The
Giovanni News
GODDARD EARTH SCIENCES DATA & INFORMATION SERVICES CENTER

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In this Issue

Editors' Note

This is the second December 2012 issue of The Giovanni News, catching us up to the end of 2012. In this short issue, there is still a lot of news to deliver, including a not-quite-complete count of 2012 Giovanni publications; the debut of the 'officially' first Giovanni-4 demonstration data portal, dubbed Aerosol Express; the Web publication of the Proceedings of the 2012 Gregory G. Leptoukh Online Giovanni Workshop (complete with presentation transcripts); and the new 10-year MODIS-Aqua climatology, allowing anomaly analysis with MODIS-Aqua ocean color data products.

It's a great way for us to end 2012 and get ready for an eventful and Giovanni-full 2013!

Your Editors,

James Acker and Wainie Youn

NASA's GODDARD SPACE FLIGHT CENTER
GODDARD EARTH SCIENCES DATA AND INFORMATION SERVICES CENTER (GES DISC)
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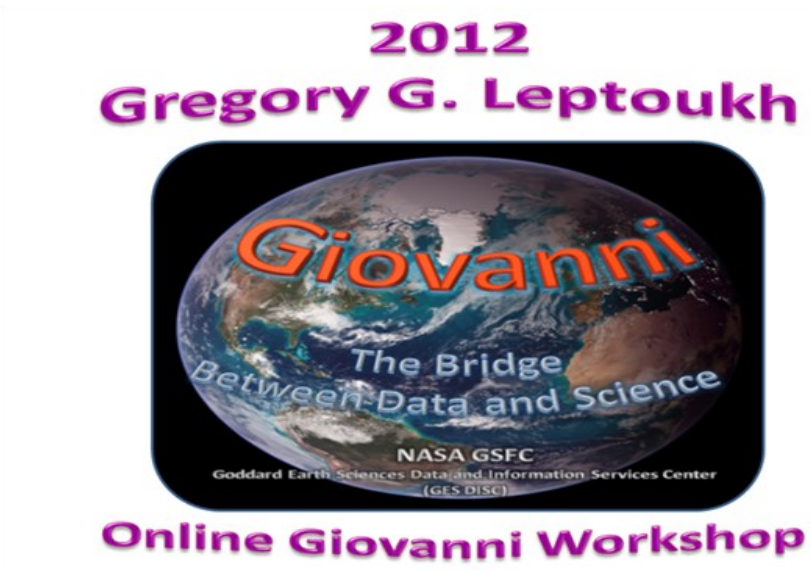
Now online: Proceedings of the 2012 Gregory G. Leptoukh Online Giovanni Workshop

Research utilizing Giovanni was the focus of unique international Internet meeting

For three days in September 2012, researchers from around the world gave presentations demonstrating how the NASA Giovanni data visualization and analysis system fostered and aided research on diverse subjects, professional training, and climate change education using NASA Earth observational data. This meeting, however, did not require researchers from Greece, Israel, Russia, the Netherlands, China, Oman, and the United States from New York to California to travel to Goddard Space Flight Center in Greenbelt, Maryland. Instead, this workshop was conducted entirely online, with the scientists giving their presentations from their home countries and their own offices. Furthermore, participants could interact with the presenter, asking questions and offering comments in a chat box.



The online 'silent' format of this meeting allowed all of the presenter's remarks and participant questions to be recorded as text transcripts.

These transcripts and the final versions of the presentations have now been published in the Proceedings of the 2012 Gregory G. Leptoukh Online Giovanni Workshop.

In most cases, either a PDF or Powerpoint presentation is available along with a text file or PDF file of the corresponding narration and interactive comments. (Some presentations are only available as a PDF or a Powerpoint.) A transcript of the roundtable discussion of how Giovanni can be used in education is also available.

The introductory session of the meeting highlighted the current status of Giovanni; the development of the next-generation Giovanni-4 (attended by over 70 participants); and a short presentation on the life of Dr. Gregory G. Leptoukh, who led the evolution of the Giovanni system for many years, and who passed away suddenly on January 12, 2012.

The workshop demonstrated how Leptoukh's vision for Giovanni's contribution to Earth science with NASA remote sensing data has come to fruition.

