

# CoastWatch Data Portal

## **Availability**

Information/Data/Products

## **Architecture**

Front and Back-end

## **Features**

Examples by scenarios

**NOAA Satellites  
CoastWatch (STAR)**

Last updated:  
September 26, 2024

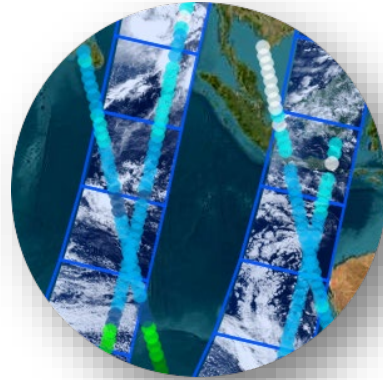
Michael Soracco, RIVA Solutions Inc. for NOAA  
Veronica Lance, NOAA/NESDIS/STAR, NOAA CoastWatch Program Manager

# Multiple Missions



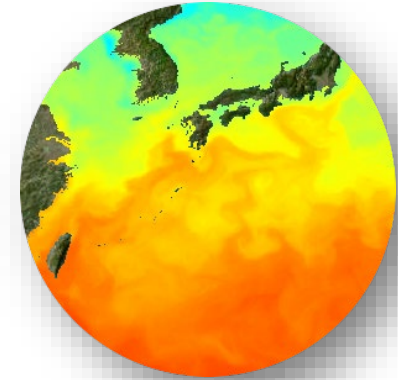
## Imagery:

- S-NPP, NOAA-20/-21 VIIRS
- Sentinel-3A/B OLCI
- GCOM-C1 SGLI
- GOES-16/18 ABI



## Overlays:

- S-NPP, NOAA-20/21 VIIRS
- Sentinel-1A/B
- Sentinel-2A/B
- Sentinel-3A/B  
OLCI/SLSTR/SRAL
- Sentinel-6 Altimeter
- Jason-3 Altimeter
- SARAL Altimeter
- CryoSat2 Altimeter

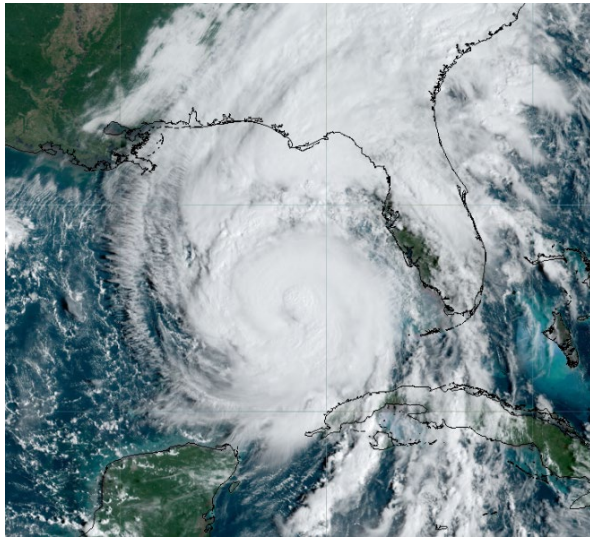


## Data Products:

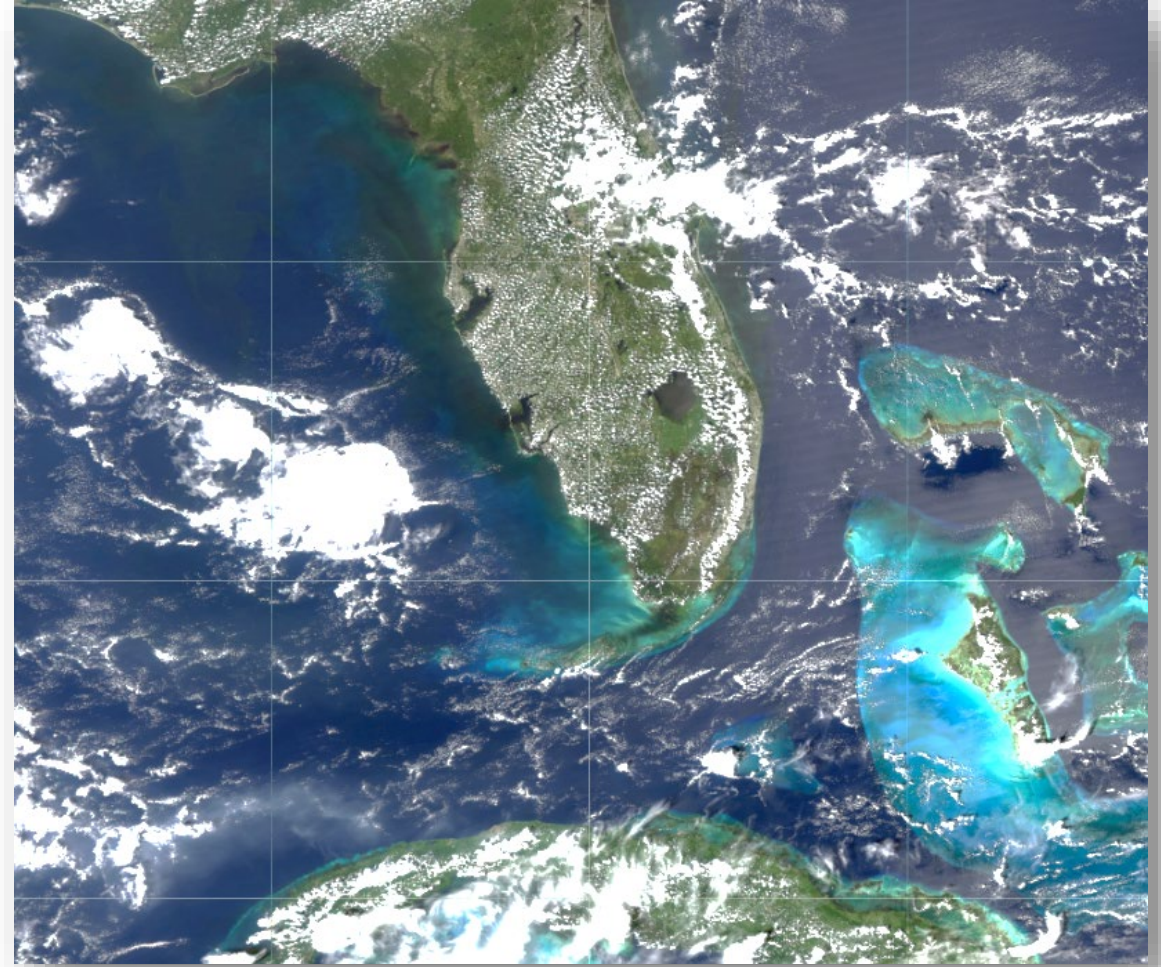
- S-NPP, NOAA-20/-21 VIIRS
- MetOp-A/B/C  
AVHRR/ASCAT
- Sentinel-1A/B
- Sentinel-2A/B
- Sentinel-3A/B  
OLCI/SLSTR/SRAL
- SMOS MIRAS
- SMAP
- SCATSAT OSCAT-2
- ....more...

