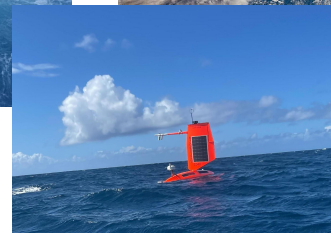
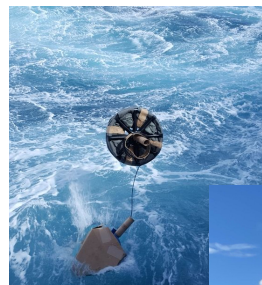


DOHRIS

Database for **O**cean-**H**urricane **R**esearch and **I**ntensity **S**tudies

https://www.aoml.noaa.gov/phod/hurricane_tracker/



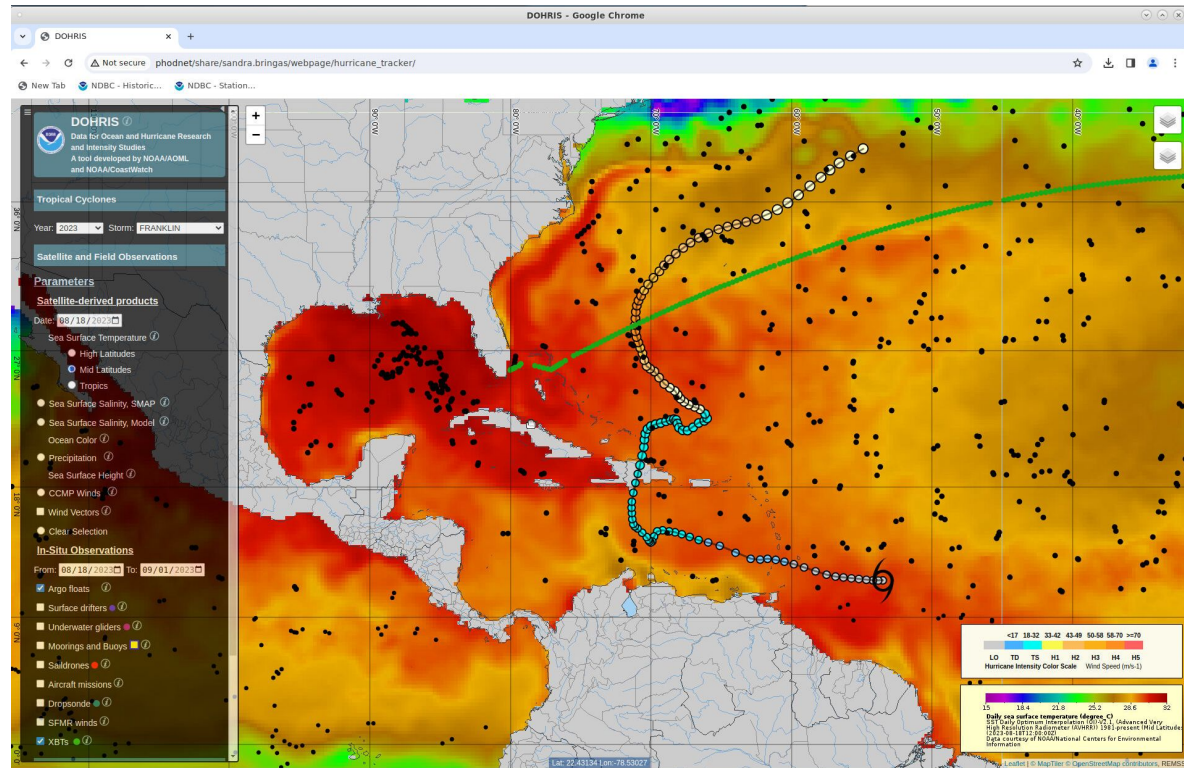
Sandra Bringas^{1,2}, Greg Foltz¹, Joaquin Trinanes^{1,2,3,4}, Jun Zhang^{1,2}
¹NOAA/AOML, ²U. Miami/CIMAS, ³NOAA/NESDIS/CoastWatch, ⁴Univ. Santiago

What is DOHRIS?

Database focused on hurricane research applications

Atmosphere-ocean data for TCs in the Atlantic, 1997-2023 and expanding

2 components: Data distribution system using ERDDAP, user-friendly website tool

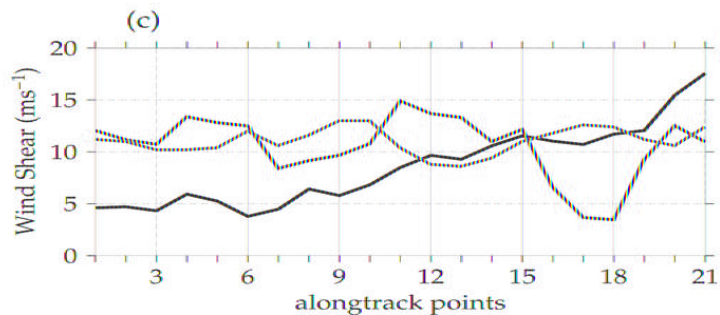
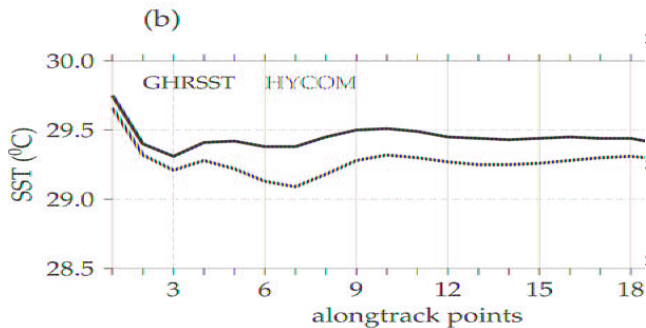
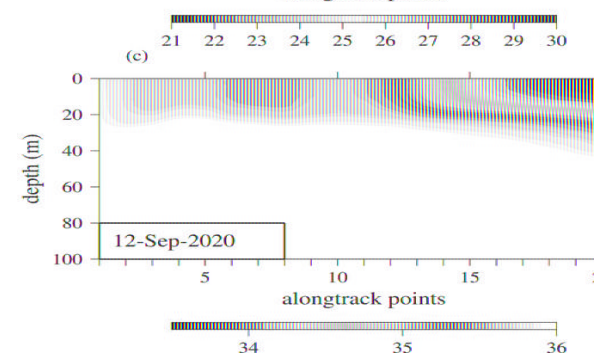
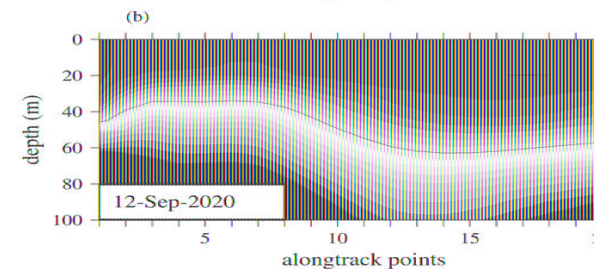
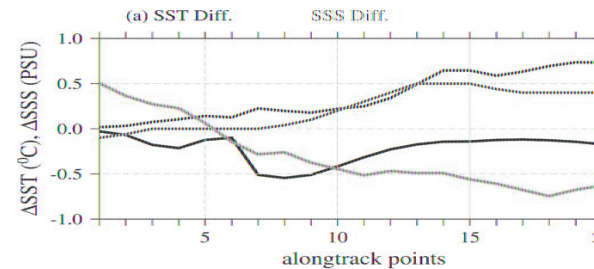
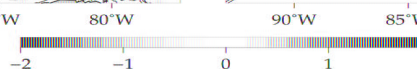
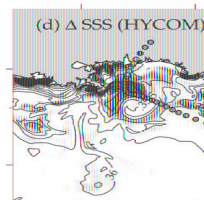
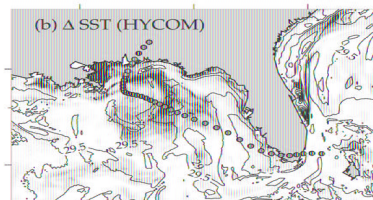
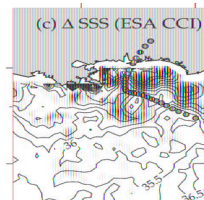
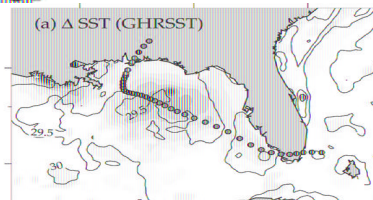
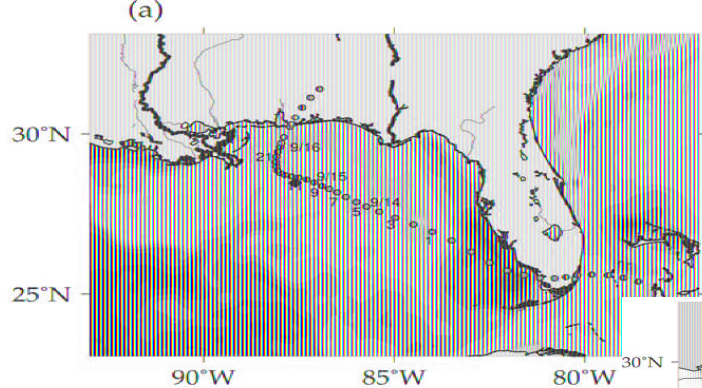


