



NASA OMPS Nadir Science Team Products, Validation and Applications

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NASA OMPS Science Team / SIPS



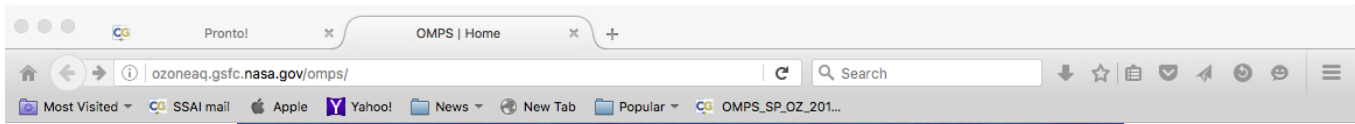
Summary



- NASA Science Team and SIPS recently completed reprocessing of OMPS NM and NP data
 - Designated V2
 - Will be first version archived at the GSFC DISC
 - Uses NASA convention - L1A (not RDR), L1B (not SDR), L2 (not EDR), L3
 - Current L2 based on V8 SBUV/2 algorithm for NP, V8.6 algorithm for NM
 - New NM L2 using V9 algorithm planned for next year
- Dataset is currently being validated
 - Will present some initial assessments
- “Forward” processing of V2 dataset currently taking place
 - L3 data (both HDF5 and ASCII format) / images available from
 - <http://ozoneaq.gsfc.nasa.gov/omps>
 - Special “ozone hole” page will be set up and available
- Near real-time and real-time applications of V2 in development
 - Based on V1 “pathfinders”

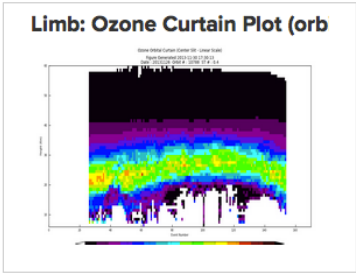
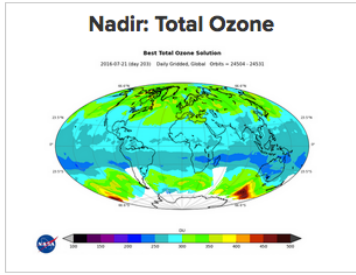


Ozone Hole Page at <http://ozoneaq.gsfc.nasa.gov/omps>



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Presentations from the OMPS Science Team Meetings are located [here](#).



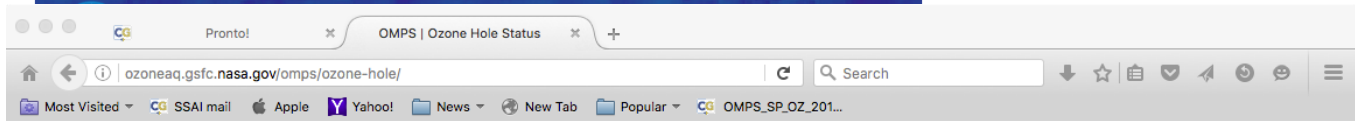
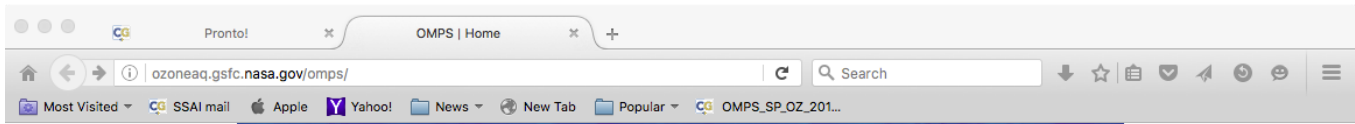
Latest News

- 28 JUL** MORE SMOKE OVER RUSSIA AND THE US
Here are the latest images of smoke over Russia: and the US (again, I think some of the AI signal ...)
- 27 JUL** SMOKE CONTINUES OVER RUSSIA AND THE US
Here's yesterday's smoke over Russia: It looks like the winds have changed direction, and the smoke is now ...

- ### Highlights
- STATUS OF THE OZONE HOLE
 - 05/17/16 → NASA TRACKS VOLCANIC ASH WITH ...
 - 04/15/16 → REAL TIME OMPS DATA
 - 02/09/16 → FIRST IMAGE OF OZONE FROM DSCO...
 - 10/30/15 →



Ozone Hole Page at <http://ozoneaq.gsfc.nasa.gov/omps>

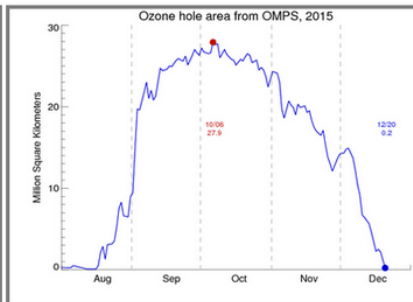
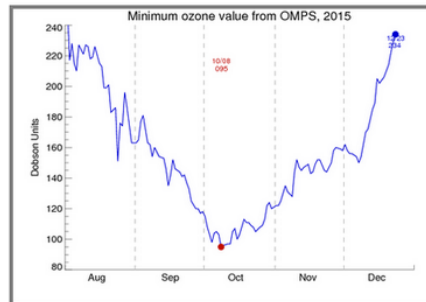