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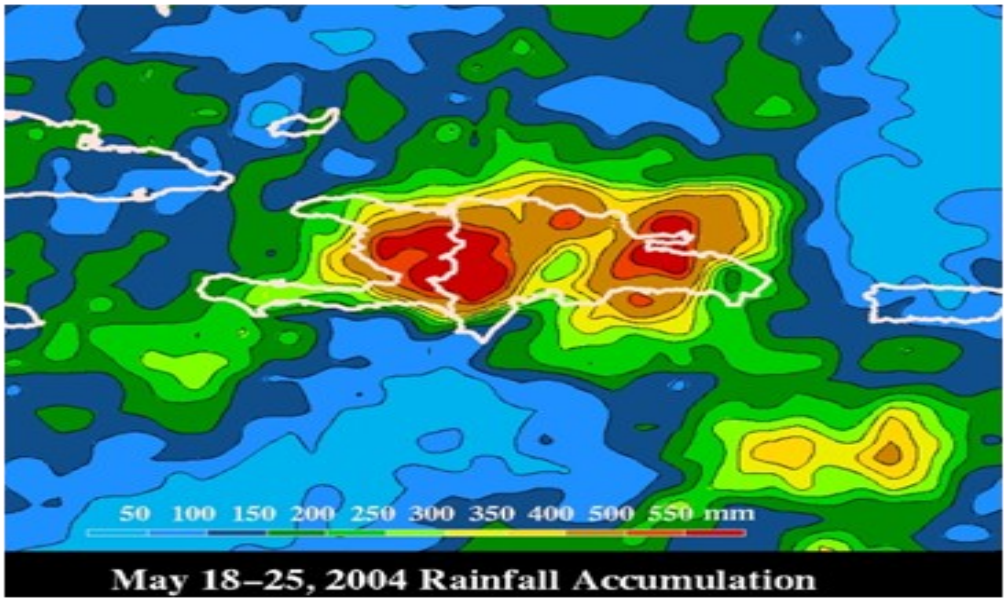
Ho, Ho, Ho-Hum – post-Christmas count establishes a new Giovanni annual publication record (again)



Plot of rainfall accumulation over Hispaniola, May 18-25, 2004. Although this plot was not made with Giovanni, Giovanni can make similar images and analyses, contributing to flood risk assessment.

(Ilorme, Griffis, and Watkins 2012)

The count is not even complete yet, but as of December 27, 2012, the end-of-year compilation of research publications using Giovanni achieved another record number. The current count stands at 171, seven more than the 2011 number of 164 publications.

Even though we're definitely proud of seeing this ratification of our efforts by the scientific community, it is the content of the science that we find even more exciting than the actual number of publications. We know Giovanni is useful, but the uses that researchers find for it continue to impress us. Below are short descriptions of a handful of the papers that are included in this latest count, which will be added to the Giovanni publications page by early 2013. Our news article about the new publication achievement will provide links to abstracts and online versions of the publications (where they are available).

- Giovanni continues to help study endangered species in the oceans: **Arendt et al.** described management surveys of loggerhead turtles in the northwest Atlantic Ocean in *Endangered Species Research*.
- **Calistrini and 11 co-authors** examined desert dust outbreaks in the Mediterranean Sea using models and observations in a paper published in *Advances in Meteorology*.
- **Ilorme, Griffis, and Watkins** used rainfall data for flood risk assessment in Haiti in a manuscript appearing in *Hydrological Engineering*.
- **Ma and Pinker** (who also presented at the Giovanni Online Workshop) published a *Journal of Geophysical Research* paper on the modeling of radiative fluxes using satellite data.
- OMI data were used by **Krzyscin et al**. to estimate solar UV-B doses for psoriasis heliotherapy, as described in the *Journal of Photochemistry and Photobiology*.
- **Vijayakumar and Devara** examined aerosol properties during an Indian festival with both satellite and ground instruments, published in *Atmósfera*.

We look forward to another productive scientific year in 2013!