Why?

- No single database with relevant ocean and atmospheric data for Atlantic tropical cyclones
- Must visit individual websites to collect data
- Need for integrated database for researching links between TCs and the ocean
- Built on CoastWatch/AOML Ocean Observations Viewer, which provides real-time data and products

Hurricane Sally (2020)

John et al. (2023)



Data distribution system

All datasets in DOHRIS are available in an ERDDAP database

Select and download data in many different file formats

Quick plots and graphs for easy data visualization

ERDDAP - List of All Datasets x +

← → C https://erddap.aoml.noaa.gov/hdf/erddap/info/index.html?page=1&itemsPerPage=1000

ERDDAP
Easier access to scientific data

ERDDAP > List of All Datasets

386 matching datasets, listed in alphabetical order.

Grid DAP Data	Sub-set	Table Data	Make A Data	W Graph	M S	Source Data Files	Title	Summary	FODC, ISO, Metadata	Background info	RSS	E mail	Institution	Dataset ID
	set	data	graph				* The List of All Active Datasets in this ERDDAP *		M	background			NOAA/ACOML	allDatasets
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Datasets now available in DOHRIS

1. **Underwater glider** profiles (*temperature, salinity, depth-averaged currents*) (2009-2023)
2. Expendable bathythermograph (**XBT**) profiles (1994-2023)
3. **Argo** float profiles (*temperature, salinity*) in the Atlantic Ocean (1997-2023), Indian Ocean (1998-2023), and Pacific Ocean (1995-2023)
4. **Saildrone** observations (2021-2023)
5. **Mooring** observations (2001-2022)
6. **Satellite SST** (Optimally Interpolated) (1981-2023)

Datasets available in DOHRIS

7. **Satellite altimetry** *sea surface height* (1993-2023)
8. Satellite and reanalysis **sea surface salinity** (2001-2023)
9. **Satellite precipitation** half-hourly data (2000-2023)
10. **Satellite ocean color** from Aqua/MODIS satellite (2002-2023) and SeaWiFS (1998-2010)
11. Cross-Calibrated Multi-Platform (CCMP 2.0) gridded **surface vector winds** (1987-2023)
12. Satellite-derived **ocean heat content** (2012-2023)

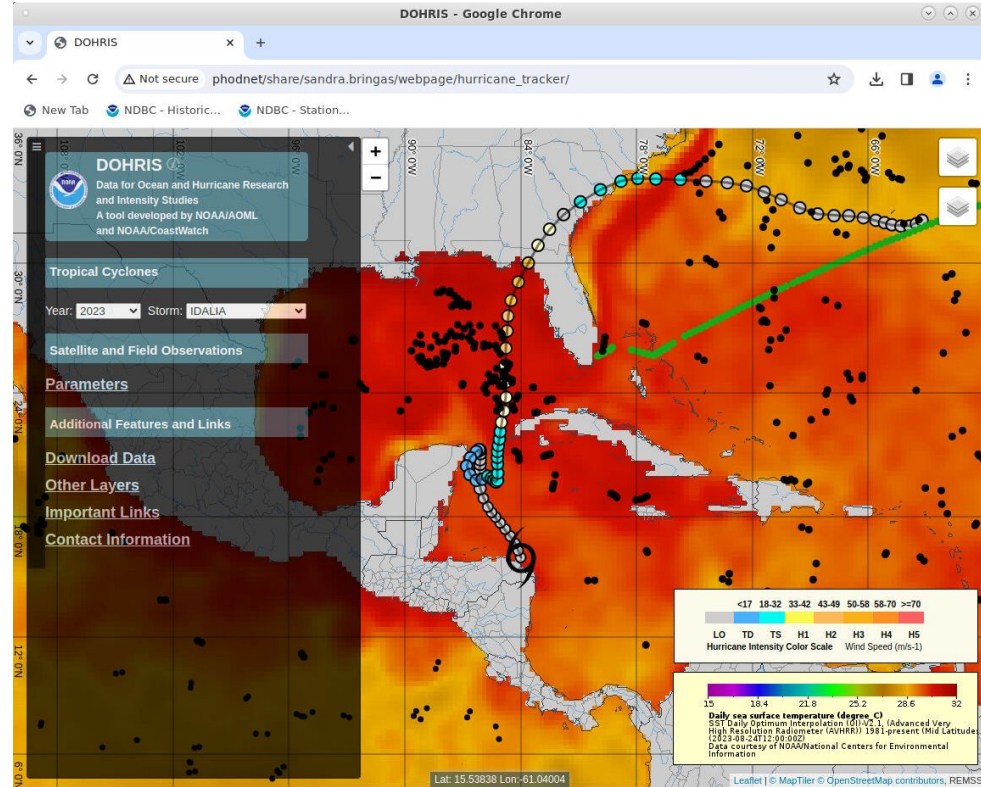
Datasets available in DOHRIS

13. **HURDAT2** NATLN (1851-2022), and NEPAC (1949-2022)
14. International Best Track Archive for Climate Stewardship (**IBTrACS**) (2020 - 2023)
15. **Aircraft flight level data** (including *wind speed, wind direction, air temperature, dew point temperature, pressure, and altitude*) (1977-2023)
16. **Dropsondes** (*temperature, pressure, altitude, relative humidity, wind components*) (1997-2023)
17. **SFMR** (Stepped Frequency Microwave Radiometer) *SST, wind speed, rain rate* (1998-2022)

