

Worldview and Water Quality Applications in Coastal Regions

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Purpose

- This is a 2-hour in-person workshop on the use of NASA Worldview and the Copernicus Browser to access water quality products available for U.S. jurisdictional coastal regions containing economically important coral reefs and associated ecosystems.



Training Learning Objectives

By the end of this training, participants will be able to:

- Use NASA Worldview to assess water quality (i.e., chlorophyll, sea surface temperature) in tropical coastal regions.
- Explore the Copernicus Browser for accessing Sentinel water quality data products for an area of interest.
- Explain how different spatial and temporal resolutions affect water quality data products that can be obtained from Earth observations.



Prerequisites

- [Fundamentals of Remote Sensing](#)
- Or ... equivalent knowledge

Training Outline

Part 1

An Overview of
Worldview's Main
Features for
Visualizing Remote
Sensing Imagery
and Products

August 31, 2026

4-5pm ET

Part 2

An Introduction to
Navigating the
Copernicus Browser

August 31, 2026

5-6pm ET

A certificate of completion will be awarded to those who attended the session.





Worldview and Water Quality Applications in Coastal Regions

Part 1: An Overview of Worldview's Main Features for Visualizing Remote Sensing Imagery and Products

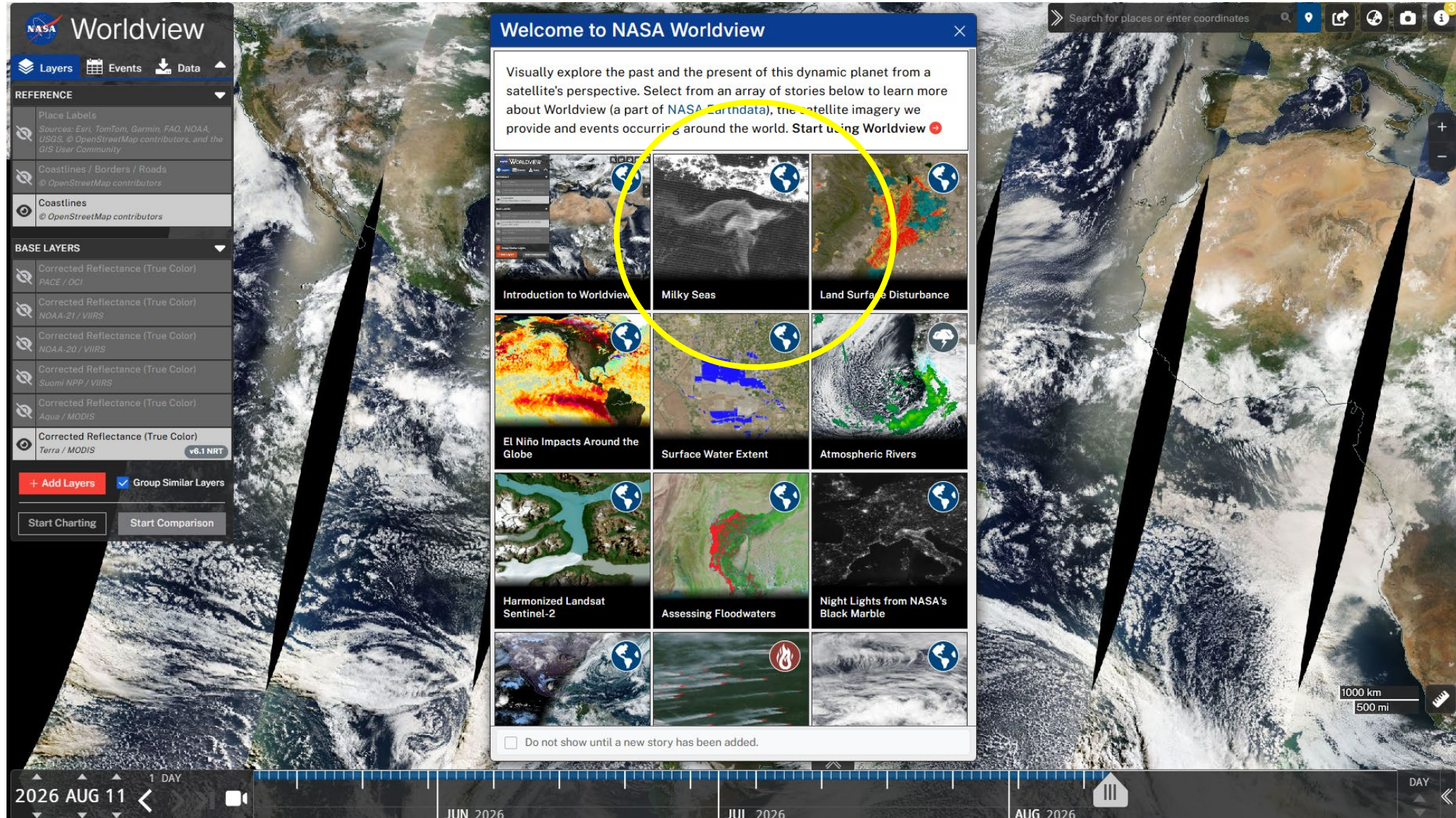
Part 1 Objectives

By the end of Part 1, participants will be able to:

- Explore basic features of Worldview and how to search for specific products for the area of interest.
- Compare diverse water quality products for a specific timeframe for their area of interest using different comparison tools.
- Explore the generation of charts for different water quality products.

