

Opening Session
Friday, August 8, 2008
9:00 am

Robert Winokur, U.S. Navy, Oceanographer



Robert S. Winokur has over 40 years of experience in the federal and private sectors working in satellite remote sensing, meteorology, naval undersea warfare and technology, and public policy. He was responsible for the operation of EarthSat's remote sensing, weather, environmental, GIS and image processing business areas in government. Before moving to EarthSat in 2000, Mr. Winokur was Vice President of the Consortium for Oceanographic Research and Education (CORE), where he was responsible for fostering and guiding oceanographic programs involving academic, federal and industrial activities, managing the program support office for the National Oceanographic Partnership Program, guiding the Secretariat for the Census of Marine Life, and leading educational outreach programs in the oceanographic sciences, such as the National Ocean Sciences Bowl.

Prior to these positions, Mr. Winokur retired from federal service in 1999 after 38 years working for the Department of the Navy and the National Oceanic and Atmospheric Administration (NOAA) culminating in various senior executive positions. From November 1993 to April 1999, Mr. Winokur served as the Assistant Administrator for Satellite and Information Services in NOAA. As Assistant Administrator, Mr. Winokur directed an integrated program for the development and use of all operational civilian satellite-based environmental remote sensing systems and NOAA's national climatic, oceanographic and geophysical data centers. He was responsible for the acquisition, processing, dissemination, and exchange of national and international environmental data.

Concurrent Session 1
Friday, August 8, 2008
10:15 am - 11:15 am
3 Options

Using Satellite Imagery & Realtime Data to Promote Authentic Student Research	Voyage on the HighSeas a JASON-1 Oceanic Adventure	Tracking Hurricanes - a GIS Lesson (in computer lab)
KH C2091	KH D2075	KH C2089
<i>John Moore</i>	<i>Annie Richardson</i>	<i>Pete Arvedson</i>
Teacher, Geospatial Tech.	Ocean Outreach, JPL	Teacher, Chemistry

“Using Satellite Imagery and Realtime Data to Promote Authentic Student Research” by John Moore, Teacher of Geospatial Technologies in New Jersey. This session will explore several cutting edge resources that can be used in the classroom to not only develop content, but engage in authentic student research in the Geosciences. The workshop will explore the following online resources: American Meteorological Society’s DataStreme, NASA’s MyNASA DATA, GLOBE’s Earth System Science Education Projects, the Institute for Global Environmental Strategies’ Earth System Science Education Alliance, NOAA’s Earth System Projects, and the Digital Library for Earth System Education. Teachers will leave this workshop with projects that can be immediately implemented in their classrooms. In addition, opportunities for networking and teacher professional development opportunities will be discussed.

“Voyage on the High Seas, a JASON-1 Oceanic Adventure” by Annie Richardson, Ocean Surface Topography Outreach Director, NASA/JPL. This session introduces teachers to the JASON-1 educational resources including a board game to use in the classroom and posters. Implementation is easy for a wide range of ages.

“Tracking Hurricanes, Part I - a GIS Lesson” by Pete Arvedson, Chemistry Teacher, California. Using geographic information software (GIS), make an interactive GIS map of Hurricane Katrina’s storm track utilizing data from the National Hurricane Center, satellite imager of the storm progression, and photographic records of the storm’s ground effects. The lesson is adaptable to your own investigations of the characteristics and effects of current or past storm systems or floods. The novice user will explore these GIS skills in this activity: adding X.Y data, changing symbology for a user-friendly display, creation of hyperlinks, and georeferencing a satellite image so it fits the map document. Other skills will be explored in Part II. Come to Part I or Part II or both. Work at your own pace or with the instructor. Free resources and software for each participant.



Concurrent Session 2
Friday, August 8, 2008
11:30 am - 12:30 pm

3 Options

Scientific Visualization Project	4 in 1 Hour (such a bargain!)	Tracking Hurricanes, Pt II - a GIS Lesson
KH C 2091	KH D2075	KH C 2089
<i>Anne Sullivan</i>	<i>Tom Wrublewski</i>	<i>Pete Arvedson</i>
Grad Student, CSULA	Outreach, NOAA/NESDIS	Teacher, Chemistry

“Scientific Visualization Project” by Anne Sullivan, Graduate Student, Dept of Physics and Astronomy, CSULA. The scientific Visualization Project (SciVi) is a 3-year MPS IPSE program at CSULA in collaboration with JPL, which trains both undergraduate and graduate students from 3 different disciplines in order to develop accurate and effective scientific visualization on topics in Cosmology and implement their public delivery. Each animation project progresses through scientific programming and building of customized graphics tools, and culminates with scientifically accurate, aesthetically pleasing, and educationally effective computer animations that will be used for public science education programs. The first animation “The Island Universes” was launched spring 2008 and has been presented to elementary schools as well as freshman astronomy classes. This animation will be shown along with how it can be used in the elementary classroom. Two more animations are in the works and will be discussed.