The visualization tool

3 main sections:

1. Tropical Cyclones: select year and TC
2. Satellite and In-situ Observations: display data on map with option to download
3. Additional Features and Links: download data, obtain more information about the data, additional links



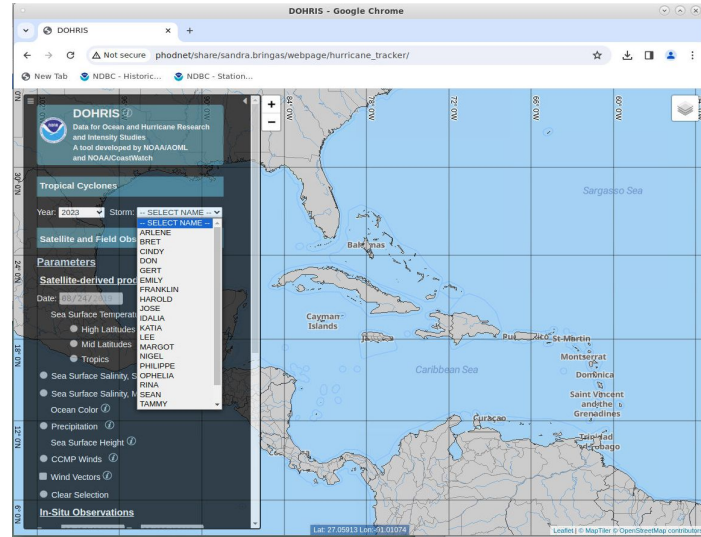
Section 1: Tropical Cyclones

Select a TC from the menu

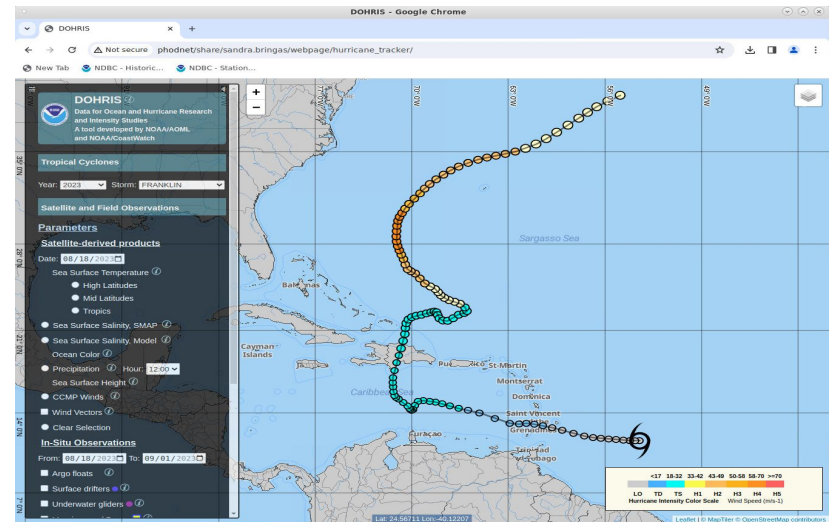
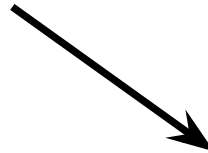


