

Web Map Apps using NASA's Earth Observing Fleet

IN51B-1854

Boller, R.¹ (ryan.a.boller@nasa.gov), Baynes, K.¹, Pressley, N.², Thompson, C.³, Cechini, M.², Schmaltz, J.², Alarcon, C.³, De Cesare, C.³, Gunnoe, T.², Wong, M.², King, B.², Roberts, J.³, Rodriguez, J.³, De Luca, A.², King, J.²

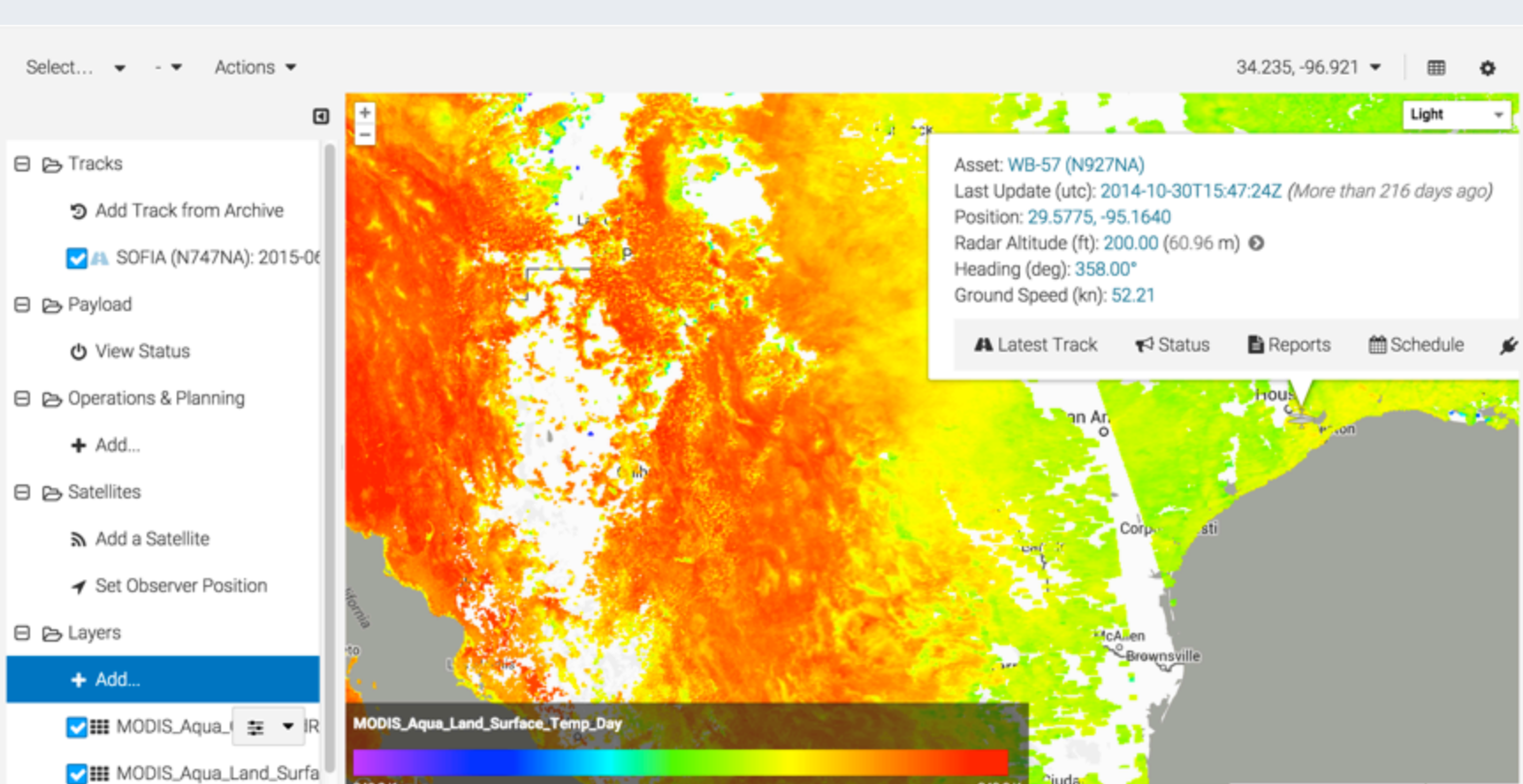
earthdata.nasa.gov/gibs

1: Earth Science Data and Information System Project, NASA/Goddard Space Flight Center, Greenbelt, MD USA;
2: Science Systems and Applications, Inc., Lanham, MD USA; 3: Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA USA

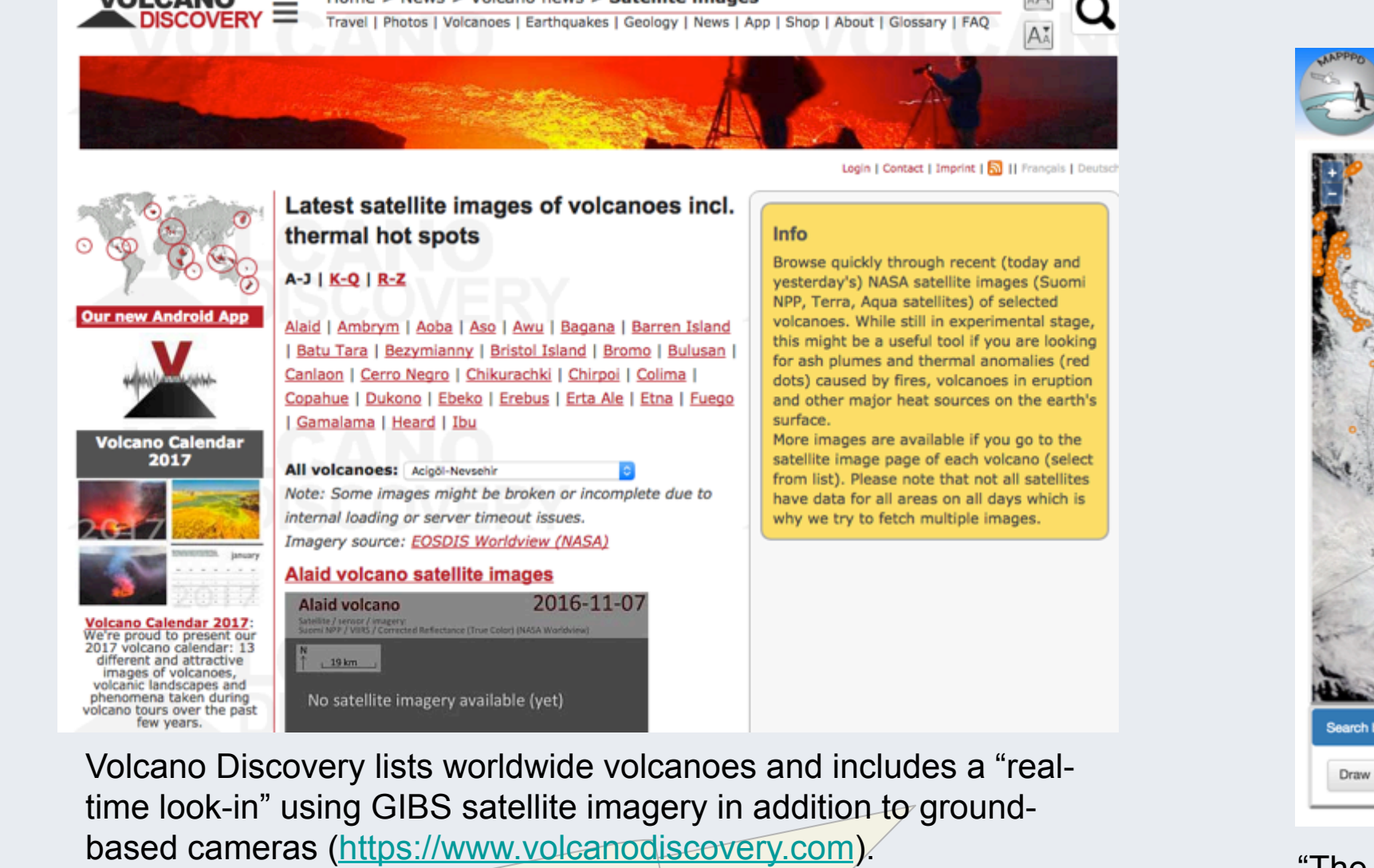
Overview: Through the miracle of open web mapping services for satellite imagery, a garden of new applications has sprouted to monitor the planet across a variety of domains. The Global Imagery Browse Services (GIBS) provide free and open access to full