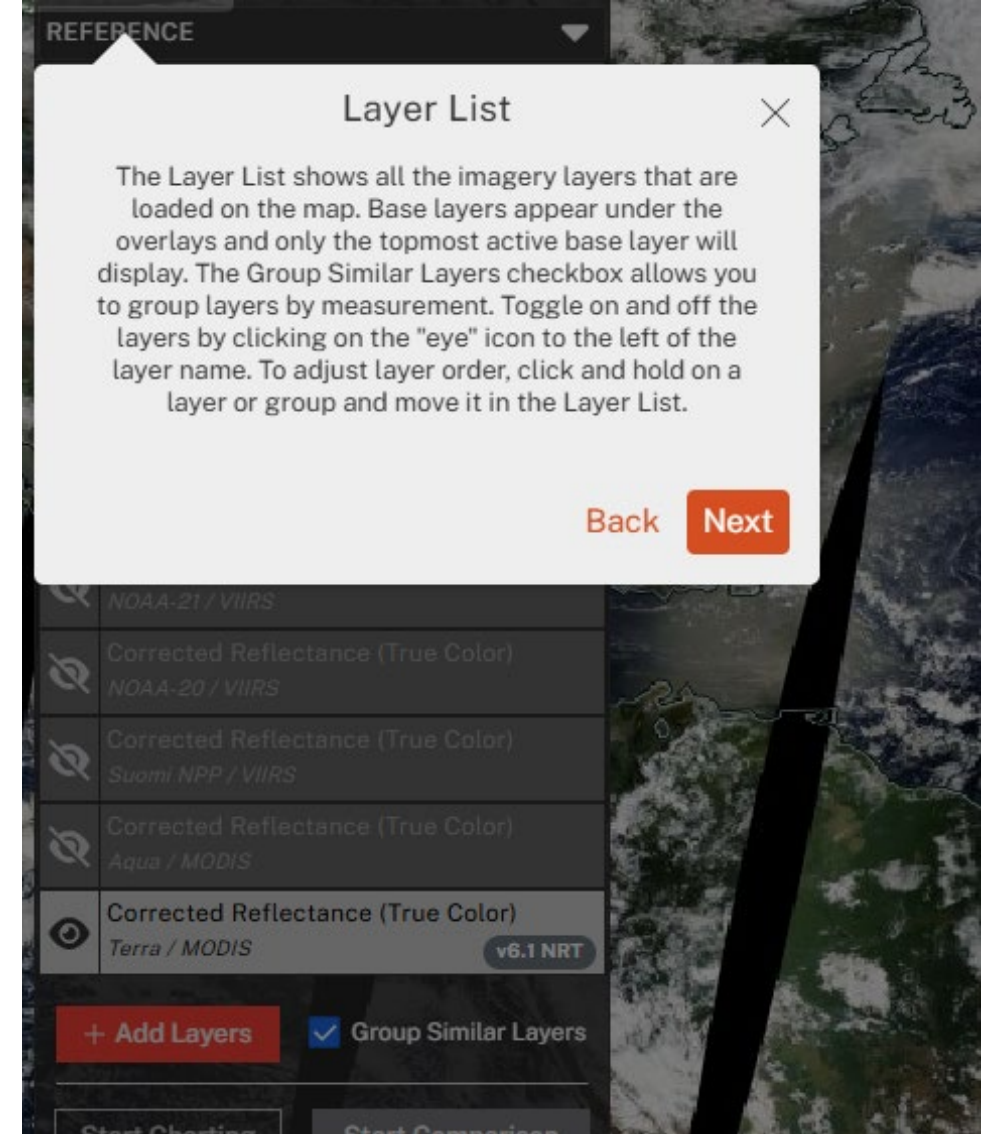


Worldview Main Page ([NASA Worldview](#))



