National Aeronautics and Space Administration

Monitoring Harmful Algal Bloom Indicators for Aquaculture using NASA Remote Sensing Observations

Hands-On Exercise: Data Search and Visualization using NASA Worldview

Aquaculture 2025 Meeting

Amita Mehta (612, NASA-UMBC GESTAR II) and William Wainwright (619, SSAI)

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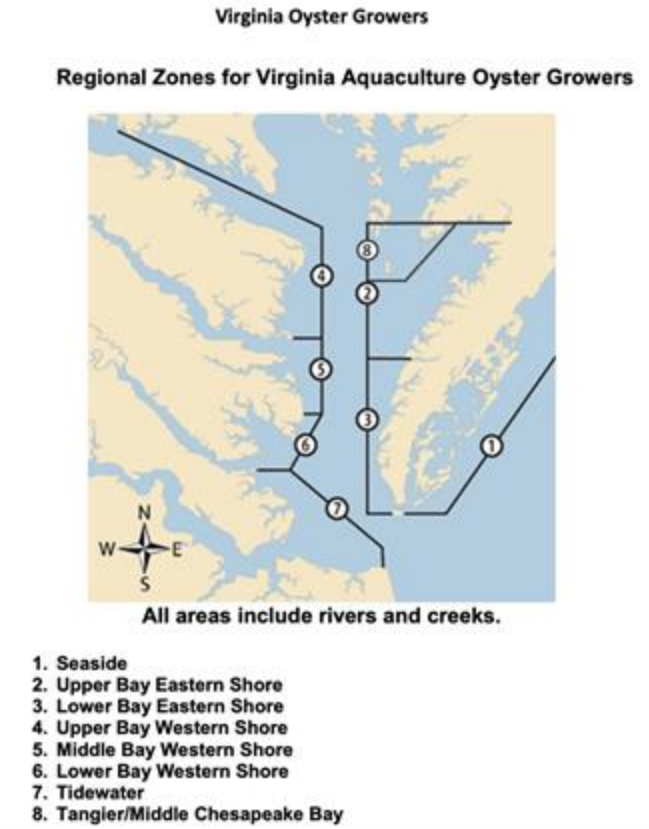
Case Study: Examine Water Quality in the Chesapeake Bay

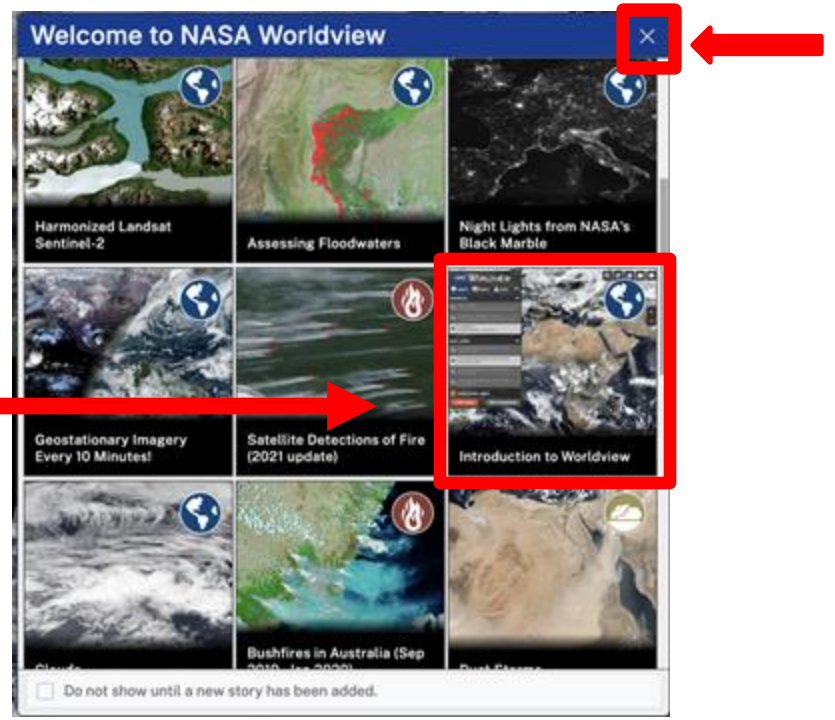
- Virginia is in the top five states in the U.S. in the value of aquaculture products sold.
- Aquaculture sites in Virginia are in the Chesapeake Bay[1], including creeks and rivers
- We will examine water quality data in the Chesapeake Bay using Worldview.



