

RealEarth Desktop Interface Quick Guide



Developed for the NOAA Proving
Ground Global Flood Team



RealEarth Overview

- RealEarth is a server-based data visualization system developed at SSEC/CIMSS, University of Wisconsin-Madison that provides satellite imagery and related data products to desktop and mobile clients.
- It is built on open source software including, MapServer, GDAL, Proj4, PHP, and Python.
- The purpose of RealEarth is to provide a simple interface for data visualization and comparison across the atmospheric, oceanic, and Earth science domains.

RealEarth from NOAA Satellite Proving Ground Global Flood Website

- The flood products within RealEarth can be accessed from the NOAA Satellite Proving Ground Global Flood Website (<https://www.ssec.wisc.edu/flood-map-demo/flood-products/>)
- Each product opens in a new tab. The following will use the VIIRS 1 day composite as an example.
- Most information needed for use is contained in the RealEarth Help (the “?” button on the upper left of the interface) and RealEarth documentation site (<http://realearth.ssec.wisc.edu/doc/>)
- The following slides will provide a **brief** overview of some of the features

RealEarth Browser Interface

Settings

Login

Help

The screenshot displays the RealEarth Browser Interface. The main view is a world map with a river flow composite overlay. The interface includes a sidebar on the left with the following sections:

- Animation & Times**: Contains playback controls (play, stop, previous, next, first, last) and a timeline slider. Below these are buttons for "Relative", "Absolute", and "Product". The "Show" field is set to "6" and "time steps". The "Of" field is set to "RIVER-FLDglobal-composit".
- Products & Layers**: Contains a "Collection" dropdown set to "RealEarth". Below are buttons for "Presets", "Products", and "Displayed". A list of products is shown, including "RIVER-FLDglobal-composit1" with a checkbox and a date/time stamp "2019-09-22 00:00:00". A slider below the list is labeled "Transparency level".

The top of the interface features a "Satellite" dropdown, an "Outlines" dropdown, a "Location Search" input field, a clock icon, and a timestamp "2019-09-22 00:00:00UTC" with coordinates "51.94N 97.73W". The bottom right corner shows a "Legend" button and a "Leaflet | RealEarth labels, RealEarth basemap" footer.

RealEarth website – Help

Displays information on settings, etc. for RealEarth.
Contains documentation on how to operate RealEarth

The screenshot shows the RealEarth web application interface. On the left, there are panels for 'Animation & Times' and 'Products & Layers'. The 'Animation & Times' panel includes playback controls and a 'Show' dropdown set to '6 time steps'. The 'Products & Layers' panel shows a collection named 'RealEarth' with a product 'RIVER-FLDglobal-composite1' selected. A 'Help' window is open in the center, displaying information about the platform, including its location at SSEC/CIMSS at the University of Wisconsin-Madison, and links to the website, documentation, and contact email. The background is a satellite map of the Pacific Ocean with a coordinate display of 52.70N 23.55W and a timestamp of 2019-09-22 00:00:00 UTC.

Help

About

RealEarth is a data discovery and visualization platform developed at SSEC/CIMSS at the University of Wisconsin-Madison.

Webpage: <https://www.ssec.wisc.edu/realearth>
Documentation: <https://realearth.ssec.wisc.edu/doc>
Contact: realearth@ssec.wisc.edu

Selector

The Selector is the control component of the RealEarth User Interface. It includes a variety of controls to inspect and create displays. The Selector is shown on the left side of the display. From top to bottom, there are 4 components:

- Tool Bar
- Animation controls
- Time Selection
- Product Selection

Tools

The tool bar provides quick access to this documentation, a way to manually refresh the latest data, and options for Settings and Sharing.

Settings

Click the **Settings** button to configure global options:

- **Time Display**
Select the format of the displayed date and time

RealEarth website – Settings

Allows user to change settings of RE session

The screenshot shows the RealEarth website interface. The main map displays a satellite view of South America and Africa. A settings dialog box is open in the center, titled "Settings". The dialog box contains the following options:

- Time Display:** YYYY-MM-DD, YYYYDDD, 12hr, 24hr, UTC, Local
- Units:** Metric, Imperial
- Refresh Data:** ☒ Every 5 minutes, Refresh Now
- Wait For Data:** ☐ Wait for data to load before showing in animation
- Preload Data:** ☐ Load next animation step in the background
- Prompt For Times:** ☒ Prompt for date & time parameters when loading presets
- Remember View:** ☐ Save view and products between sessions
- Reset & Reload...**

The background interface includes a top navigation bar with a search icon, a "Tools" dropdown, and a "Share" button. Below this is the "Animation & Times" panel with playback controls and a "Products & Layers" panel showing a collection of "RealEarth" products. A "RIVER-FLDglobal-composit1" product is selected, showing a timeline from 2019-09-22 00:00:00. The bottom right corner features a "Legends" panel and a "Leaflet | RealEarth labels, RealEarth basemap" footer.