resolution imagery captured by NASA's Earth observing fleet. Spanning 15+ years and running through as recently as "a few hours ago", GIBS aims to provide a general-purpose window into NASA's vast archive of the planet.

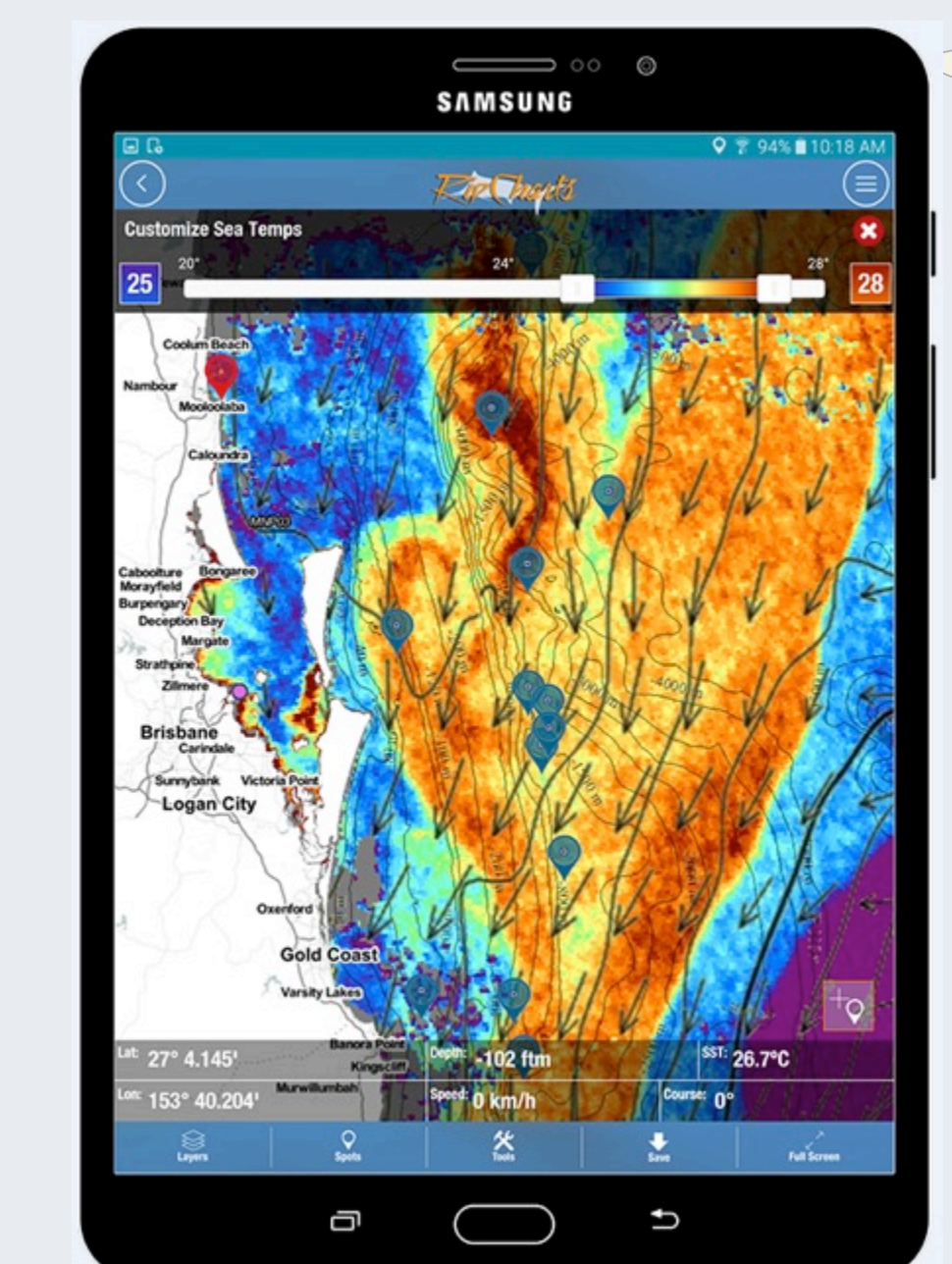
Applied Science



The NASA Mission Tools Suite (MTS) uses satellite imagery via GIBS to provide context for airborne mission planning and operations (<https://mts.nasa.gov/>).