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Status of the Ozone Hole

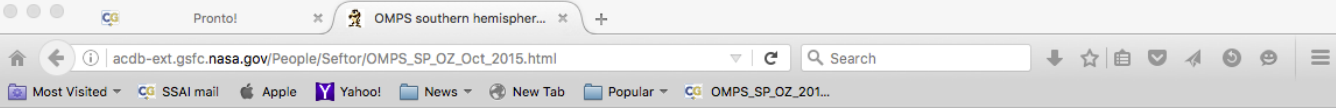
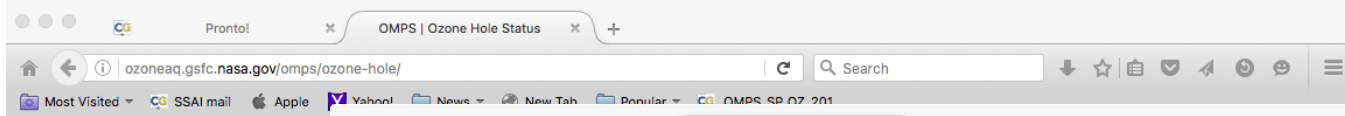
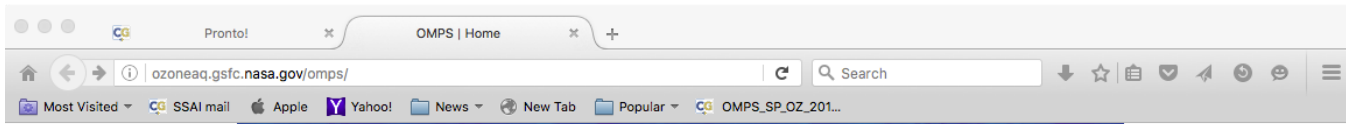
Here are the latest plots showing the minimum ozone value and the size of the ozone hole (the size being determined by the area where the ozone is less than or equal to 220 DU). We'll be updating these plots when we have the latest Level 3 data processed (which may be up to a week behind the current day).



For the minimum ozone plot, the blue date and ozone value (in Dobson Units, DU) indicate the minimum ozone for the latest day, while the red date and value indicate the minimum ozone value measured so far this year. For the ozone hole area plot, the blue date and value indicate the size for the latest day, while the red date and value indicate the largest size so far this year.

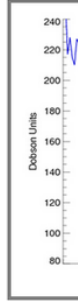


Ozone Hole Page at <http://ozoneaq.gsfc.nasa.gov/omps>

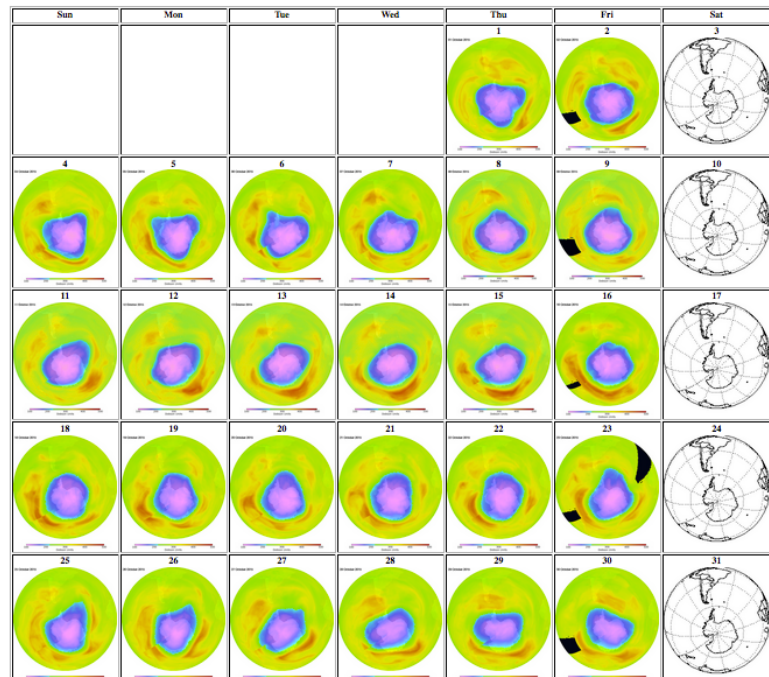


OMPS southern hemisphere ozone maps for October 2015
(Click image to obtain larger one)

Home /
Presentations
Status
Here are the latest ozone maps for the southern hemisphere, showing the ozone hole. The maps are for the current day, and the minimum value is indicated by the color scale.



For the minimum value indicate day, while the maximum value indicate day.

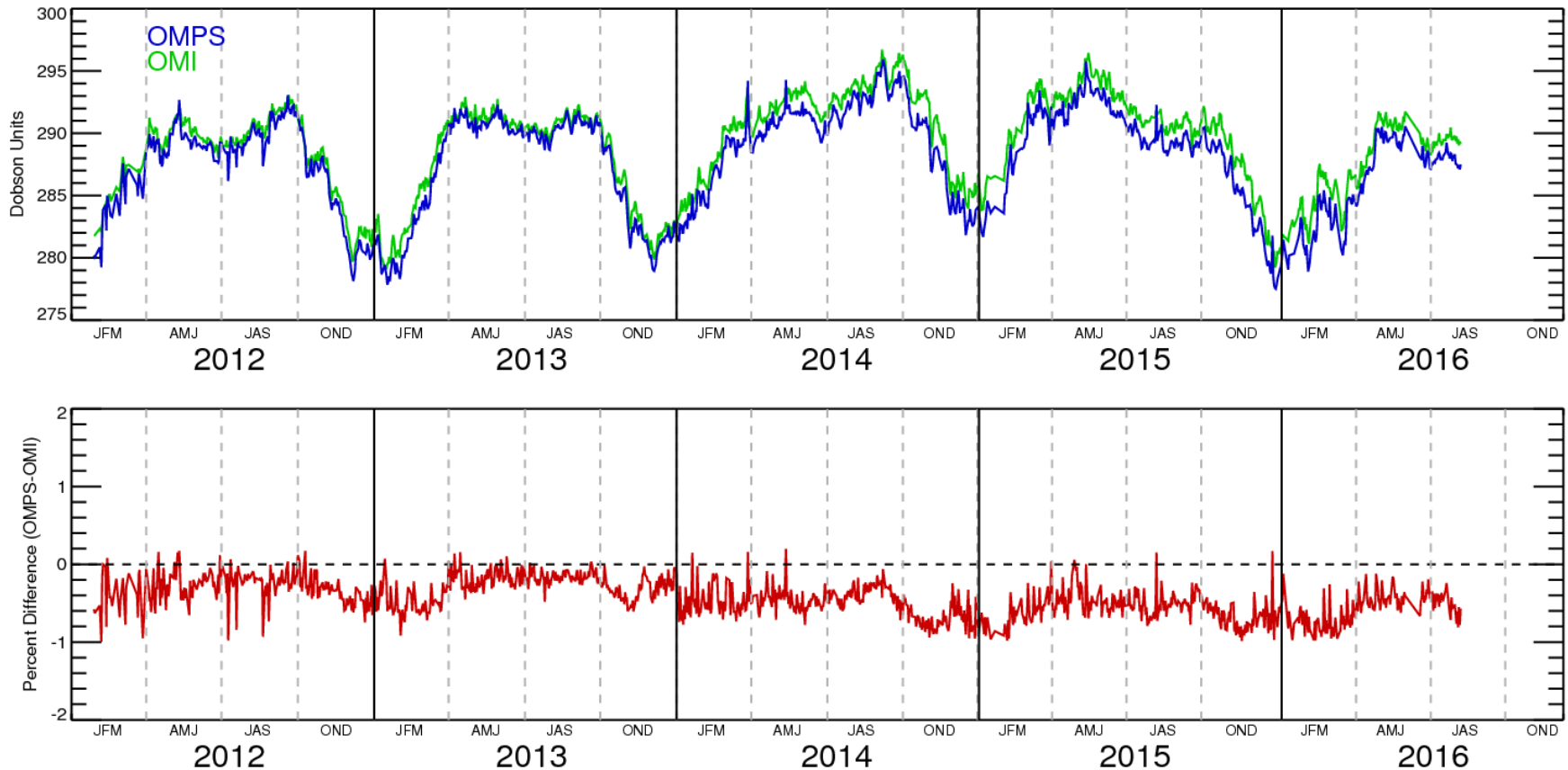




Comparison of OMPS to OMI total ozone

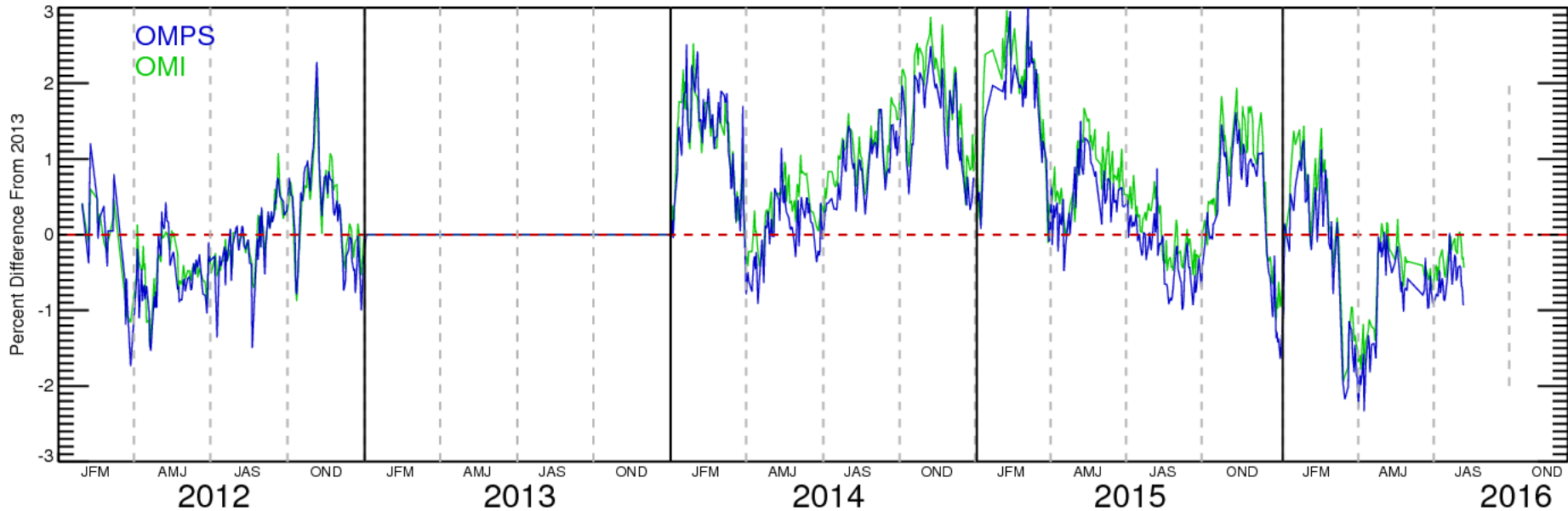


OMI / OMPS / Difference
(Average total ozone from -60 to 60 degrees latitude)





Comparisons of OMPS/OMI total ozone to 2013

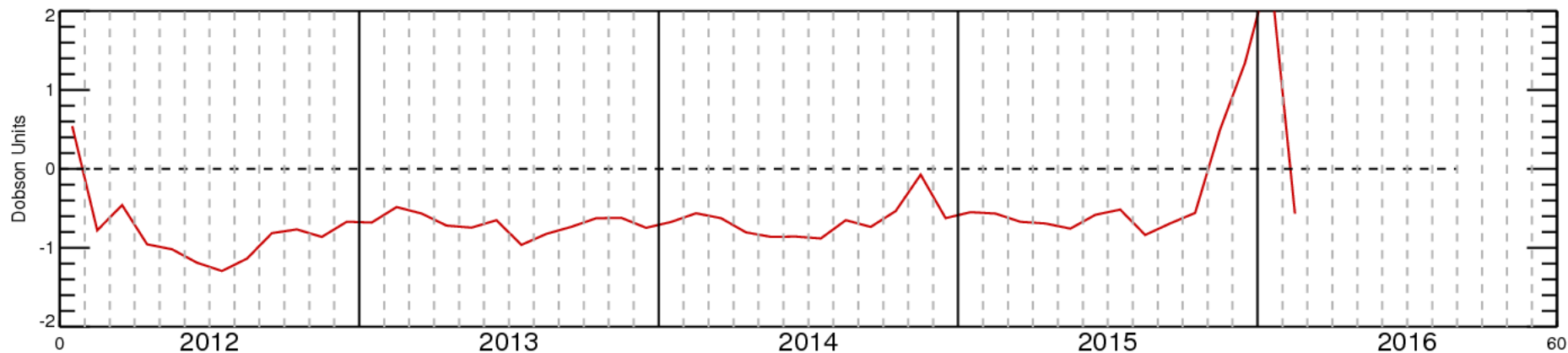
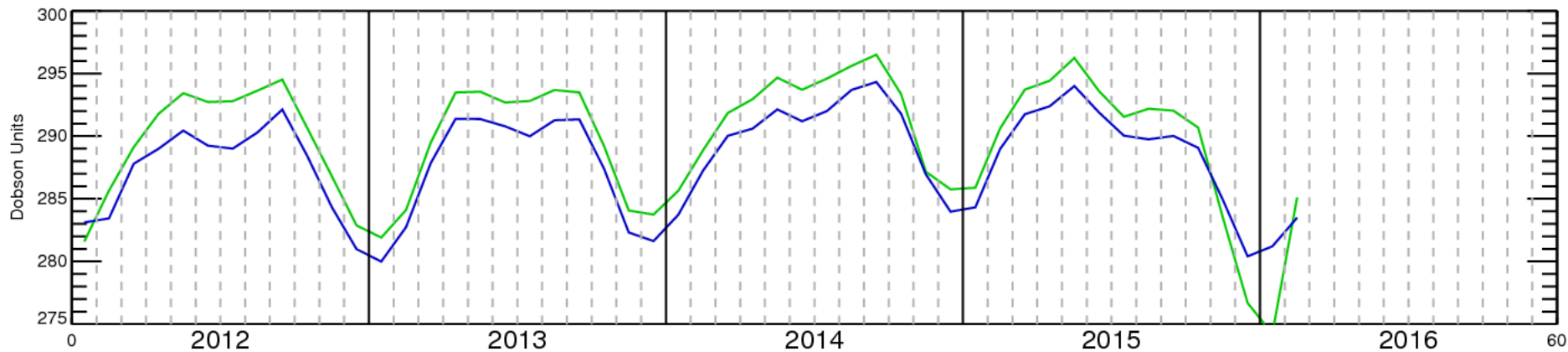




Comparisons of OMPS to NASA's MOD (Merged Ozone Dataset – 60S to 60N)



MOD is a monthly-mean zonal and gridded average products constructed by merging individual SBUV/SBUV/2 (total and profile ozone) data sets

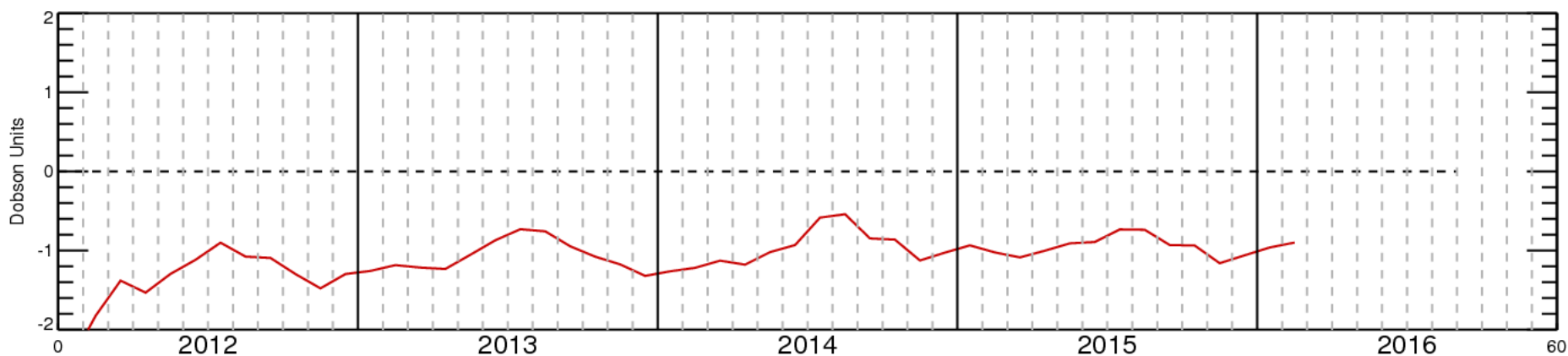
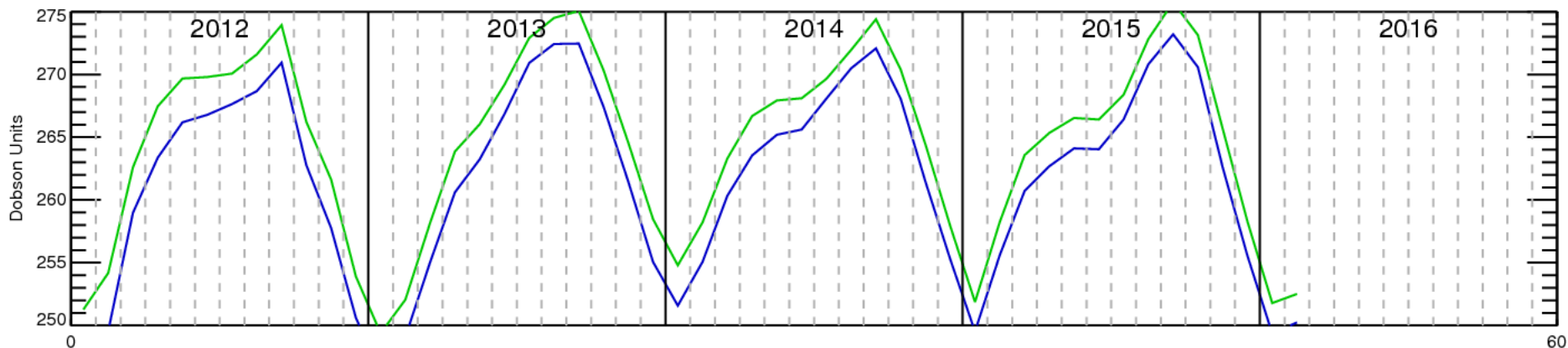