# What imagery products are available?

- True Color / Geo Color / False Color
- Polar and Geostationary
- Day-Night-Band



GOES-16 ABI GeoColor Imagery from 26 SEP 2024 (1400Z); Imagery processed by NOAA STAR

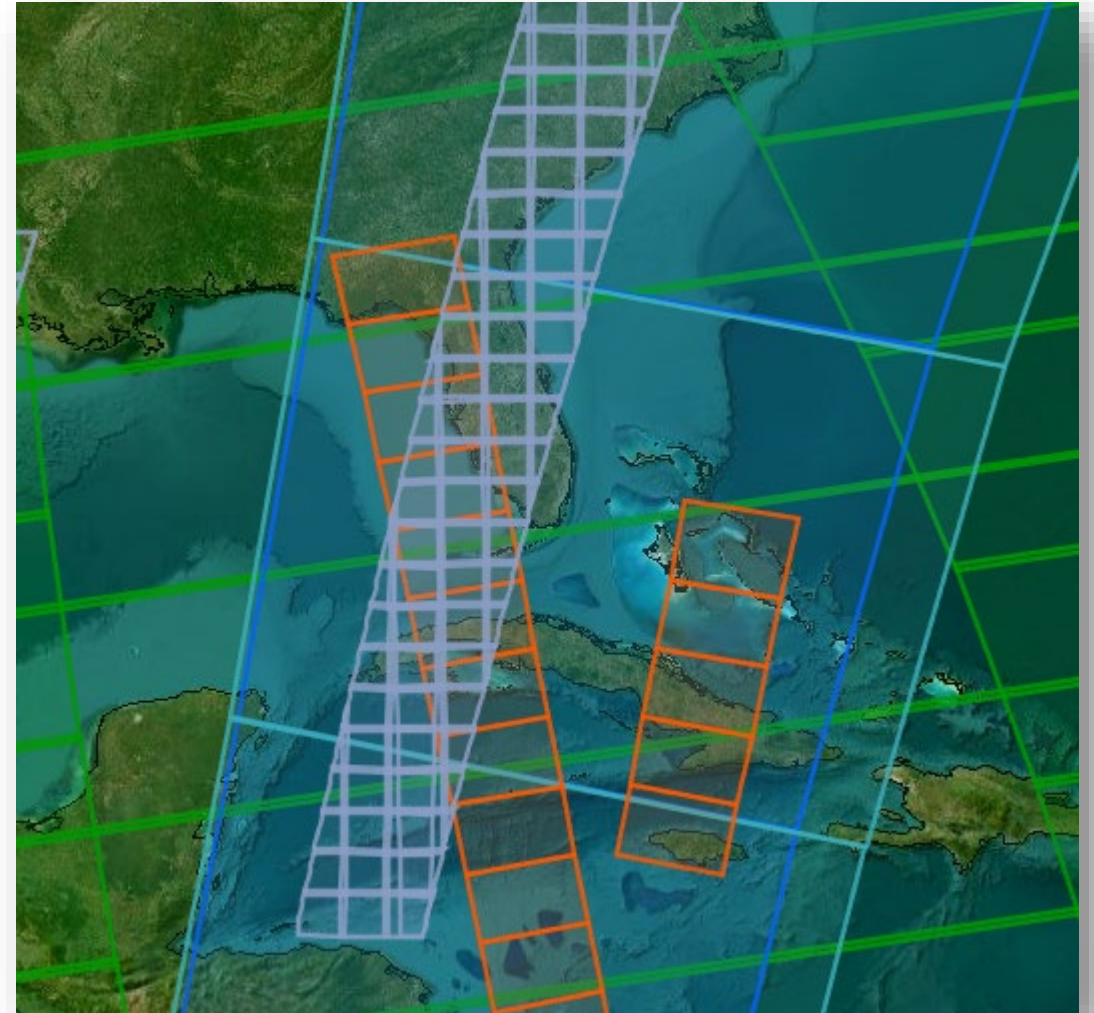


NOAA-20 VIIRS True Color Imagery from 22 SEP 2024; Imagery processed by NOAA STAR MECB Ocean Color Science Team



# What information are available?

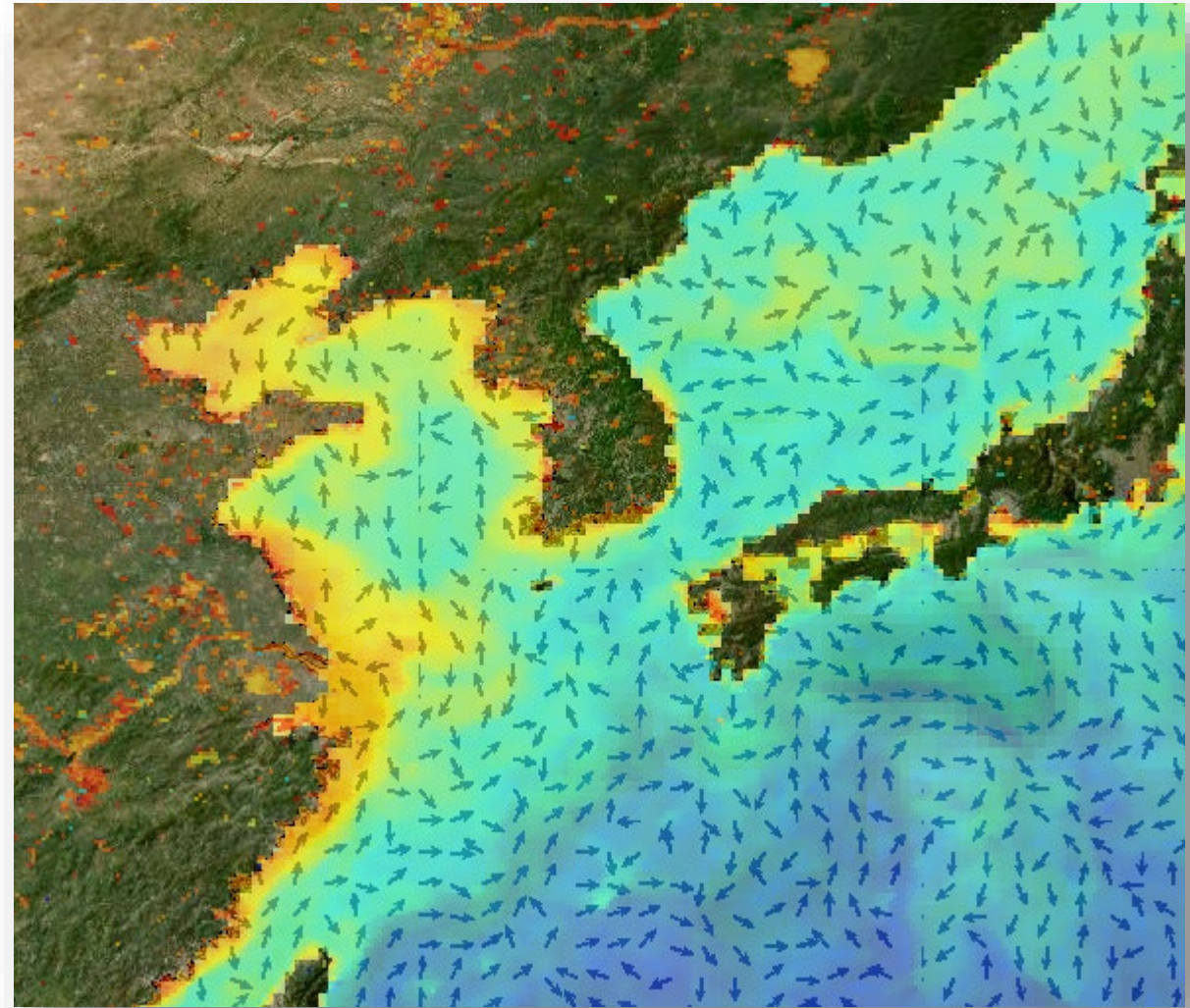
- Data granule overlays (daily KML)
  - Image Preview
  - Links:
    - Data (Level-2 / Swath / Unmapped)
      - Passthrough or
      - NOAA Processed
    - Metadata
    - TDS Service
- Reference overlays
  - Coastline, Geo-political
  - Sun-Moon ground tracks
  - Graticules
  - ... and more ...