Aerosol Express release lets researchers try out Giovanni-4

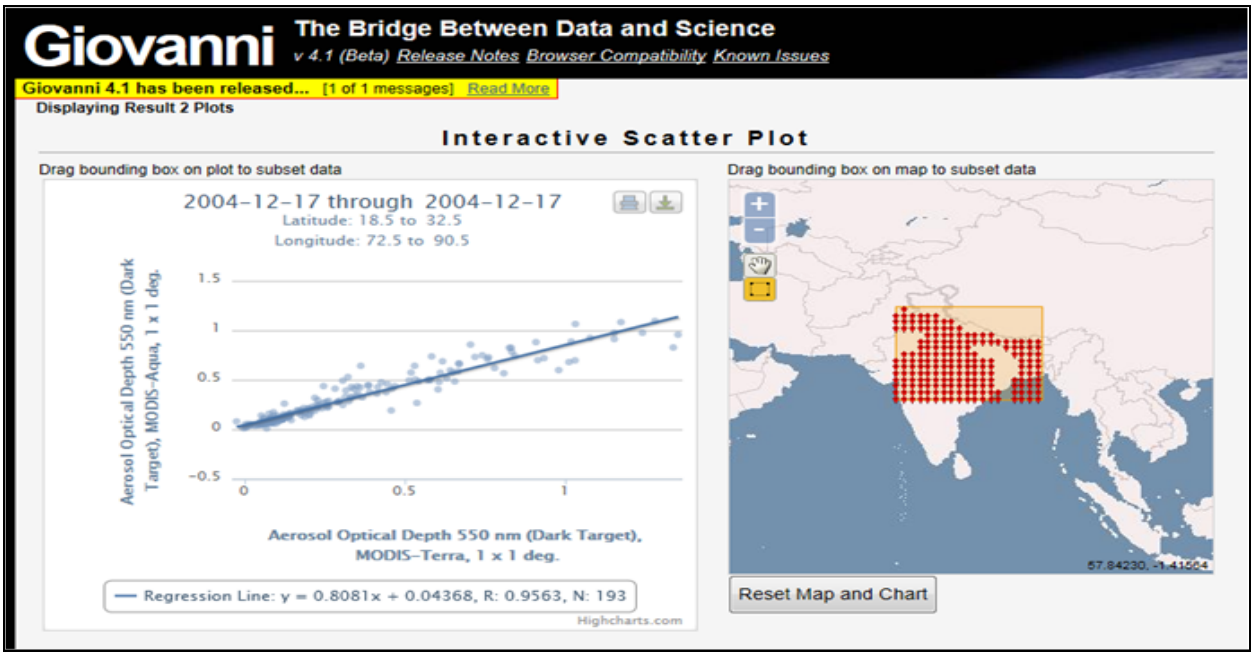
Faster analysis speeds, new data analyses are available

Giovanni-4, the next generation of the popular online analysis and visualization tool, is now available for aerosol variables and a subset of services. To try it out, go to the "Aerosols Express" data portal in Giovanni (http://giovanni.gsfc.nasa.gov), or go directly to http://giovanni.gsfc.nasa.gov/giovanni/.

Giovanni-4 has several improvements over the current Giovanni (Giovanni-3), including the following:

- Most services are faster, sometimes by an order of magnitude
- Interactive *scatter plot + map*: zoom either the scatter plot or map, and see the other visualization adjust automatically, corresponding to the change
- Interactive map: zoom and pan the results
- Bookmark-able selections (bookmark the current state of the input form, and come back later (or again) to the form with the selections intact)

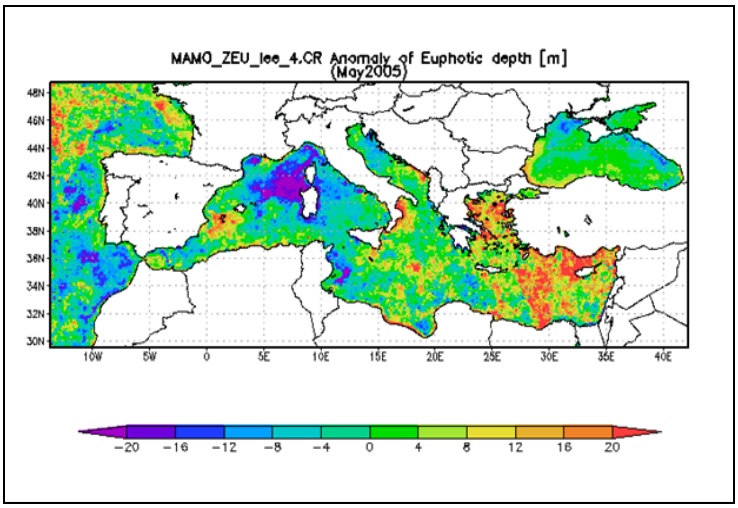
Over the next year, we will be migrating all of the existing Giovanni data variables and services to Giovanni-4. Do you have a particular data variable or analysis service you would like to see at the head of the queue? If so, send a message to the NASA GES DISC Help Desk.