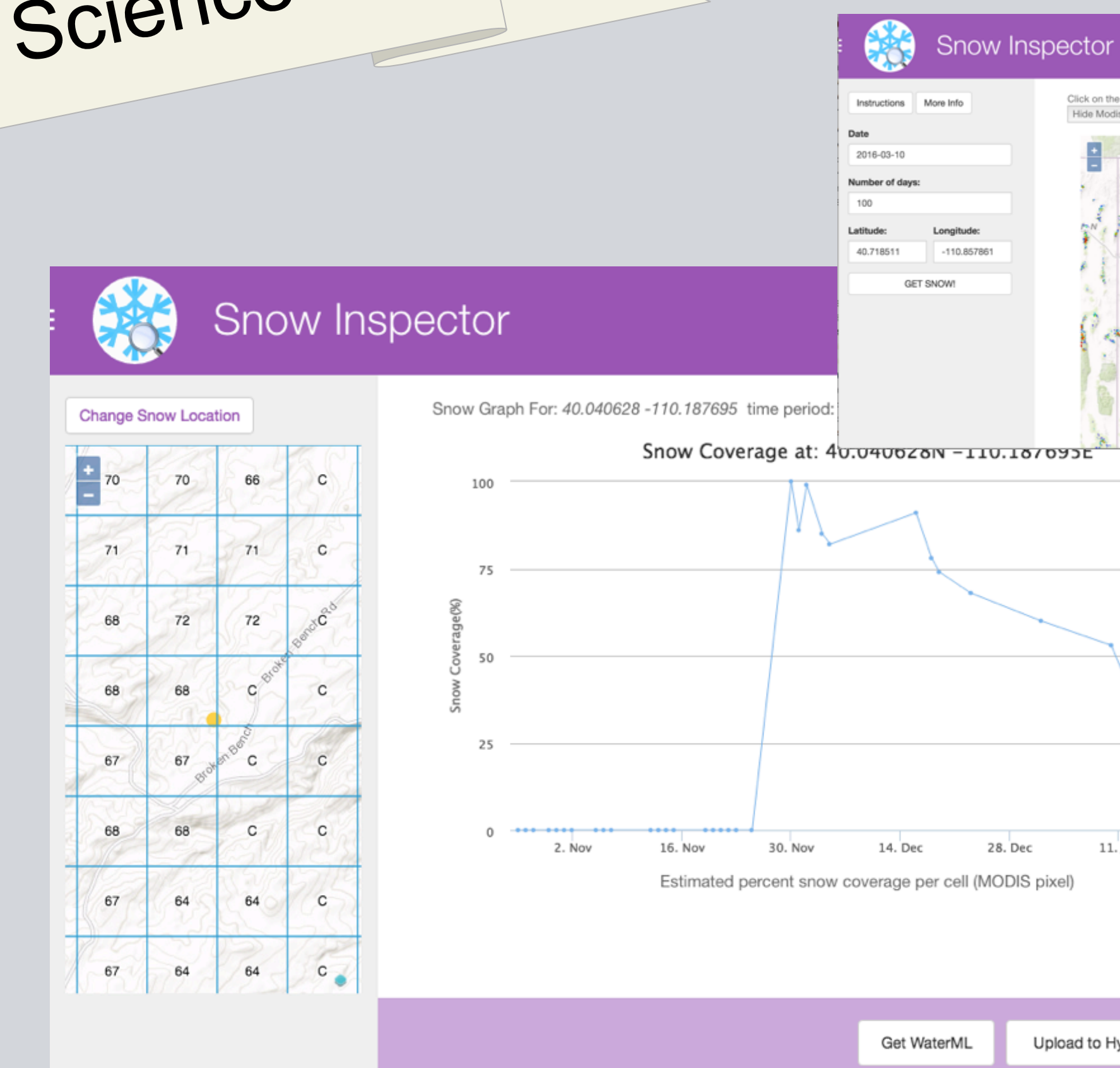


Volcano Discovery lists worldwide volcanoes and includes a "real-time look-in" using GIBS satellite imagery in addition to ground-based cameras (<https://www.volcanodiscovery.com/>).



The RipCharts app provides Sea Surface Temperature and Chlorophyll from GIBS to support the fishing community (<http://www.ripcharts.com/>).

Science



"The Snow Inspector is a web-based tool for inspecting the time series of snow cover at any point on Earth." It uses GIBS imagery to calculate approximate snow cover at specific points (<https://apps.hydroshare.org/apps/snow-inspector/>).

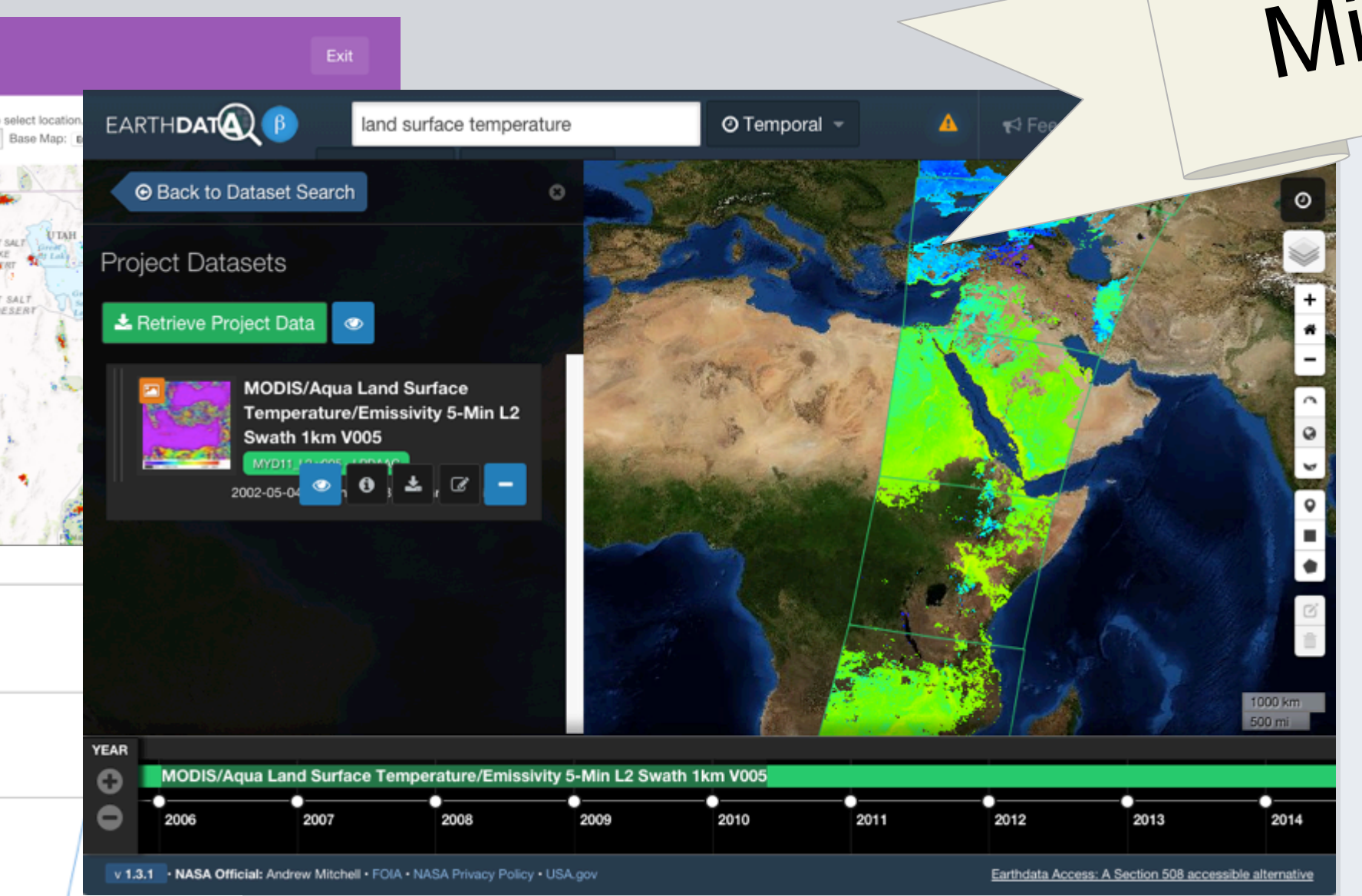
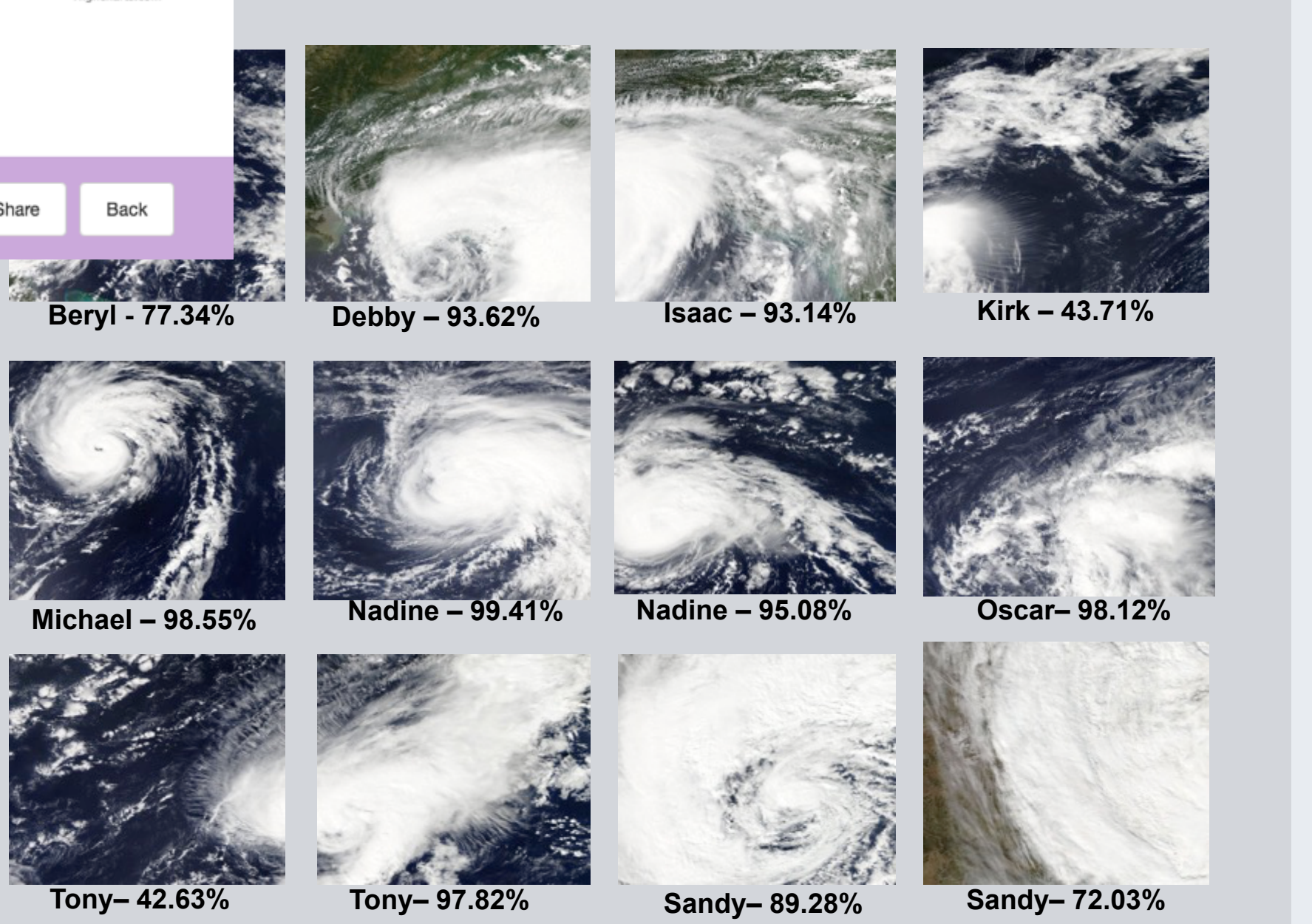
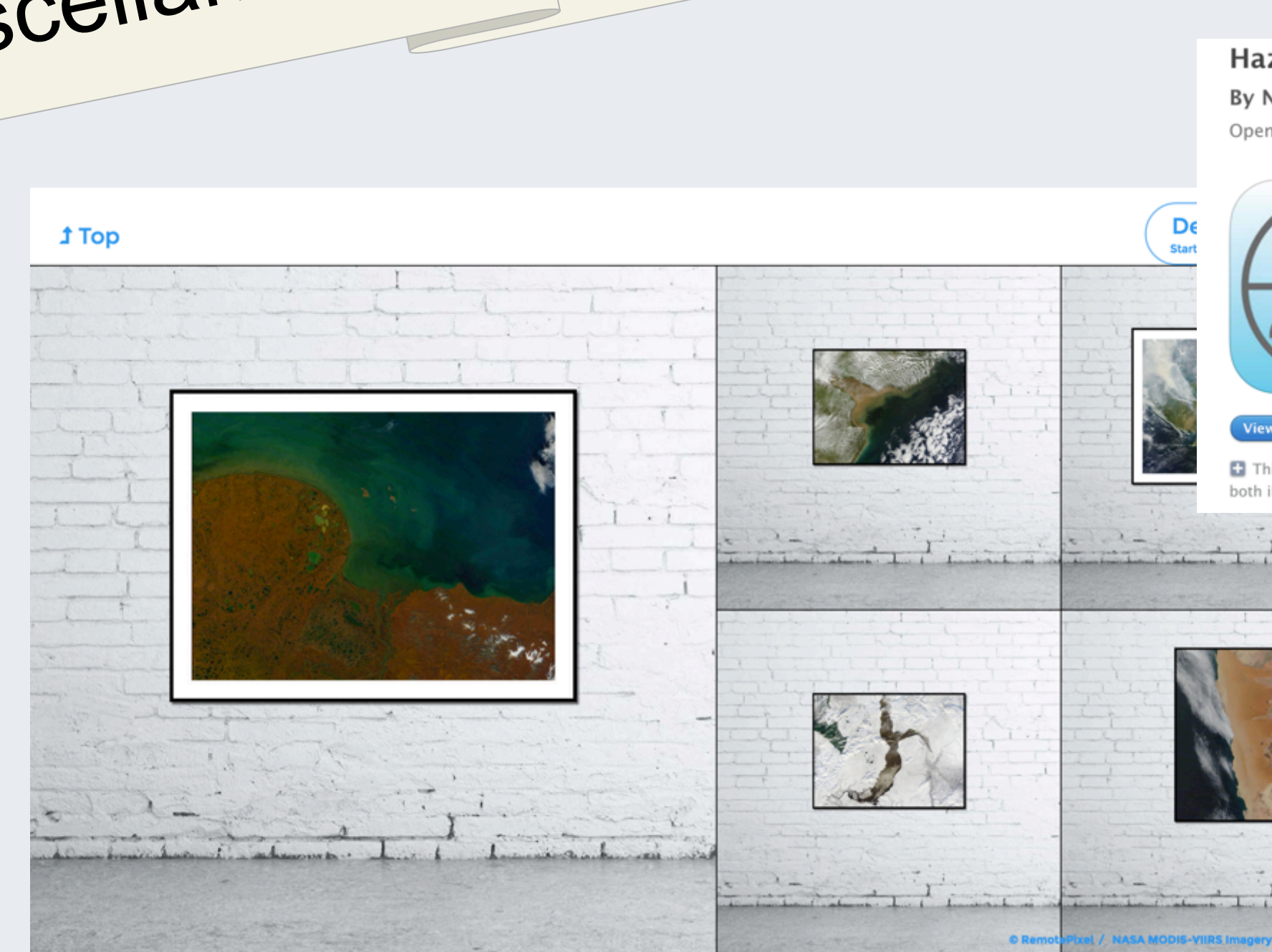