Simultaneous display of orbital paths and data capture from S-NPP VIIRS, Sentinel-3A OLCI, Sentinel-3A SLSTR, Sentinel-1A SAR, and Sentinel-2B MSI data granules for 23 MAY 2023

# What data products are available?

- Ocean Parameters
  - Temperature
  - Chlorophyll / Kd490 / KdPAR / nLw
  - Wind
  - Sea Level Anomaly
  - Ocean Eddies
  - Geostrophic Currents
  - Synthetic Aperture Radar NRCS
  - Ocean Heat Content
  - SeaScapes



Multiple data layers (sea level anomaly, geostrophic currents, and chlorophyll) from 31 May 2023 as displayed in the map viewer.



# Quick access to data

23 May 2023


## Data 'previews' and links to data files

**SAR**




2023-05-23T23:37:17Z

**OLCI**



2023-05-23T15:22:10Z

**VIIRS**

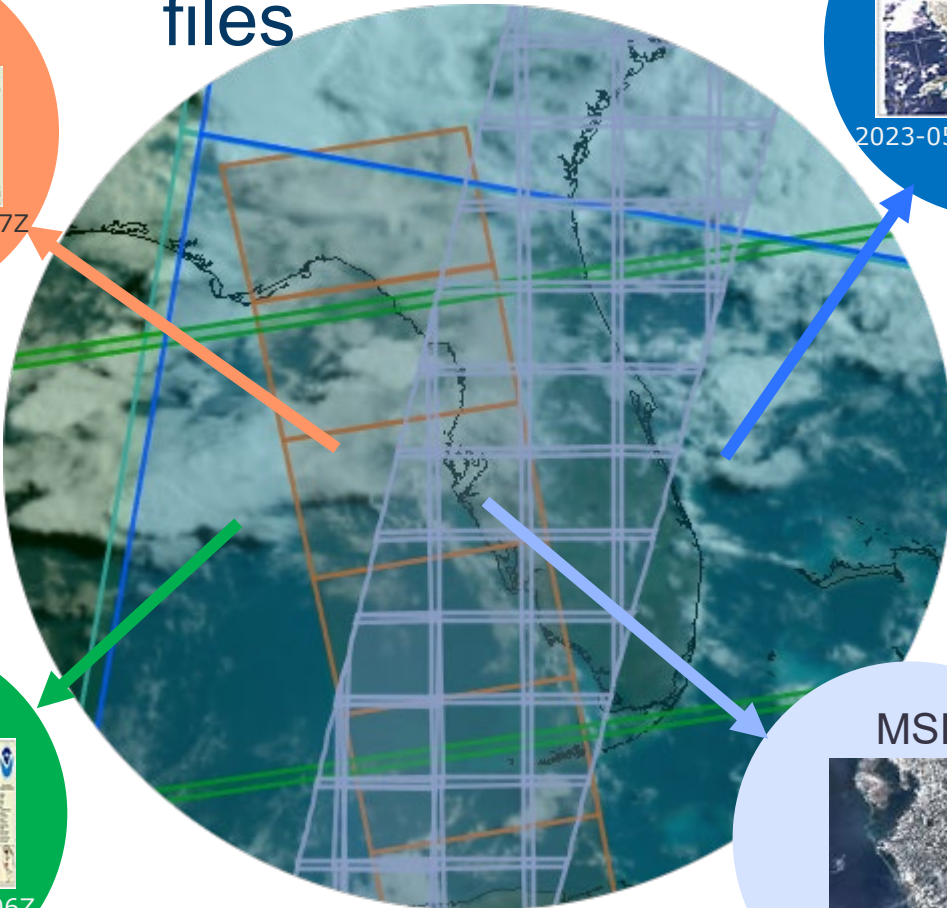


2023-05-23T18:37:06Z

**MSI**



2023-05-23T15:58:29Z



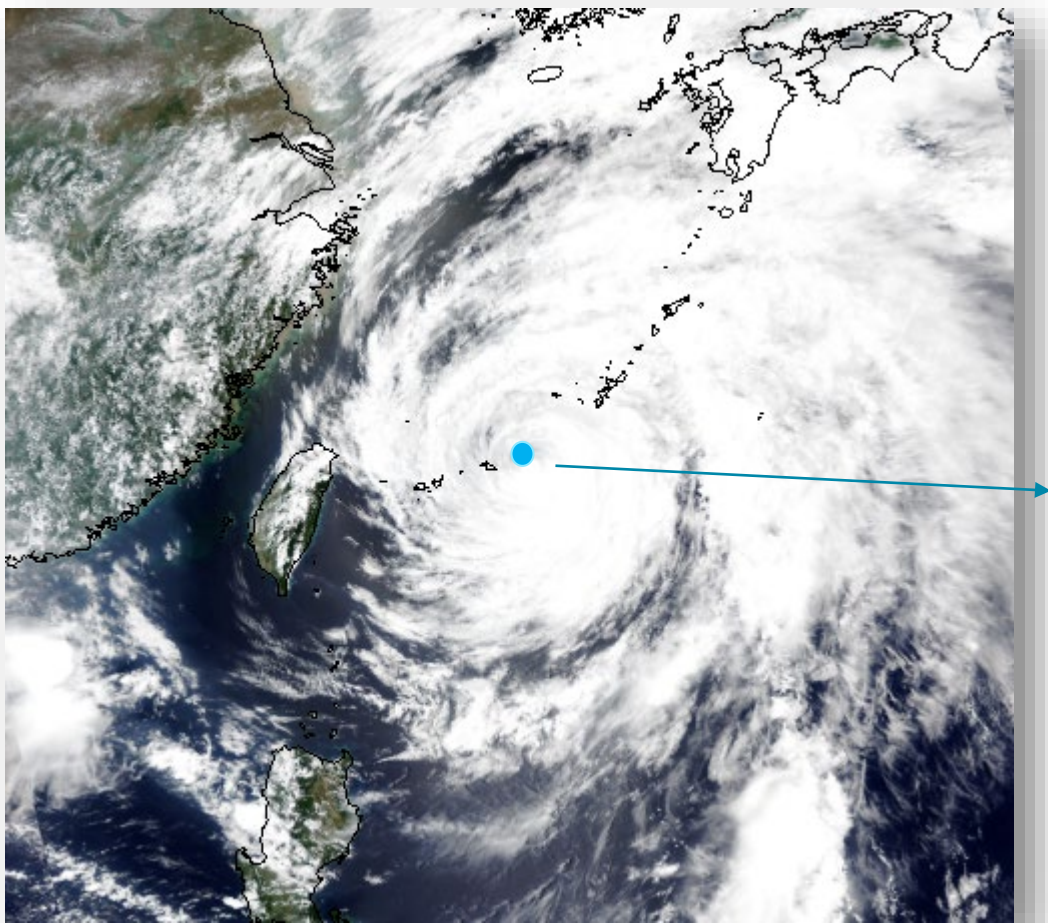
2023-05-23T12:00:00Z

GOES GeoColor images available in 10min intervals



# Quick access to information

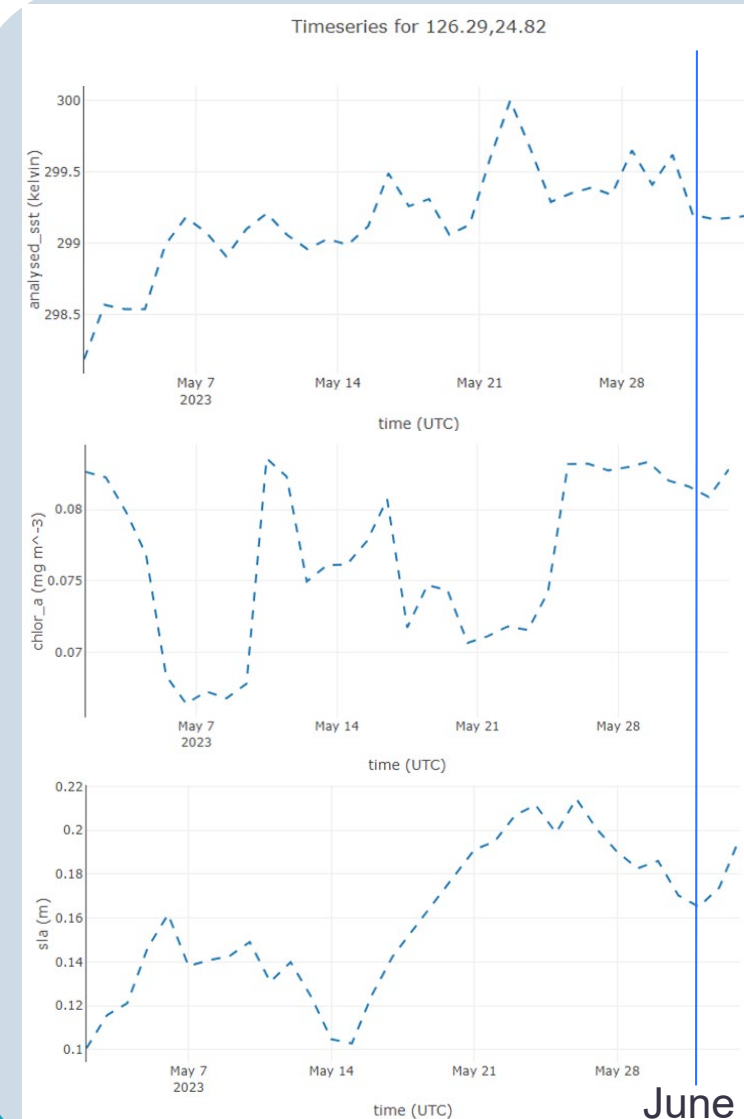
## Extract data from multiple parameters



