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EDITOR'S CORNER

Michael King

EOS Senior Project Scientist

On Thursday, June 24, 2004, NASA Administrator Sean O'Keefe announced a transformation of NASA's organization structure into a "leaner, more focused agency" as recommended by the President's Commission on Implementation of U.S. Space Exploration Policy headed by former U.S. Air Force Secretary Edward (Pete) Aldridge.

This transformation includes restructuring NASA's Strategic Enterprises, including the Earth Science Enterprise, into four Mission Directorates. The four Missions will be Aeronautics Research, Science, Exploration Systems, and Space Operations. The Earth Science and Space Science Enterprises will be folded into the Science Mission Directorate, and Al Diaz, Director at Goddard Space Flight Center (GSFC), will become the Associate Administrator of Science, with Ghassem Asrar becoming the Deputy Associate Administrator. The Centers identified with the Science Mission are Ames Research Center, GSFC, and the Jet Propulsion Laboratory. Ed Weiler, Associate Administrator of Space Science, will become director of GSFC. These changes will become effective August 1, 2004.

The fine details of the transformation are unclear at this point; however, we have been assured that Earth Science will remain an integral part of the Science Mission at NASA.

I am happy to report the appointment of Jim Gleason as the Project Scientist of the National Polar-Orbiting Operational Environmental Satellite System (NPOESS) Preparatory Project (NPP), succeeding Bob Murphy who retired at the end of April. NPP is a joint effort of the NPOESS Integrated Program Office (IPO), which is a tri-agency consisting of the Department of Commerce (DoC), the Department of Defense (DoD) and NASA. NPP will provide NASA with continuation of global change observations begun

Continued on page 2

by the Earth Observing System (EOS) Terra and Aqua satellites, and will provide the National Polar-orbiting Operational Environmental Satellite System (NPOESS) with an indication of the risk involved and validation of critical NPOESS sensors, algorithms, and processing. NPP will carry the Advanced Technology Microwave Sounder (ATMS), CrossTrack Infrared Sounder (CrIS), Visible Infrared Imaging Radiometer Suite (VIIRS), and the Ozone Mapping and Profiler Suite (OMPS), and is currently scheduled to launch in Fall 2006.

Gleason is a research scientist in the Atmospheric Chemistry and Dynamics Branch at GSFC. He is a member of the Ozone Monitoring Instrument (OMI) on Aura, and NPP Science Teams and a member of the Global Ozone Monitoring Experiment (GOME) Science Advisory Group. Gleason received his Ph.D. in Chemistry from the University of Colorado, where he did laboratory gas phase kinetic studies at the NOAA Aeronomy Laboratory. He continued his career in heterogeneous laboratory chemistry at Brookhaven National Laboratory. In 1989 he came to Goddard, first as a National Research Council (NRC) postdoc and later as a NASA employee. He has done atmospheric remote sensing with the Total Ozone Mapping Spectrometer (TOMS), and has served as the Aura Deputy Project Scientist and Project Scientist from 1994 to 1997. After the launch of the GOME instrument on the European Remote-Sensing Satellite (ERS-2) spacecraft, he started working with the European Space Agency (ESA) on European total ozone retrieval issues. Gleason is Principal Investigator of the NO₂ data product of OMI. He has spent the past two years detailed part-time to NASA Headquarters as the Tropospheric

Chemistry Program Manager, where he focused the program activities on getting ready to support Aura validation and integrating aircraft, satellite and modeling observations.

Jim Butler has agreed to become Deputy Project Scientist of NPP, joining Jeff Privette in that position. Butler is an optical physicist in the Laser Remote Sensing Branch at GSFC. Since 1995, he has performed the duties of EOS Calibration Scientist, a position he plans to continue. He also manages the GSFC diffuser calibration facility, and is a former research associate at the National Institute of Standards and Technology.

The Gleason, Privette, and Butler team will bring a wealth of experience to the NPP project, spending a lot of time on instrument as well as data processing and archival issues.

On a sad note, I am sorry to report that Al Chang, former Deputy Project Scientist of Aqua, and a member of the AMSR-E science team, passed away May 25 unexpectedly. Al was an outstanding scientist at GSFC, and will be missed immensely by his colleagues. Our heartfelt sympathy goes out to his family and friends.



Turbid waters spill out into the Gulf of Mexico where their suspended sediment is deposited to form the Mississippi River Delta. Like the webbing on a duck's foot, marshes and mudflats prevail between the shipping channels that have been cut into the delta. This scene was acquired by the ASTER instrument on NASA's Terra satellite on May 24, 2001. This composite was created by combining shortwave infrared, infrared, and near-infrared wavelengths (ASTER bands 4, 3, and 2). Image provided by the USGS EROS Data Center Satellite Systems Branch as part of the Earth as Art II image series: <http://landsat.gsfc.nasa.gov/earthasart/>.

CloudSat Science Team Meeting

— Deborah Vane, dvane@mail.jpl.nasa.gov, NASA/JPL, CloudSat Primary Principal Investigator

— Deborah Krumm, Colorado State University, CloudSat Outreach Coordinator

— Alan Ward, alan_ward@ssaihq.com, Science Systems and Applications, Inc.

The CloudSat Science Team meeting was held from May 23-25, 2004, in Laguna Beach, CA. Presentations focused on contributions to the Cloudsat post-launch validation were given by international and interagency partners. Following are the highlights.

The Canadian Space Agency is funding a cold-season field campaign that will undertake a thorough and careful evaluation of the quality of the CloudSat products as they apply to the Canadian climate. The research effort will last for five years and will evolve from a measurements and validation strategy that primarily involves observationally-oriented scientists, to a more applications-oriented strategy that involves modeling and remote sensing-oriented

scientists. Two enhanced-observation campaigns are planned during the CloudSat on-orbit operations period.