Section 1: Tropical Cyclones

Select a TC from the menu

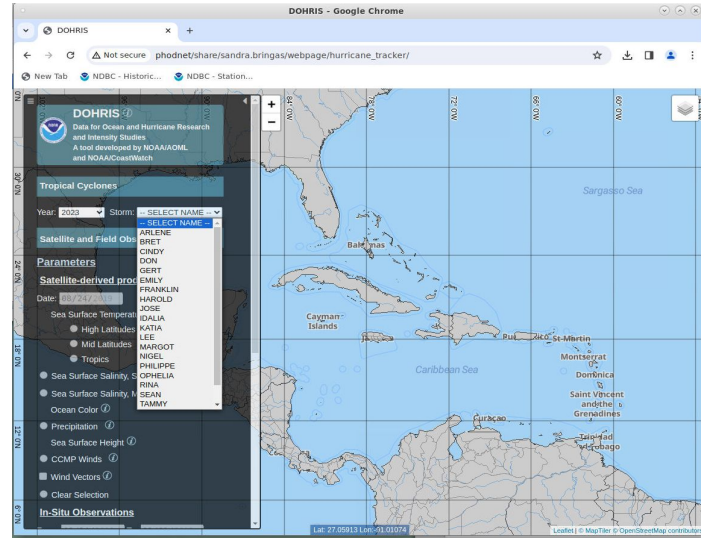


Storm track will appear in the map

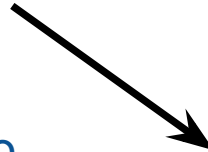


Section 1: Tropical Cyclones

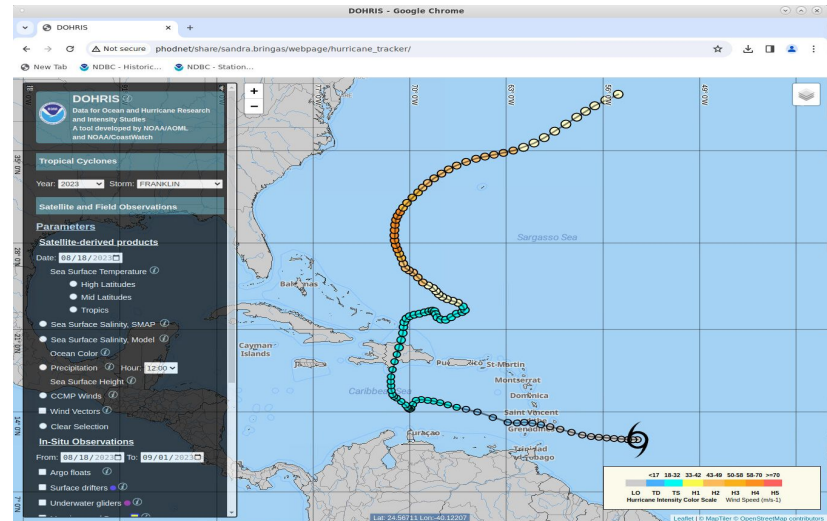
Select a TC from the menu



Storm track will appear in the map



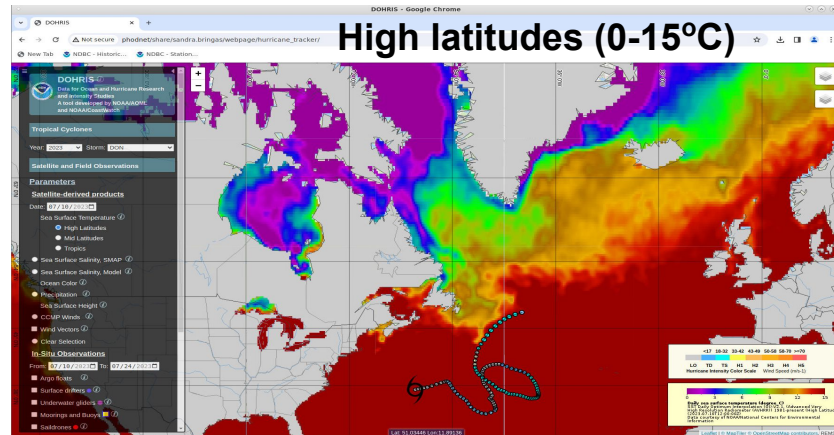
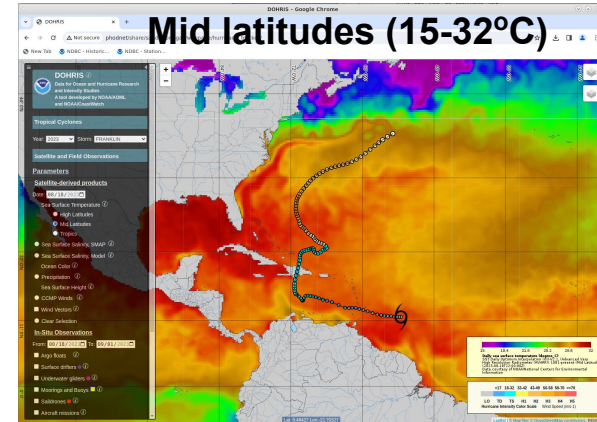
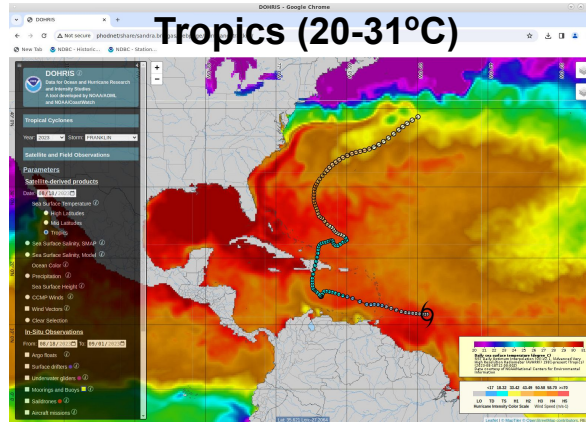
Go to next section to select data to view, from one month before until one month after, maximum ocean depth of 300 m



Section 2: Satellite-derived Products

Sea Surface Temperature

3 color palettes: Tropics, Mid latitudes, High latitudes

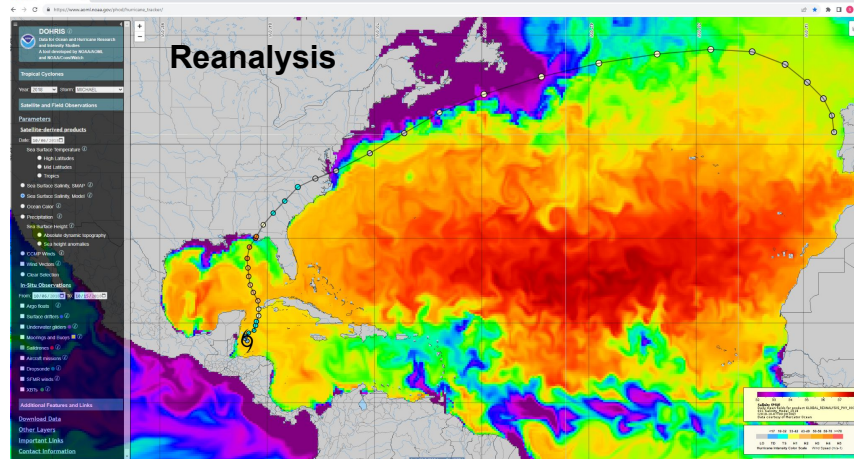
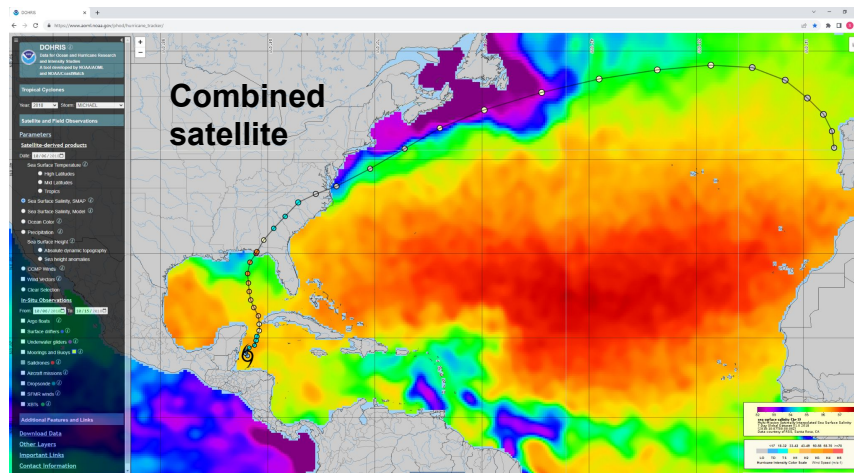


Section 2: Satellite-derived Products

Sea Surface Salinity

Multi-Mission Optimally
Interpolated,
2011-2023

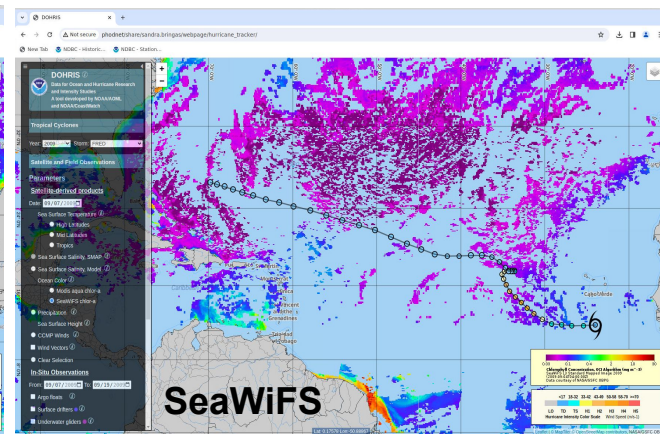
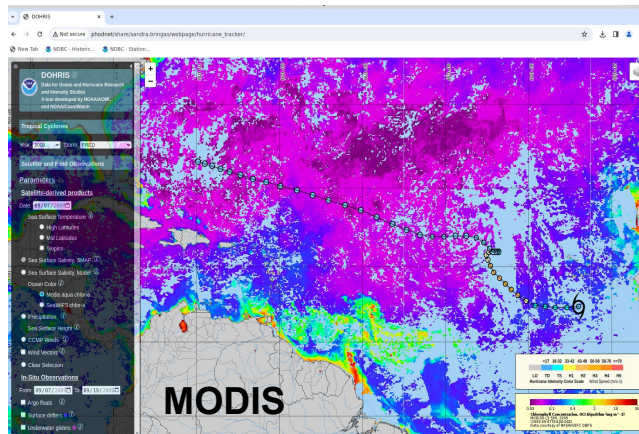
Ocean reanalysis
(GLORYS), 2001-2023