Example of the Giovanni-4.1 interactive scatter plot+map, showing the location of the data pixels which are plotted in the X-Y scatter plot, for December 17, 2004, over northern India. The scatter plot shows a comparison of the MODIS-Terra and MODIS-Aqua aerosol optical depth at 550 nanometers data products acquired on this date by both sensors. If the study area is changed to include a greater or lesser number of pixels, the scatter plot will adjust accordingly to display the new points and the regression line fit to those points.

MODIS-Aqua 10-year monthly climatology for ocean color data products provides a new decade of anomaly analysis

When the Moderate Resolution Imaging Spectroradiometer (MODIS) on the Aqua satellite (which was launched in 2002) had completed 10 years of observations for every month of the year, the NASA GES DISC took the opportunity to acquire the MODIS-Aqua monthly climatology data created by the NASA Ocean Biology Processing Group (OBPG) and use them as a climatology data baseline in Giovanni. This activity, conducted as part of the "Water Quality for Coastal and Inland Waters Project," allowed anomaly analysis with MODIS-Aqua data products. Some of these data products had not been available for anomaly analysis before, notably euphotic depth (Zeu) and normalized fluorescence line height (nFLH), which allow new insight into the optical environment of the oceans and large lakes and the growth of phytoplankton.

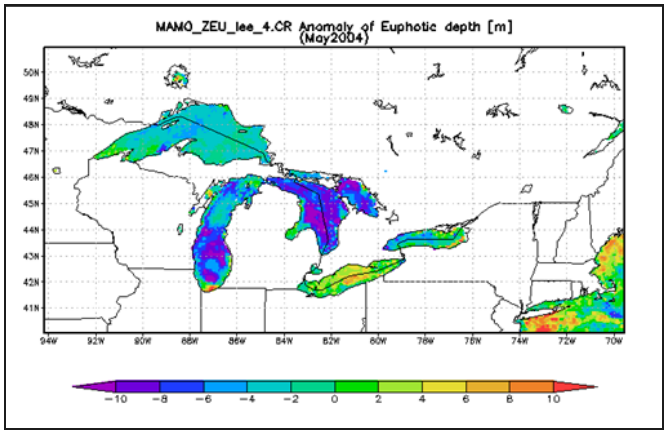


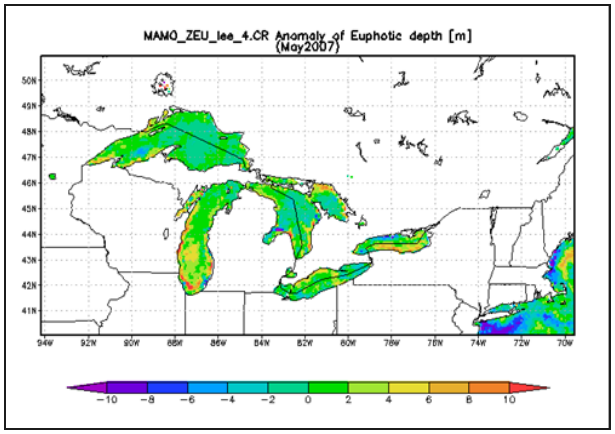
Euphotic depth anomaly in the Mediterranean Sea, May 2005. A negative euphotic depth anomaly (blue and purple) indicates more turbid water, while a positive euphotic depth anomaly (yellow-orange-red) indicates clearer water.

Anomaly analysis in Giovanni has been available for SeaWiFS data for several years, but this is the first availability of both the MODIS data products and the climatologies and anomaly analysis at 4 km spatial resolution.

At the 2012 Gregory G. Leptoukh Online Giovanni Workshop, GES DISC senior support scientist James Acker demonstrated the newly available anomaly capability by examining euphotic depth anomalies in Lake Michigan for the spring months from 2003 to 2012. A turbidity feature had previously been commonly observed during spring in the southern part of the lake, but Acker's preliminary study indicated it was becoming less frequent and less intense during the latter years of the study period.

The anomaly analysis was also used to examine an event that made the news this past summer off the coast of British Columbia, indicating the difference between natural variability and human influence on the oceanic environment.





Comparison of euphotic depth anomalies in the Great Lakes for May 2004 (left) and May 2007 (right). The 4 km resolution of MODIS-Aqua Level 3 data facilitates the use of these data products for large lakes, as well as the coastal zone.