The German Weather Service has also expressed interest in participating in CloudSat validation. They are located east of Berlin and have a 35-GHz radar, lidar, and Radio Acoustic Sounding System (RASS) capabilities.

A number of activities are planned in Europe and the U.K., involving ground-based and aircraft field campaigns. CloudNET is a research project supported by the European Commission that obtains lidar and radar data quasi-continuously. The data is used for the development and implementation of cloud remote-sensing-synergy

algorithms, and the evaluation of the representation of clouds in four major European weather forecast models.

The Site Instrumental de Recherche par Télédétection Atmosphérique (SIRTA) is a ground-based site in France with 94 GHz radar, lidar, radiometers and *in situ* measurements. Several flights are planned for the Radar/Lidar (RALI) aircraft payload, which contains a 94-GHz radar and a high-spectral resolution lidar. The following flights are planned:

- **April-June, 2005:** These will serve as "checkout" flights;
- **September-December, 2005:** Centre National d'Etudes Spatiales (CNES)-funded validation of CloudSat and Cloud Aerosol Lidar and Infrared Pathfinder Satellite Observations (CALIPSO);
- **August-September, 2006:** African Monsoon Multidisciplinary Analysis (AMMA) campaign with CloudSat/CALIPSO underflights);
- **October-November, 2006:** Southern France CIRCLE-2 campaign with dedicated CloudSat/CALIPSO validation flights, surface-based radar, and possible aircraft measurements with supporting analysis activities in the U.K.

Contributions from Japan, subject to funding of the EarthCARE project, include ground-based radar/lidar (Indonesia 2005), airborne radar flights near Japan in 2005, and shipborne radar/lidar measurements in 2005.



Deborah Vane speaks at the CloudSat Meeting.

The Department of Energy's Atmospheric Radiation Measurement (DoE/ARM) program has been a partner with CloudSat since the very beginning of the proposal process. DoE/ARM continues to support CloudSat development and validation plans with surface and aircraft measurements in a number of sites worldwide. In addition to these contributed activities, CloudSat is funding the flights of the JPL/University of Massachusetts Airborne Cloud Radar in the Tropical Warm Pool International Cloud Experiment (TWP-ICE) field campaign in Darwin, Australia in January-February 2006. The TWP-ICE experiment is sponsored by the U.S. Department of Energy, Australian Bureau of Meteorology, NASA, the European Union, the German Aerospace Center, Commonwealth Scientific and Industrial Research Organisation (CSIRO), and several universities. One of the goals of TWP-ICE is the validation of CloudSat and A-Train observations.

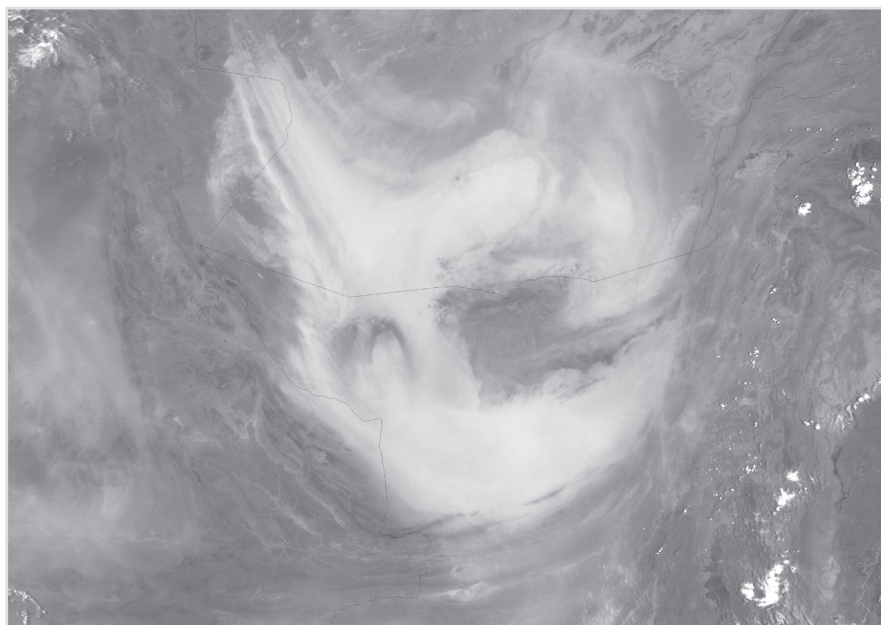
Also at the Science Team meeting, we welcomed the representative of the Joint Center for Satellite Data Assimilation (JCSDA), Fuzhong Weng, who is joining the CloudSat Applications Advisory Group. DoD, NOAA, and NASA, are joint sponsors of JCSDA. The goal of the program is to accelerate and improve the quantitative use of research and operational satellite data in weather- and climate-prediction models.

CloudSat Cup

On a more lighthearted note, the CloudSat Science Team maintains a long-standing tradition of fine sportsmanship and friendly competition. One of the highlights of each science team meeting is the competition between the scientists and the engineers for the

honor of winning the CloudSat Cup. Past sporting events have included volleyball, hockey, bowling, and checkers (yes, checkers!)—spanning the wide world of sports. Last year at the combined CloudSat/CALIPSO meeting in Broomfield, Colorado, the engineers finally upset the scientists in a vicious, no-holds-barred checkers competition. CloudSat Program Manager Tom Livermore skillfully defeated all challengers to go home to JPL with the coveted Cup. The victory was marred, however, by a kidnapping incident. The CloudSat Cup was stolen and held for ransom. Because of its value to the Science Team, they decided to pay the outrageous ransom (the details of which remain a high-level secret), and the Cup

was returned and proudly displayed in Livermore's office. The stakes were high for the scientists this year. The sport: beach volleyball. The unpredictable coastal California weather smiled favorably on the match. The battle was hard-fought with CloudSat PI Graeme Stephens leading the charge (and numerous nosedives into the sand). As the excited crowd looked on, the scientists finally emerged victorious, covered in glory and lots and lots of sand. The engineers have vowed revenge as the CloudSat Cup rests in Stephens' office in Fort Collins, Colorado, until the next CloudSat Cup competition.