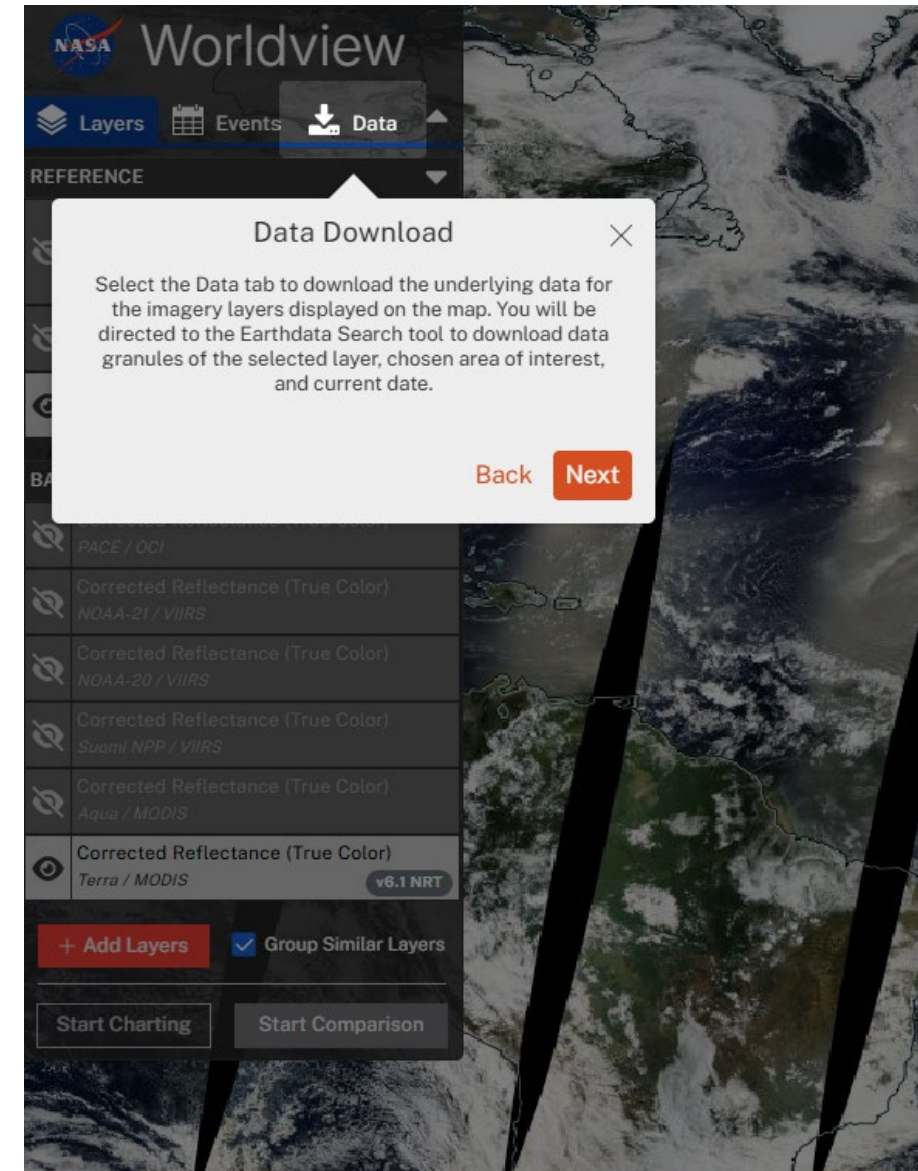
Layers List

- There are >1,200 layers to choose from in Worldview!
- The user can view based on Science Discipline, Hazards and Disasters, and Featured Layers.
- Users can also find a list of layers that they have explored recently or using keywords (i.e., chlorophyll).
- Layers are added using the “Add layers” button on the menu.
- Users can also explore layers of historical and recent events.



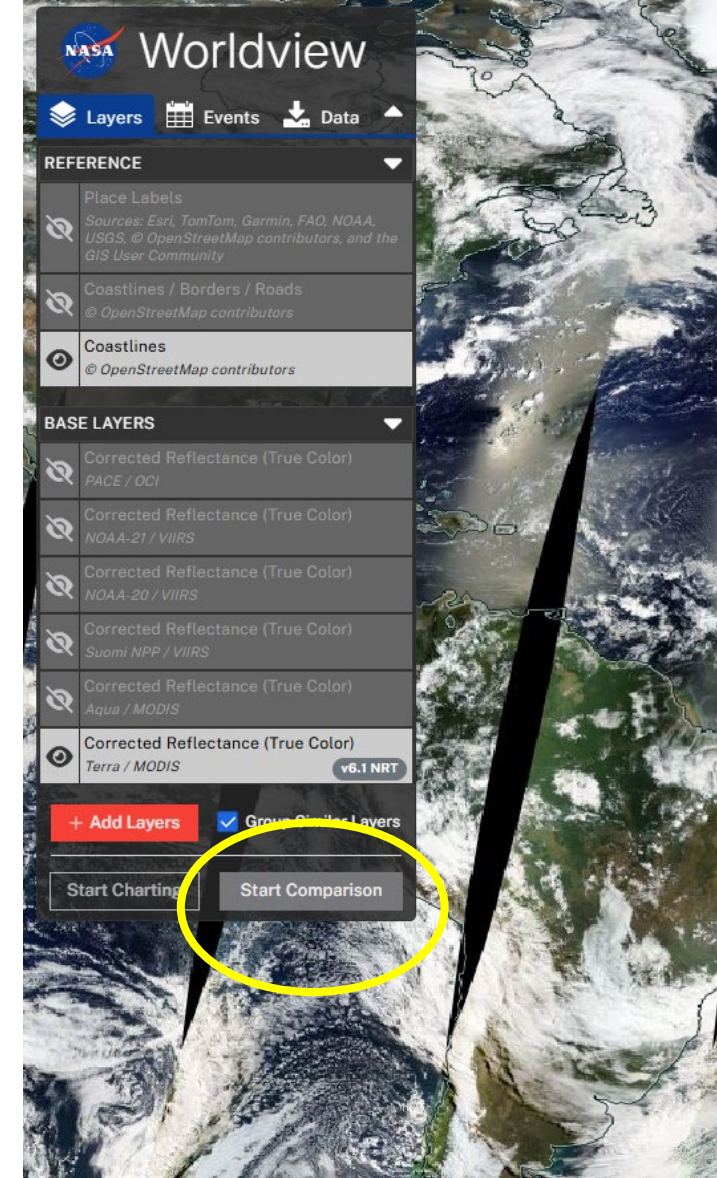
Data Download

- Users can download underlying data for the imagery layers.
- You will need to go to NASA Earthdata to download the imagery.