Image representations of data granules served by GIBS can be viewed on a map in the EarthData Search client (<https://search.earthdata.nasa.gov/>).

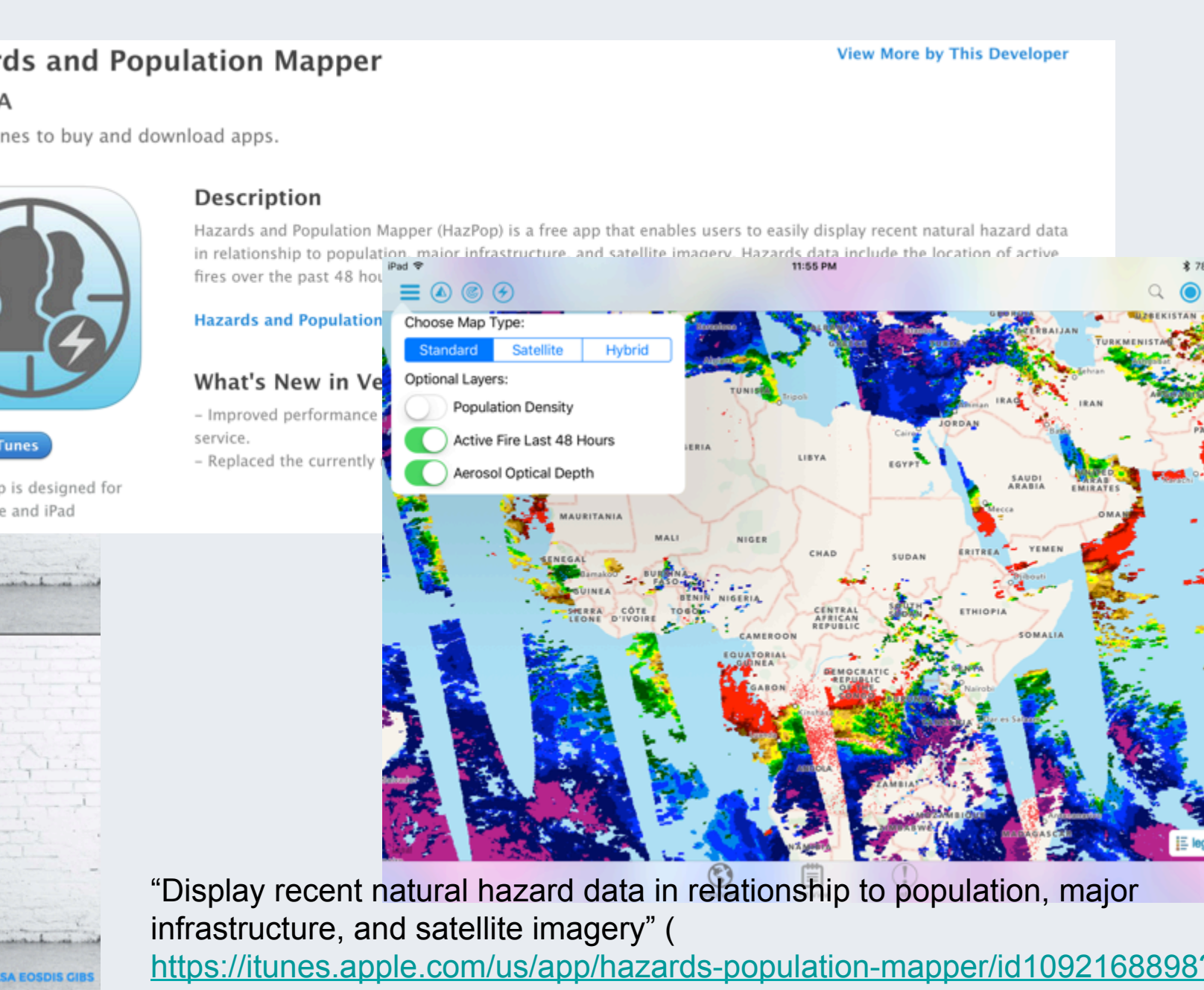


Deep Learning algorithms applied to GIBS imagery is being used to automatically detect natural events such as cyclones and dust storms.