A heavy curtain of dust lay over southern Afghanistan and northern Pakistan on June 14, 2004. The dust appears to be blowing out of the Sistan Basin, which is on the Afghan-Iranian border. With the exception of three shallow freshwater lakes, only one of which is visible in this image as a dark depression near the origin of the storm (top left), the wetlands dry completely during the dry season, leaving deposits of alluvial silt, which is easily lifted on the wind. In this Moderate Resolution Imaging Spectroradiometer (MODIS) image, the dust is masking the arid deserts of Afghanistan and Pakistan and is sweeping around the Chagai Hills, the dark land in the center of the storm. The crescent of the Siahian Mountain Range in Pakistan is preventing the dust from blowing further south. Once airborne, the dust cools considerably. Here, the dust is as much as 40° Celsius cooler than the hottest regions on the ground. The land temperature in this image reaches up to 57 degrees C (135° F) in pockets where the land is darker, and therefore, absorbs more sunlight. This image was captured by the MODIS instrument on NASA's Terra satellite. Image courtesy Jacques Descloitres and Ana Pinheiro, MODIS Rapid Response Team.

SORCE Records the Transit of Venus

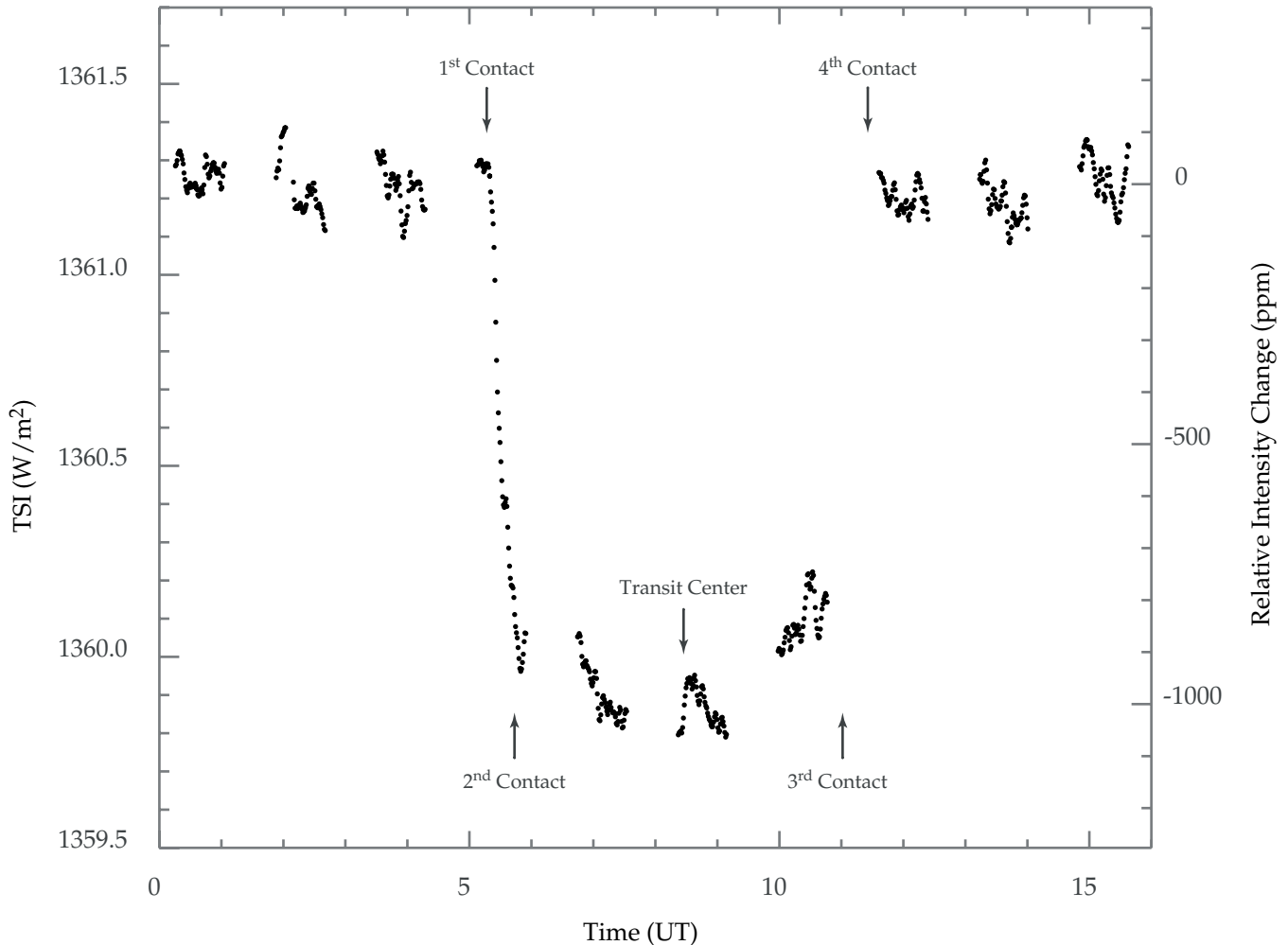
— Gary Rottman, gary.rottman@lasp.colorado.edu, LASP, University of Colorado
 — Greg Kopp, greg.kopp@lasp.colorado.edu, LASP, University of Colorado
 — Jerry Harder, jerry.harder@lasp.colorado.edu, LASP, University of Colorado
 — Tom Woods, tom.woods@lasp.colorado.edu, LASP, University of Colorado