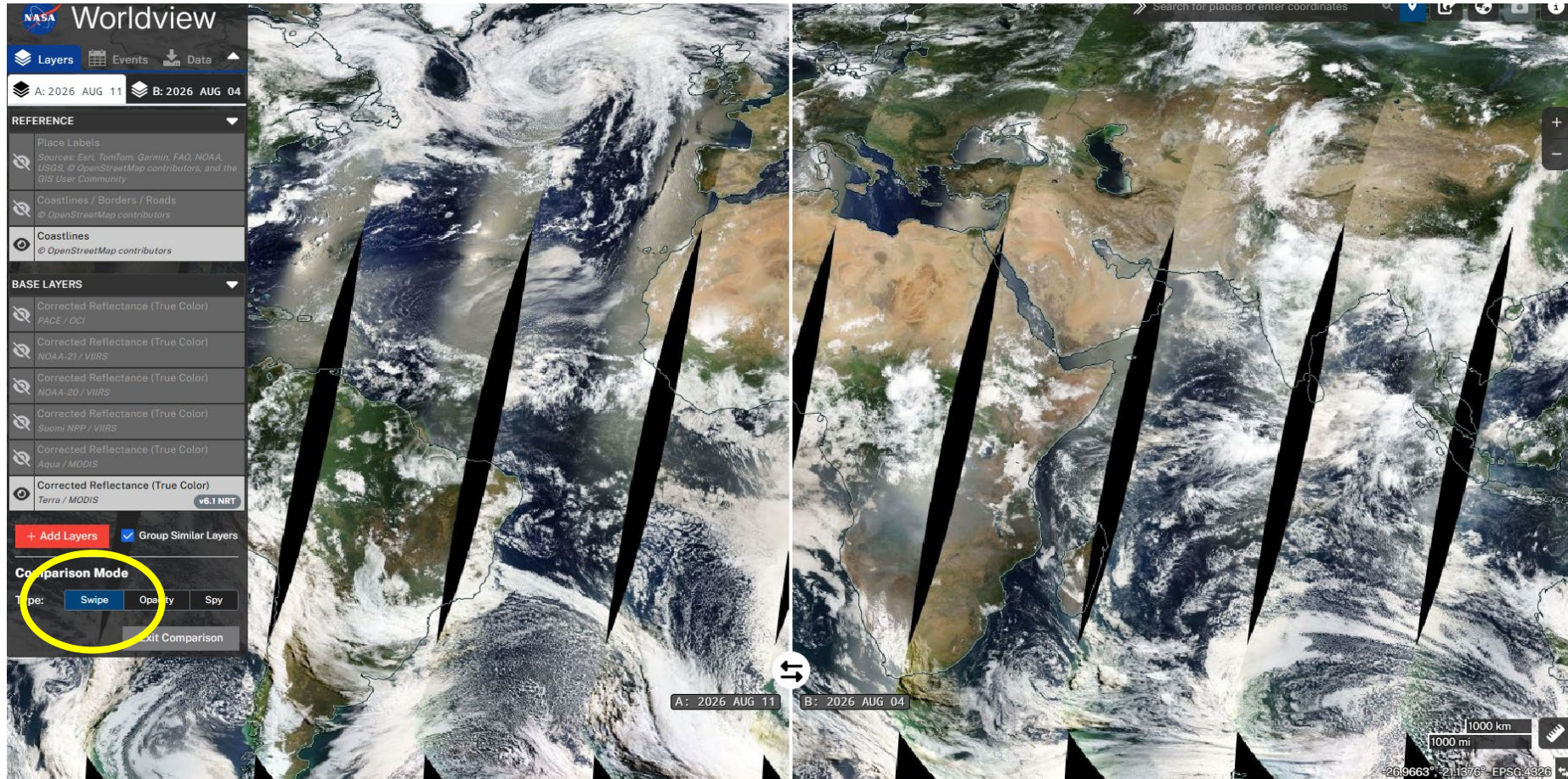
Layers Comparison

- The “Start Comparison” button is a very useful one.
- It allows the user to compare images from two different dates, same date but different sensors, or both.
- Users can take advantage of comparing images with the “swipe”, “opacity” or “spy” features.