Source: [1]NOAA Oyster Directory

Demonstration and Hands-On Exercise: NASA Worldview

- Click on the link: Worldview.
- The Worldview window will open.
- Scroll down in the 'Welcome to NASA Worldview' and select **'Introduction to Worldview'** window to learn more about this site.
- Close the 'Welcome—' window by clicking on the **'x'** in the top right corner.



Explore Worldview

Location Search

Share Link

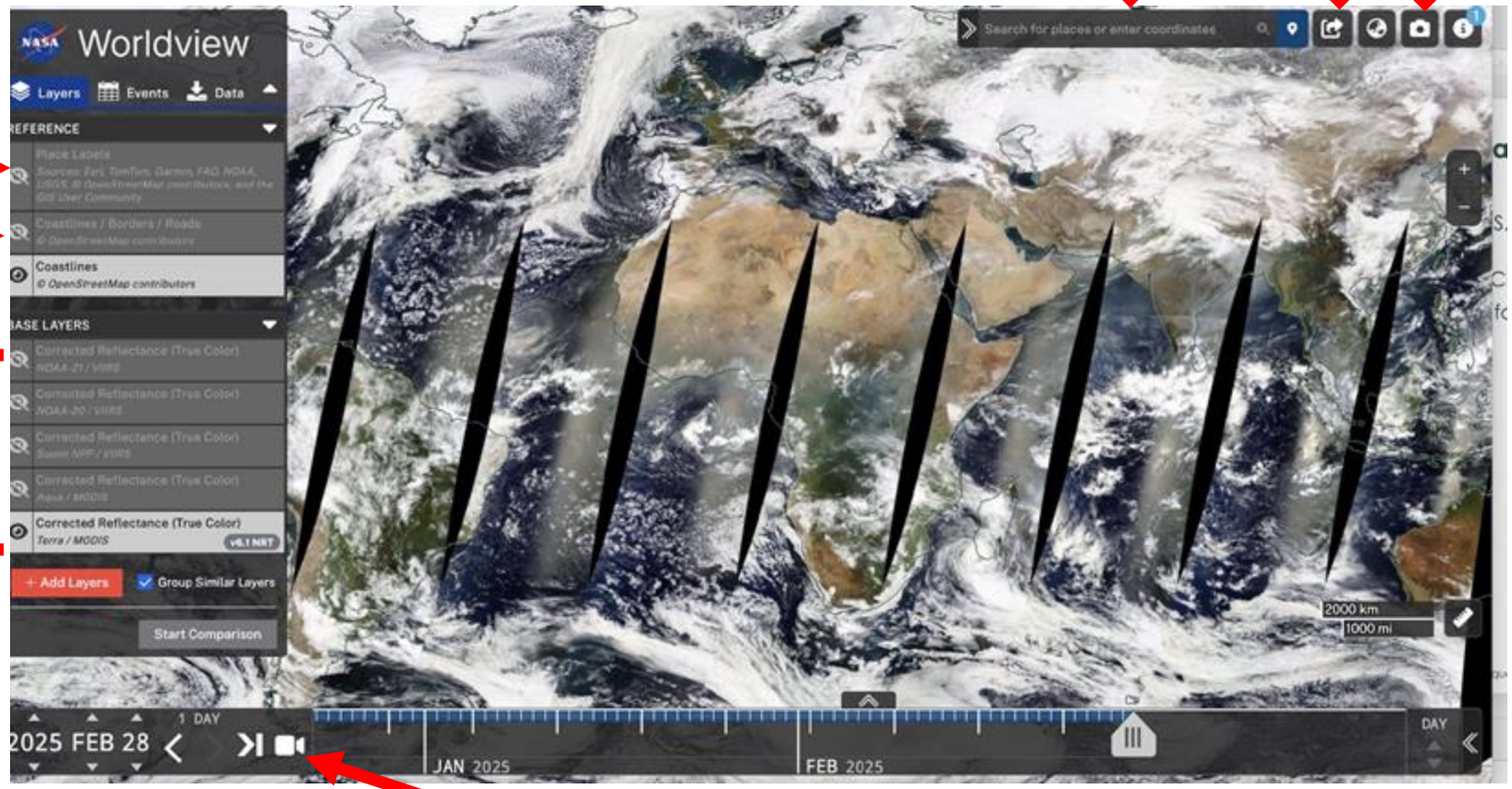
Take Image

Turn **Place Labels** and

Coastline/Boarders/Roads on by clicking on the the 'eye' symbol to turn layers on and off.

Explore Base Layers: Red-Green-Blue True Color Satellite Images

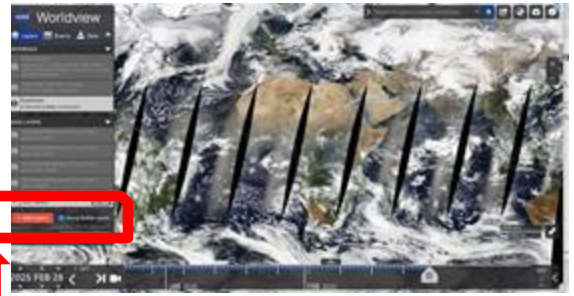
Search Data Layers



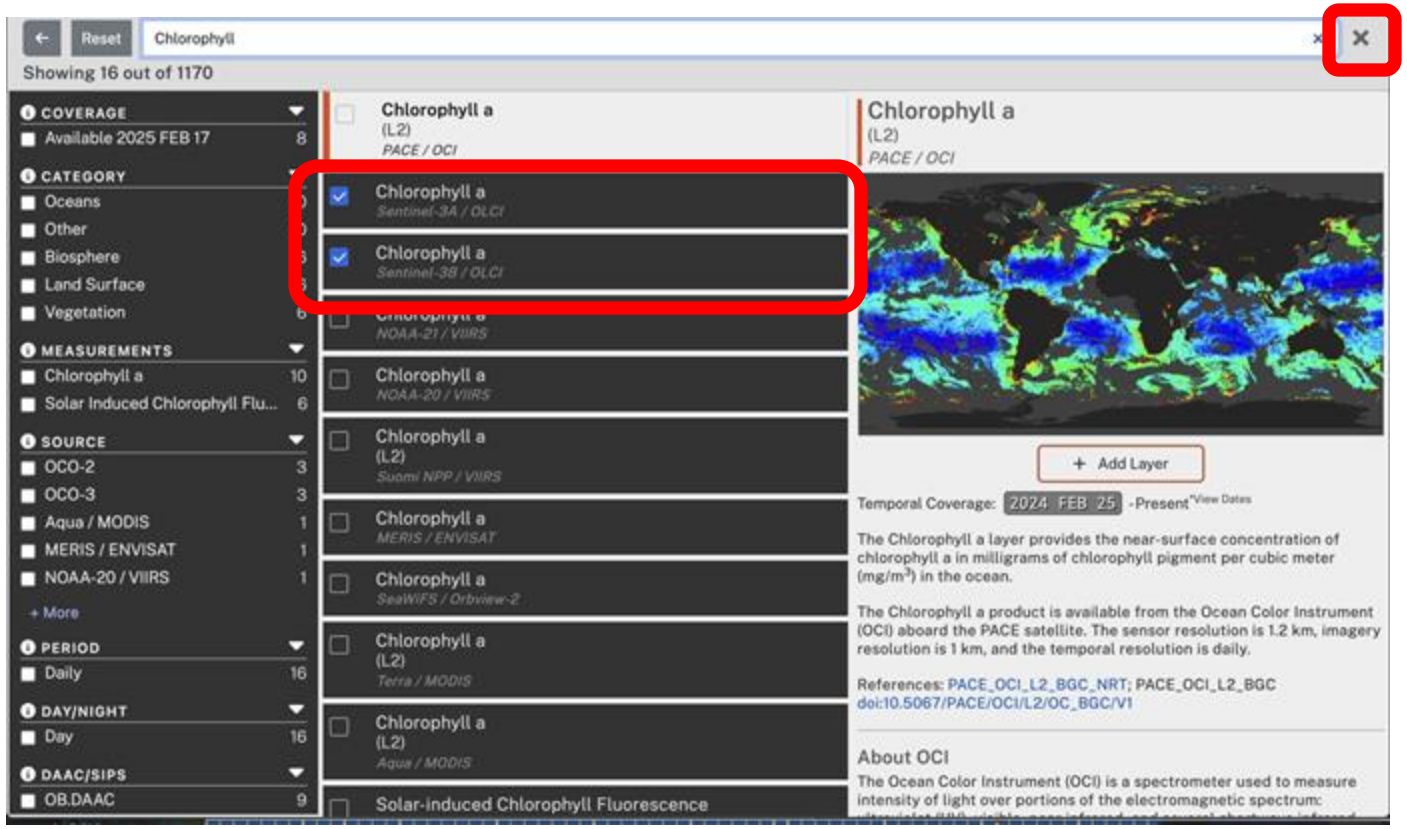
Date Selection and Date Line

Data Animation

Search and Select Data Layers



Click to Close this Window