On June 8th, for the first time since 1882, the planet Venus came between the Earth and the Sun. The circumstances for these special transit events occur only every 122 years, and then in pairs separated by about 8 years. We will have another in 2012, but then not again until 2117 and 2125. The size of the planet Venus is about one arc min-

ute, or about the size of a typical sunspot on the solar disk. Therefore, as the planet moves across the Sun, we expect a dip in solar irradiance of about 0.1%. The SORCE Total Irradiance Monitor (TIM) routinely records the passage of sunspots with comparable dips in total solar irradiance (TSI). (The very largest sunspot groups late in October of 2003

produced a drop in TSI of more than 0.3%.) Observing the transit of Venus is well within the precision and accuracy capability of the SORCE TIM and the Spectral Irradiance Monitor (SIM) and we anticipated that this astronomical event was an opportunity to test the instruments, and perhaps would provide some unique scientific data as well.

SORCE / TIM Observations of Venus Transit
 June 8, 2004



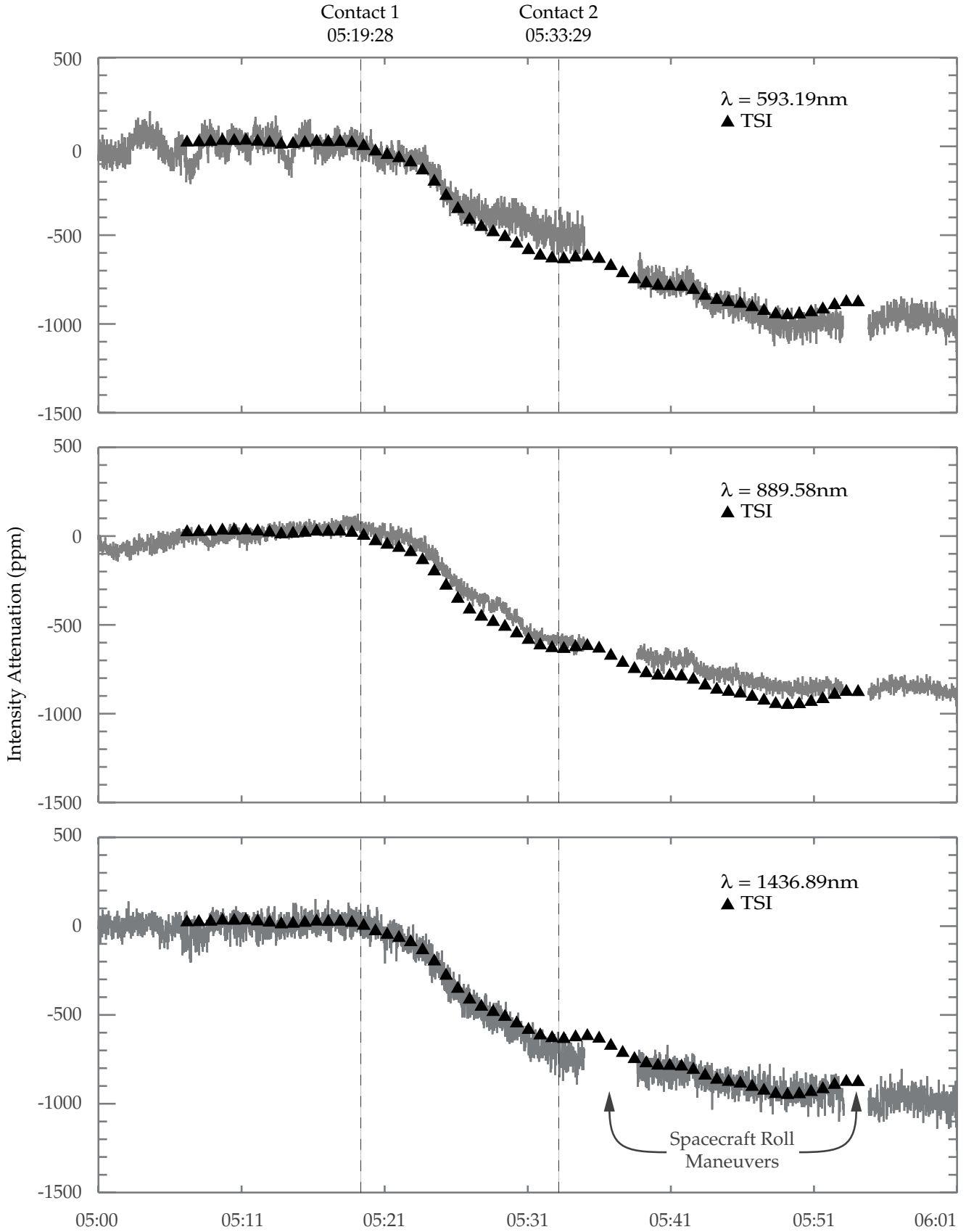
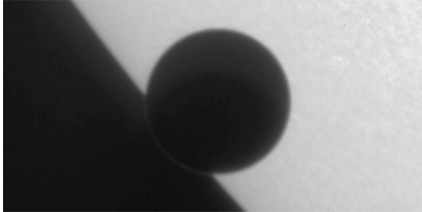


Image of Venus during ingress (5:34 UT) taken by TRACE. Venus on the eastern limb of the Sun shows a faint ring around the planet. This faint ring, with a brightness of only about 1% of the brightness of the Sun close to its edge, is a consequence of the scattering that occurs in the atmosphere of Venus, allowing some sunlight to show around the edge of the otherwise dark planetary disk.