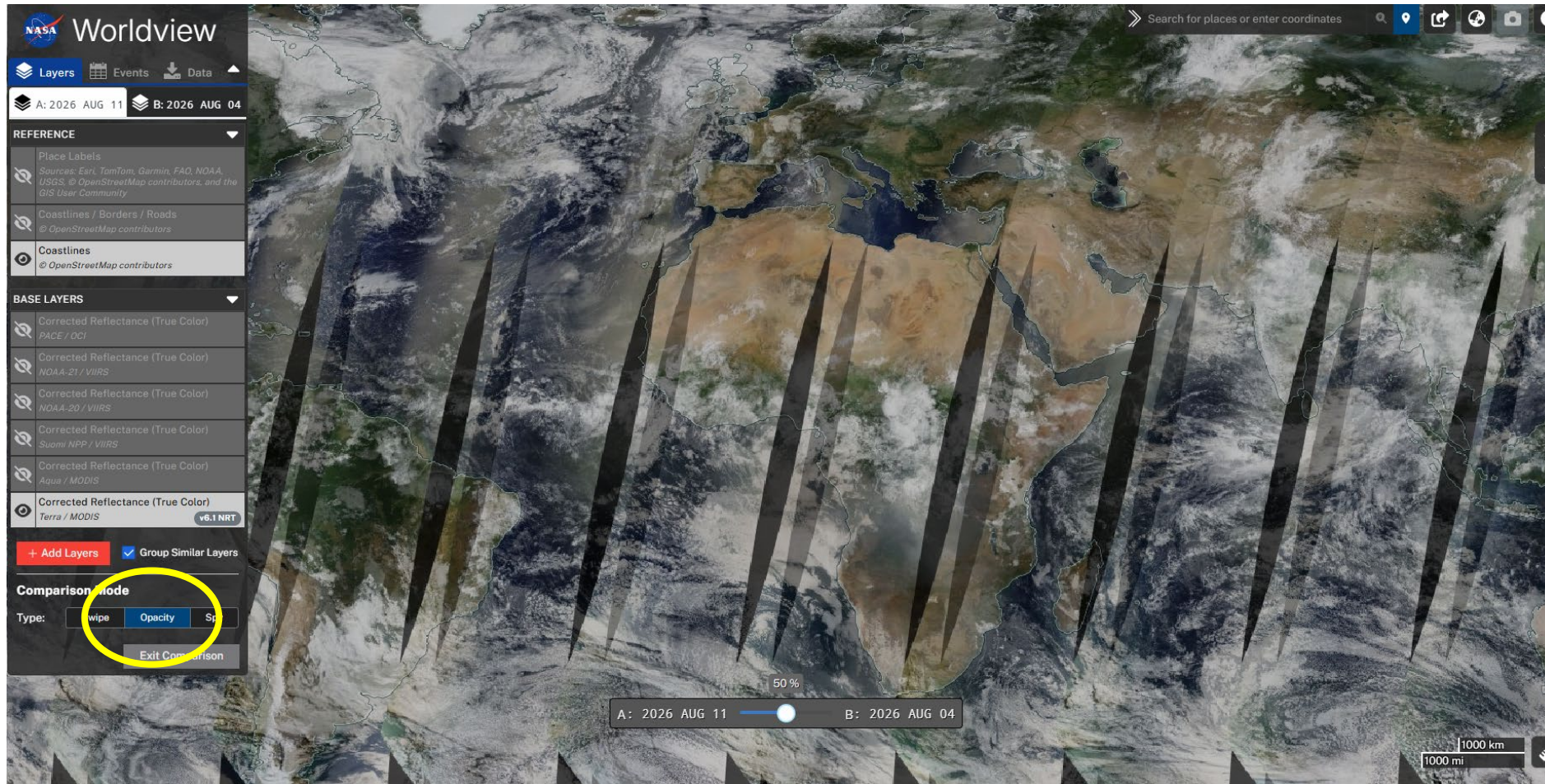
Layers Comparison - Swipe

- The “Swipe” button allows you to move right or left between two images.