Temperature

Chlorophyll

Sea Level Anomaly

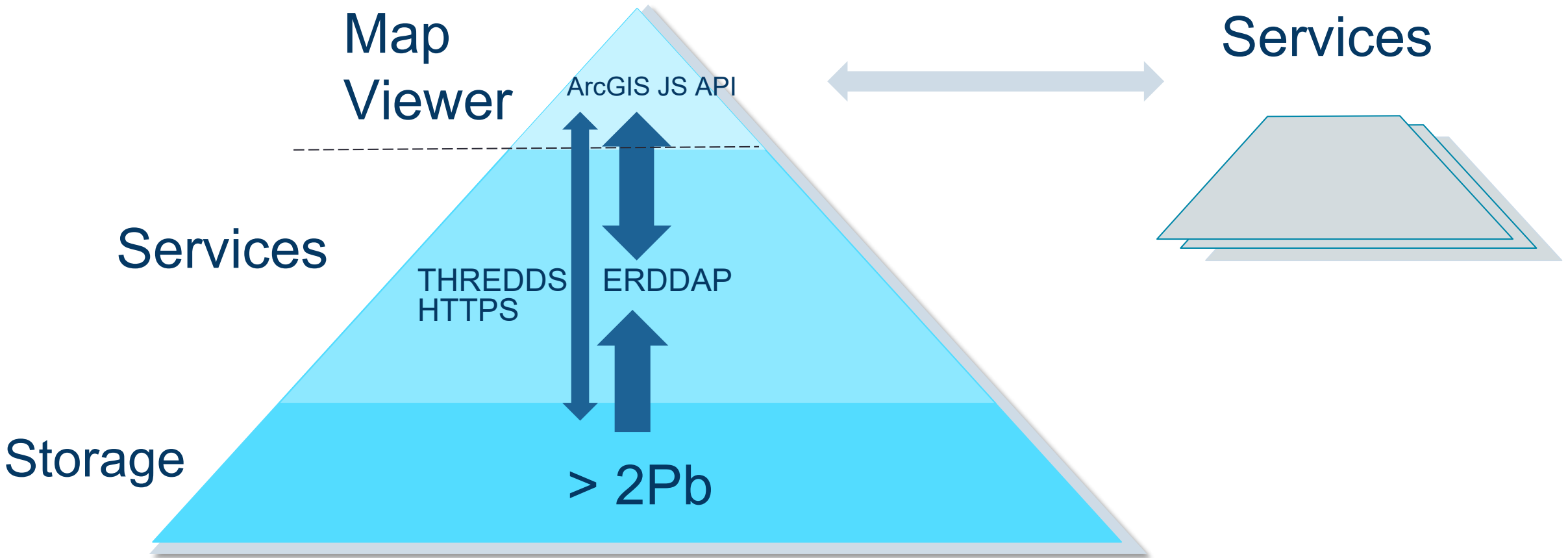


Typhoon MAWAR (01 June 2023), S-NPP VIIRS Imagery

# How is this built?

## Architecture

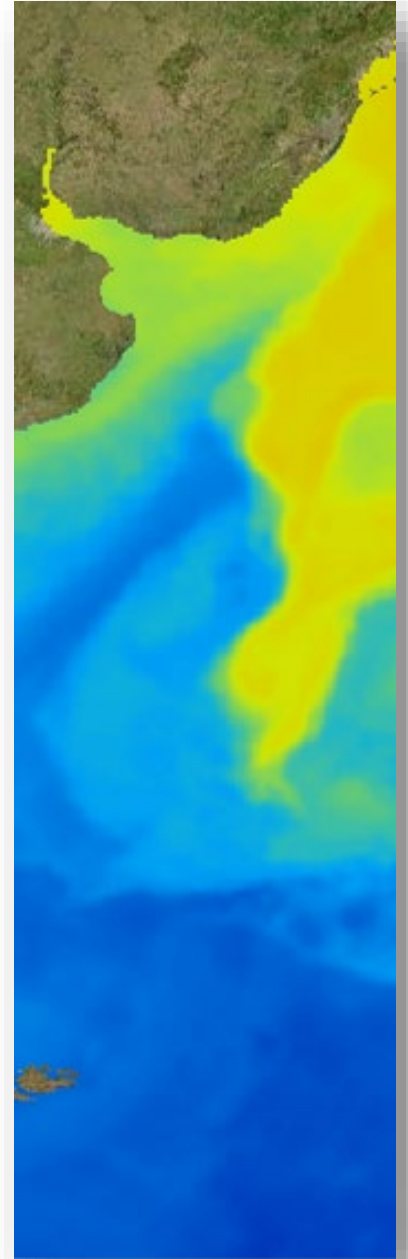
## External Services





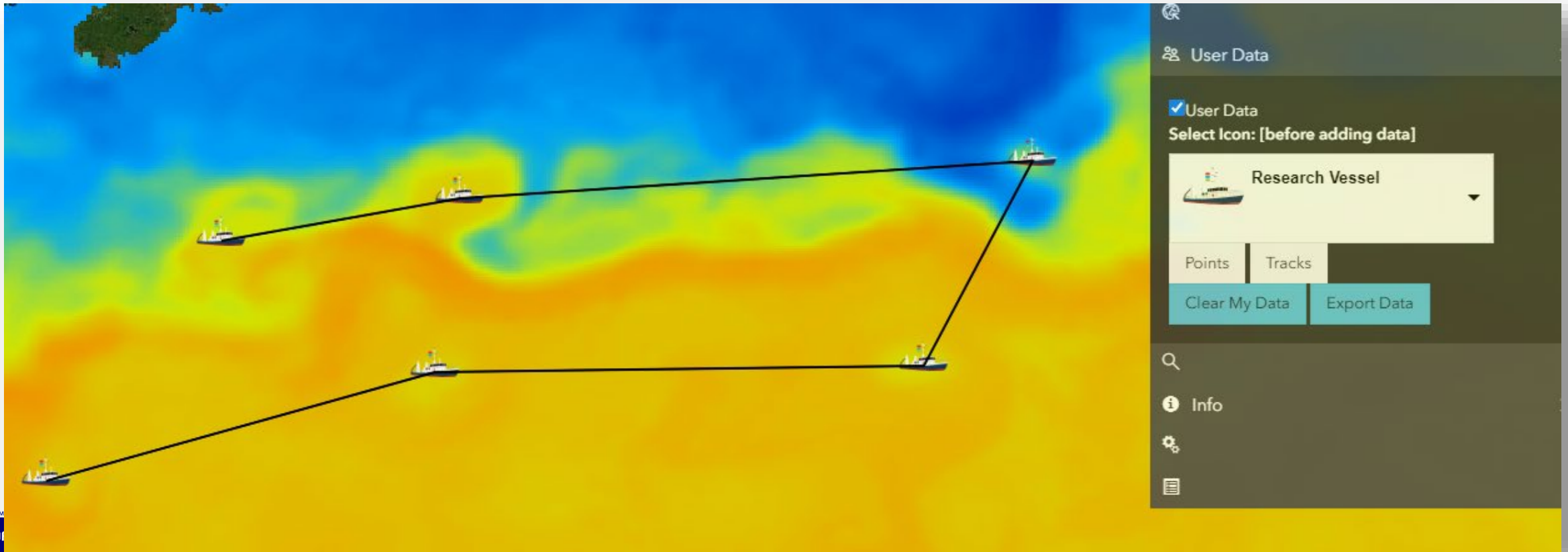
# Usage Scenarios

- Track Events or Research oceanographic features
  - Data coverage
  - Images are dynamically generated from actual backend data
    - ncWMS – allows customization of displayed parameters
  - Assists in observing multiple parameters – from multiple dates
    - ‘Active Layers’ feature
- Assists in building ERDDAP request or web links to more information (data product description, documentation, and citations)
  - Info or ERDDAP icons



# Usage Scenarios

- Cruise Planning / Post Cruise Analysis
  - Overlay Ship or UAV/P Tracks
    - Drag-n-Drop Points or Tracklines [from CSV file or draw on map]