Section 2: Satellite-derived Products

Ocean Color

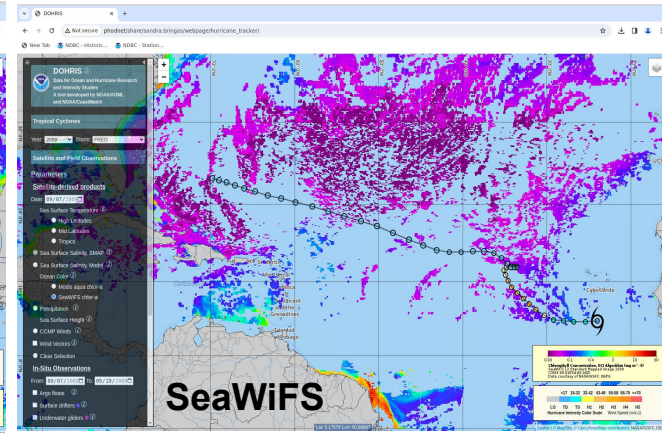
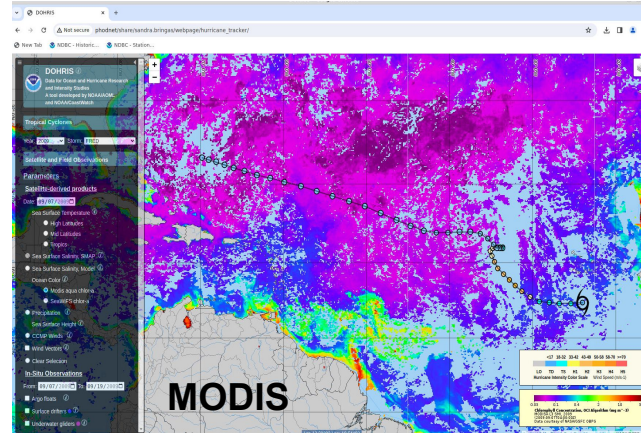
Aqua-MODIS and
SeaWiFS chlorophyll
concentration