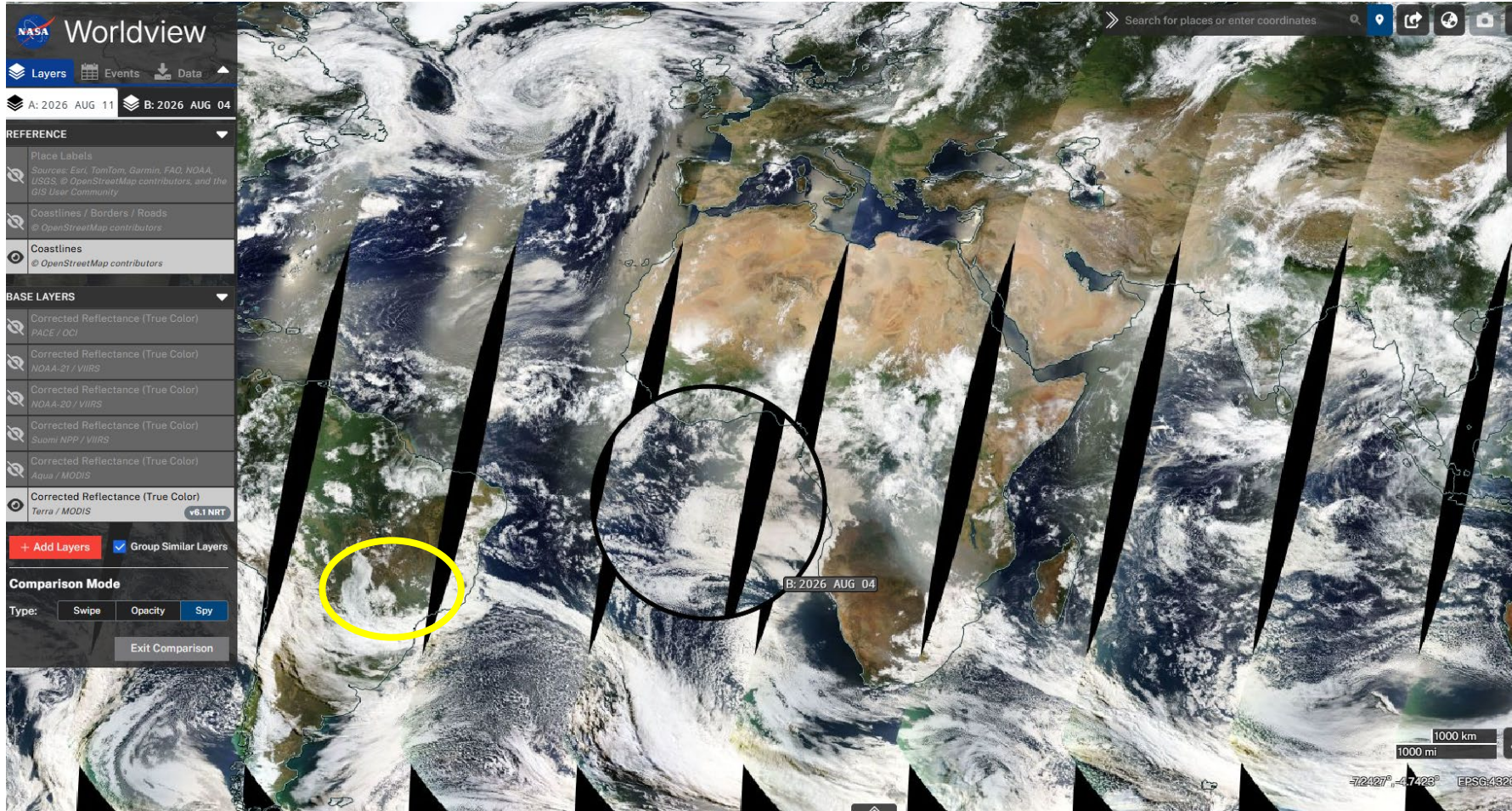
Layers Comparison - Opacity

- The “Opacity” button allows you to change opacity to compare two images.



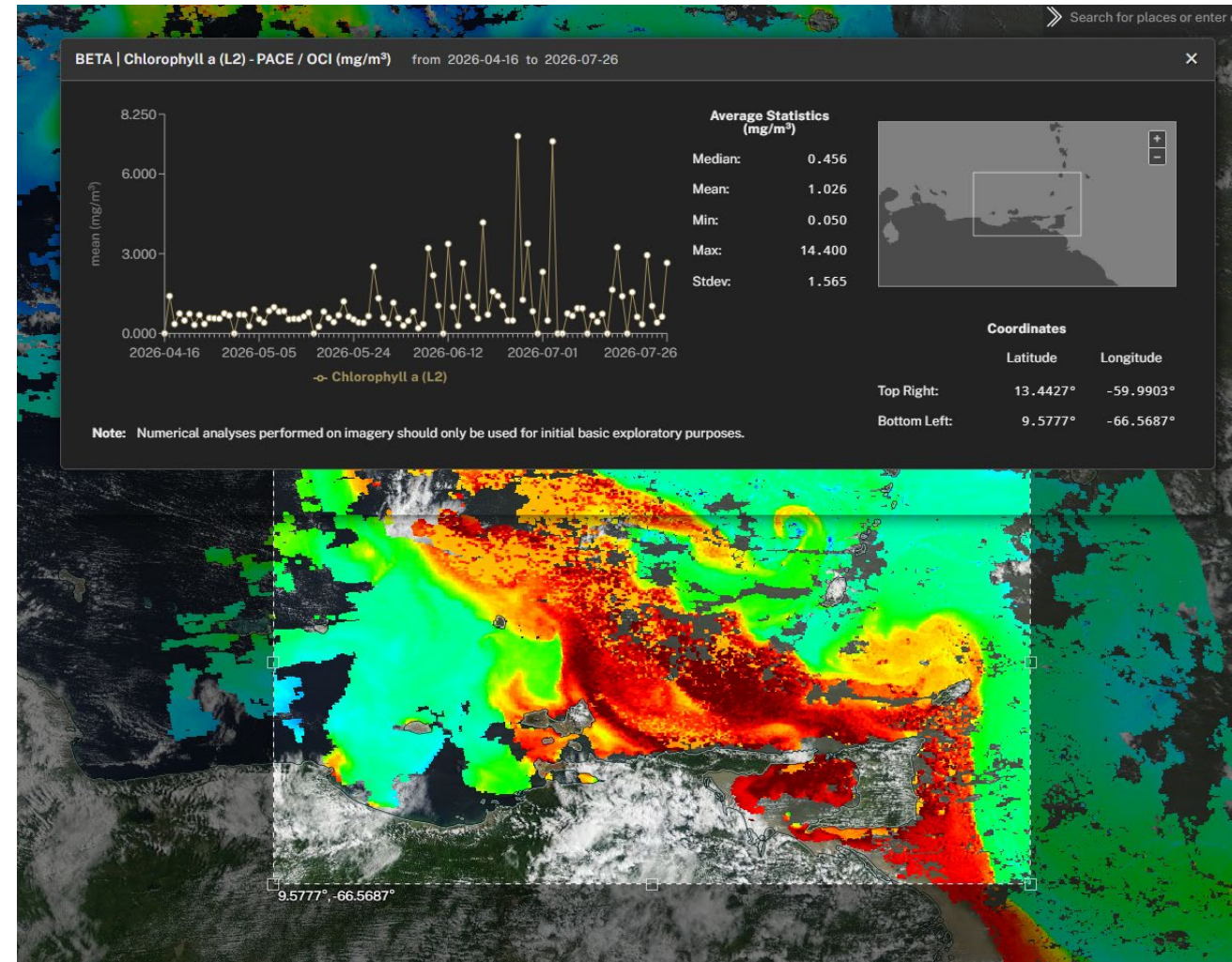
Layers Comparison - Spy

- The “Spy” button allows you to compare two images of the same area by hovering the mouse over.



