



From the Editors

A couple of months ago, we mentioned that we might be hosting a Giovanni image contest. We decided that, due to the potential confusion between using the current Giovanni-3 and the upcoming Giovanni-4 (which is being developed rapidly), we wouldn't have a contest; rather, we would create a Giovanni image "Hall of Fame." We have been searching for and compiling research papers of work that used Giovanni, and we have been publishing the results, including a monthly count of papers. These papers will be reviewed for outstanding examples of images created with Giovanni (or by using data downloaded from Giovanni and then merged with other data types).

However, if you know of any outstanding Giovanni images you have seen and can access (or if you have created some yourself), please send them to jim.acker@nasa.gov, and they will be considered for inclusion in the Hall of Fame. The initial "class" of 2013 images will be published in our December 2013 issue.

Coming up in the October issue will be the compilation of the latest four months (in 2013) of research publications on work that used Giovanni.

Your editors,
Jim Acker and Wainie Youn

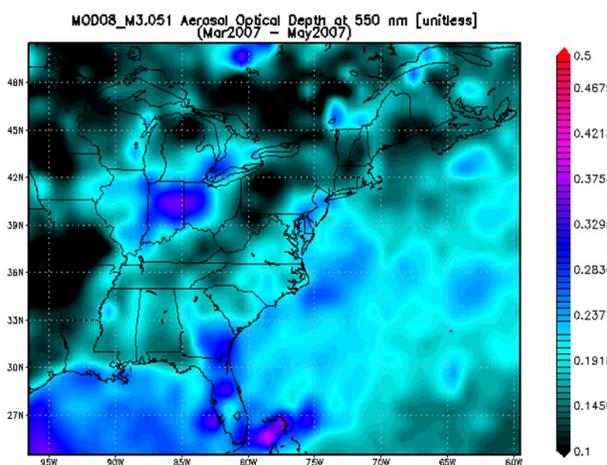
August Research Highlight: Satellite derived estimates of ultrafine particle concentrations over eastern North America.

Paola Crippa, Dominick Spracklen, and S.C. Pryor. Accepted to the Journal of Geophysical Research – Atmospheres.

In this research, the authors used Giovanni to acquire Moderate Resolution Imaging Spectroradiometer (MODIS) daily values of aerosol optical depth (AOD) at $\lambda = 550 \text{ nm}$ and Ångström exponent (Å) at 470-660 nm. The concentration of ultrafine particles (UFP) was derived with a model, which was created and refined using

(1) input from atmospheric particle size distribution measurements made at the Morgan Monroe State Forest in southern Indiana and (2) 2006-2008 data acquired from five AEROSOL ROBOTIC NETWORK (AERONET) sites. The AERONET volume size distribution function was used with these data.

The paper includes maps of seasonally-averaged UFP distributions (averaged from 2006-2009) over eastern North America. As the paper is still in press, we used Giovanni to generate the MODIS AOD from one spring season of data, March-May 2007, which is the figure shown above. Peak UFP concentrations in this study were observed during spring in the area of elevated AOD over central Indiana and east-central Ohio. According to the paper, long-term observations at the Morgan Monroe State Forest indicate that new particle formation (NPF) occurs most frequently in the spring.



In this Issue

August Research Highlight: Satellite derived estimates of ultrafine particle concentrations over eastern North America.

Presentation Report: Giovanni: Examining NASA Remote-Sensing Data for Public Health, given at MEDGEO 2013 and the 2nd Symposium on Advances in Geospatial Technologies for Health, August 27, 2013.