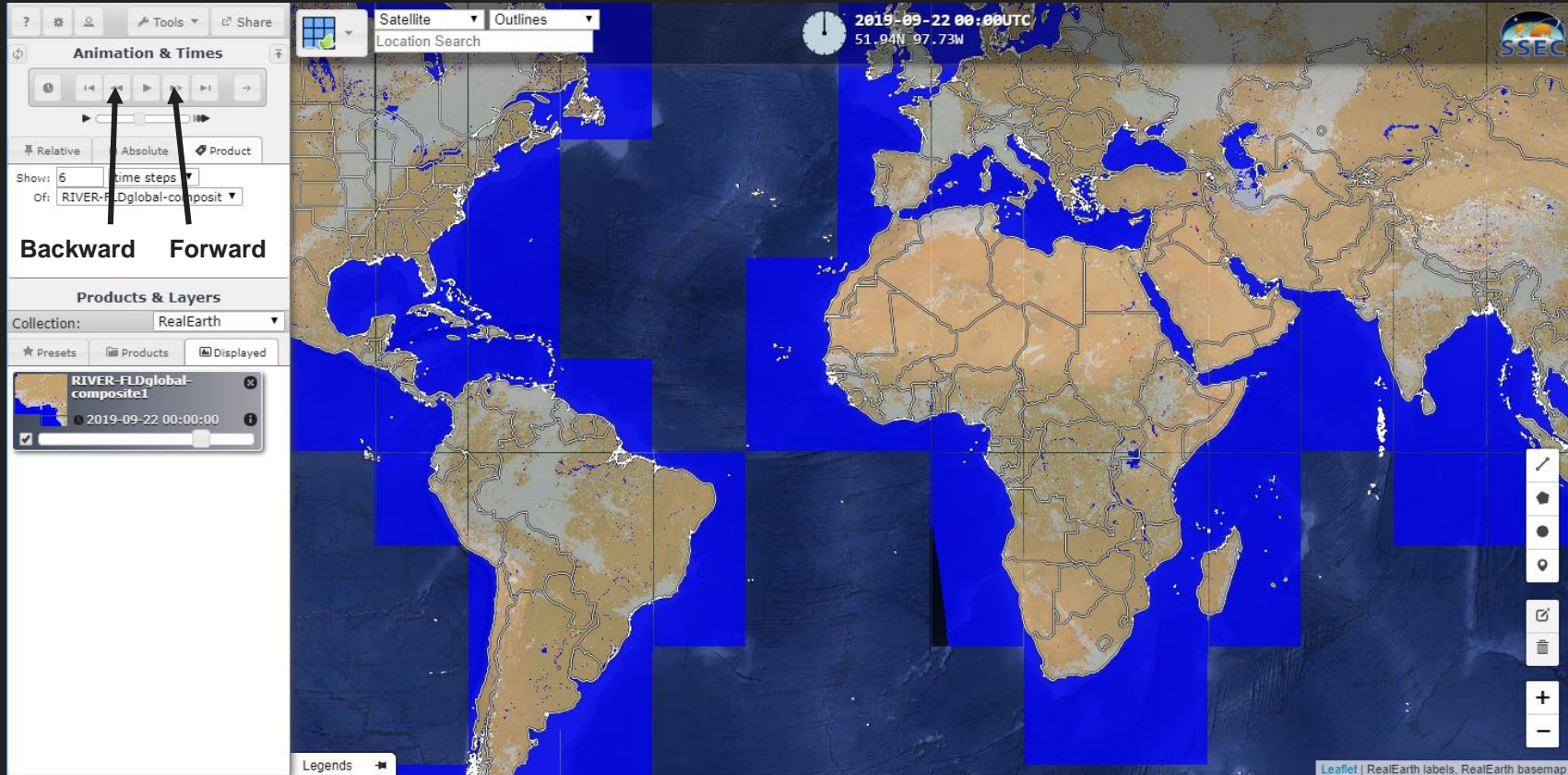
RealEarth website – Login

RealEarth has a limited number of frames per day for a given IP address. Having a free login will double the quota. Not necessary unless you are refreshing a log of data constantly