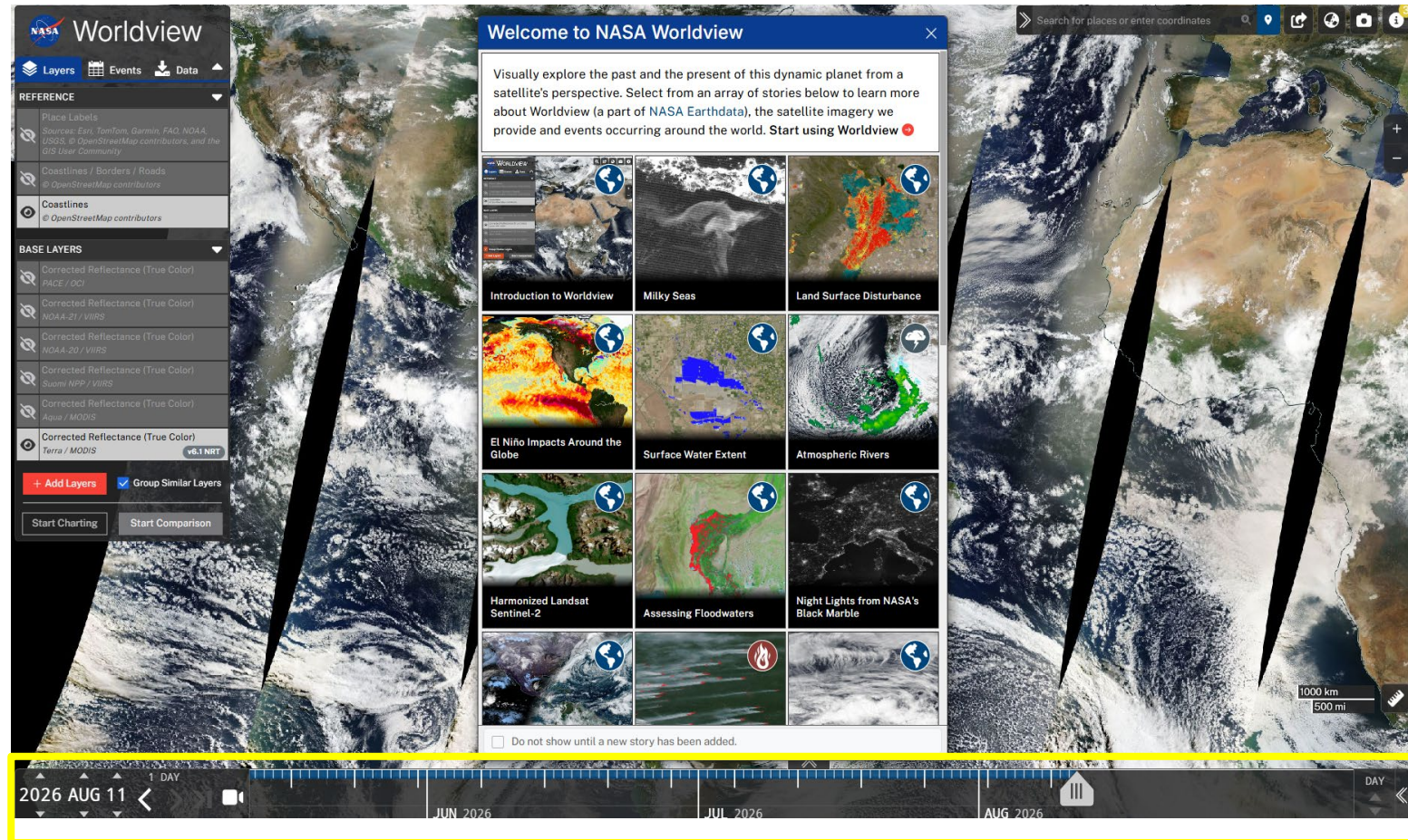
Charting

- “Start Charting” button – allows for comparison of simple statistics (mean) for a specific parameter of interest.
- Users can choose a particular date range for their Area Of Interest (AOI).
- Depending on the parameter, frequency of collection (temporal resolution), presence or absence of clouds, etc., there is a chance of obtaining “no data” or zero values for specific dates.
- At a minimum, users can have an idea of the mean values for the parameter at a specific AOI.