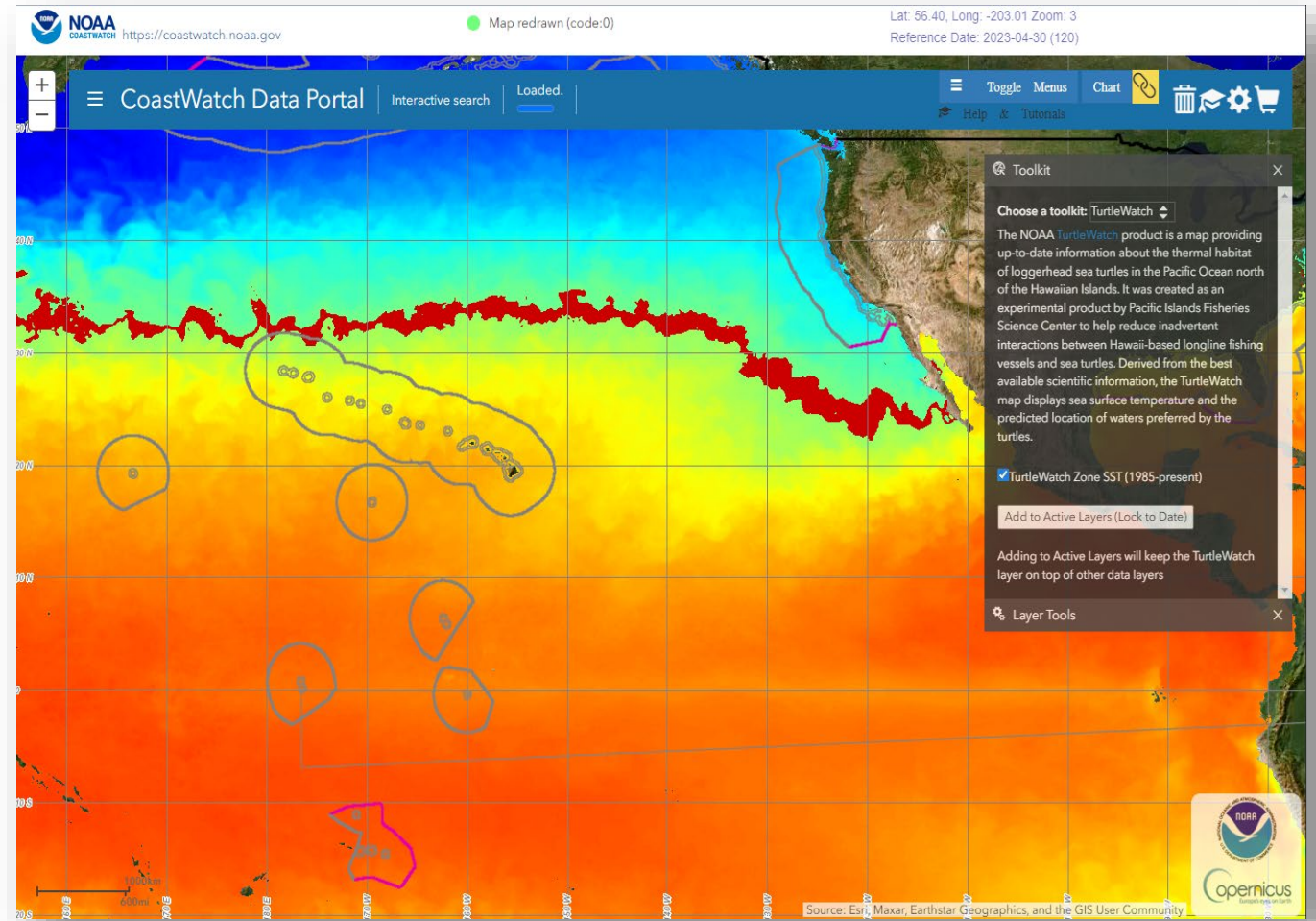
# Usage Scenarios

## Toolkits

- TurtleWatch
- Estuaries (US Coastal)

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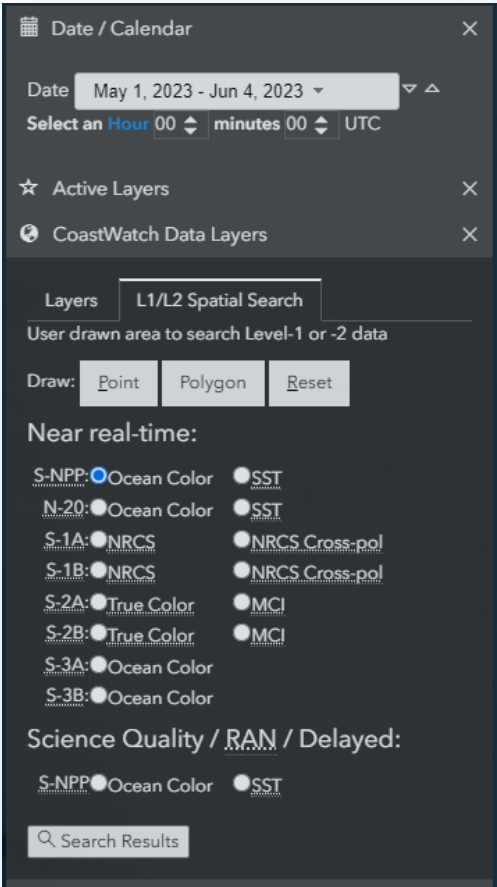
- Water
- GIS Services



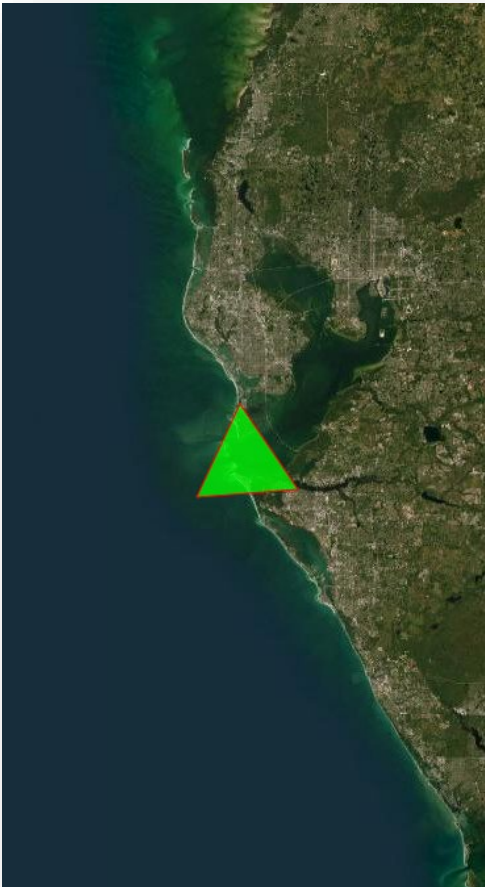
The TurtleWatch toolkit masks the 17.5 – 18.6°C waters where loggerhead turtle interactions are most likely