SORCE schedulers and scientists took advantage of the opportunity to capture this rare alignment by planning special experiments. The transit involves four contact points: first contact as the edge of Venus touches the limb of the Sun, second contact as the planet is just onto the disk of the Sun (the period between these contact points is the ingress period), third contact as the edge of Venus just reaches the other limb of the Sun, and fourth contact as Venus finally leaves the Sun (with the period between third and fourth contact referred to as the egress period). The ingress and egress times are about 20 minutes, and the total time of the transit is about six hours.

The entire transit occurred before sunrise in Colorado so we had to live vicariously through SORCE that had four views of the transit as it extended through four orbits. There is significant parallax of Venus against the solar disc seen from various positions on Earth. Parallax refers to an apparent change in the position of an object when the person looking at the object changes position. Astronomers were able to use this phenomena of parallax to help them establish the distance from the Earth to the Sun during the Venus transit of 1769.

The SORCE satellite was in an almost ideal position to record the transit, and we report here preliminary observations from the TIM and the Spectral Irradiance Monitor (SIM) Instruments. TIM measured a decrease in the TSI as Venus transited the Sun. In agreement with our predictions, the incident sunlight dropped slightly less than 0.1%, or 1000 parts per million (ppm), during the transit. These data, which have been adjusted to 1 AU for comparison with other TSI values seen throughout the year, show a decrease from the Sun's normal TSI value of 1361 W/m² down to 1359.7 W/m². The gaps spaced throughout the data are the times when the SORCE spacecraft was in the Earth's shadow and could not view the Sun. Fortunately, 1st through 2nd contact (ingress) was recorded, but egress (3rd and 4th contacts) was not. Venus did not move across the diameter of the Sun, but rather across a shorter chord near the south pole. The slight curvature in TSI during transit, bright to slightly darker and then brighter, as Venus moves along the chord of the Sun results from the fact that the Sun is not as bright near its edge, or limb, and Venus therefore blocks less radiation than it does as it moves further onto the solar disk. This is a well known effect called *limb darkening* on the Sun. The small fluctuations (about 50 ppm) in brightness on short time scales are from normal solar oscillations and can be seen both before and after the transit.

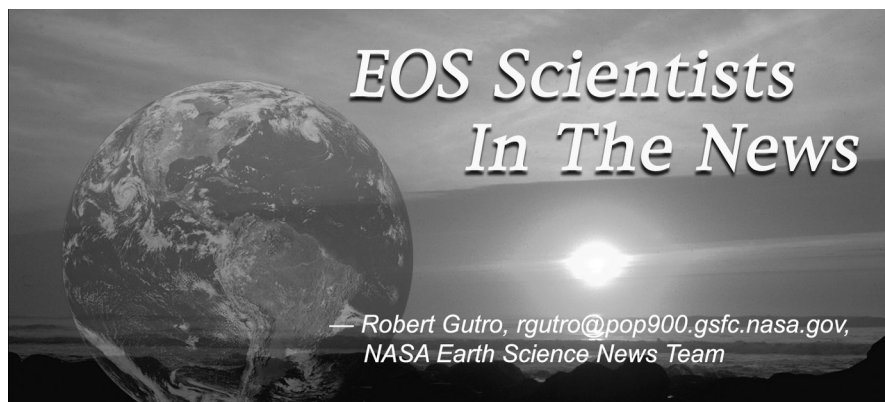
SIM only recorded the first of the transit orbits and during this time it was configured to provide simultaneous observations in three wavelengths, 593 nm, 890 nm, and 1436 nm. The data are provided in the three panels of the second figure, where the monochromatic data are compared with TIM data between first and second contact. As

expected, the amount of decrease at each wavelength is quite commensurate with the decrease in TSI. It is also quite interesting that TSI and each of the three wavelengths show a certain *waviness* to the light curve. These variations are likely due to a superposition of the solar oscillations observed regularly in the Sun, the parallax effect as the satellite moves in its orbit, and solar activity near the limb.

We wish to acknowledge all of the SORCE team that make these experiments possible: Cindy Russell, Ken Griest, and the other planners, Sean Ryan, Deb McCabe, Brian Boyle, and the entire ops team, Chris Pankratz and all of the data-processing folks, and, of course all other members of our team. The precise observations of the Venus transit are a testimony to the performance of the Orbital spacecraft, the instruments, and the entire ground system.



Like a many-faceted jewel in an indigo setting, the Shetland Islands lie 210 kilometers (130 miles) north of the Scottish mainland in the North Atlantic Ocean. Despite their 60-degree north latitude, the Shetlands enjoy a relatively temperate climate thanks to the warming influence of the Gulf Stream. This image was acquired by Landsat 7's Enhanced Thematic Mapper plus (ETM+) sensor. Image provided by the USGS EROS Data Center Satellite Systems Branch as part of the Earth as Art II image series.



Global Pollution to be Tracked for the First Time, June 30; *United Press International, Washington Times (DC), Antelope Valley Press, Calif.*; NASA and other U.S. and international agencies will measure the movements of pollution around the globe this summer as part of a combined air quality and climate study (INTEX-NA). Includes quotes from **Hanwant Singh** (NASA ARC), **Bob Curry** (NASA DRC), and **Jim Gleason** (NASA HQ).

Saved by the Storm?, June 24; *Christian Science Monitor*; **Anthony Del Genio** (NASA's Goddard Institute for Space Studies) was mentioned in this article about new NASA-funded research which supports a previous theory that clouds formed by thunderstorms may help put the brakes on global warming.

Rapid Urbanization in China Warming Regional Climate Faster Than Other Urban Areas, June 23; *Science Daily*; Rapid urbanization in South-eastern China in the past 25 years is responsible for an estimated warming rate much larger than previous estimates for other periods and locations, according to a new NASA-funded study by **Liming Zhou**, and **Robert Dickinson** (Georgia Tech).