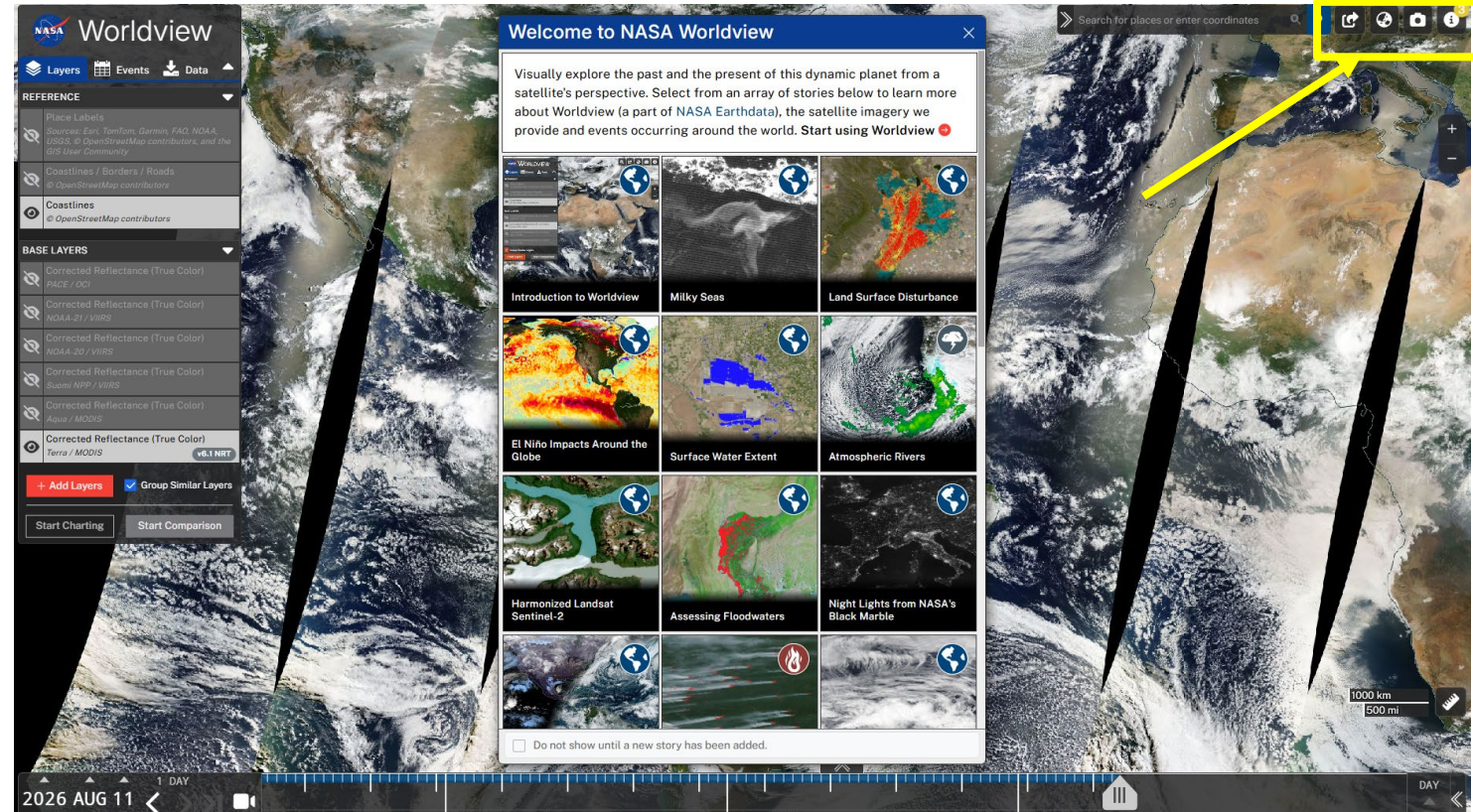
Date and Interval Selector

- Allows user to select a specific date or interval of dates (i.e., days, months, years).



Additional Worldview Features

- Users can also:
 - Share a link of the map
 - Change the map projection
 - Take a snapshot of the image
 - Find additional information about Worldview



Resources

- [Get Started with NASA Worldview | NASA Earthdata](#)
- [Guide to MODIS Rapid Response](#)
- [NASA Worldview Tutorial – NASA HEALTH AND AIR QUALITY APPLIED SCIENCES TEAM – UW–Madison](#)
- [NASA SVS | Worldview: Sea Surface Temperature](#)
- [NASA SVS | NASA's Worldview – Two Decades of Earth Data](#)
- [NASA SVS | How to View and Share Your Planet with Worldview](#)
- [Expand Your View of Earth with NASA Worldview](#)



Hands-on Exercise

Let's Practice!

1. Use the “Search for places or enter coordinates” tab to select your area of interest (AOI).
 - Tip: if selecting a relatively small island, expand the AOI to make sure you get as many layers as possible.
2. Use the date and interval selector to search for a base layer with minimal clouds (you can select on a day-by-day basis or month by month (or year).
3. Click the “+ Add layers” button, under the “Hazards and Disasters” tab, select “chlorophyll-a”
 - By default, it automatically goes to Aqua/MODIS, check “chlorophyll-a (L2)
 - Note that you could have also use the “Science and Disciplines” tab, select Oceans, and then Chlorophyll-a and it will take you exactly to the same menu to select for chlorophyll-a layers from different sensors.
4. You can select as many layers as you like, but for this exercise let's also select the PACE/OCI, chlorophyll-a (L2) layer, and close the + Add Layers menu.
5. Now, feel free to click on the date and interval selector. You will see that for some days there is no data for your AOI. This may be caused by clouds, bad data, etc.



Let's Practice!

6. For a good day of data, zoom in and move the cursor over any pixel (or pixels) with data. You will see how on the layers menu, values will change depending on which pixel you are located.
7. Zoom out a bit. We will use now the “Start Comparison” feature.
 - Click on “Start Comparison”, then on “Swipe”.
 - You may now explore different images from different days and how chlorophyll-a values compare between those days.
 - Now you may change the comparison feature by clicking on “Opacity”. Note that you can control the level of opacity between layers.
 - Do the same but with using the “Spy” button. Note that it will use the date shown as “B” as the base and the spy glass will show the pixels of the date “A”.
 - Now exit the “Start comparison” feature.



Let's Practice!

Let's create a chart now.

1. Click on the "Start Charting" button.
2. Using the selection box, select an AOI. Since we are interested in chlorophyll-a values, try to keep the selection box within coastal or oceanic waters, and not much over land.
3. Once you select the AOI, click on "Generate Chart"
 - Note that the graph only shows an average of all pixels within the selected box.
 - There is also a chance of getting no data or zero values for any given date.

