AIRS Education and Public Outreach

NASA Sounder Science Team Meeting
Nov 3-5, 2010
Sharon Ray, AIRS Outreach Lead
New AIRS Web Site Launched 9.13.10

AIRS Public Web Site - What’s New

- Ads on the Home page that point to our carbon dioxide data, daily near-real-time maps, and our “Ask AIRS” query form
- Image and video highlights on the Home page
- Expanding menus in the left navigation column to find pages faster
- Three new sections on Weather, Climate, and Composition
- Updated News Archive
- Updated People section
- New Feedback web page (see the link in the web page footer)
- Latest Publications

AIRS Education and Public Outreach 10/31/10
AIRS in ~ 2600 Blogs

**Severe Storm Watch - Flood Watch (and a Sunday worth waiting for)**

**Paul Douglas**

*Posted by Paul Douglas

- **Last update:** September 22, 2010 - 11:49 AM

- **Comments:** 0

- **Add comment**

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**Tropical Storm Lisa.** So far in 2010, 14 tropical depressions - 12 of those grew to tropical storm strength, 6 went on to become full-bledged hurricanes with sustained winds higher than 74 mph. "Lisa" is still cut in the eastern Atlantic. NASA is using a low-orbiting satellite with a special "AIRS" sensor, the Atmospheric Infrared Sounder, which measures the temperatures of clouds. In the last 24 hours the tops of thunderstorms near the center of the storm cooled (to -94°F), hinting at additional intensification. In all probability Lisa will become the 77th named hurricane of the season. More from NASA here.

**Study Seeks To Explain The Parting Of The Red Sea.**

Disclaimer: I do not believe everything can be explained by science (I happen to believe that miracles are possible - I’ve seen them in my own life and the lives of others). That said - I stumbled upon this article that tries to provide a meteorological explanation for what Moses may have encountered some 3,000 years ago, documented in the Book of Exodus. Hmmm.
AIRS Animation of Russian Wildfires Featured on NYT’s Dot Earth Blog

- The New York Times Dot Earth is a blog where Andrew Revkin reports on natural resources, the environment, climate change and sustainability.

- Visualization of AIRS CO from Russian wildfires, July 18 to August 10, 2010 makes the blog.

- Europe Today on the BBC World Service interviews Ed Olsen about the AIRS CO animation

- Widespread, international coverage

Green Tech - CNET News
Aug 12, 2010 ... Data from the Atmospheric Infrared Sounder (AIRS) on NASA's Aqua spacecraft allows a comparisons of air quality over the Russian Federation ... news.cnet.com/greentech/ - 4 minutes ago

NASA Video Shows Global Reach of Pollution from Fires - Science ...
Aug 12, 2010 ... The data are from the Atmospheric Infrared Sounder (AIRS) instrument on NASA's Aqua spacecraft. AIRS is most sensitive to carbon monoxide at ... www.redorbit.com/news/science/1903949/nasa_video.../index.html - 51 minutes ago

Research.gov - NASA Instrument Tracks Pollution from Russian Fires
The Atmospheric Infrared Sounder (AIRS) instrument on NASA's Aqua spacecraft is tracking the concentration and transport of carbon monoxide from the Russian ... www.research.gov/rgov/anonymous.portal? - 1 hour ago

The Hindu : News / International : Wildfires in Russia, Canada ...
NASA's Aqua satellite, equipped with an atmospheric infrared sounder (AIRS), has noted a change in the concentrations of carbon monoxide at an altitude of ... www.thehindu.com/news/international/article566562.ece - 1 hour ago

m-Wildfires-Covers-Earth- 151874.shtml - 5 hours ago

MORE...
AIRS Animation of Russian Wildfires
Featured on NYT’s Dot Earth Blog

NASA's AIRS Instrument Sees Spread of Wildfire Pollution across the Globe
Some comments on the animation:

Lou Grinzo
Rochester, NY
August 12th, 2010
8:20 am
Wow, that's quite a visual. It's almost as if, you know, we're all living on the same, finite planet. Go figure.

mmswedish
August 12th, 2010
10:23 am
Yup, Lou #6, as if we live on the same planet. I am increasingly aware that most of 'my' people do not know how the earth works. Why are we not taught ecology beginning in kindergarten? Why do we not learn how our planet and the ecosystems in which we are embedded actually work? I have a very strong feeling that our culture would be dealing with the ecological crises we are facing now quite differently if they understood this – innately – from childhood.
- Notable is nearly all the data sources are from operational satellite systems, with one of the exceptions being the inclusion of data from AIRS.