1. Click on **Add Layers.**
2. In the **Search** window type “Chlorophyll".
3. For example, select layers Chlorophyll a from:
   Sentinel-3A/OLCI

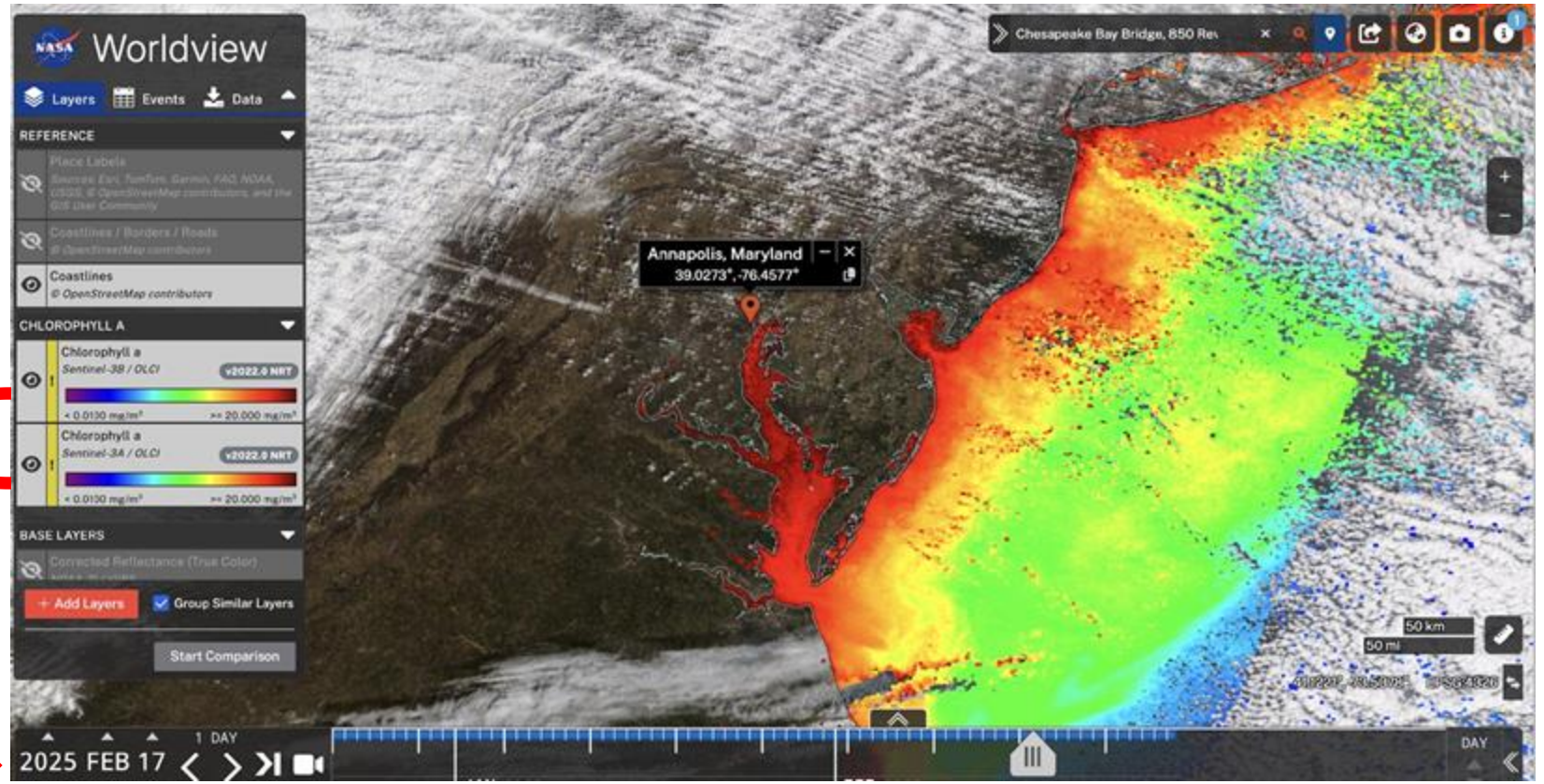
   Sentinel-3B/OLCI
4. Close the window to return to the main page.