Miscellaneous

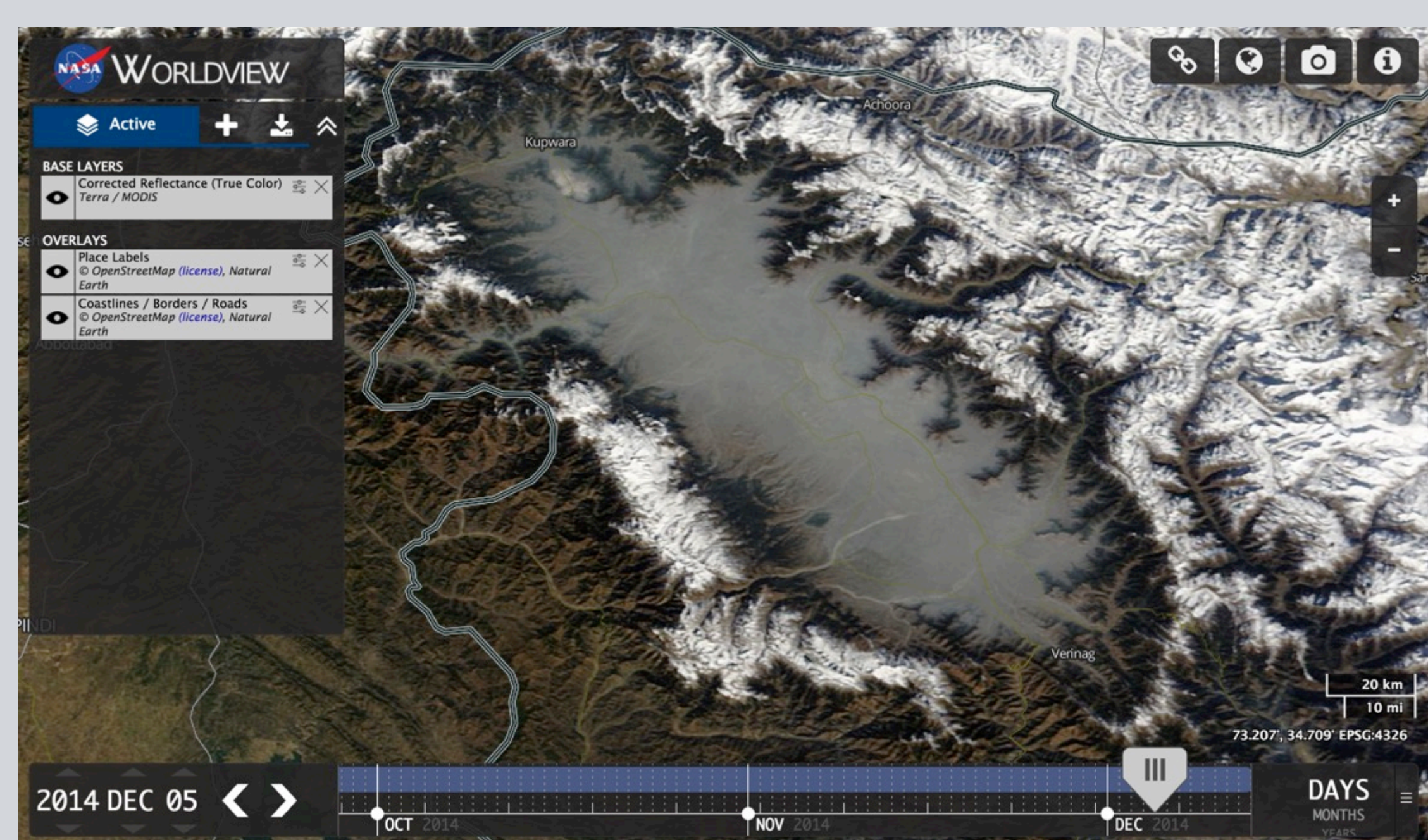


Create your own artwork of the Earth based on imagery served by GIBS (<https://poster.rsmotepixel.com/>).



Native Android app to interactively browse GIBS imagery (<https://play.google.com/store/apps/details?id=com.iamtecknow.terraview>).

General-Purpose

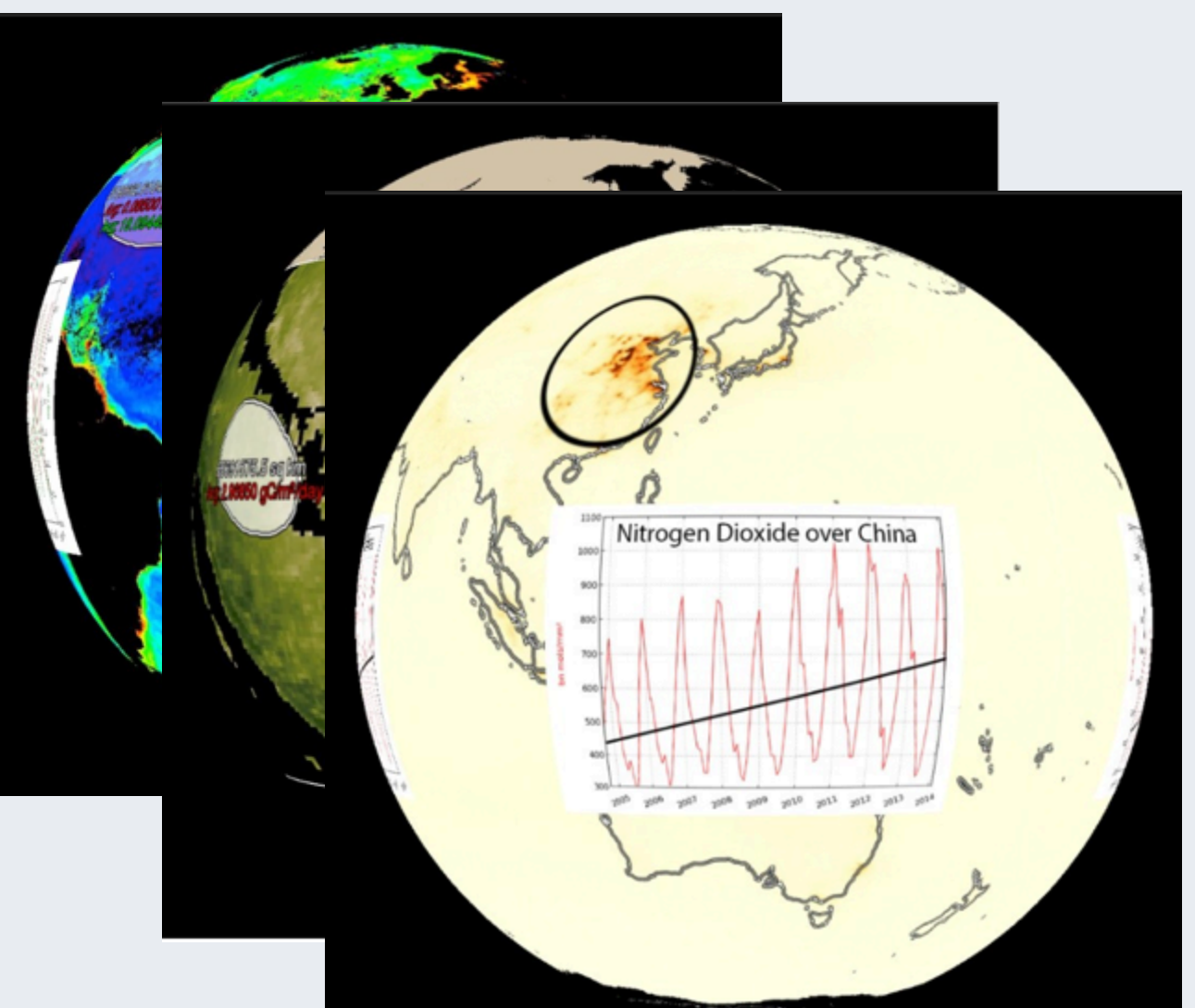


The Worldview web app provides a general-purpose interface to interactively browse global, full-resolution satellite imagery and then download the underlying data. It supports time-critical application areas such as wildfire management, air quality measurements, and flood monitoring. Arctic and Antarctic views of several products are also available for a "full globe" perspective. Browsing on tablet and smartphone devices is generally supported for mobile access to the imagery. (<https://worldview.earthdata.nasa.gov/>)