- Feature written by Sharon Ray and Duane Waliser for AIRS web site, and featured on Climate web site.
NASA Hurricane Coverage Continues - AIRS Continually Supplies Images

- Hurricane Igor story titled “Stunning NASA Infrared Imagery of Hurricane Igor Reveals a 170 Degree Temperature Difference!” written by Rob Gutro of the NASA Hurricane Page

- Story was picked up by more than 130 outlets, including MSNBC, USA Today and NPR. Rob was also interviewed by Fox News NYC about NASA coverage of Igor.

- Time series created from MODIS and AIRS images receives widespread news coverage, including tweet by CNN’s Rick Sanchez.

AIRS Education and Public Outreach 9/15/10, 10/26/10
AIRS in New NASA Water Cycle Fact Sheet

- New NASA Water Cycle Fact Sheet written by Steve Graham, Claire Parkinson, and Mous Chahine features AIRS water vapor imagery.

- AIRS water vapor image included in a feature story titled “A Little Water Goes a Long Way” in NASA’s Earth Observatory.

AND SPREADING THE WORD...
Astronaut and former Terra Project Scientist, Peter Sellers, used AIRS animations of carbon dioxide in a talk at the National Air and Space Museum on September 15th.
NASA Data Shows Global Reach of Pollution from Russian Fires

Alan Buis, NASA Jet Propulsion Laboratory, Alan.buis@jpl.nasa.gov

A series of large wildfires burning across Western and Central Russia, Eastern Siberia, and Western Canada has created a toxic soup of air pollution that is affecting life far beyond national borders. Among the pollutants created by wildfires is carbon monoxide (CO), a gas that can pose a variety of health risks at ground level. CO is also an ingredient in the production of ground-level ozone, which causes numerous respiratory problems. As the CO from these wildfires is lofted into the atmosphere, it becomes caught in the lower branches of the mid-latitude jet stream, which swiftly transports it around the globe.

Two movies were created using continuously updated data from the Eyes on the Earth 3-D feature on NASA's global climate change website: climate.nasa.gov. They show three-day running averages of daily measurements of CO present at an altitude of 18,000 ft (5.5 km), along with its global transport. The data are from the Atmospheric Infrared Sounder (AIRS) instrument on NASA's Aqua spacecraft. AIRS is most sensitive to CO at this altitude, which is a region conducive to long-range transport of the smoke. The abundance of CO is shown in parts per billion, with the highest concentrations shown in yellows and reds. The first movie, centered over Moscow, highlights the series of wildfires that continue to burn across Russia. It covers the period between July 18–August 10, 2010. The second movie is centered over the North Pole and covers the period from July 1 to August 10, 2010.

Kudos

Moustafa T. Chahine [Jet Propulsion Laboratory (JPL)—Atmospheric Infrared Sounder (AIRS) Team Leader for Aqua] was recently elected to the Lebanese Academy of the Sciences. From the AIRS Team, “Dr. Moustafa Chahine, AIRS Science Team Leader, was elected a Full Member of the Lebanese Academy of Sciences (Academie des Sciences du Liban). His election carried the citation: ‘For his leadership in the theoretical modeling and space observation of Earth and planetary Atmospheres.’ A press release will follow on the Academy’s webpage at: www.alliban.org/Announcements.html.” The staff at the The Earth Observer and the entire scientific community congratulate Chahine on his accomplishment!
Advanced IR measurements improve hurricane forecasts
Jun Li, Hui Liu and Timothy J. Schmit

Water-vapor sounder data from NASA’s Earth Observing System satellite Aqua facilitates significant improvements in hurricane-path and intensity predictions. 27 October 2010, SPIE Newsroom. DOI: 10.1117/2.12010.003317

Using numerical modeling, scientists can improve hurricane forecasts and provide more accurate path and intensity predictions to save lives and prevent property damage. One factor limiting forecast quality is the lack of information about the amount of water vapor in the atmosphere is one of the major challenges in numerical weather prediction (NWP).