The screenshot displays the RealEarth web application interface. On the left, there are two main panels: 'Animation & Times' and 'Products & Layers'. The 'Animation & Times' panel includes playback controls (play, stop, previous, next, first, last) and a timeline slider. Below it, the 'Products & Layers' panel shows a collection named 'RealEarth' with a list of products, including 'RIVER-FLDglobal-compositel'. The main area of the interface is a world map showing the Americas, Africa, and parts of Europe and Asia. A 'User Login' dialog box is overlaid on the map, featuring input fields for 'User name' and 'Password', a 'Log In' button, and a message: 'Please visit the [User Tools](#) page to register or reset your password'. The top of the interface shows a clock indicating the time '2019-09-22 00:00:00 UTC' and coordinates '52.70N 91.58W'. The bottom right corner of the map area contains navigation controls (pan, zoom, full screen, etc.) and a scale bar.

RealEarth Browser – Stepping through timesteps

You can step through timesteps by using the forwards and backwards buttons, indicated by arrows, or by using the left (backwards) and right (forwards) buttons on the keyboard



RealEarth Browser – Animate product

You can animate the timesteps by clicking on the “play” button.

The screenshot displays the RealEarth Browser interface. The main map shows a world map with a river flow product overlay. The interface includes a left sidebar with the following sections:

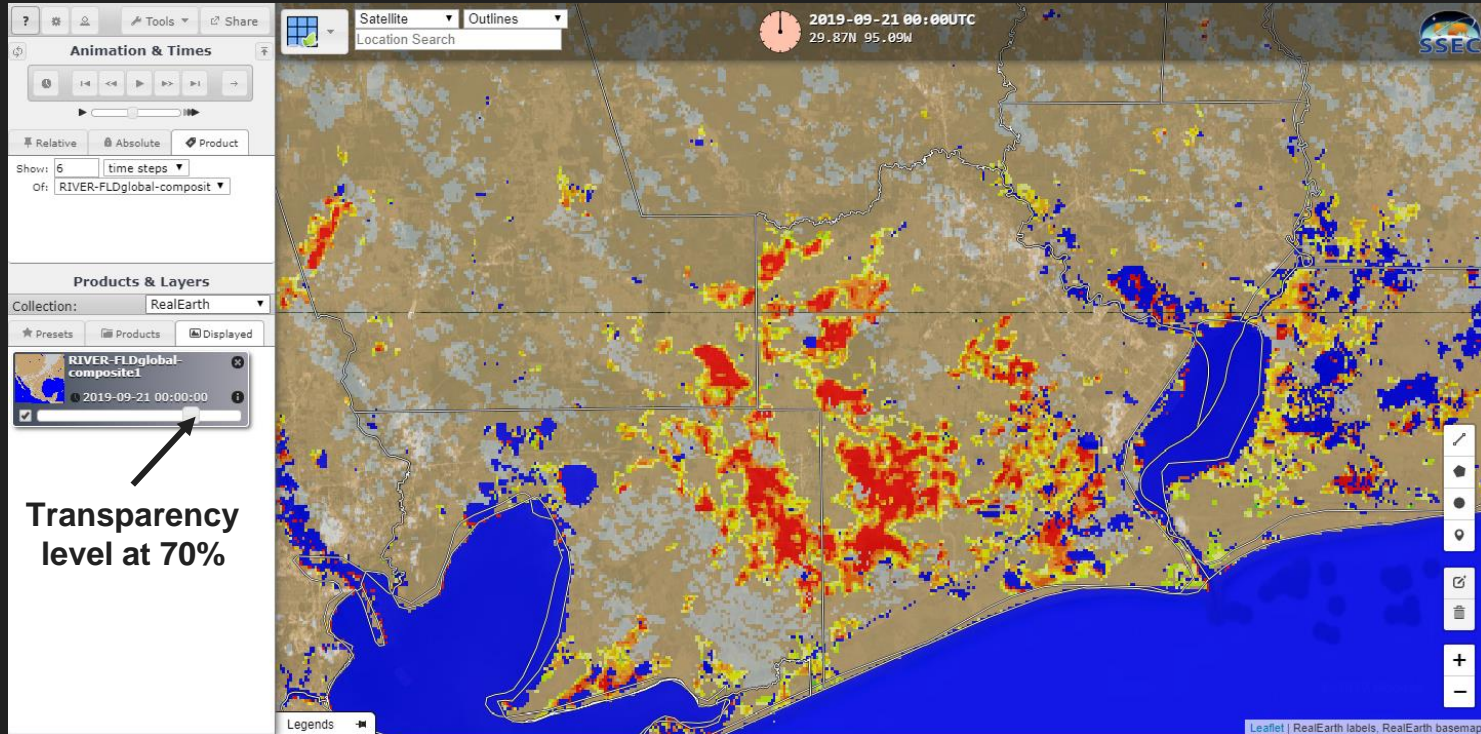
- Animation & Time:** Contains a play button (indicated by an arrow), a timeline slider, and buttons for 'Relative', 'Absolute', and 'Product'.
- Products & Layers:** Shows a collection of products, including 'RIVER-FLDglobal-composit1' with a timeline slider.