# Usage Scenarios

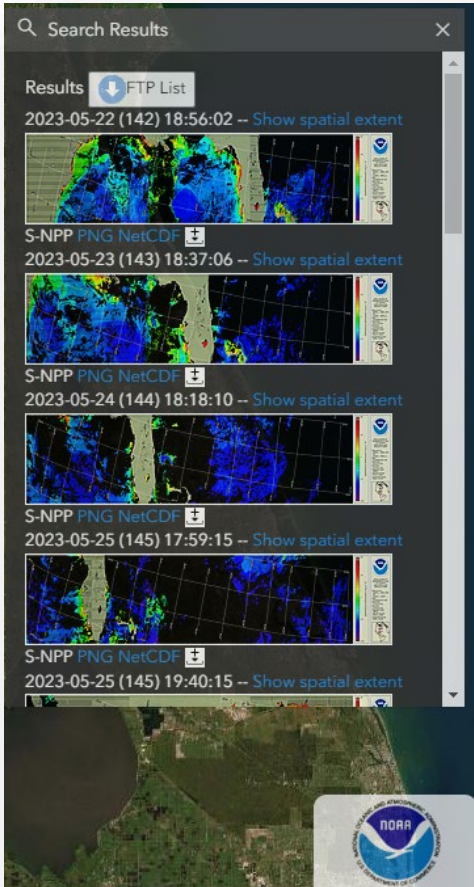
## Locate Level-2 datasets by time and date



Select Date Range & Product



Select Area of Interest

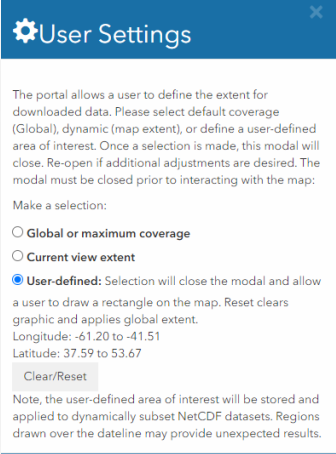


Review Results and Add to Cart



# Shopping Cart

Obtain URLs to source data or user-defined subsets



**User Settings**

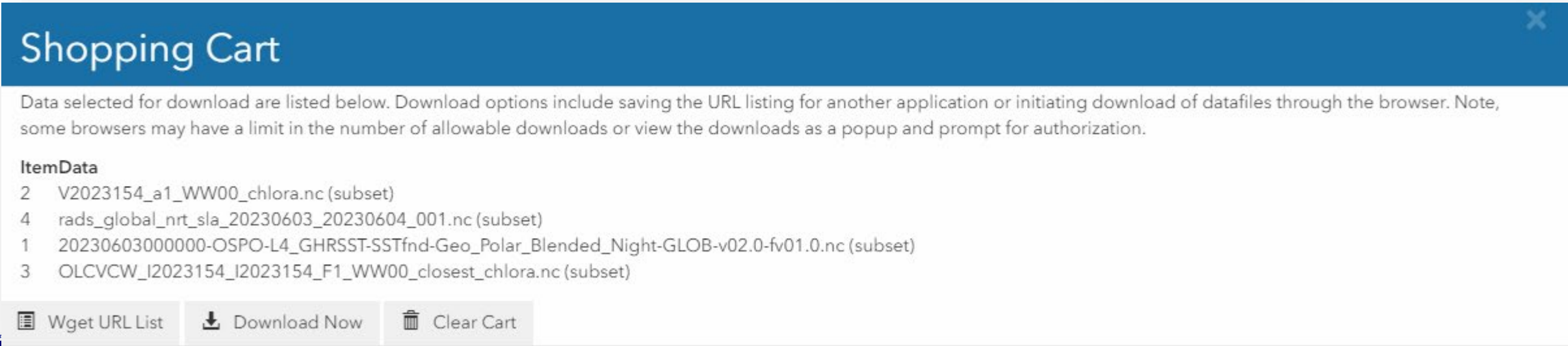
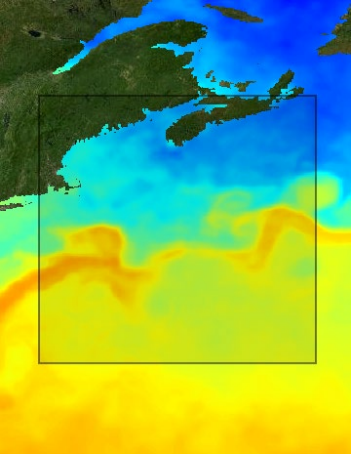
The portal allows a user to define the extent for downloaded data. Please select default coverage (Global), dynamic (map extent), or define a user-defined area of interest. Once a selection is made, this modal will close. Re-open if additional adjustments are desired. The modal must be closed prior to interacting with the map:

Make a selection:

- Global or maximum coverage
- Current view extent
- User-defined:** Selection will close the modal and allow a user to draw a rectangle on the map. Reset clears graphic and applies global extent.  
Longitude: -61.20 to -41.51  
Latitude: 37.59 to 53.67

[Clear/Reset](#)

Note, the user-defined area of interest will be stored and applied to dynamically subset NetCDF datasets. Regions drawn over the dateline may provide unexpected results.



## Shopping Cart

Data selected for download are listed below. Download options include saving the URL listing for another application or initiating download of datafiles through the browser. Note, some browsers may have a limit in the number of allowable downloads or view the downloads as a popup and prompt for authorization.

**ItemData**

- 2 V2023154\_a1\_WW00\_chlora.nc (subset)
- 4 rads\_global\_nrt\_sla\_20230603\_20230604\_001.nc (subset)
- 1 20230603000000-OSPO-L4\_GHRSSST-SSTfnd-Geo\_Polar\_Blended\_Night-GLOB-v02.0-fv01.0.nc (subset)
- 3 OLCVCW\_I2023154\_I2023154\_F1\_WW00\_closest\_chlora.nc (subset)

[Wget URL List](#)   [Download Now](#)   [Clear Cart](#)