Giovanni Image of the Month: Yosemite Rim Fire smoke plume and U.S. Census population image

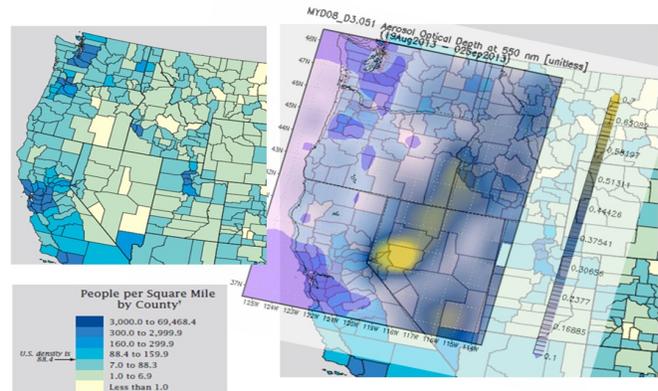
Giovanni-4 Development Update

Giovanni Image of the Month: Yosemite Rim

Fire smoke plume and U.S. Census population

image

The massive Rim Fire, which occurred near the boundary of Yosemite National Park in August 2013 and literally burned through a portion of the park, was one of the largest wildfires in California history. Smoke and soot from the fire even threatened the water quality in the Hetch Hetchy reservoir, which supplies drinking water to San Francisco and environs.



Despite this potential impact of the smoke, the actual atmospheric smoke plume from the fire was probably not a major nuisance or health hazard for a large number of people. The atmospheric transport of the plume (to the northeast of the fire) carried it over very sparsely populated regions of northern Nevada, eastern Oregon, and southern Idaho. To demonstrate this, an image of MODIS AOD for the Rim Fire smoke plume, averaged over August 19 – September 2, 2013, was superimposed on a U.S. Census Bureau 2010 Census map of population density by county, using Microsoft Powerpoint. Because the semi-transparency of the Giovanni image of MODIS AOD masked the colors indicating population density, a smaller version of the census map is shown to the left, along with the color scale.

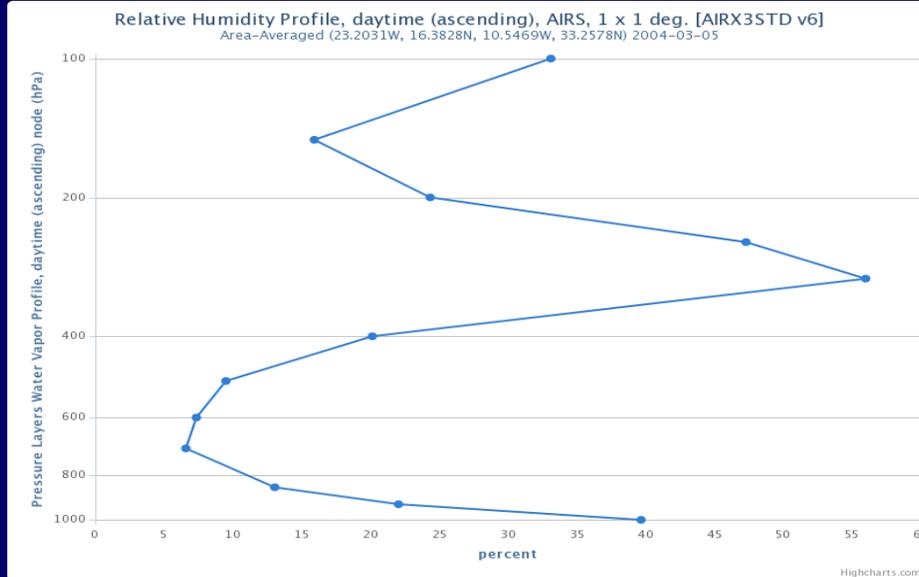
Though this quick method could not match the areas exactly, it clearly shows the areas where the smoke plume was heaviest, over the sparsely populated regions of these states. The largest population centers affected by the smoke are around Lake Tahoe; Carson City, Nevada; and Boise, Idaho.

NASA GIOVANNI –
Events, Phenomena, Trends, Changes,
& Insights

Giovanni-4 Development Update

From the developers:

”We hope to release version 4.4 of Giovanni in early October, which will include support for 3-D data like atmospheric temperature and vector quantities such as wind stress.”



Coming attractions: Here is an example of the new profile plot output from Giovanni-4. This particular plot shows a Relative Humidity profile with a dry Saharan air layer associated with a dust storm on March 5, 2004. The area selected to generate the vertical profile was just off the northwest coast of Africa. When the plot is generated, placing the cursor on a plot point will show the exact data value and the corresponding pressure layer. Compare this plot to the output from Giovanni-3 for the same region and day:

