New Capabilities, Products, and Usage of NASA Earth Imagery for Near Real Time Applications


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Overview: NASA’s Worldview and Global Imagery Browse Services (GIBS) have provided near real time (NRT) imagery to the public since 2011 and continue to add new capabilities and products. As a web map app for GIBS, Worldview (https://worldview.earthdata.nasa.gov) has recently added new features to support NRT applications such as a “before” and “after” comparison capability and support for geostationary imagery. As an open set of standards-based web map services, GIBS (https://earthdata.nasa.gov/gibs) has added several new NRT imagery products and will soon add new capabilities for better integration with Geographic Information System (GIS) clients. One of NASA’s original NRT imagery systems and a long-running workhorse, Rapid Response, has been retired and replaced with a modern, mobile-friendly, and low-bandwidth app dubbed Worldview Snapshots (https://www.earthdata.nasa.gov). Finally, this presentation will demonstrate recent usage of these tools and services by those in the NRT community.

What is Worldview and GIBS?
Worldview and the Global Imagery Browse Services (GIBS) provide a visual-first approach to finding and using Earth observations.

New Features for 2018

- Comparison mode: compare two imagery products from the same day, compare the same products “before” and “after”, or compare whatever combination you like.

- Global Precipitation Measurement (GPM) CIMERG vs. Suomi NPP NRT precipitation

- Enhanced capabilities for vector products: ability to query vector data and dynamically style it. Image at right demonstrates fire points colored by their confidence values.

- OGC Web Map Service (WMS) support: better ability to use GIBS’ time-varying layers in GIS clients such as ArcMap and QGIS.

Upcoming Features for 2019

- Geostationary Imagery Browse Services (GOES) - 16

- Aerosol Index
- Aerosol Index (PyroCamI seldomus)
- Ozone
- Sulfur Dioxide (Lower Troposphere)
- Sulfur Dioxide (Middle Troposphere)
- Sulfur Dioxide (Upper Troposphere and Stratosphere)
- Sulfur Dioxide (Planetary Boundary Layer)

What Happened to Rapid Response?
The long-running Rapid Response system is being replaced by Worldview Snapshots, a lightweight imagery client optimized for use in low-bandwidth situations and when only a single image “snapshot” is needed. See the poster next to this one (IN43D-0934) for details!

New NRT Products in 2018

- Lightning Imaging Sensor (LIS) / International Space Station (ISS)
- Flash Count
- Flash Radiance
- Ozone Mapping Profiler Suite (OMPS) / Suomi National Polar orbiting Partnership (Suomi NPP)
- Aerosol Index
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Sample NRT Usage in 2018

- Microwave Limb Sounder (MLS) v4
- Global Precipitation Measurement (GPM) v5
- Integrated Multi-satellite Retrievals for GPM (IMERG) v5
- Ozone Monitoring Instrument (OMI) Sulfur Dioxide v3

Global Imagery Browse Services (GIBS)
gibs.earthdata.nasa.gov
GIBS is a system providing fast and open access to 800+ NASA imagery products for Worldview and any other application via standards-based APIs.

- Access imagery through standards-based web services for access through web clients, GIS clients, and scripts

- Imagery is provided in several map projections:
  - Geographic / rectangular
  - Web Mercator
  - Arctic Polar Stereographic
  - Antarctic Polar Stereographic

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NRT product version upgrades:

- Microwave Limb Sounder (MLS) v4
- Global Precipitation Measurement (GPM) v5
- Integrated Multi-satellite Retrievals for GPM (IMERG) v5
- Ozone Monitoring Instrument (OMI) Sulfur Dioxide v3