“4 in 1 Hour (such a bargain!)” by Tom Wrublewski, NOAA/NESDIS. Participants will obtain a summary of (1) NOAA’s newest Geostationary Operational Observational Satellite (GOES – O) that is being processed for a December 18, 2008 launch from Florida and takes the pictures most often used by weather forecasters; (2) NOAA – N Prime the last of the Advanced TIROS – N Series of Polar-Orbiting Operational Satellites (POES) being processed for a January 27, 2009 California launch; (3) status of the European MetOp – A and plans for MetOp – B&C satellites and (4) provide a hands-on overview of outreach and informal educational materials that are available. Find out what outreach and educational materials are available now (your tax dollars at work!) and in the near future from NASA and NOAA related to the POES and GOES missions. An overview of relevant web sites, videos, games, posters, technology teacher articles, post cards, bookmarks, calendars, CDs, DVDs, etc. will be provided. Participants will be able to sign up for items of interest to them which will later be mailed. Most items are middle school oriented, but K thru adult items available. Need a great educational hurricane poster? We have Katrina!

“Tracking Hurricanes, Part II – a GIS Lesson” by Pete Arvedson, Chemistry Teacher. Using geographic information software (GIS), make an interactive GIS map of effects of Hurricane Katrina on U.S. cities utilizing data from the National Hurricane Center, satellite imager of the storm progression, and photographic records of the storm’s ground effects. The lesson is adaptable to your own investigations of the characteristics and effects of current or past storm systems or floods. The novice user will explore these GIS skills in this activity: creating buffer zones and clipping selected features within the boundaries of another feature. See abstract for Part I.

LUNCH

12:30 - 1:45 pm in the Golden Eagle Ballroom, Plus:

Plenary Session: Brian Solari, Producer, The Futures Channel

Plenary Session: A Report by Students from China on the 12 May 2008 Earthquake

Concurrent Session 3 & 4
Friday, August 8, 2008
2:00 pm - 3:00 pm and 3:15 - 4:15 pm
2 Options in Combinations

Research & Educational Accomplishments of the SPACE Center KH D 2075 (2:00-3:00) <i>Helen Boussalis & Students</i> Engineering Professor, CSULA	Are You Smarter Than a 5th Grader (or the grade you teach) about Satellites? KH D2075 (3:15 - 4:15 pm) <i>Tom Wrublewski</i> Outreach, NOAA/NESDIS
Implementing Power Steps: 10 Principles of Success with Y Generation Students KH C 2091 (2:00 - 4:15 pm with 15 minute break) <i>Percy Thomas</i> Founder, Success Institute	

“Research and Educational Accomplishments of the SPACE Center at Cal State L.A.” by Helen Boussalis and CSULA students. The presentations will discuss both the research and educational accomplishments of the Structures, Propulsion, and Controls Engineering (SPACE) Center at Cal State L.A. This Center was established at CSULA with NASA funding of \$6 million in 2003. The Center has two labs: the SPACE lab and the Multidisciplinary Flight Dynamics and Control (MFDC) lab. State-of-the-art research at the Center will be discussed in the following presentations: 1) Technical and Educational Accomplishments of the SPACE Center; 2) Adaptive Control of Emissions for a Model Gas Turbine Combustor; 3) Development of World Class Fuel-Cell-Powered UAV; 4) Fault Detection, Isolation, and Reconfiguration fo Segmented Telescope Testbed; and 5) Development of an Information Server for Web-based Education in Astronomy.

“Are You Smarter Than a 5th Grader (or the grade you teach) when it comes to satellites?” By Tom Wrublewski, Outreach Director, NOAA/NESDIS. This working session is designed to answer questions that you and/or your students may have about satellites and related services or contemporary issues. Bring your questions and those you think or know your students will ask. This working group will attempt to answer all questions and those that cannot be answered may be researched for later follow up. Sample student questions and answers will be available for NOAA GOES and POES satellites, but session success depends on you and others bringing questions that we will answer in “real time.” Join us and stay smarter than a 5th grader!