The top toolbar includes a 'Satellite' dropdown, an 'Outlines' dropdown, and a 'Location Search' input field. The map displays a river flow product overlay on a satellite background. The product is labeled 'RIVER-FLDglobal-composit1' and shows a timeline slider. The map also displays a date and time stamp: '2019-09-22 00:00:00 UTC' and coordinates '51.94N 97.73W'. The bottom right corner features a 'Legends' panel and a 'Leaflet | RealEarth labels, RealEarth basemap' footer.

RealEarth Browser – Change transparency level

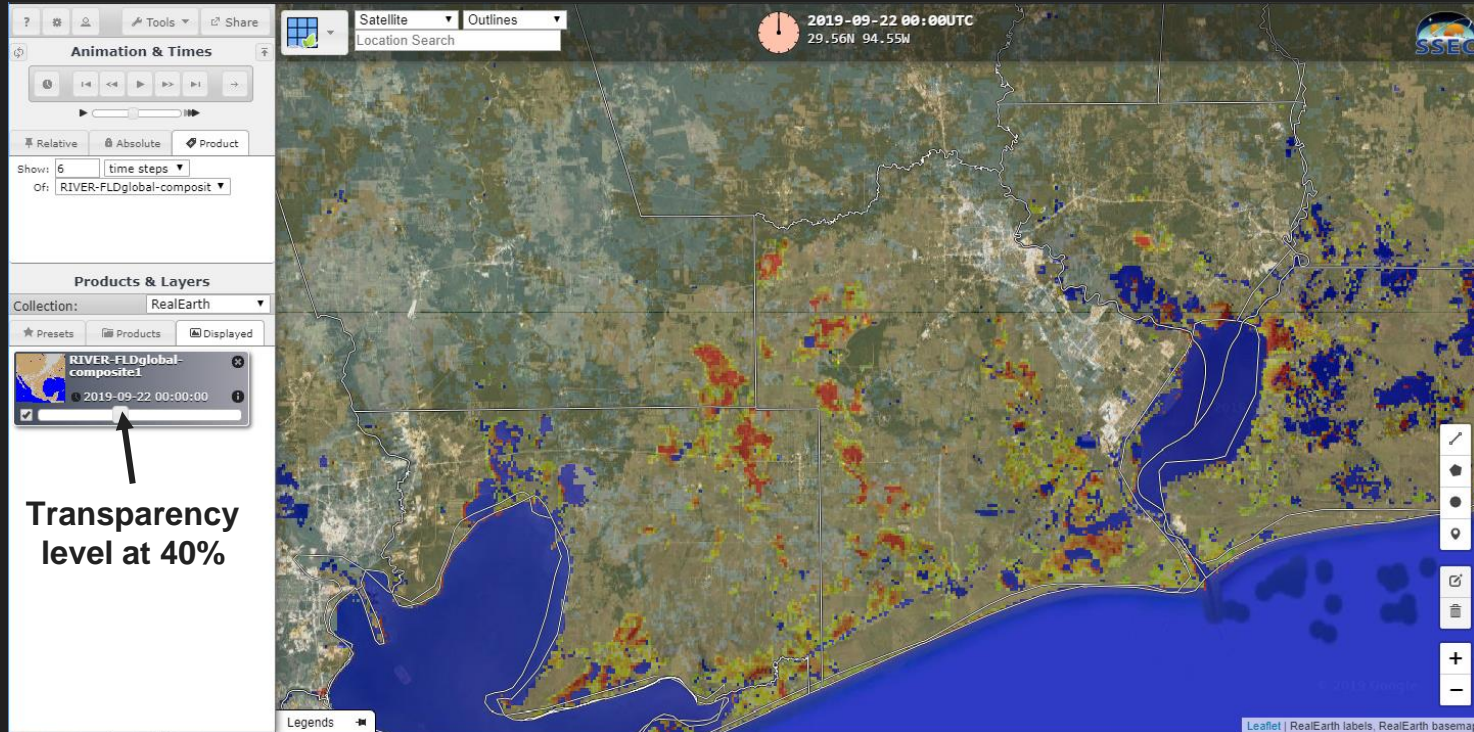
The default transparency level for the links provided is 70%. However, users can change this to see if flooding is impacting a population center or just open land.