Comparisons of OMPS to NASA's MOD (Merged Ozone Dataset – 30S to 30 N)



MOD is a monthly-mean zonal and gridded average products constructed by merging individual SBUV/SBUV/2 (total and profile ozone) data sets

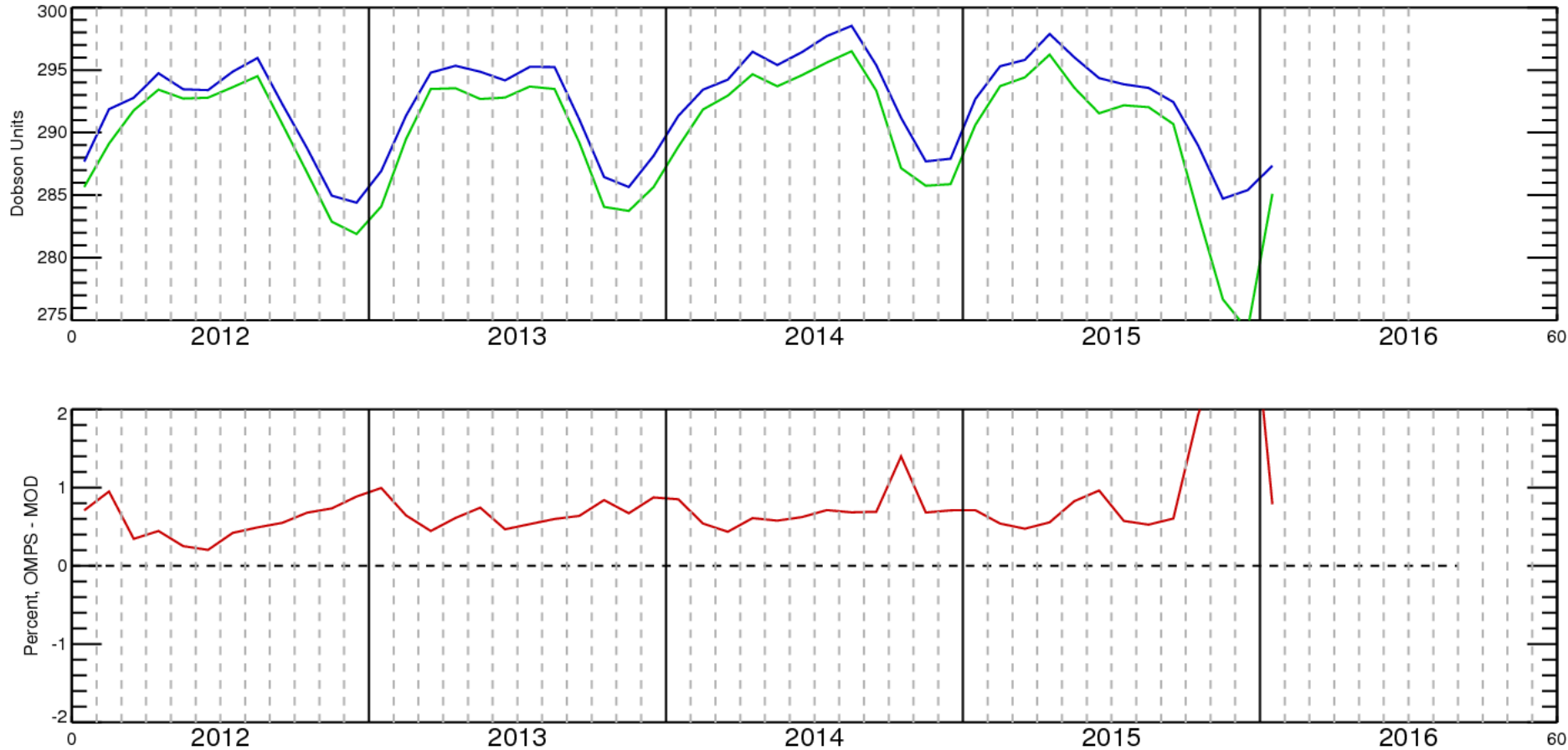




Comparisons of OMPS NP to MOD (Merged Ozone Dataset – 60S to 60N)