Section 2: Satellite-derived Products

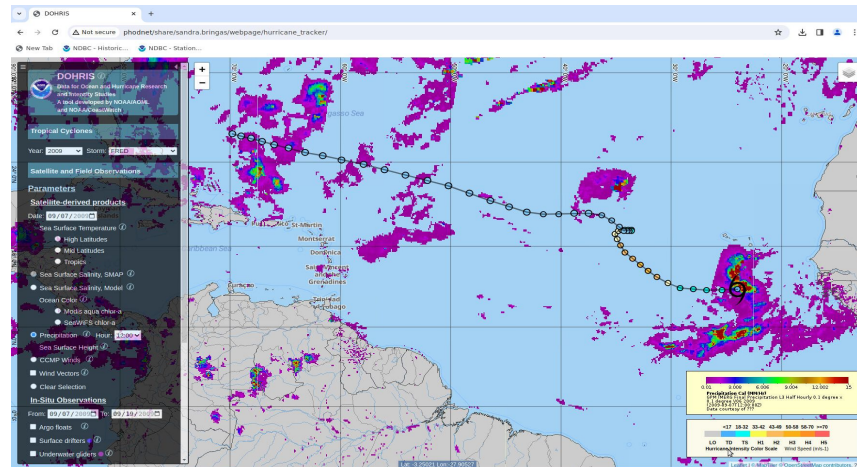
Ocean Color

Aqua-MODIS and
SeaWiFS chlorophyll
concentration



Precipitation

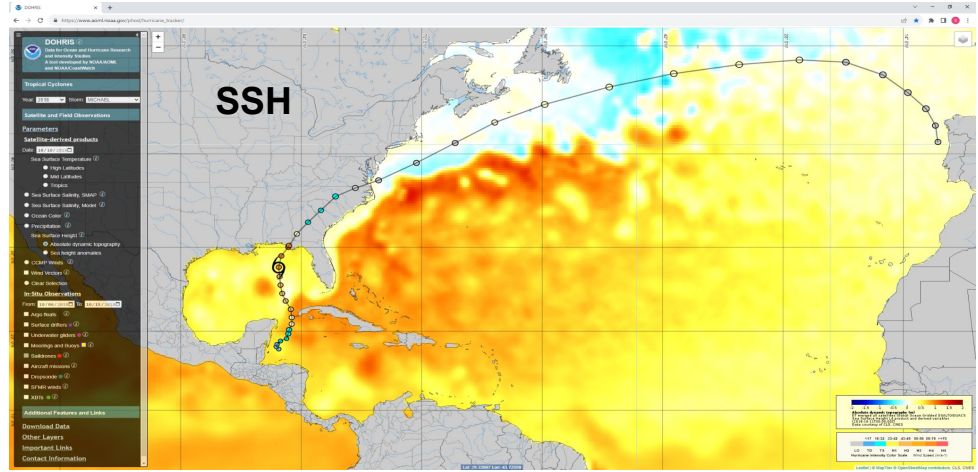
GPM IMERG every
half hour



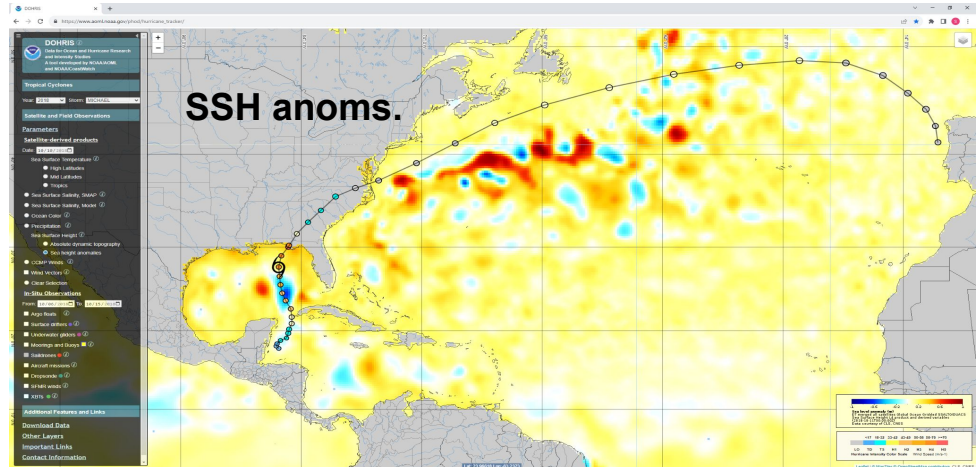
Section 2: Satellite-derived Products

Altimetry-derived Sea Surface Height

Absolute dynamic topography