NASA Research Helps Highlight Lightning Safety Awareness Week,

June 21; *Science Daily, Spaceref, Spatial News, U.S. Politics Today*; NASA will mark National Lightning Safety Awareness Week, June 20-26, through unique contributions its lightning research makes to climate studies, and severe storm detection and prediction. **Richard Blakeslee** (NASA MSFC) was quoted on how NASA research is striving to improve our understanding of lightning and its role in weather and climate.

USA's Built-up Surfaces Equal Ohio in Area, June 15; *ScienceDaily*; **Ramakrishna Nemani** (NASA ARC) is a co-author of a study that shows the total impervious surface area of the United States now equals the state of Ohio in size, significantly impacting local climates and vegetation. (*Science Daily*)

NASA Data Shows Hurricanes Help Plants Bloom in "Ocean Deserts," June 15; *Scripps Howard News Service, Big News Network*; According to a new study using NASA satellite data by **Steven Babin** (Johns Hopkins University Applied Physics Laboratory), phytoplankton — tiny ocean plants — tend to bloom following hurricanes, potentially affecting the Earth's climate and carbon cycle.

NASA Data Shows Deforestation Affects Climate in the Amazon, June 14;

Science Daily, Space Daily; Using NASA satellite data, **Andrew Negri** and **Robert Adler** (NASA GSFC) observed during the Amazon dry season there was a distinct pattern of higher rainfall and warmer temperatures over deforested regions.

Researchers Seeing Double on African Monsoons, June 10; *Science Blog, Spatial News*; The African monsoon consists of two distinct seasons, according to **Guojun Gu** and **Robert Adler** (NASA GSFC).

Scientists Look at Moon to Shed Light on Earth's Climate, May 27; *Associated Press, Reuters, Scripps Howard News Service*; **Enric Palle, Phil Goode** (New Jersey Institute of Technology), **Steve Koonin** (Caltech), and others looked at the ghostly glow of light reflected from Earth onto the moon's dark side to gain new insights on Earth's reflectance and cloud cover.

NASA's Terra Satellite Tracks Global Pollution, May 18; *Innovations Report-Germany, SpaceFlight Now*; Data from NASA's Terra satellite is adding to our understanding of how pollution spreads around the globe, according to new studies by **David Edwards** and **Cathy Clerbaux** (National Center for Atmospheric Research (NCAR), Boulder, Colo.).

NASA and USGS Magnetic Database "Rocks" the World, May 17; *United Press International, Washington Times*; Following the lead of **Katherine Nazarova** (NASA GSFC), NASA and the United States Geological Survey (USGS) are teaming up to create one of the most complete databases of magnetic properties of Earth's rocks ever assembled.

NASA Plans to Put an Aura Around the Earth, May 17; *Space.com*; On June 19, NASA will launch Aura, a next generation Earth-observing satellite, according to a report that quoted NASA Administrator **Sean O’Keefe**, and NASA Associate Administrator for Earth Science **Ghassem Asrar**.

Scientists Warm Up to Climate Flick, May 4; *Associated Press, CBS News, CNN, London Telegraph, UK, The Dallas Morning News, Fort Wayne Journal Gazette, The Houston Chronicle: Orange County Register, MSNBC News, The San Jose Mercury News, San Diego Union-Tribune editorial, The Seattle Times* and many more. This received worldwide coverage. **Bill Patzert** (NASA JPL) interviewed with Associated Press reporter Andrew Bridges for an internationally published article about abrupt climate change and the film “The Day After Tomorrow.”

Dry, Dry, West, May 4; *KABC-TV (Los Angeles), the San Diego Union Tribune, Daily Bulletin, the Orange County Register, NBC Nightly News, Santa Monica Daily Press, Metro Networks News, Riverside Press*; **Bill Patzert** (NASA JPL) provided information about rising temperatures and dry conditions in Southern California with the latest MODIS (Aqua) and TOPEX/Poseidon imagery. The heat levels in Southern California have been rising since Spring, but increasing drought levels and have been the cause of forest fires.

New NASA Technology Helps Forecasters in Severe Weather Season, April 28; *Sun Network, Webindia123, Newkerala World News Channel (India)*; (millions of viewers); **Bill Patzert** (NASA JPL), **Marshall Shepherd** (NASA GSFC) and **William Lapenta**, SPoRT Center research meteorologist (MSFC), contributed

information of new technology, including the combined work efforts of NASA and NOAA. NOAA is the operational meteorological agency in the world, and NASA is developing state-of-the-art operational and fundamental research to make it better than ever.

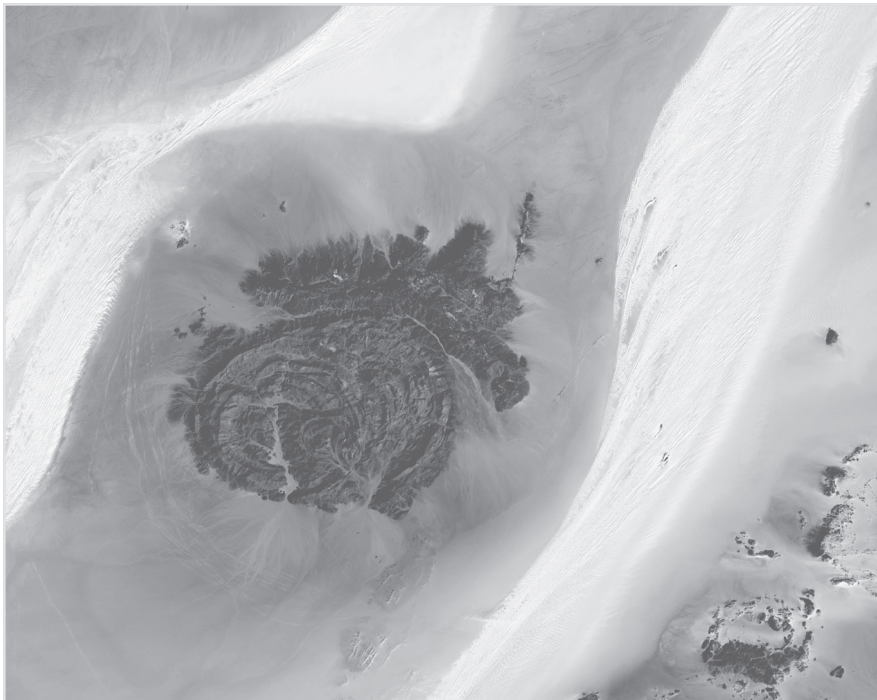


Kudos

Dr. J. Marshall Shepherd, research meteorologist and Deputy Project Scientist for the Global Precipitation Measurement Mission, NASA Goddard Space Flight Center, recently received a Presidential Early Career for Scientists and Engineers (PECASE) award at the White House. His research proposal was titled *Investigation of Urban-Induced Precipitation using Satellite-Based Remote Sensing and Numerical Modeling: Linking Land Use and Change to Variations in the Water Cycle*.

The National Science and Technology Council (NSTC) awards represent the highest honor bestowed by the U.S. government on scientists and engineers beginning their independent careers, and recognizes the recipients’ exceptional potential for leadership at the frontiers of scientific knowledge.

The Earth Observer staff and the entire scientific community congratulates Dr. Shepherd on this outstanding achievement.



Massive sand dunes have been swept between rock outcroppings in the barren Libyan Desert. Only a handful of oases lie scattered across this especially arid section of the vast Sahara Desert. This scene was acquired by the ASTER instrument on NASA’s Terra satellite on March 2, 2002. Image provided by the USGS EROS Data Center Satellite Systems Branch as part of the Earth as Art II image series.

Earth Science Education Program Update

—Ming-Ying Wei, ming-ying.wei-1@nasa.gov, NASA Headquarters

—Diane Schweizer, diane.schweizer@nasa.gov, NASA Headquarters

—Theresa Schwerin, theresa_schwerin@strategies.org, Institute for Global Environmental Strategies

Virginia Space Grant Consortium Awarded NASA Funding for Virginia Geospatial Extension Program

Applying space-age data to practical uses in Virginia is getting easier thanks to the Virginia Geospatial Extension Program at Virginia Tech. The program, which is sponsored by the Virginia Space Grant Consortium (VSGC) and Virginia Cooperative Extension, has just received its second Space Grant Workforce Development Award of \$100,000 from NASA's Office of Education. The award allows the partners to build on the already successful program established in July 2003.

With the vision of how geospatial data and tools can improve resource management and yield economic and social benefits, the Virginia Geospatial Extension Program at Virginia Tech encourages and develops resources to foster geospatial workforce and career development. Through targeted programs, it provides a direct avenue to promote geospatial tools and applications, and to integrate geospatial concepts throughout the K-20 educational pipeline.

Part of NASA's National Space Grant College and Fellowship Program, the Virginia Space Grant Consortium is a coalition of Virginia universities, NASA centers, state agencies, and other organizations with an interest in science and technology education and research. For additional information, contact the Virginia Geospatial Extension Program at

jmcg@vt.edu or visit the program's Web site at www.cnr.vt.edu/gep. For more information on the Virginia Space Grant Consortium, visit www.vsgc.odu.edu or contact Sharon Waters, (757) 766-5210, scwaters@odu.edu or Lynn Davis, (540) 231-6157, davisl@vt.edu.

NASA Forms Education Advisory Committee

On February 21-22, 2004, NASA convened the first meeting of its new Education Advisory Committee at the agency's Washington, D.C., Headquarters. The two-day session drew on the expertise of committee members who will provide advice and recommendations to NASA's Associate Administrator for Education on education priorities and implementation strategies. The committee is chaired by William Harvey, Vice President, American Council on Education. A list of the committee members is at: www.nasa.gov/home/hqnews/2004/feb/HQ_n04029_ed_advisory.html.

Bernice Alston Joins NASA's Educa- tion Enterprise

Bernice Pinkney Alston is the new Director of the Division of Elementary and Secondary Education at NASA Headquarters in Washington, DC. She has a Bachelor of Science in Speech Pathology, a Master of Science in Communication Sciences, and an Educational Doctorate in Education Administration and Policy Management from George Washington University.

Alston comes to NASA from the Fund for Educational Excellence in Baltimore, MD. She was Director of "Achievement First", a whole-school change initiative that focuses on literacy. She has also been a teacher, principal, Director of the Speech and Hearing Clinic at Howard University, university professor, assistant superintendent, and a key player in systemic school reform. She has shared her knowledge of urban school reform with numerous school districts throughout the country.

Pilot test NASA's New Astro-Venture Website for Grades 5-8

Middle school teachers can help pilot-test a NASA award-winning educational multimedia program that addresses basics of astronomy, geology, biology, and atmospheric science. Astro-Venture is an educational, interactive, multimedia Web environment where students use scientific inquiry while they search for and then build a habitable planet. Teachers can use online lesson plans and stimulating educational multimedia, and will receive gift packs of NASA certificates, CDs, posters and more for participating. For more information and to register, visit astroventure.arc.nasa.gov/avpilot/.

To view the entire monthly NASA Earth Science Education Newsletter, please visit <http://earth.nasa.gov/education/>.



EOS Science Calendar

August 17-19

MODIS Vegetation Workshop II, University of Montana. Contact: Steve Running, (406) 243-6311, swr@ntsg.umt.edu

October 27-29

SORCE Science Team Meeting, Meredith, New Hampshire. URL: lasp.colorado.edu/sorce/2004ScienceMeeting/meeting.html

November 16-17

First Workshop on EOS Snow and Ice Products, Greenbelt, MD. Contact: Dorothy Hall, dorothy.k.hall@nasa.gov

Global Change Calendar

July 12-23

International Society for Photogrammetry and Remote Sensing (ISPRS), Istanbul, Turkey. URL: www.isprs2004-istanbul.com

July 18-25

35th COSPAR Scientific Assembly, Paris, France. URL: www.copernicus.org/COSPAR/COSPAR.html

August 1-6

Stratospheric Processes and their Role in Climate (SPARC) 3rd General Assembly, Victoria, British Columbia, Canada. URL: sparc.seos.uvic.ca

August 1-6

The Ecological Society of America 89th Annual Meeting, Portland, OR. URL: www.esa.org/portland/

August 16-26

The European Space Agency's (ESA) 2nd ENVISAT Summer School on Earth System Monitoring & Modeling, Frascati, Italy. URL: envisat.esa.int/envschool/

September 4-9

The 8th Scientific Conference of the International Global Atmospheric Chemistry Project (IGAC), Christchurch, New Zealand. URL: www.igaconference2004.co.nz

September 13-17

SPIE's Sensors, Systems, and Next Generation Satellites X (RSO3), Maspalomas, Gran Canaria, Spain. Contact Steven Neeck, steve.neeck@nasa.gov. URL: spie.org/info/ers

September 20-24

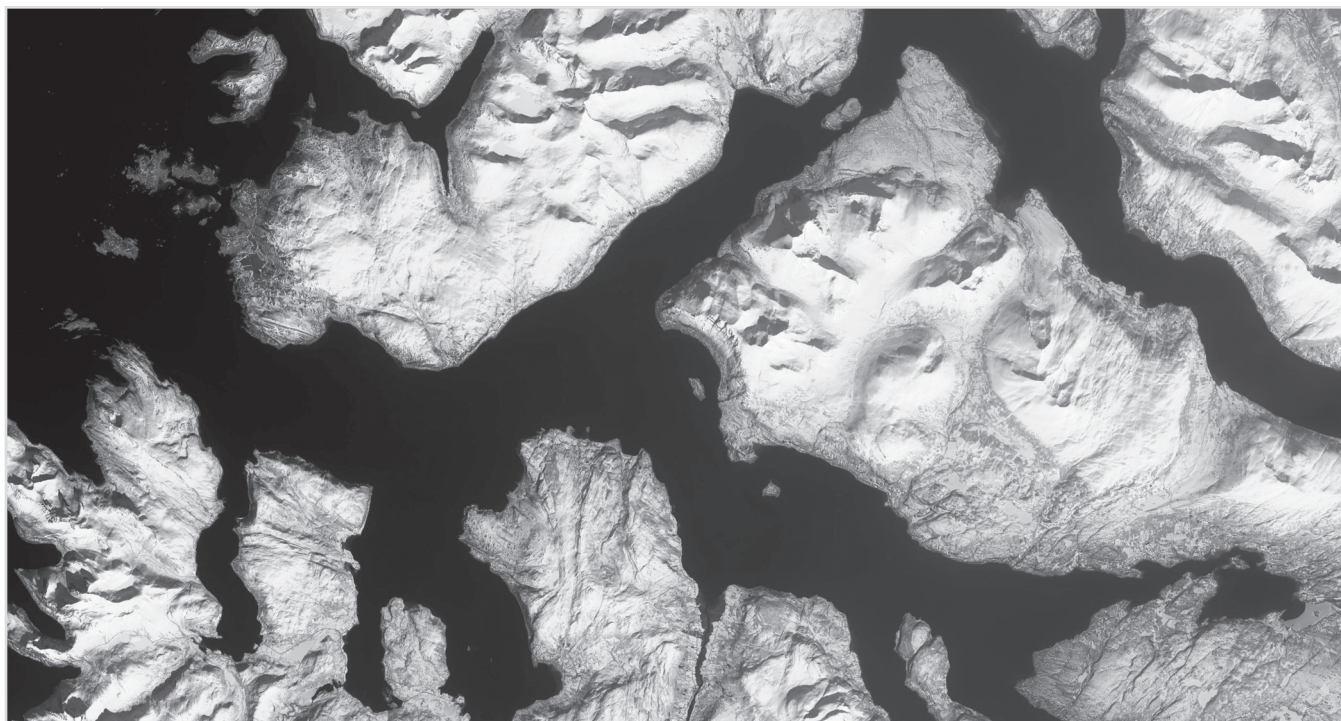
International Geoscience and Remote Sensing Symposium (IGARSS), Anchorage, Alaska. URL: www.ewh.ieee.org/soc/grss/igarss.html

October 13-16

Surface Ocean Lower Atmosphere Study (SOLAS) 2004 Open Science Conference, Halifax, Nova Scotia, Canada. URL: www.uea.ac.uk/eng/solas/ss04/

November 8-12

SPIE's Fourth International Asia-Pacific Environmental Remote Sensing Symposium, Honolulu, Hawaii. URL: spie.org/conferences/calls/04/ae/



Like dark fingers, cold ocean waters reach deeply into the mountainous coastline of northern Norway, defining the fjords for which the country is famous. Flanked by snow-capped peaks, some of these ice-sculpted fjords are hundreds of meters deep. This scene was acquired by the ASTER instrument on NASA's Terra satellite. Image provided by the USGS EROS Data Center Satellite Systems Branch as part of the Earth as Art II image series



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National Aeronautics and
Space Administration

Goddard Space Flight Center
Greenbelt, Maryland 20771

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The Earth Observer

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