# Data Portal 2.0

+ 2D

XYZ No position

No legend

9/23/2024  
8:00:00 AM

Jan Feb Mar Apr May Jun Jul Aug Sep

1/1/2024 12:00:00 AM 9/25/2024 4:37:17 PM

An error occurred loading this layer

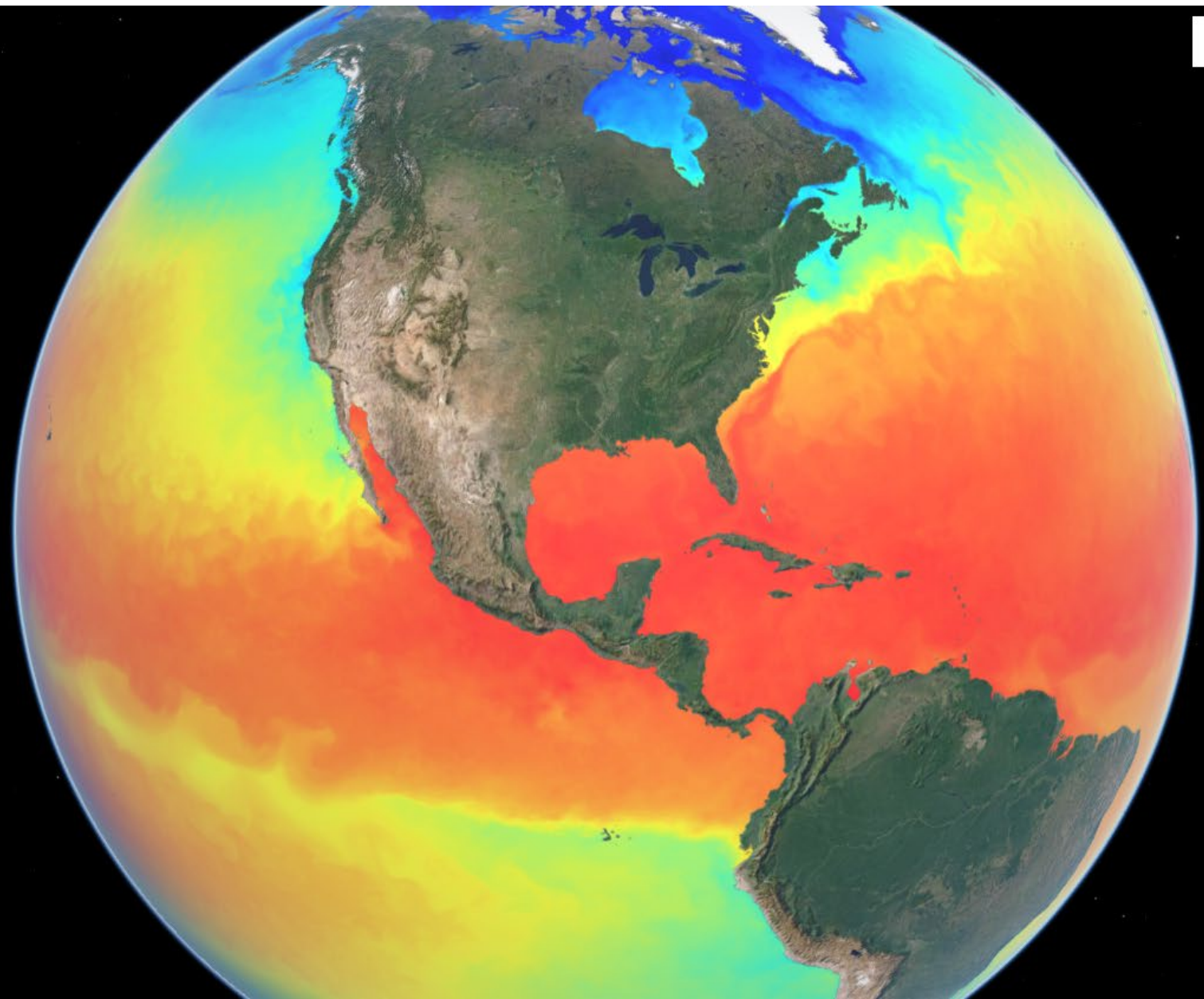
- Coral Reef Watch Bleaching Hotspot (v3.1, 1985-present)
- Coral Reef Watch SST Anomaly (v3.1, 1985-present)
- Coral Reef Watch SST (v3.1, 1985-present)
- Blended 5km Diurnal (7/2019-present)
- Blended 5km Day+Night (7/2019-present)
- Blended 5km Night (2002-2016)
- Blended 5km Night (2016-present)

> Toolkit

> L1/L2 Overlays & Data

> Coast Watch Data Layers

> Reference Layers



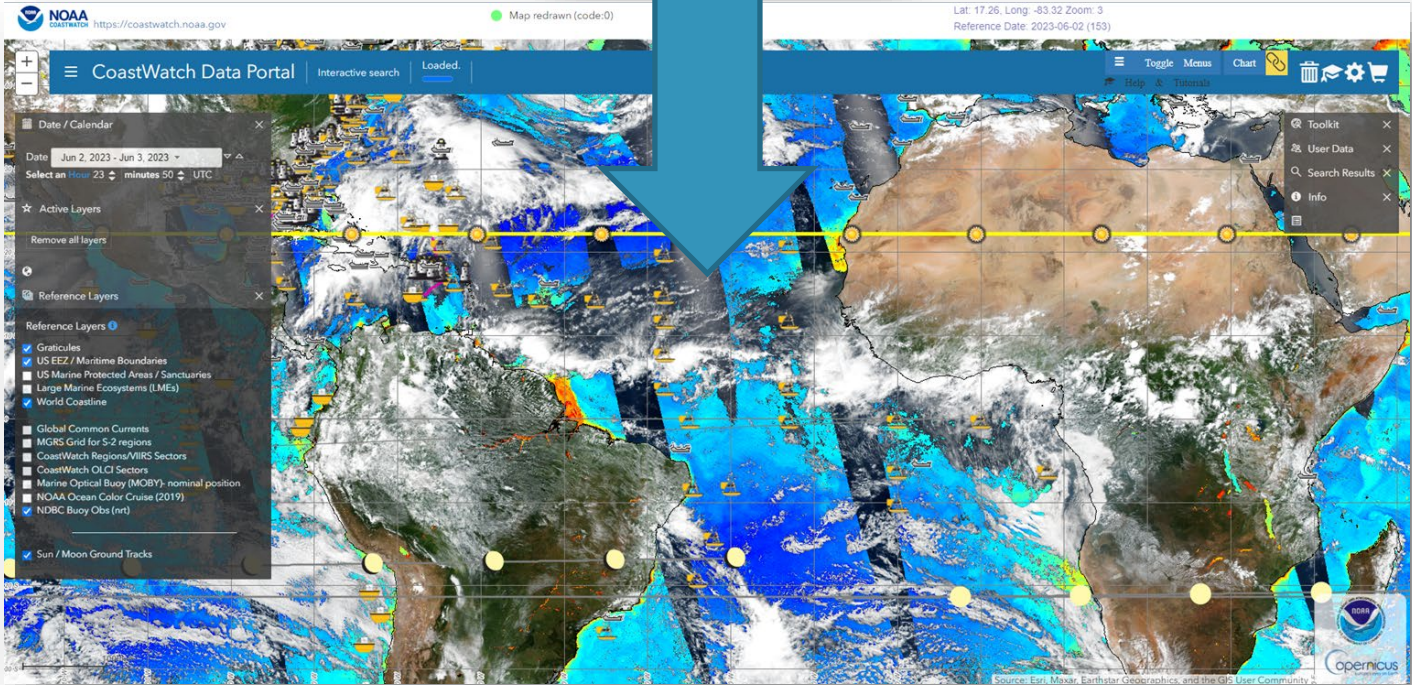




# Demonstration

# Check it out

<https://coastwatch.noaa.gov>



[coastwatch.info@noaa.gov](mailto:coastwatch.info@noaa.gov)