“Implementing Power Steps: 10 Principles to Success with Y Generation Students!” by Percy Thomas, Founder, Success Institute. For many teachers, motivating the diversity of students who are skilled at multi-tasking in today’s classrooms is a daunting task. They can become disappointed when students do not respond positively to efforts to motivate. Disappointment can be avoided by accepting the belief that the only motivation that works is self-motivation. Teachers are responsible for doing two things when it comes to the motivation of students: 1) create a learning environment where students take responsibility for motivating themselves and 2) teach students a process to be successful. Teaching students a process to be successful is the subject of this 2-hour workshop. (Note that this is a 2-hour session with a 15 minute break)

4:15 pm - 6:00 pm BREAK

Conference Reception
6:00 - 6:30 pm Golden Eagle Patio
No-Host Bar Available

Conference Banquet Beginning at 6:30 pm, Golden Eagle Ballroom



Rick Dickert studied meteorology at San Jose State University and UCLA. He was elected a full member of the American Meteorological Society (AMS) in 1994 and is a recognized meteorologist by the organization. He also earned a degree in geography. In 2002, he was awarded the Television Seal of Approval by the AMS. In May of 2005, Rick was the first weathercaster in Los Angeles to be awarded the prestigious Certified Broadcast Meteorologist seal by the AMS. The seal is sought as a mark of distinction and a recognition of the achievement in the communication of scientific information. The AMS grants the CBM designation to broadcast meteorologists who meet established criteria for scientific competence and effective communication skills in their weather presentations. Mr. Dickert is currently the Chair of the local Los Angeles Chapter of the American Meteorological Society. Meteorologist Rick Dickert provides the weather, traffic and breaking news from SKYFOX during the FOX 11 Morning News and Good Day L.A. In 2000 he earned a Golden Mike Award for best traffic reporter in Los Angeles. He also accumulated a number of Emmys for his segment producing on Good Day L.A.

Mr. Dickert began working at KTTV as an intern in 1990. He was hired as a production assistant shortly thereafter and went on to help launch the Fox 11 Morning News and Good Day LA in 1993. He began his on-air career in January of 1998 as the weekend meteorologist at KEYT, the ABC affiliate in Santa Barbara. Mr. Dickert joined the FOX 11 Morning News and Good Day L.A. teams in April 2005 after serving three years as the weekend weather anchor at FOX11. Mr. Dickert is also a certified National Weather Service/FAA weather observer which allows him to take official aviation weather observations at local airports. Moreover, he is a National Weather Service local observer and severe weather spotter for his hometown of Redondo Beach.

Concurrent Session 5
Saturday, August 9, 2008
9:00 am - 10:00 am
2 Options

Earthwatch Program: Monitoring Marine Mammals at Monterey	Miming Science: Bringing Satellite Data to Life	Analyzing Antarctic Ozone (meets in computer lab)
KH D 2074	KH C 2091	KH C 2089
<i>Renee Klein</i>	<i>Richard Shope</i>	<i>Pete Arvedson</i>
Resource Specialist Teacher	NASA/JPL	Chemistry Teacher

“Earthwatch Program: Monitoring Marine Mammals at Monterey Bay” by Renee Klein, Resource Specialist Teacher in Los Angeles. Sea otters and bottlenose dolphins are both species that can tell us about the health of their marine environment. Monterey Bay’s population of southern sea otters plummeted when sea otter fur was a popular fashion statement. Although they have not been hunted in the last hundred years, the sea otter population has never recovered to pre-hunt levels. In five of the last six years, the population has declined. Central California did not have a population of bottlenose dolphins for much of the 20th century, but now there are about 450 bottlenose dolphins living along California’s central coast. This session describes the Earthwatch program and Ms. Klein’s adventures as she assisted scientists in collecting data.



“Miming Science: Bringing Satellite Data to Life” by Richard Shope, NASA/JPL. From Explorer to Phoenix, Mime Artist and Science Educator Richard Shope invites the audience on a creative journey through Climate Change and Planetary Science data, demonstrating effective ways to communicate and understand science and advanced technologies by investigating the nature of satellite data using mime and narrative storytelling techniques.