This example will look over the Beaumont area after TD Imelda on 21 September



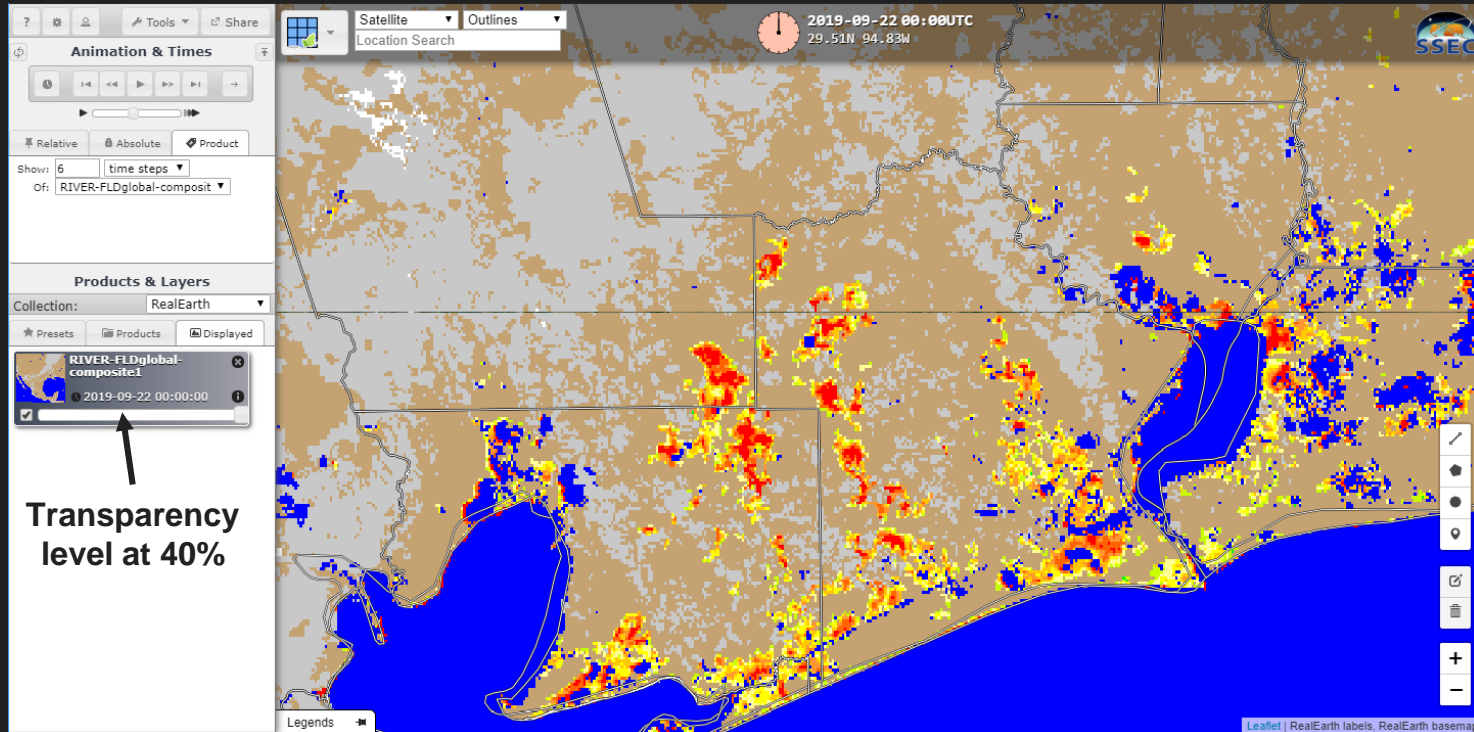
RealEarth Browser – Change transparency level

By sliding the transparency level bar with the mouse to the left, the transparency is now at **40%**. Note how features such as highways and cities can be seen from the background satellite map



