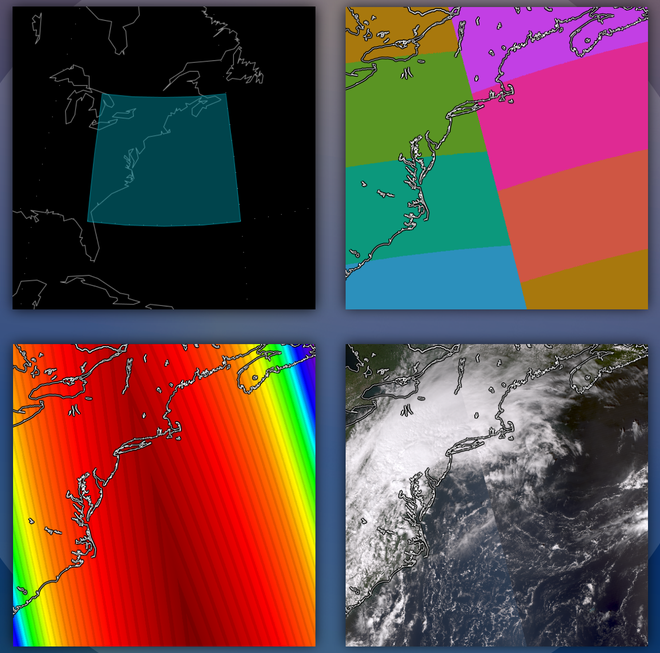
Installable packages: coastwatch.noaa.gov (look in Data Tools)
Open source: github.com/phollemans/cwutils

The latest release includes major improvements.

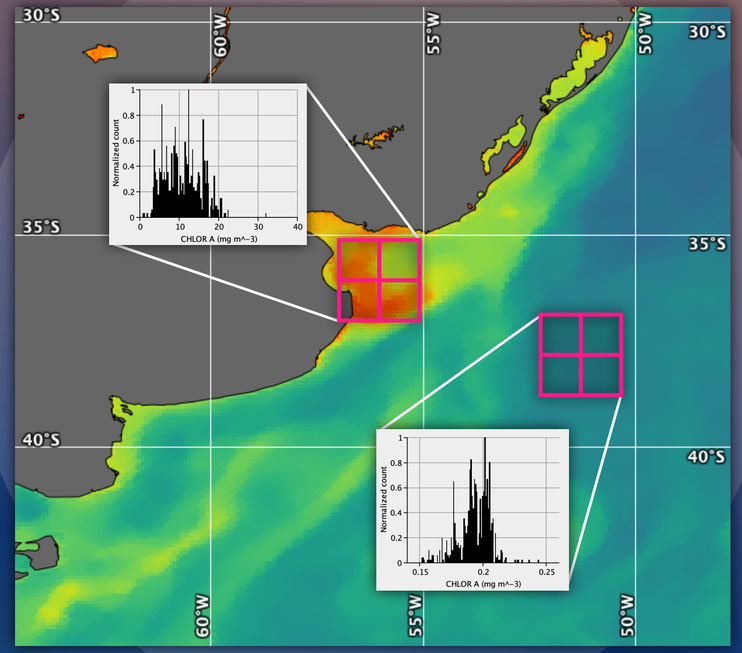
Release 4.0.0 — May 2024



Overhaul of the CDAT user interface to improve usability



Faster / more accurate temporal compositing



New sampling options to compute window statistics

Also: New GeoTIFF output options, Windows PATH setting, optimized multithreading

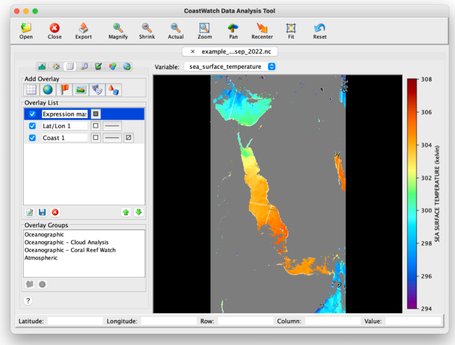
The CoastWatch Utilities online course is now accessible from CDAT and the CoastWatch Learning Portal.