“Analyzing Antarctic Ozone” by Pete Arvedson, Chemistry Teacher, La Puente, California. What’s happening with ozone? Is the “hole” still there? Is it getting bigger or smaller? Is depletion of stratospheric ozone a problem for areas of the globe other than Antarctica? Discover in this workshop a great imaging tool your students can use to investigate these questions. In this hands-on, computer assisted activity, you will measure stratospheric ozone using ImageJ – powerful (and free) image processing software from the National Institute of Health and imagery from the orbiting Total Ozone Mapping Spectrometers.

Learn how you can easily duplicate and expand this process with your students in your own classroom. Leave the session with knowledge, a plan, and lots of free resources. The activity is keyed to science standards.

Concurrent Session 6
Saturday, August 9, 2008
10:15 am - 11:15 am
2 Options

The Phoenix Mars Mission - the First Mission to The Martian Arctic	Change and Variability in Southern California: Looking at the Evidence
KH D 2074	KH C 2091
<i>Craig Ihde & Melissa Lamberton</i>	<i>Steve LaDochy, Bill Patzert & Pedro Ramirez</i>
Solar Ambassador, NASA/JPL & Coordinator, University of Arizona	Geography Professor, CSULA & Geology Professor, CSULA

“The Phoenix Mars Mission – the First Mission to The Martian Arctic” by Craig Ihde, Solar System Ambassador, NASA/JPL and Melissa Lamberton, E/PO Coordinator, University of Arizona. This session will feature a mission overview of the Mars Phoenix Lander and the scientific discoveries at the landing site since the Landing on May 25, 2008. It will include descriptions of the scientific instruments on board the spacecraft, and some of the equipment employed, including the Robotic Arm, the Robotic Arm Camera, the Thermal Evolved Gas Analyzer (TEGA), the Microscopy Electrochemistry and Conductivity Analyzer (MECA), and the Meteorological Station with its LIDAR instrument, designed to analyze the Martian atmosphere. It will also cover how the instruments operate, and the extreme challenge involved in doing scientific investigation on Mars. Mr. Ihde was a member of the landing commentary team at the Griffith Observatory in Los Angeles during the Phoenix landing on May 25, 2008.

“Change and Variability in Southern California: Looking at the Evidence” by Steve LaDochy, Professor, Geography & Urban Analysis, CSULA, Bill Patzert, NASA/JPL & Pedro Ramirez, Professor, Geology, CSULA. During the last decade, extreme weather occurrences have impacted southern California. In 2004 the Los Angeles area recorded the wettest year ever. Two years later, a record dry year followed. Deadly heat waves occurred in 2006, 2007 and may possibly continue through summer 2008. Regionally, the Southwest U.S. is in the midst of one of the worst droughts in the last 500 years. The extreme weather may reflect climate change. Conversely, the changing weather may result from natural variations in atmosphere/ocean interactions. In this workshop, we present a unique dataset for use in the classroom illustrating trends and changes in southern California weather and climate over the last 100 years. Not only will participants learn about recent climate changes, but also of contributing factors, namely the natural changes in Pacific Ocean temperatures. Participants will examine temperature and rainfall records over the last 100 year in southern California to see how patterns in Pacific sea surface temperatures influence west coast weather and climate. Participants will learn to decipher southern California weather and climate variations associated with El Niño events and the longer time-scale phenomenon, the Pacific Decadal Oscillation (PDO), and those related to climate change.

Concurrent Session 7
Saturday, August 9, 2008
11:30 am - 12:30 pm
2 Options

Climate Change Information for the Classroom and Home	Classroom Activities in Planetary Science
KH D 2074	KH C 2091
<i>Ron Gird</i>	<i>Nel Graham</i>
Outreach Program Manager NOAA - National Weather Service	Earth Science Teacher, Los Angeles

“Climate Change Information for the Classroom and Home” by Ron Gird, Outreach Program Manager, NOAA-National Weather Service. Climate change continues to dominate the science news in the broadcast industry, television, radio, newspapers, the Internet, and now the classroom. The National Oceanic and Atmospheric Administration (NOAA) and the National Weather Service are leaders in providing climate science information to the education and broadcast communities and the public. NOAA hosted a Sally Ride Science Workshop for Teachers July 23 – 24, 2008. The purpose of this workshop was for teachers to learn how to integrate the science of Earth’s changing climate into their classrooms. In June, the American Meteorological Society held their annual Broadcast Conference. A major topic for the attendees was climate change, with several technical sessions presenting the latest science information on climate change. The results of these two workshops will be discussed. Climate change handout materials suitable for the classroom and the home will be distributed.