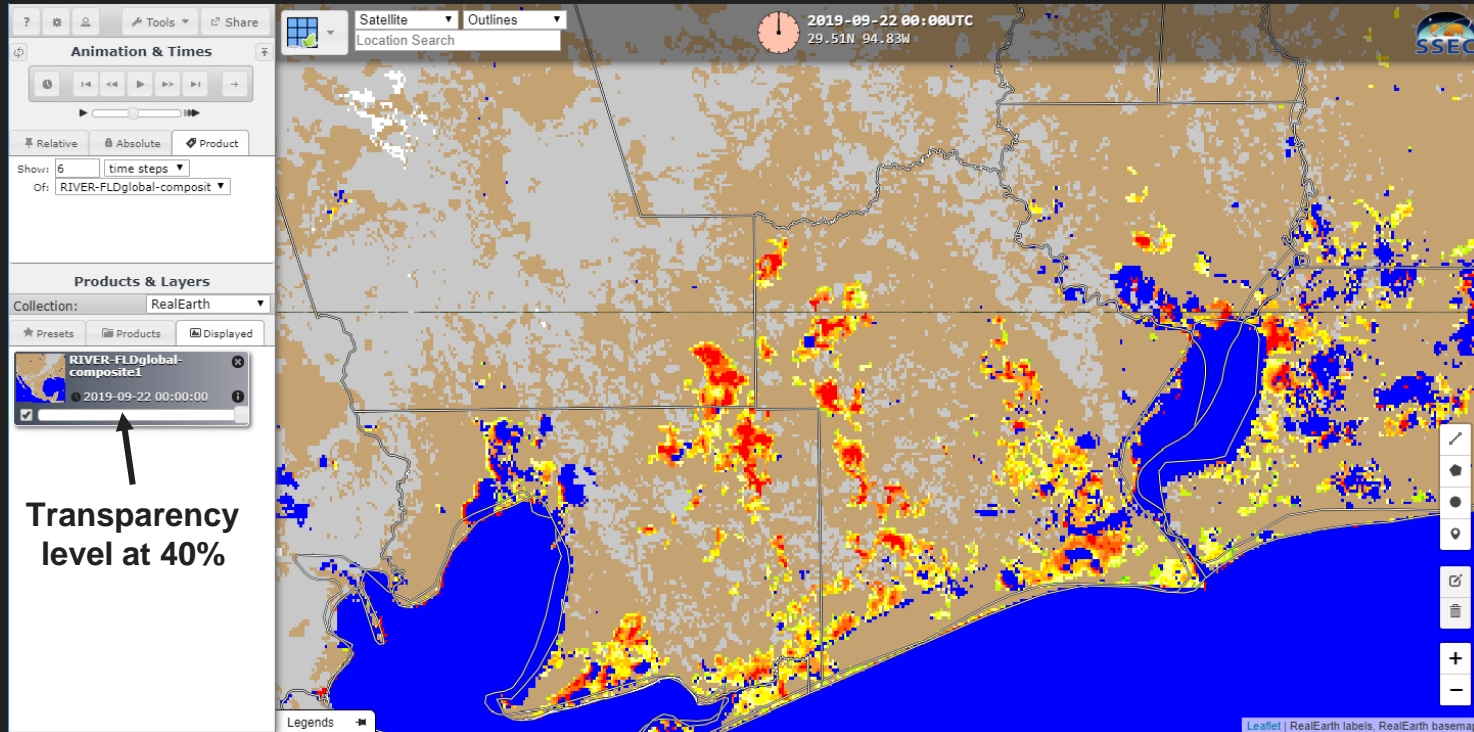
RealEarth Browser – Change transparency level

By sliding the transparency level bar all the way to the right,, the transparency is now at **100%**.
Note how the background satellite map can no longer be seen.