Through an advanced retrieval technique, critical information can be extracted from AIRS radiance measurements by assimilation of the spatial and vertical water-vapor distribution around a hurricane into a regional NWP model, thereby improving path and intensity forecasts.

• SPIE technical article features research by Jun Li, Hui Liu and Timothy J. Schmit
• Atmospheric-water-vapor information is a key parameter needed in the regional numerical-weather-prediction (NWP) model for accurate hurricane forecasting.
• Today’s hyperspectral IR sounders such as AIRS, IASI provide unprecedented global, vertical atmospheric temperature and moisture distributions with high accuracy.

http://spie.org/x42479.xml?highlight=x2420&ArticleID=x42479
Upcoming Stories

- Bjorn Lambrigtsen - AIRS Data used to help forecast effort in GRIP Campaign
- Julie Wallace - Applications of AIRS Data
- Hengchun Ye
- Nick Nalli
My NASA Data

- Makes NASA Earth science data accessible to K–12 and citizen scientist communities
- Data and lessons can be used with existing curriculum and enable students to practice science inquiry and math or technology skills using real measurements of Earth system variables and processes.
- Lin Chambers and team have incorporated AIRS CO2 data into the MY NASA educational framework. Data is now available.

ESSEA – Earth System Science Education Alliance & GES DISC (GIOVANNI)

- A NASA, NSF and NOAA-supported program implemented by the Institute for Global Environmental Strategies (IGES) to improve the quality of geoscience instruction K-12 teachers. 40+ institutions participate, with over 3,000 teachers having completed an ESSEA course as of fall 2009.
- ESSEA is based on a series of online courses for teachers that are offered by participating institutions. These institutions and faculty receive training, technical support, the ability to create and share their own course modules, and join an active community of Earth system science educators.

- 2 educational modules will be built around AIRS data
- *Water vapor module* will focus on water vapor feedbacks increasing the warming effect of CO2 in the mid-troposphere.
- *CO2 module* will focus on discovery of the southern hemisphere CO2 belt.
- *SO2 data* will be incorporated into existing volcano educational models.
- ESSEA will take advantage of the GIOVANNI real-time animation tool and the Eyes On The Earth web application.
Hi all,

Our Dynamic Planet contents was being captured and aired by the Weather Channel at the recent annual AMS event, BIG thanks to Steve Graham’s dedication to keeping content with latest data, and many thanks to Kevin Ward (NEO project), Marit Jentoft-Nilsen (EOS), Mark Malanoski (EOS), Vicky Weeks (Goddard TV), Sharon Ray (EOS/AIRS) data support to make this content rich inspiring showcase. Here is the link to the video was aired on Friday, Jan. 22, 7:55 am on Weather Channel.

Winnie
New Hi-Def Time Series Data Sets Large Magic Planet and Science on a Sphere
New Hi-Def Time Series Data Sets Large
Magic Planet and Science on a Sphere

Charles Thompson created data sets of Water Vapor, Carbon Monoxide, Surface Temperature, Carbon Dioxide, Methane.


To debut at A-Train Symposium in October.

More data sets to come for AGU in December.

10/25/10
New Visualization - Polar CO2

• Visualization by Lori Perkins, GSFC SVS
• Data supplied by Hai Nguyen, Ed Olsen, Amy Braverman
• Eco Company, a national TV show aimed at teens, explores "all aspects of being green and understanding how we impact our world."

• Hosted by teens

• Eco reports on the latest technologies in energy, recycling, conservation and organics

• Interviewed AIRS scientist Dr. Ed Olsen about how the AIRS instrument in space is contributing to the study of Earth's climate, as well as questions about climate change

• 117 local television stations around the country, opening in international television markets
Public Symposium on Climate Change

- Held 10.16.10 at JPL, sponsored by JPL’s Green Club, helped by AIRS Outreach and JPL Media
- 8 speakers, including AIRS Deputy Project Scientist Eric Fetzer
- Audience questions varied from "Are climate models getting too complicated to understand?" to "How do volcanoes affect climate?" and "Why are the big countries not on board with climate regulation?"
- ~160 attendees
- 4,149 UStream attendees (200 whole time, the rest drop in for 4-5 mins)
- House Science & Technology Committee requested presentations

"I think one of the most interesting questions that people asked had to do with population. When we come to discussions of climate change, why is population control not talked about as a possible solution?"