“Classroom Activities in Planetary Science” by Nel Graham, Earth Science Teacher, Los Angeles. Planetary science deals with the description, formation, evolution, and relation to the rest of the Universe of objects in our Solar System, and now, planets around other stars. Planetary science and astronomy are addressed in the California science content standards in 5th & 8th grades, and high school Earth science. The topic is very visual and lends itself well to hands-on activities at a variety of grade levels. Students enjoy learning how the home planet compares to other members of the Solar System, how we relate to the rest of the solar family, how it all formed & evolved, and how it will all end. To say that satellite images are a very valuable source of information is a huge understatement. In 44 years technology has progressed from indistinct, sketchy views to clearly imaging objects the size of a basketball from orbit. The images not only provide important insights, but many are spectacularly beautiful.

Planetary science not only tells us about our solar neighbors, but about ourselves.

Lunch Break 12:30 pm – 2:00 pm
and Plenary Session, Golden Eagle Ballroom

Teachers-At-Sea
Mark Friedman
Jackie Hams



Mark Friedman, Animo High School marine biology teacher from Inglewood, California, was aboard NOAA Ship Rainier for 12 days in June while scientists conducted hydrographic surveys in Alaskan waters. He will tell about his adventures in this session, introduced by Jackie Hams, CSULA graduate and assistant professor of earth science at Los Angeles Valley College.

NOAA's Teacher-At-Sea Program

The mission of the National Oceanic and Atmospheric Administration's (NOAA) Teacher at Sea (TAS) program is to give teachers a clearer insight into our ocean planet, a greater understanding of maritime work and studies, and to increase their level of environmental literacy by fostering an interdisciplinary research experience. The program provides a unique environment for learning and teaching by sending kindergarten through college-level teachers to sea aboard NOAA research and survey ships to work under the tutelage of scientists and crew. Then, armed with new understanding and experience, teachers bring this knowledge back to their classrooms. Indeed, the greatest payoff of NOAA's Teacher at Sea program is the enthusiasm for learning more about our ocean planet generated between teachers and students. Since its inception in 1990, the program has enabled more than 500 teachers to gain first-hand experience of science and life at sea. By participating in this program, it becomes possible for teachers to enrich their classroom curricula with a depth of understanding made possible by living and working side-by-side, day and night, with those who contribute to the world's body of oceanic and atmospheric scientific knowledge. If you're ready for a life-enriching adventure that will benefit you, your students, and your community you could be NOAA's next Teacher at Sea!

Applications will be accepted for next season beginning on October 1, 2008. Instructions can be found at <http://teacheratsea.noaa.gov/apply/index.html>

Concurrent Session 8
Saturday, August 9, 2008
2:15 pm - 3:15 pm
2 Options

CubeSat: Young Students Doing Real Research with Small Satellites	NOAA Coral Reef Watch - Update: Teaching about Coral Reefs with Satellite Data
KH D 2074	KH C 2091
<i>Julie Henderson</i>	<i>Al and Nancy Strong</i>
Principal, San Jose Charter School	Senior Consultants, NOAA

“CubeSat: Young Students Doing Real Research with Small Satellites” by Julie Henderson, Ph.D., Director, K-12 Partners and Programs, Stanford University. Last year, as principal of a San Jose charter school, I had the privilege of having the Stanford team and Space Systems Loral mentors work with my teachers and students. We built and launched small satellites in spring 2007. I will share our experiences and lessons for teachers and principals who are looking for hands-on projects that motivate and engage students, meeting science standards with special emphasis on space and satellites.



“NOAA Coral Reef Watch – update: Teaching About Coral Reefs Using Satellite Data” by Al and Nancy Strong, Senior Consultants, NOAA. Coral bleaching puts coral reefs in danger nearly every year, somewhere in the world. The major cause of coral bleaching is high sea surface temperature (SST), which is measured globally and in near-real-time by NOAA's operational satellites. The Coral Reef Watch program has customized these SST measurements to highlight areas currently at risk for coral bleaching. The session will begin with a brief background lecture on coral reef ecology and coral bleaching, and how NOAA satellites are used in observing coral reefs. Educational resources are described, including lesson plans and an online tutorial. Presenters will also lead a hands-on activity in which the teachers investigate the 2005 Caribbean bleaching event using Coral Reef Watch satellite data. These NOAA data products can use coral reefs, a charismatic and beautiful environment, to excite students about concepts like climate change, cutting-edge satellite technology, ocean observing systems, and ocean ecology. Exploring the global satellite data is also an exciting way to introduce students to world geography from an ocean perspective. This topic has been a student M.Y.S.P.A.C.E. activity for the past two years at the Satellites & Education Conference.