Education



"Reconstructing a Storm", a guided and hands-on activity to analyze and interpret imagery from NASA and others (<http://www.pbs.org/wgbh/nova/labs/>)

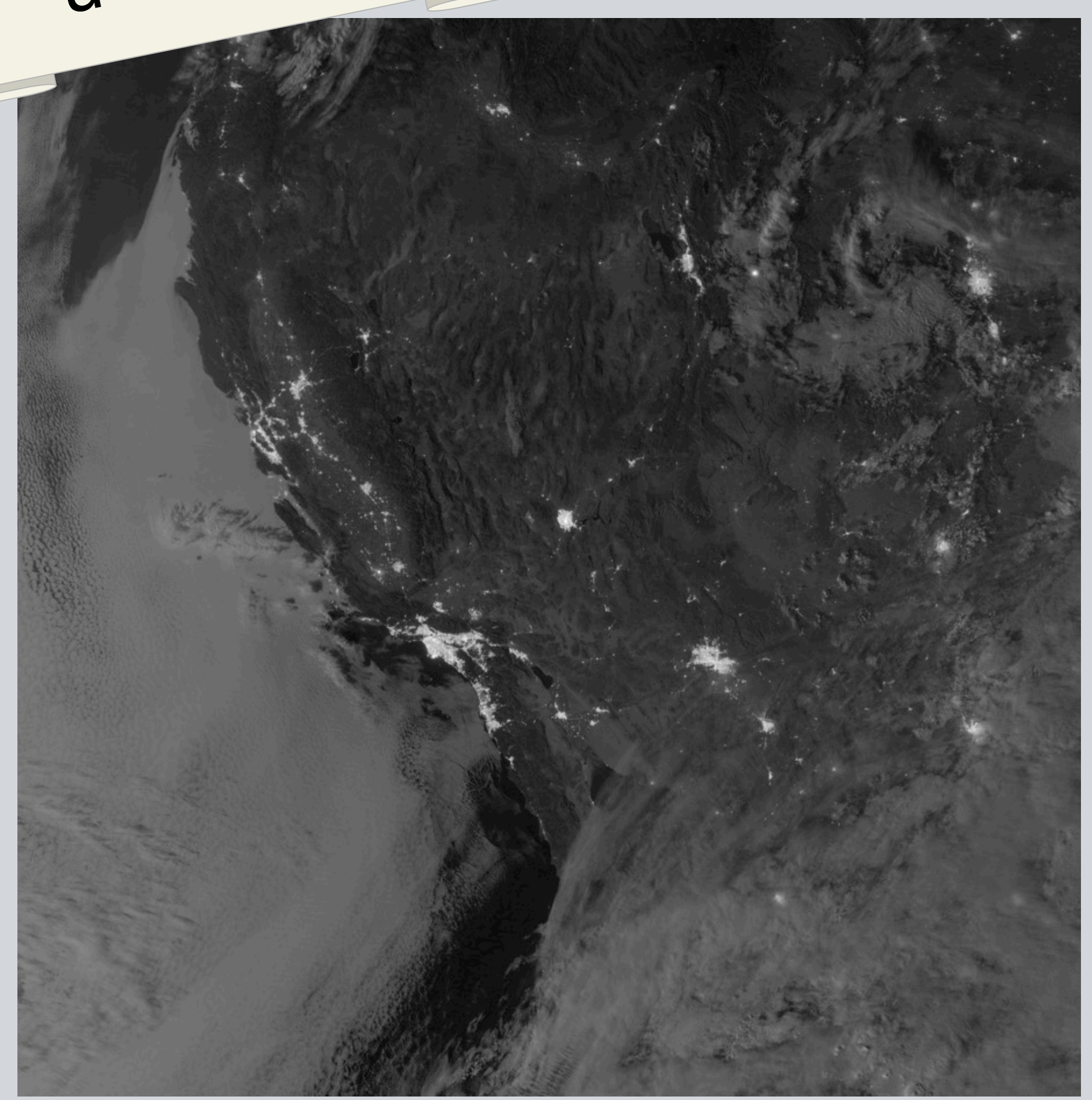


The NOAA-designed Science on a Sphere has been adapted by NASA to display imagery and time series plots using GIBS as one of its data sources (<http://www.nasa.gov/centers/goddard/visitor/exhibits/index.html>)

