Enhancements to NASA’s Land Atmosphere Near real-time Capability for EOS (LANCE):

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Abstract

NASA's Land, Atmosphere Near-real time Capability for EOS (LANCE) supports application users interested in monitoring a wide variety of natural and man-made phenomena. Near-Real-Time (NRT) data and imagery from the AIRS, AMSR2, MISR, MLS, MODIS, OMPS, OMI, VIIRS instruments are available much quicker than routine processing allows. Most data products are available within 3 hours from satellite observation. NRT imagery are generally available 3-5 hours after observation. This article describes the LANCE and the enhancements made to the LANCE over the last year. These enhancements include the addition of NRT products from AMSR2, MISR, OMI and VIIRS. In addition, the selection of LANCE NRT imagery that can be interactively viewed through worldview and the global imagery Browse Services (GIBS) has been expanded. Next year, data from the MOPITT will be added to the LANCE. For more information visit: https://earthdata.nasa.gov/lance

What’s new in LANCE?

• Planned products from MOPITT
• Near real-time data from the Measurements Of Pollution In the Troposphere (MOPITT) instrument will be added to LANCE in 2017. MOPITT measures CO from the surface to the upper troposphere, which is a chemically reactive gas that has a lifetime of approximately one month. Primary sources of CO include biomass burning (for example, forest fires) and fossil fuel burning, which can have large temporal fluctuations. Near real-time (NRT) CO products are useful for air quality forecasting and in field campaign planning.

• New products from AMSR2, MISR, OMI and VIIRS

AMSR2 Data from an instrument on the Japanese GCOM-W1 satellite, is providing a research-quality global dataset for the climate research and weather forecasting community. In 2016, 4 additional NRT products have been made available through LANCE.

NRT AMSR2 Products Added to LANCE in 2016

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Product Categories</th>
<th>Coverage Area</th>
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</tr>
</thead>
<tbody>
<tr>
<td>AMSR2</td>
<td>Radiative, Temperature, Rainfall, Precipitation, Snow, Clouds and Dust</td>
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This completes the suite of AMSR2 NRT products. As the AMSR2 standard quality products are released from NASA, the expedited (NRT) products from LANCE may be updated to reflect algorithm improvements.

MISR

NRT Level 2 MISR Winds products are now available through LANCE. MISR NRT Winds will be used to improve numerical weather prediction. These products include L1B2 imagery, cloud tracked winds, and will include aerosol properties.

OMPS

Data from the Ozone Mapping and Profiler Suite (OMPS) aboard the Suomi National Polar-orbiting Partnership (Suomi NPP) are the newest NRT products to be made available through LANCE. The specific products are:

• NMDT - OMPS Nadir Mapper Total Column Ozone and Aerosol Index
• NMSO2 - OMPS Nadir Mapper Near Earth-Surface Ozone
• NRBXOCS - OMPS Nadir Profile Ozone Profile

All three products will provide continuity from OMI

What is LANCE?

LANCE provides global imagery and data for Near Real-Time Applications from AIRS, AMSR2, MISR, MLS, MODIS, OMI, OMPS and VIIRS

LANCE provided data and imagery in support of applications such as: Air Quality – Smokes – Fires – Vegetation for agricultural monitoring – Floods – Ash Plumes – Drought – Smoke Plumes – Sea ice for shipping – Severe Storms

LANCE was established in 2009, building on the success of MODIS Rapid Response. LANCE is a component of EOSDIS, NASA’s Earth Observing System Data and Information System. It is a virtual system that leverages existing science led processing and data centers.

LANCE NRT Products

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<td>Global AMSR2 Daily L3 25 km Tb and Sea Ice Concentration Polar Grids</td>
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While LANCE OMPS near real-time products do not have the extensive processing available through the product, the aerosol index and sulfur dioxide data can be used to monitor the health of the ozone layer, evaluating ultraviolet (UV) radiation intensity, and managing ongoing natural events such as the transport of dust and smoke from dust storms and biomass burning. In addition, the aerosol index and sulfur dioxide data provide critical near real-time information about the size, location, and movement of sulfur dioxide and ash clouds from volcanic eruptions, which pose hazards to people on the ground and to flying aircraft.

Accessing LANCE Data and Imagery

All LANCE data is available downloaded via FTP and/or HTTPS using links provided from https://earthdata.nasa.gov/lance

• Earthdata Search: Users can search for data by keyword and filter by time or space. https://search.earthdata.nasa.gov
• Global Imagery Browse Services (GIBS): Provides global imagery layers to worldview through publicly accessible and standards compliant imagery services. Users can add GIBS to their own web mapping interface or client. https://earthdata.nasa.gov/gibs
• Worldview: Users can interactively browse and download full resolution imagery. Underlying HDF data granules can also be downloaded from within the app. https://earthdata.nasa.gov/worldview

More information is available:

• LANCE: http://earthdata.nasa.gov/lance

For More Information:

LANCE: http://earthdata.nasa.gov/lance

Contact Information: support@earthdata.nasa.gov