Total Ozone = Sum of Ozone Profile





Near Real-Time OMPS data



- The OMPS Science Team and SIPS are working on incorporating the following products in the Land, Atmosphere Near real-time Capability for EOS (LANCE) system by the end of this year
 - SO₂
 - Monitoring of volcanic eruptions
 - Mapping of volcanic ash clouds hazardous to aviation
 - Aerosol Index
 - Monitoring of volcanic eruptions
 - Mapping of volcanic ash clouds hazardous to aviation
 - Dust / Smoke monitoring and forecast
 - Ozone
 - “Identification of stratospheric air intrusions leading to rapid cyclogenesis and hurricane force winds”
 - Mapping of high ozone areas for aircraft to avoid
 - Can adversely affect crew/passenger health
- Access through LANCE will facilitate their availability and use through
 - Worldview (<https://worldview.earthdata.nasa.gov/>)
 - GIBS (Global Image Browse Services)
 - Access via ftp (need to register with urs.earthdata.nasa.gov)



Volcanic Eruption Monitoring

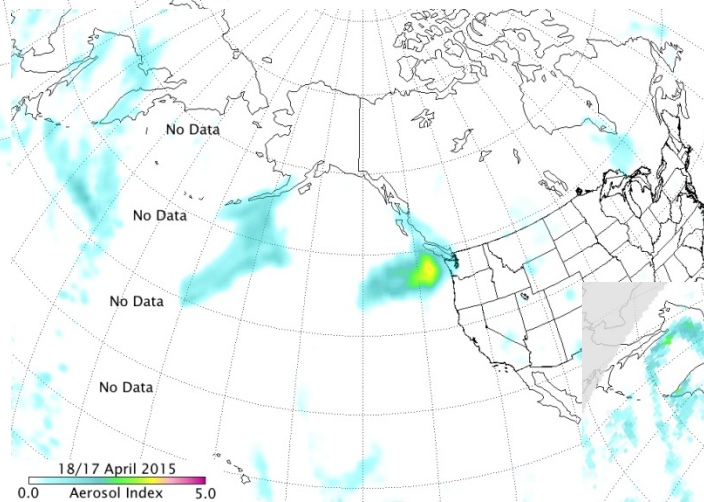
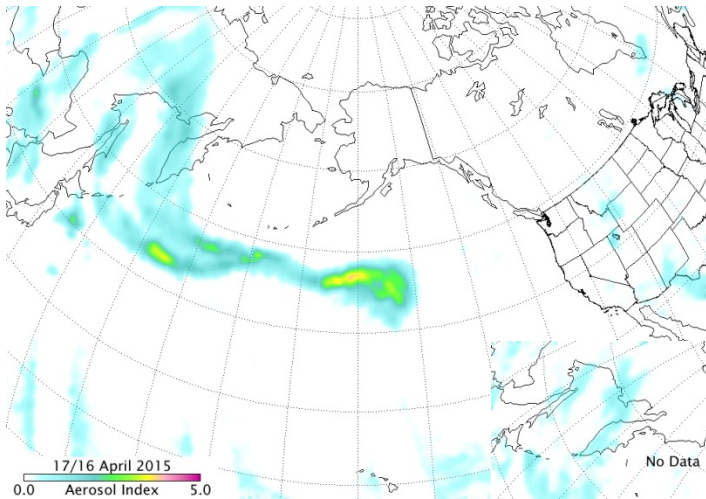


OMPS currently supports the ESA's Support to Aviation Control Service (SACS)
With near-real time SO₂ and AI data

Example from last year showing eruption of Bardarbunga / Holuhraun

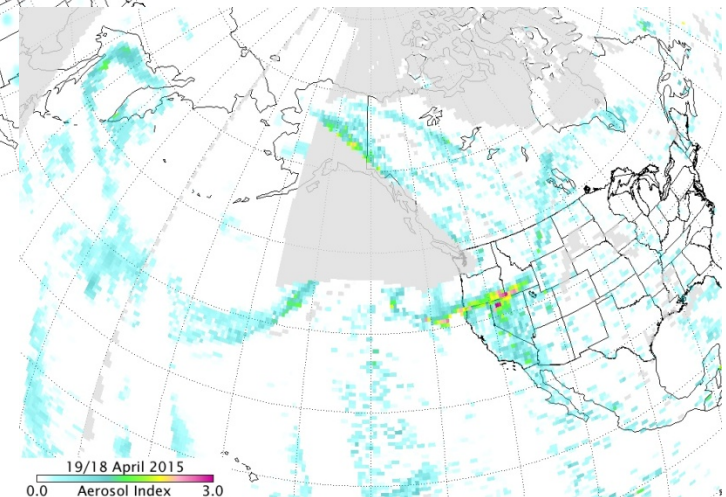
The screenshot shows the ESA SACS website interface. At the top, it says "Support to Aviation Control Service" and "Belgian Institute for Space Aeronomy". There are navigation tabs for "NEAR REAL-TIME", "NOTIFICATIONS", "PRODUCTS", and "HIGHLIGHTS". Below these, there are links for "latest SO₂ notification" and "latest ASH notification", along with a "subscription SACS notif." button. The "obs. of" section has buttons for "SO₂", "Ash / AAI", and "Cloud". Under "Instrument", "OMPS" is selected. The "Time of observations" is set to "07 September 2014". A "World view" map shows a color-coded SO₂ vertical column over the North Atlantic, with a color scale from 0 to >50 DU. A "Back" link is visible below the map.