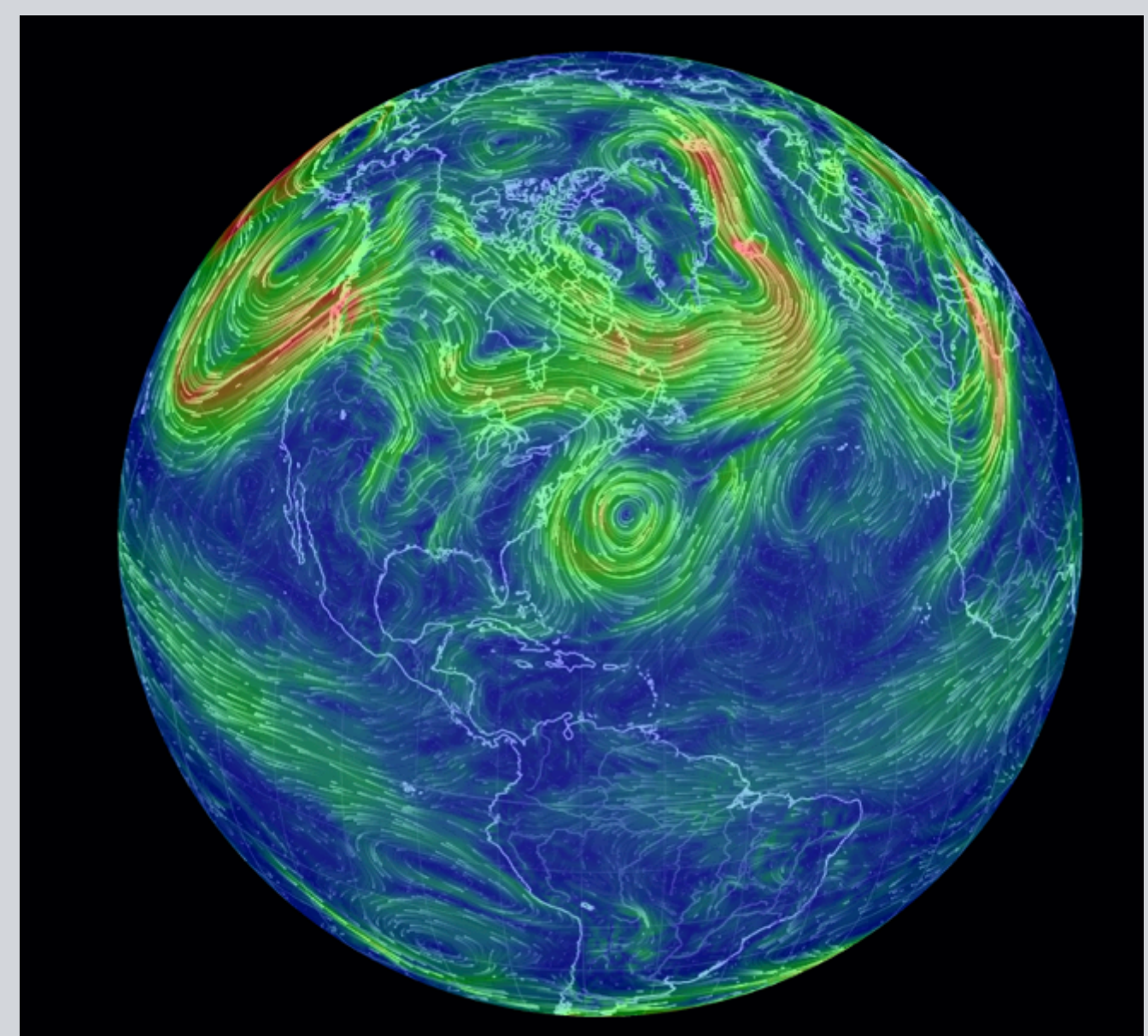
Future



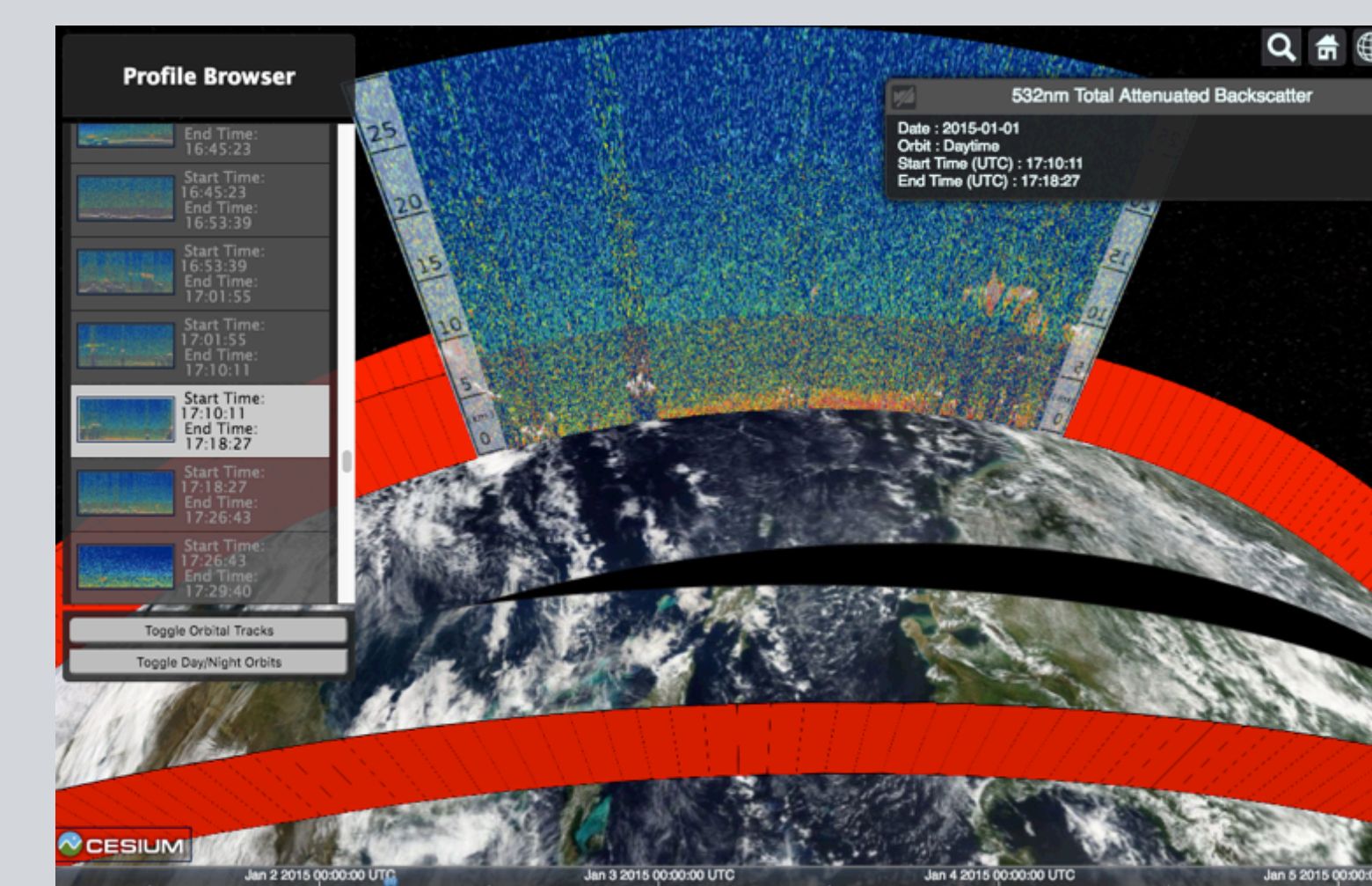
The Hayden Planetarium at the American Museum of Natural History conducts "live tours" of the Earth using imagery from GIBS (<http://www.amnh.org/our-research/hayden-planetarium/>), OpenSpace software now under development (<http://openspaceproject.com>)



Nighttime imagery from the Suomi NPP / VIIRS instrument will soon add the capability to see city lights, fires, fishing boats, and more.



GIBS will add the ability to provide native visualization of vector products similar to what has been demonstrated by nullschool.net (<https://earth.nullschool.net/>)



GIBS will add the capability to visualize profile or "curtain" imagery to visualize quantities collected not mapped to the surface of the Earth (<http://nasa-gibs.github.io/data-curtains/>)

+ Make your own app!