Search, Select, and Examine Data Layers

5. Enter **Chesapeake Bay** in the location search window click **return** on your computer to zoom to the region.

6. See color bar for Chlorophyll a.

7. Select dates and examine Chlorophyll a changes.



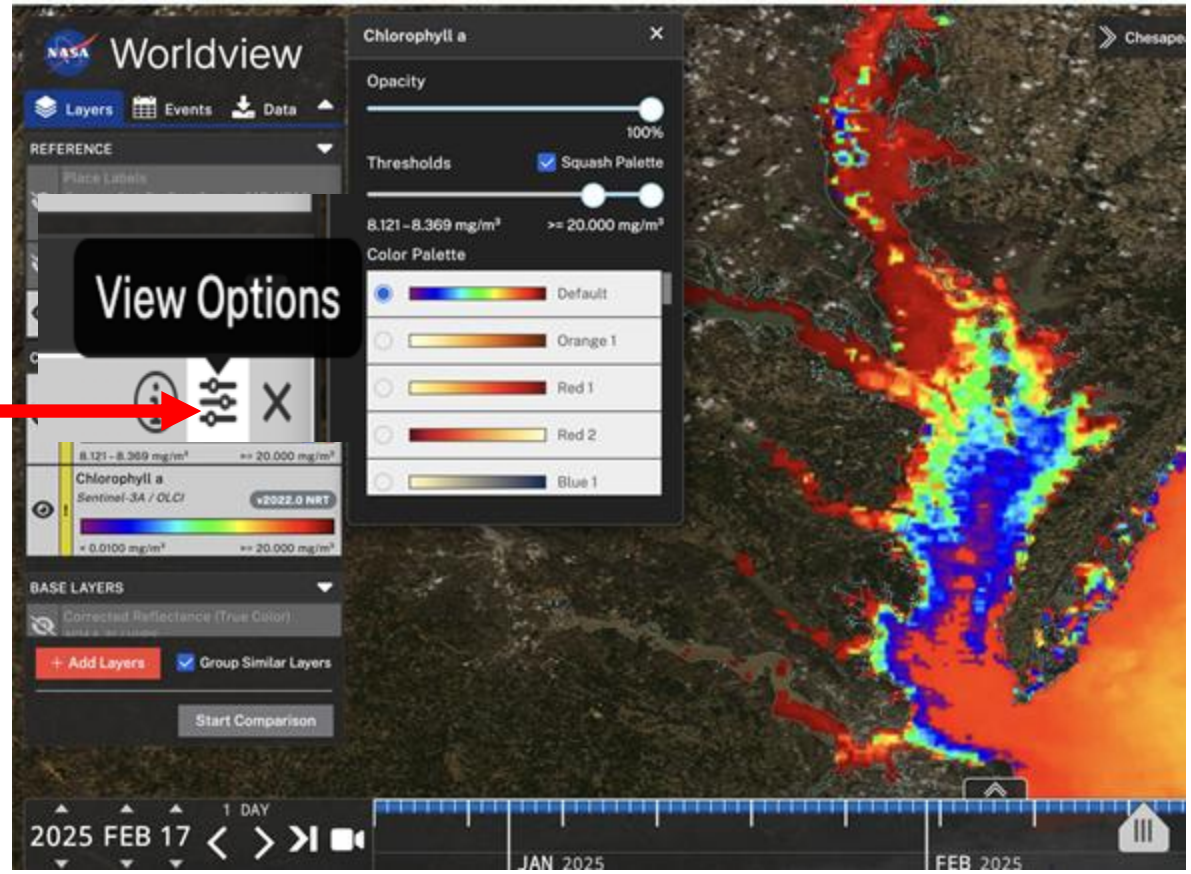
There was a shellfish closure after February 20 due to flooding in James River. Click on the arrow to change dates.