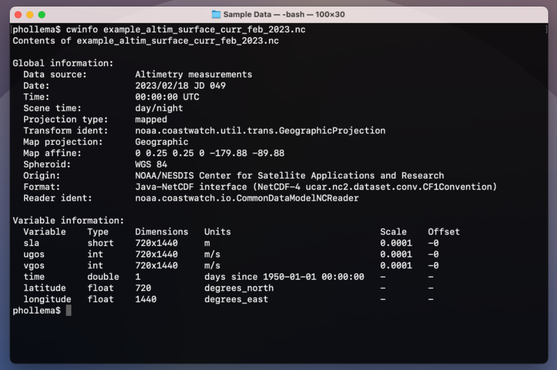
Data Overlays

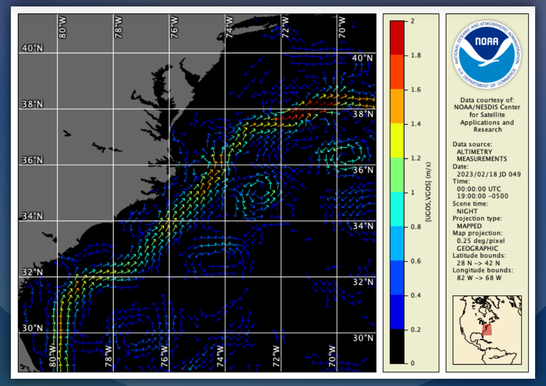
CDAT shows graphics in the data view using overlays, which are layered on top of the data image. To show a latitude/longitude grid, coastlines, and to mask low quality SST data, click the **Overlay Layers** control tab, then:

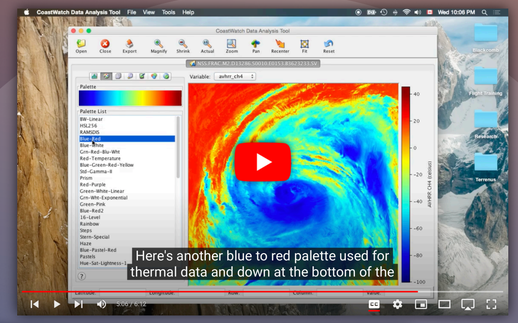
1. Click the **Coast** button to add a coastline.
2. Click the **Grid** button, and then **Lat/Lon** for a latitude/longitude grid.
3. Click the **Mask** button, and then **Expression mask**. An overlay properties window will appear — type **quality_level < 5** in the mask expression text field, then click **OK**.

Your CDAT window will look similar to the following:









Question 3 1 pts

The **cwmaster** tool can read and write map projection master templates for:

- Polar Stereographic
- Albers Equal Area
- Mercator
- Icosahedral

Bonus exercises:

- Customize the SST processing script to produce a different output file format with your own preferred set of geographic overlays. The **cwrender** manual page will be useful.
- Use **cwmaster** to create your own master projection template and use that in the script instead of the one provided.
- Use your own ESRI shapefile data for the aquaculture enclosure polygons. You could create a custom shapefile visually using the UCLA click2shp web tool.
- Watch a YouTube video showing the use of a script that composites and renders a year of chlorophyll data.

Step by step use of CDAT with screen captures

Example command line calls and output

Assignments, quizzes, bonus exercises, and videos

The online course was presented at three events during 2023 and received favourable feedback.

Course introduction (7 mins): https://youtu.be/RJ8wqwYf8RU

- Third International Operational Satellite Oceanography Symposium (OSOS), June 2023, Busan, South Korea
- Operational Satellite Oceanography Workshop (OSOW), November 2023 (Online)
- 20th Korea-Japan/11th Asia Ocean Color Workshop, December 2023, Nagoya University, Japan