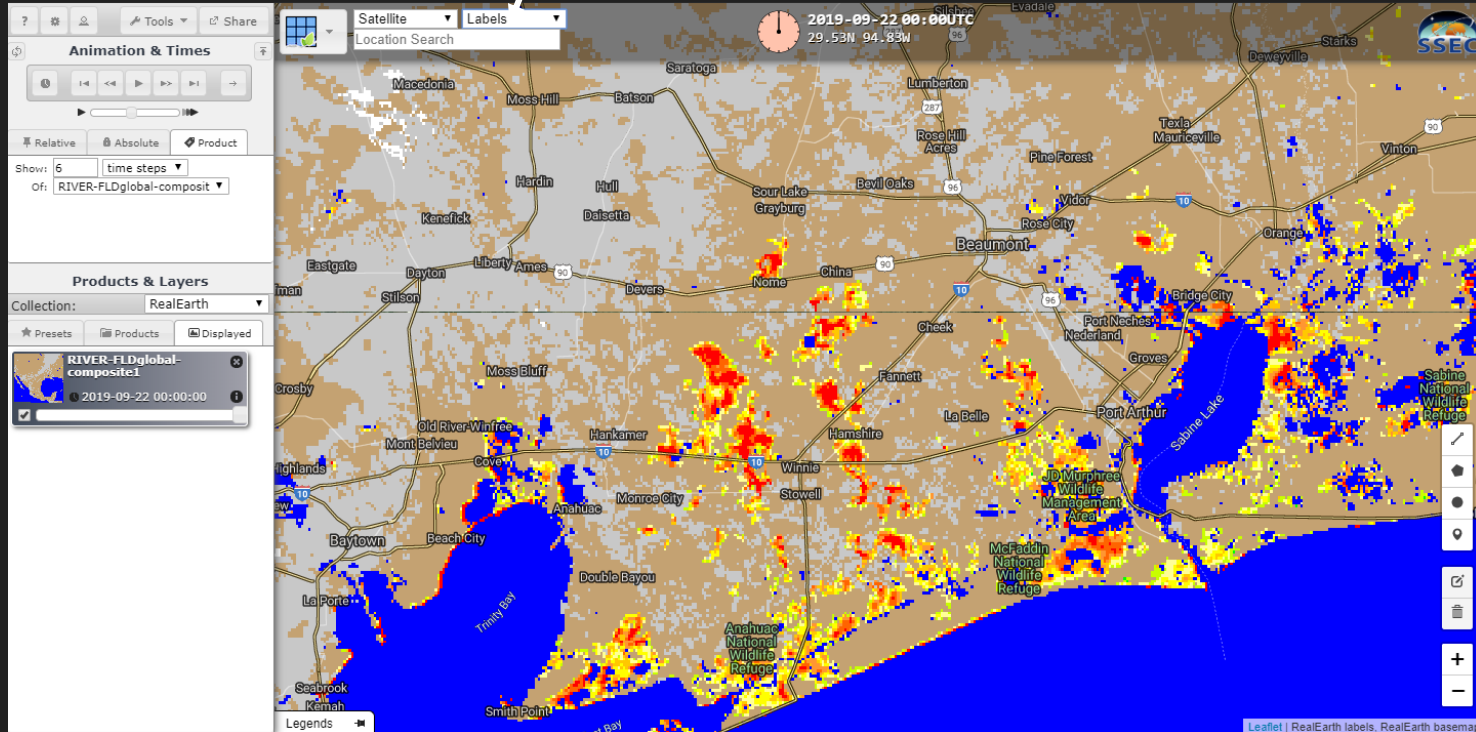
RealEarth Browser – Change transparency level

By sliding the transparency level bar all the way to the right,, the transparency is now at **100%**.
Note how the background satellite map can no longer be seen.