Option to Change Color Palette, Range, and Opacity

8. Click on **View Options** bars.

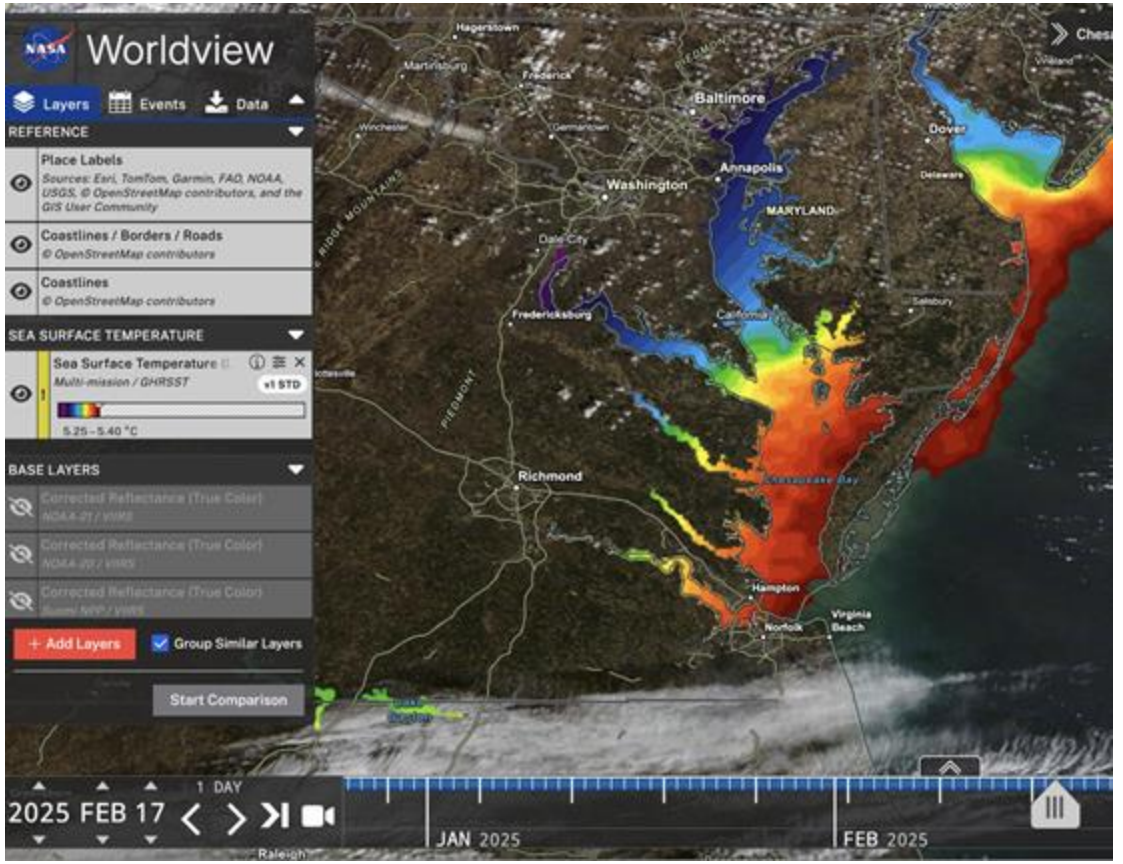
9. Adjust the Color Palette and Range by changing **Threshold**, select **Squash Palette** to get the image with new color range.

10. Change **Opacity** (optional).



Search and Include Additional Data Layers

11. Repeat Steps 1 and 2, choosing Sea Surface Temperature (SST) as the next layer.
12. Select **Sea Surface Temperature (L4, MUR)** *Multi-mission / GHRSST*
13. Repeat Steps 8-9 to adjust colors for the SST layer.
14. Explore other regions/times/data layers.




APPLIED REMOTE SENSING TRAINING PROGRAM
TRAIN - EMPOWER - ADVANCE

Thank You!