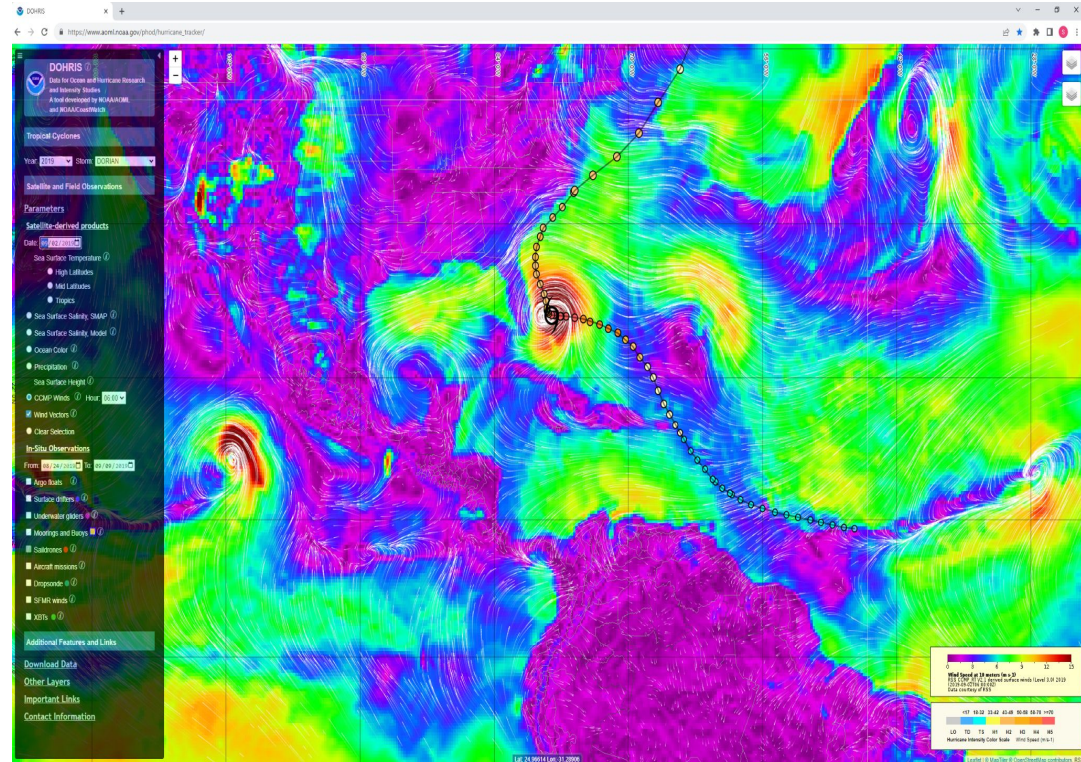
Sea height anomalies



Section 2: Satellite-derived Products

CCMP near-surface wind

6-hourly data can be displayed
as wind speed and streamlines

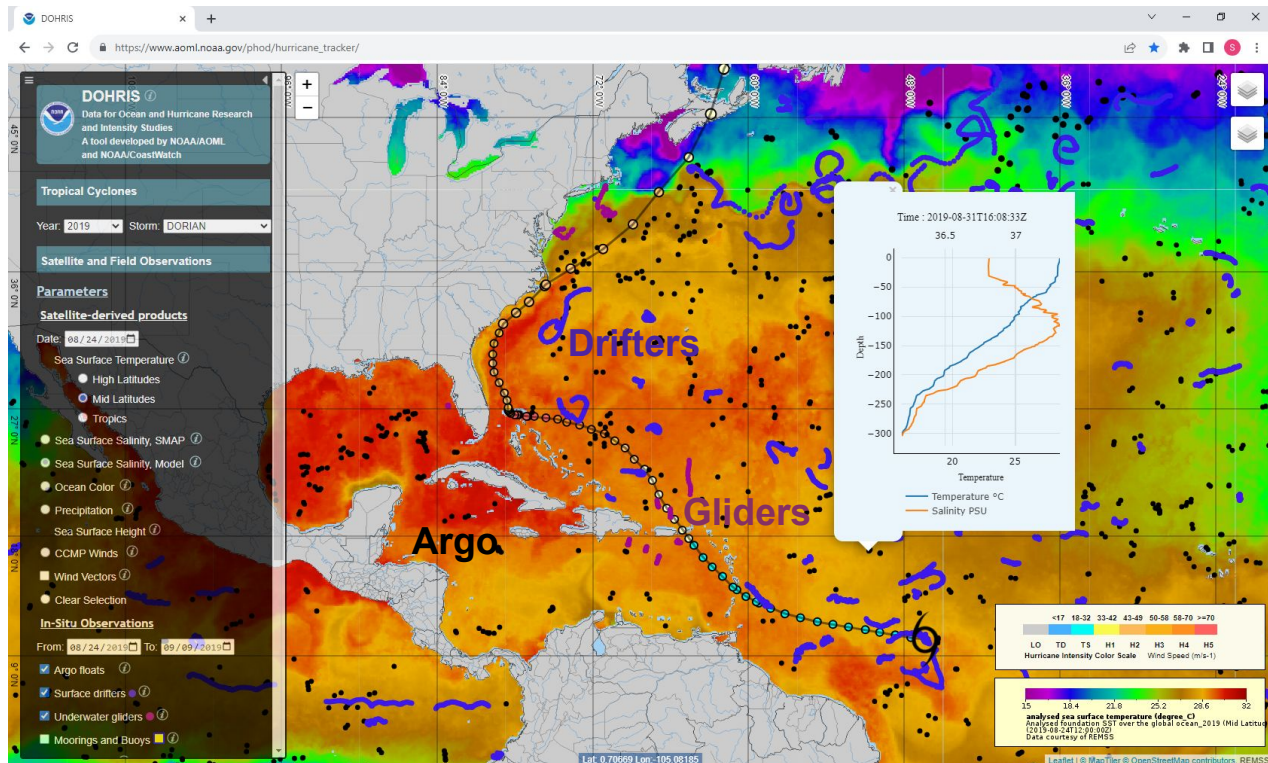


Section 2: In-Situ Observations

Argo floats, drifters,
underwater gliders

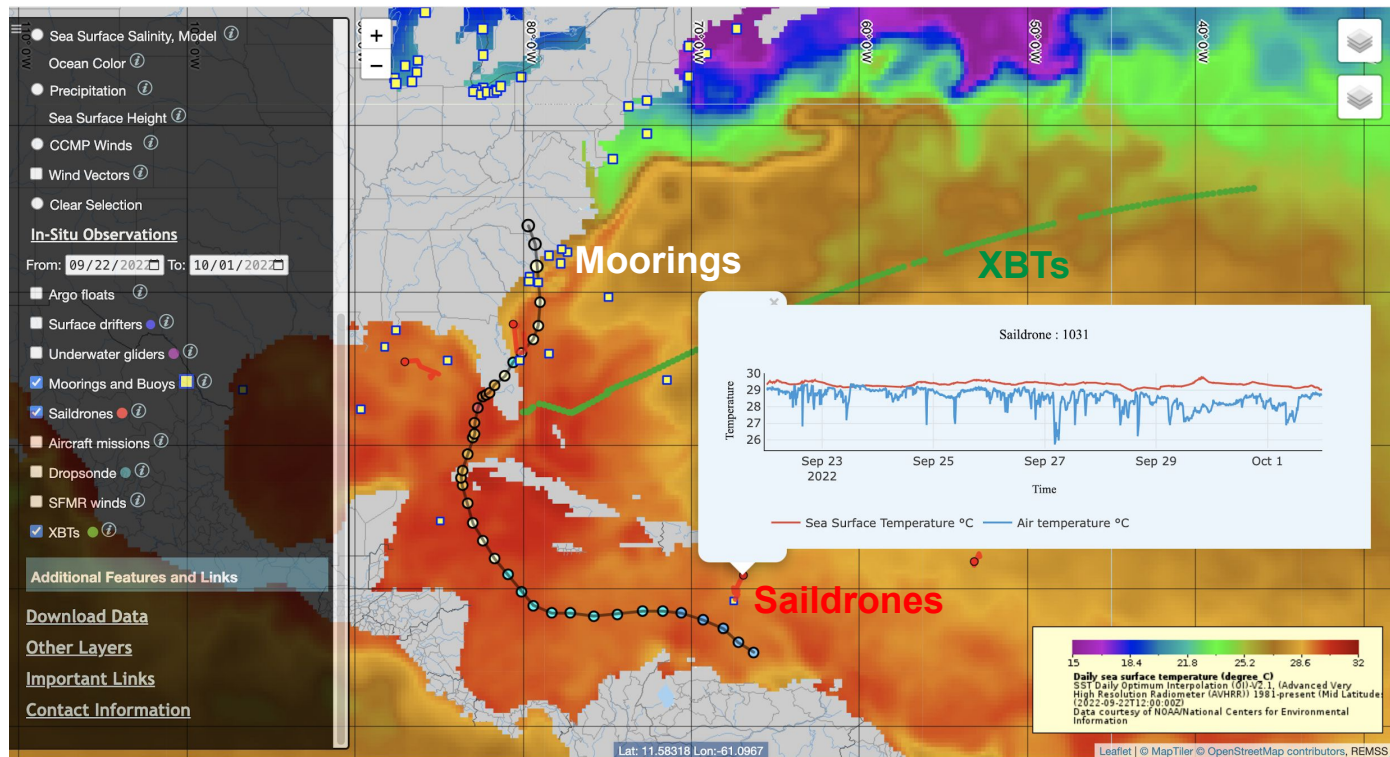
Plots of temp, salinity
profiles available for
Argo, gliders