Smoke / Dust Monitoring



The HMS (Hazard Mapping Service) group of NOAA's Satellite Analysis Branch wants a near real-time OMPS AI product to map and forecast both smoke and dust events

Smoke from Siberian fires travelled across the Pacific to North America this week

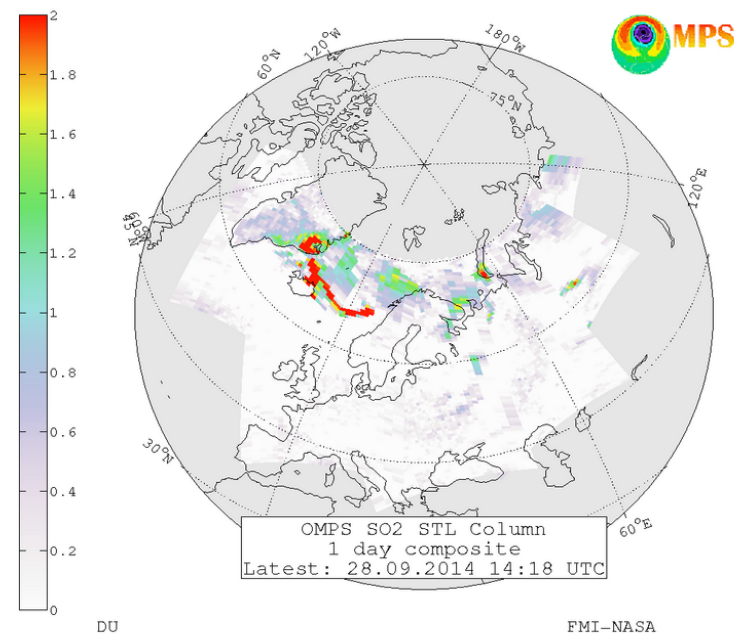
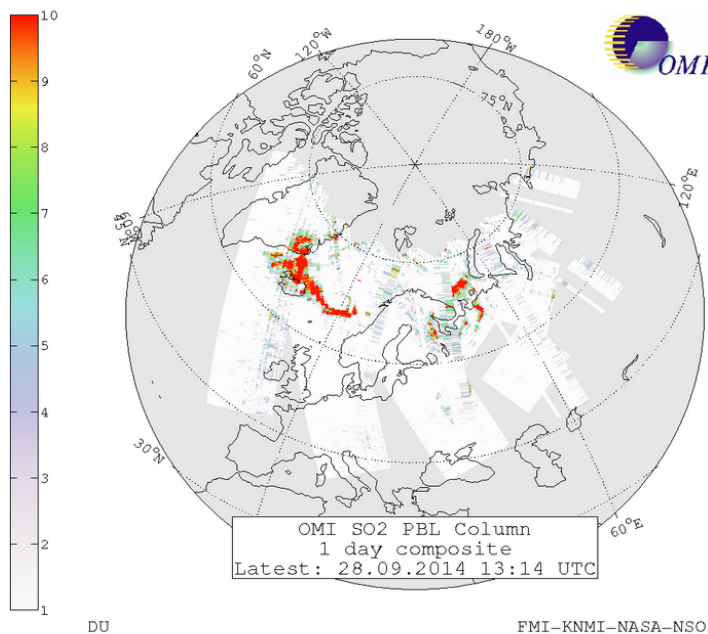




Real-Time Suomi NPP OMPS Data Processing Being Performed



- S-NPP OMPS Science Team and GSFC DRL incorporated OMPS processing package to provide real-time OMPS data similar to OMI
 - Package uses NASA's algorithms, provides continuity with OMI
 - FMI, GINA (and ESA's SACS) provide warning to VAACs, pilots, airlines, etc



FMI monitoring of Bardarbunga / Holuhraun eruption (from <http://sampo.fmi.fi>)

