New Flood Imagery Visualizations and Soil Moisture

Worldview and GIBS recently released new imagery in version 3.9.1 including MODIS Flood Product, and CYGNSS Soil Moisture.

The beta version of the Moderate Resolution Imaging Spectroradiometer (MODIS) Near Real-Time (NRT) Global Flood Product (MCDWD) provides a daily global map of flooding. It is derived from the NRT MODIS Surface Reflectance (MOD09) datasets from both the Terra and Aqua satellites. The Flood Product is available for 3 compositing periods: 1-day, 2-day, and 3-day. A pixel is marked as water when water detections from all observations from Terra/MODIS and Aqua/MODIS are gathered for each compositing period, with the 3-day window accumulating 3 days worth of observations thereby most likely to include the least number of false positive detections. (Note: 1-day product not yet available in Worldview). Users are advised to compare the flood product against the contributing MODIS reflectance imagery (such as 7-2-1 Corrected Reflectance; search for “721” after clicking “+ Add Layers”) for the compositing period to ensure reported flood areas do not correspond to areas of cloud shadow and other obscurations. Imagery is available starting 1 January 2021. Learn more about the MODIS Flood Product in the User Guide and the FAQs.

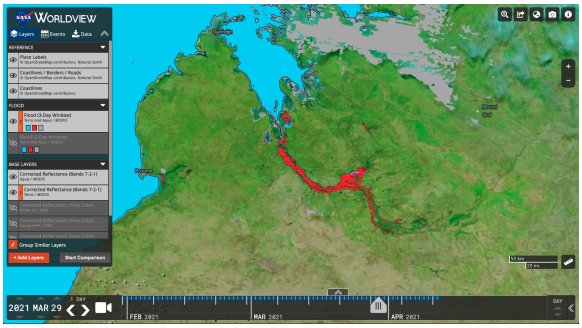
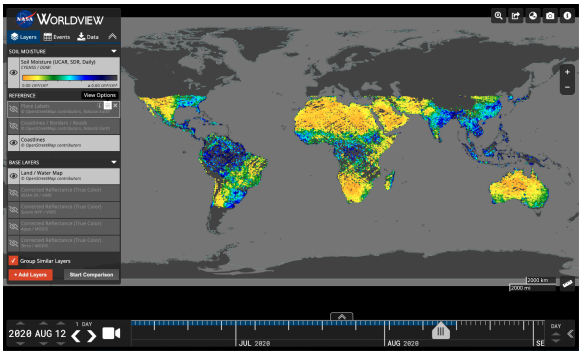


Image of flooding in a river flood plain in northwestern Australia as highlighted by the Flood 3-Day Window layer in red. Visit Worldview to interact with the layers: https://go.nasa.gov/2Qm9dq7



CYGNSS Soil Moisture layer in Worldview: https://go.nasa.gov/3a4RDxT

Worldview and GIBS also added the Cyclone Global Navigation Satellite System (CYGNSS) Soil Moisture layer which provides volumetric water content estimates for soils between 0-5 cm depth in units of cm^3/cm^3 for most of the subtropics. The data were produced by CYGNSS investigators at the University Corporation for Atmospheric Research (UCAR) and the University of Colorado at Boulder (CU), and derived from version 2.1 of the CYGNSS L1 Science Data Record (SDR). The soil moisture algorithm uses collocated soil moisture retrievals from Soil Moisture Active Passive (SMAP) satellite to calibrate CYGNSS observations from the same day. For a given location, a linear relationship between the SMAP soil moisture and CYGNSS reflectivity is determined and used to transform the CYGNSS observations into soil moisture. The spatial resolution is 36km and temporal resolution is daily. The temporal coverage is 18 March 2017 - 16 August 2020. Dataset doi: 10.5067/CYGNU-L3SM1

As always, more exciting updates are coming soon including updated and higher resolution reference labels, coastlines, borders and roads that will work well with the 30 meter resolution Harmonized Landsat Sentinel 2 imagery!