SST from drifters



Section 2: In-Situ Observations

Moored buoys, saildrones, XBTs



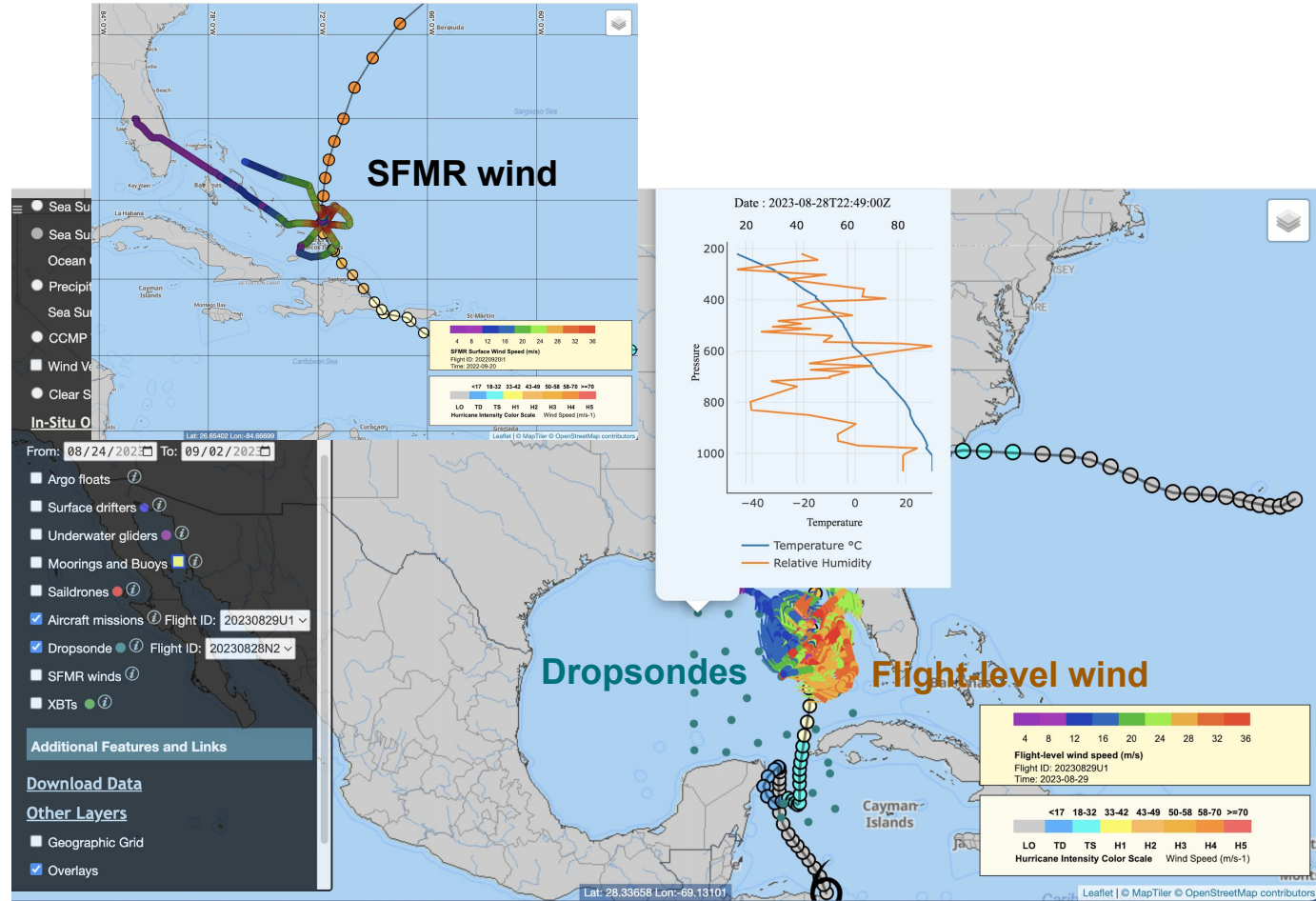
Section 2: In-Situ Observations

Aircraft missions

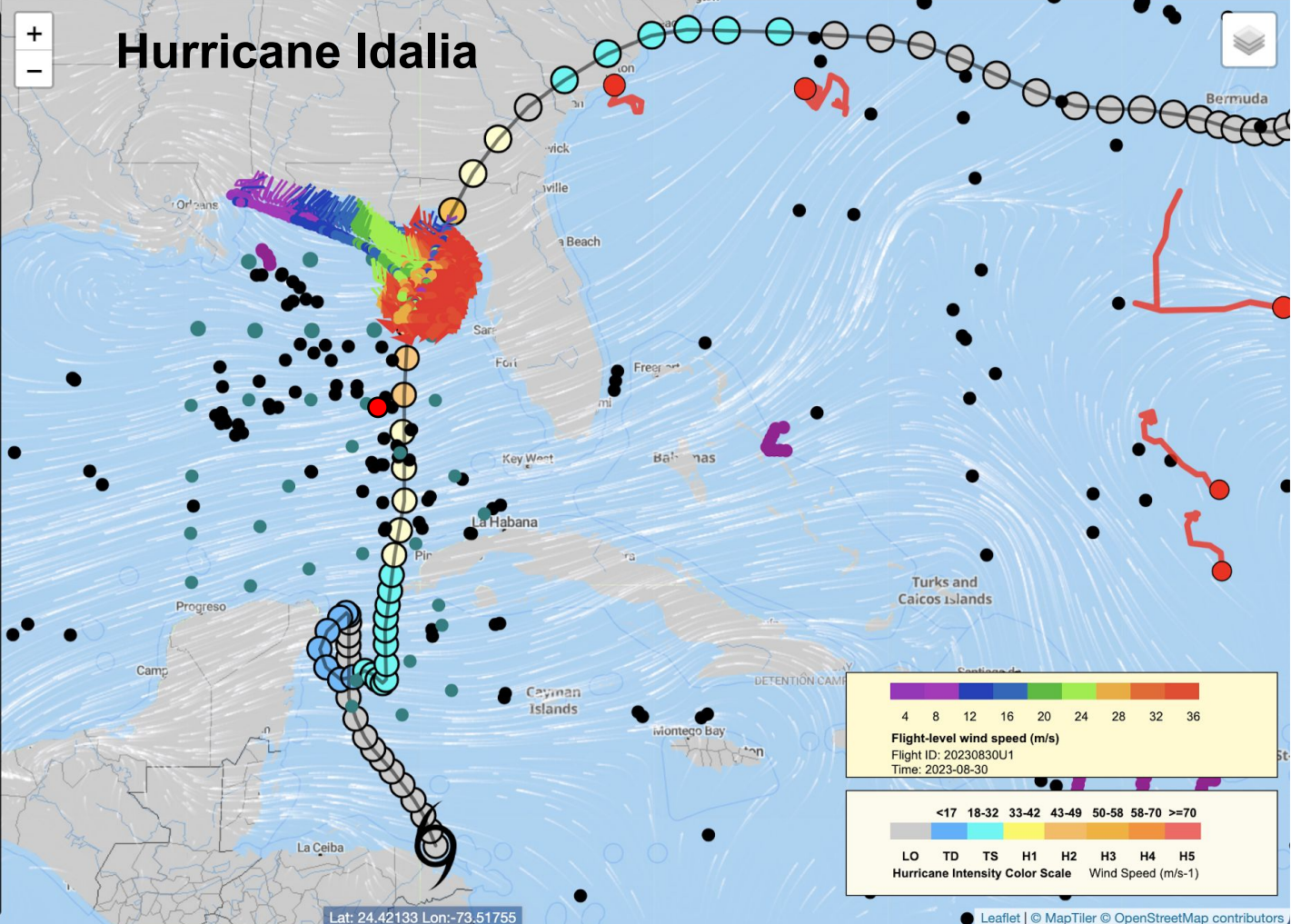
Flight-level winds

SFMR surface wind

Dropsondes



Hurricane Idalia



- Sea Surface Salinity, model
- Ocean Color
- Precipitation
- Sea Surface Height
- CCMP Winds
- Wind Vectors
- Clear Selection

In-Situ Observations

- From: 08/24/2023 To: 09/02/2023
- Argo floats
 - Surface drifters
 - Underwater gliders
 - Moorings and Buoys
 - Saildrones
 - Aircraft missions Flight ID: 20230830U1
 - Dropsonde Flight ID: 20230828N2
 - SFMR winds
 - XBTs

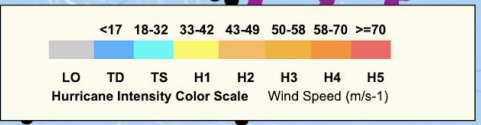
Additional Features and Links

Download Data

Other Layers

- Geographic Grid
- Overlays

Important Links



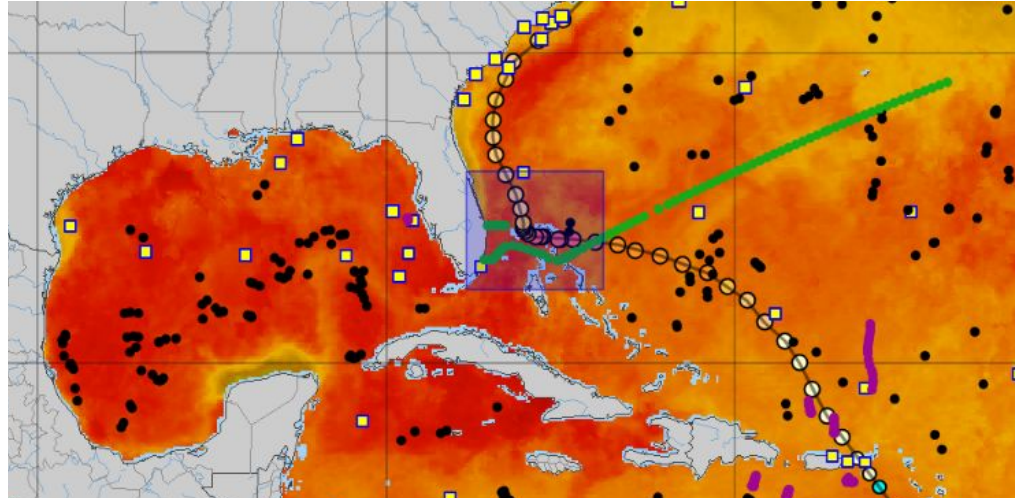
Lat: 24.42133 Lon: -73.51755

Section 3: Additional Features and Links

Download Data

Select an area in the map, click
“Download” button

Or download through the
DOHRIS ERDDAP from the
link provided



Section 3: Additional Features and Links

Access websites of related data/projects for additional information on datasets available in DOHRIS

Descriptions of the observations and their sources



Future Plans

- Thank you to those who responded to survey sent in February
- Include data for hurricane seasons in the Atlantic Ocean before 1997
- Add other TC basins
- Add other useful data based on user feedback: Synthetic Aperture Radar (SAR), surface waves, ocean currents, SHIPS diagnostics, GFS wind shear and mid-level humidity, land-based observations near landfall (?)
- This is a first version, a working prototype that will be enhanced based on needs, recommendations, and requests of users

https://www.aoml.noaa.gov/phod/hurricane_tracker/