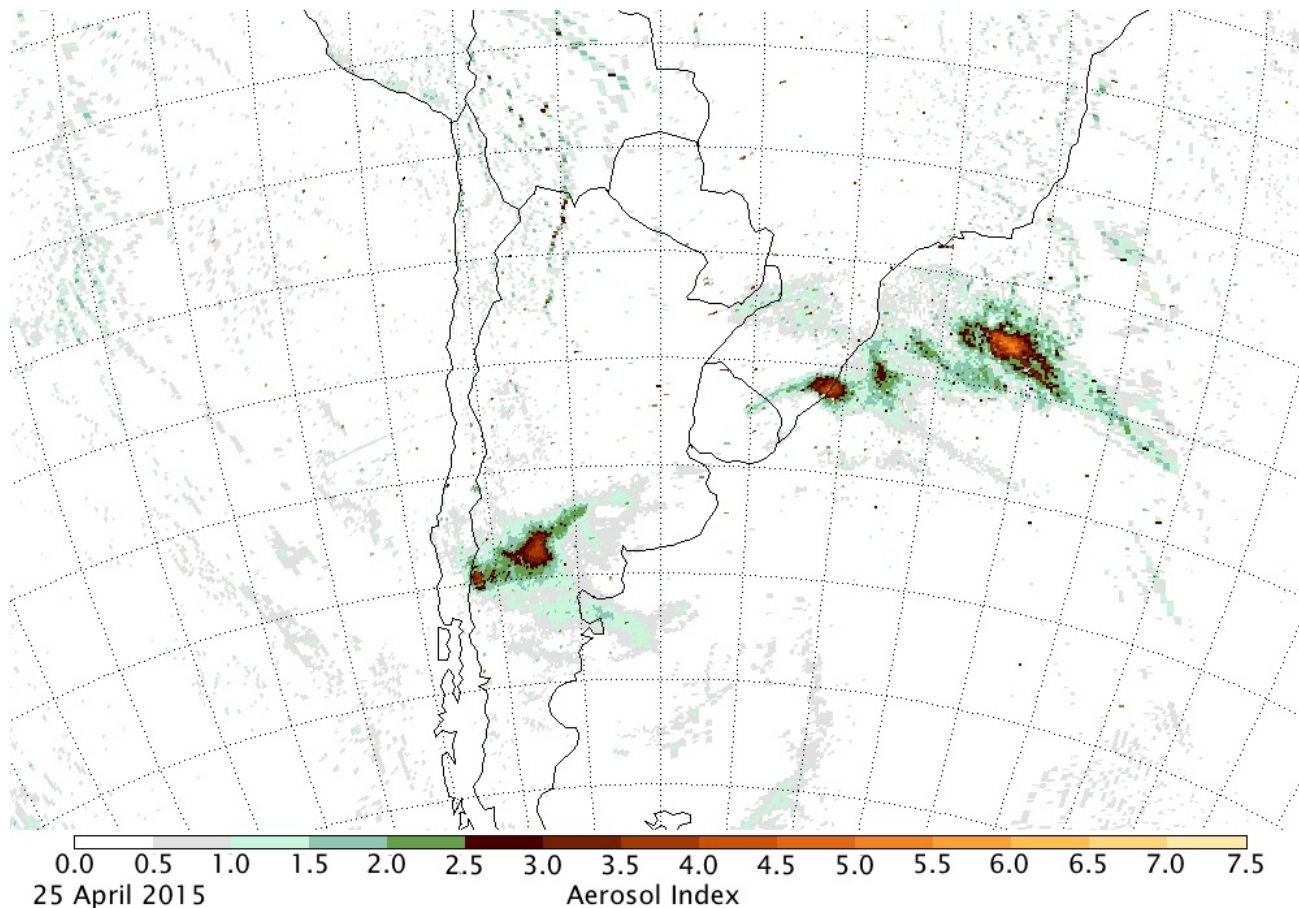


Real-Time Data Processing from Suomi NPP OMPS Useful Globally



- As part of IPOPP, OMPS SO₂ and Aerosol Index information will be available to the entire DB community

Volcanic Ash from the eruption of Calbuco
25 April 2015
OMPS Aerosol Index
(High resolution mode)

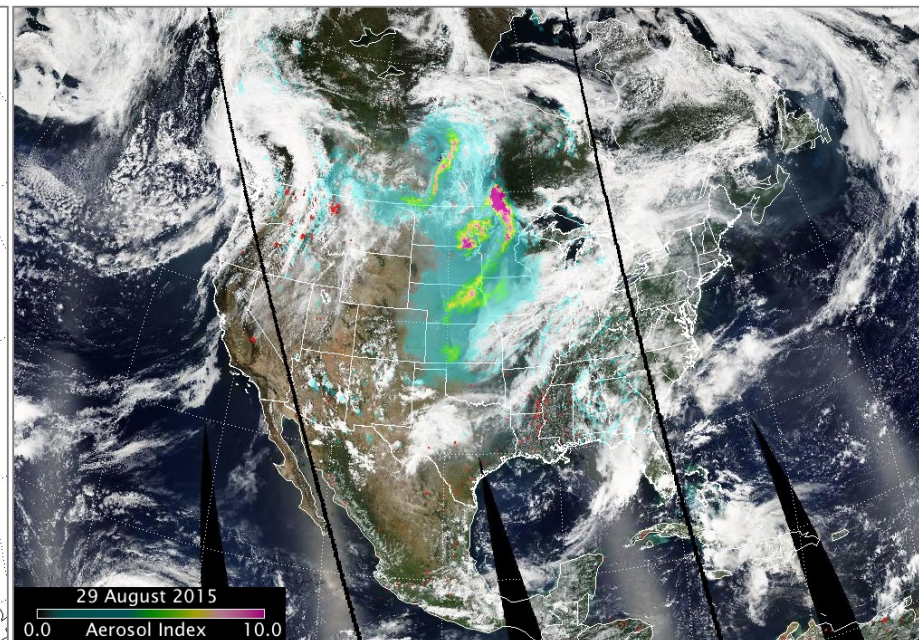
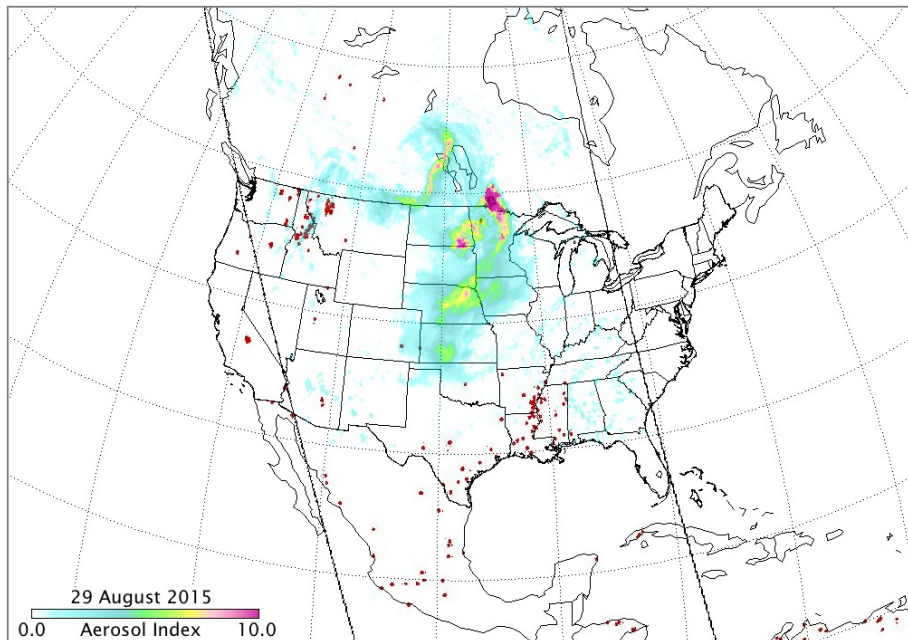




OMPS Real-Time Aerosol Index Data Also Useful for Other Purposes



- Real-time processing of OMPS data may also provide valuable information on smoke and dust transport, air quality forecasts, validation/verification of PyroCb events



OMPS Aerosol Index over MODIS hotspot

OMPS Aerosol Index over MODIS
RGB

For more examples, see <http://ozoneaq.gsfc.nasa.gov/omps/blog>