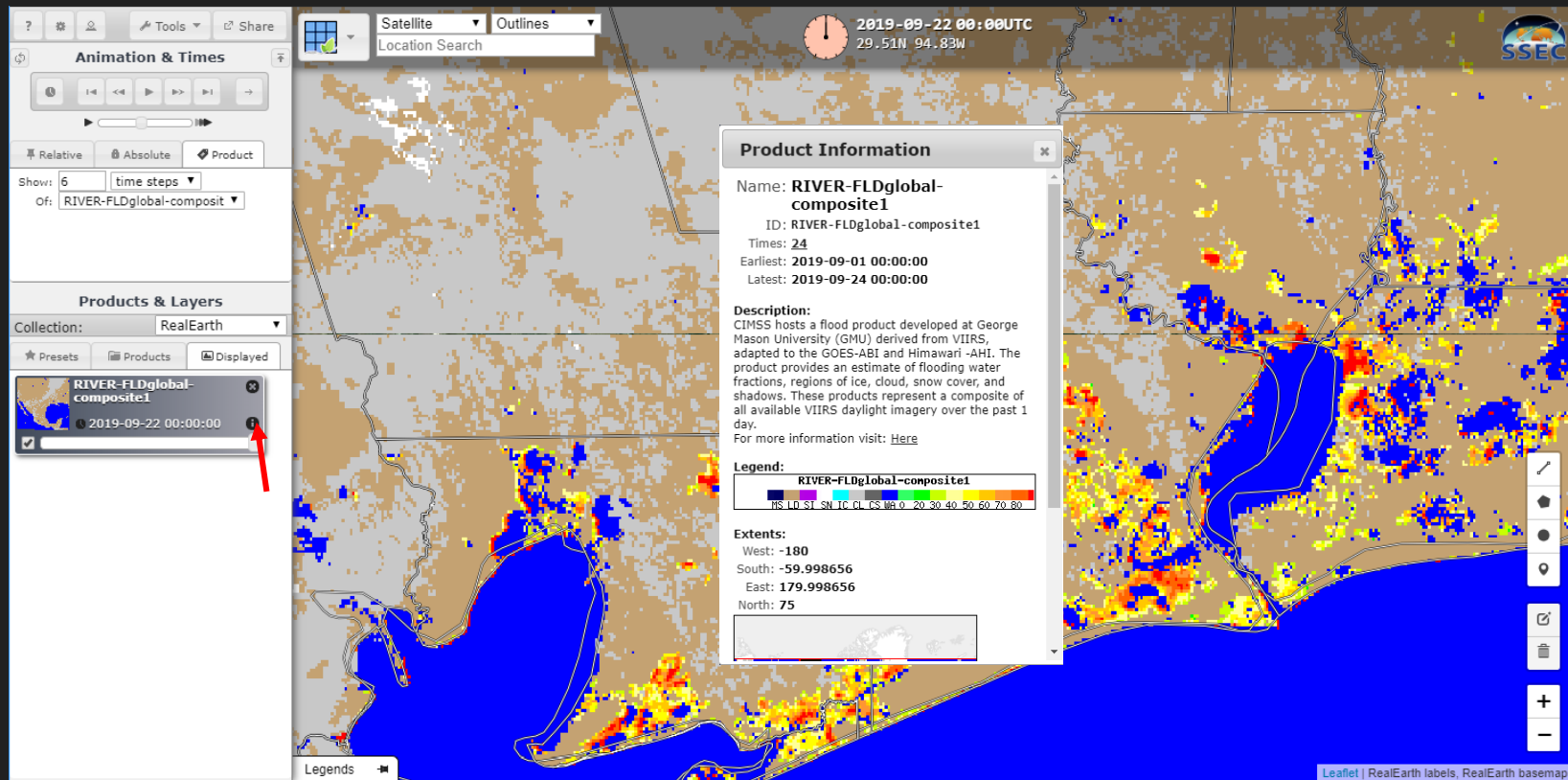
RealEarth Browser – Change labels

You can also change what labels are displayed by using the pull down tab in the display window and making a selection (“Labels” in this case)



RealEarth Browser – Product Information

By clicking on the “i” button (indicated by red arrow), you can get information on the product being displayed.



RealEarth Browser – Sharing

You can also share links and images by clicking on the “Share” button. This will put bring up a display which will provide a variety of methods of sharing, including limited GIS-friendly outputs as well as GIS links.

The screenshot displays the RealEarth Browser interface. On the left, the 'Animation & Times' panel shows a timeline for 'RIVER-FLDglobal-composit1' from 2019-09-21 00:00:00. The 'Products & Layers' panel shows the same product. The main map area displays a satellite view of a coastal region with a data overlay. A 'Share Display' window is open in the foreground, titled 'Share Display'. It contains the following information:

- Products: RIVER-FLDglobal-composit1
- Times: Last 6 time steps
- Media: Web, Email, Facebook, Twitter
- RealEarth: <https://re.ssec.wisc.edu/s/M1bUWF>
- Collaborate: Start Remote Sharing Session
- Embed: Show JavaScript/HTML
- Picture/Movie: PNG Image, Animated GIF, MP4 Movie, Download

The 'Share options window' is highlighted with a large text label. The background map shows a coastal area with a data overlay, and the bottom right corner includes a 'Leaflet | RealEarth labels, RealEarth basemap' attribution.

Other information

- SSEC RealEarth
 - RealEarth documentation site (<http://realearth.ssec.wisc.edu/doc/>)
 - Note that these products are also available on RealEarth App (available for Android and Apple)
- Note that these products are not supported 24/7 but do have a high reliability of uptime.
- If there are more technical RealEarth questions or WMS or WTMS links for various products, please contact Sam Batzli (sabatzli@wisc.edu) and William Straka (wstraka@ssec.wisc.edu)