Conference Closing
Beginning at 3:30 pm, KH Lecture Hall 2

M.Y. S.P.A.C.E. Team Report
(Multinational Youth
Studying Practical Applications of Climatic Events)

These students from England, China and the United States will share their research and experiences, using NOAA and NASA data, and give us challenges for the future. **The 2008 M.Y S.P.A.C.E. students are:**

From China:

Mr. Jie Lan
Ms. Yangzhi Zhang
Mr. Zhongkai Zhang
Ms. Paiyun Cai
Mr. Yue Zhou
Mr. Jun Zhang
Mr. Yukun Zhou
Mr. Zeyu Zhao

From California:

Ms. April Burgos
Mr. Martin De Leon
Ms. Jessica Garcia
Mr. Antonio Gonzalez
Ms. Emily Noselotl
Ms. Marlene Valencia

From Florida:

Ms. Natalie Diaz
Ms. Sophie Diaz
Ms. Kiera Russell
Ms. Tiffany Virgin
Ms. Andrea Rabassa
Ms. Elena Lancelotta

From England:

Mr. Michael Tagg
Ms. Sophie Buckingham
Mr. Joshua Stevenson



M.Y. S.P.A.C.E. Team 2007

2008 M.Y. S.P.A.C.E. Teachers are: (from England) Simon Cracknell and Marcileida Dos Santos; (from China) Xiqiang Wu, Rongsheng Mu, Xiaohong Song; (from Florida) Alan Crockwell, Michael Russell and Teresita Lanza (with parents helping – Osvaldo and Leticia Diaz); (from New Jersey) John Moore; (from Washington) Michael Holst; (from California) Pete Arvedson.

EXHIBITORS

**National Oceanic and Atmospheric Administration
NESDIS, NWS, and Education Coordinated by NESDIS
Contact: Nina Jackson (Nina.Jackson@noaa.gov)**

The National Oceanic and Atmospheric Administration's (NOAA's) mission is to understand and predict changes in the Earth's environment and conserve and manage coastal and marine resources to meet our Nation's economic, social, and environmental needs.

NESDIS: National Environmental Satellite, Data and Information Service is dedicated to providing timely access to global environmental data from satellites and other sources to promote, protect, and enhance the Nation's economy, security, environment and quality of life. To fulfill its responsibilities, NESDIS acquires and manages the Nation's operational environmental satellites, provides data and informational services and conducts related research.

NWS: Jamie Meier and Dave Sweet will present the NWS exhibits. The National Weather Service is the primary source of weather data, forecasts and warnings for the United States. Television weathercasters and private meteorology companies prepare their forecasts using this information. The NWS is the sole United States official voice for issuing warnings during life-threatening weather situations.

Office of Education: The Office of Education, in conjunction with the NOAA Education Council, coordinates education activities across NOAA and oversees the implementation of the NOAA's Education Plan and Policy. These efforts help to ensure that NOAA's education programs and activities are based on NOAA science and support the agency's cross-cutting priority of promoting environmental literacy. The Office of Education also works with external partners to promote environmental literacy efforts that directly benefit the NOAA mission.

**Satellite Educators Association
Contact: John Moore (jmoore@bcit.cc)**

The Satellite Educators Association was established in 1988 as a professional society to promote the innovative use of satellite technology in education and disseminate information nationally to all members. Membership includes master educators who are orchestrating the learning process for their students. We have the ability to connect teachers with the appropriate discipline. We can teach the technology skills needed to study practical questions and problems. SEA contributes to the perspective and expertise of our membership in K-16 education to help students understand Space and Earth Science. Teacher resources, curriculum and hands-on activities are developed in accordance with the current National Standards and Assessment. Services to educators include providing resources and materials, offering support, training, networking and continuously updating curriculum. SEA is the owner and coordinator of the Satellites & Education Conference.

NASA/Jet Propulsion Laboratory

Contact: Annie Richardson (Annie.H.Richardson@jpl.nasa.gov)

The Jet Propulsion Laboratory, managed by the California Institute of Technology, is NASA's lead center for robotic exploration of the solar system. Their spacecraft have visited all the planets in the solar system except Pluto. JPL telescopes are observing distant galaxies in the universe to study how the solar system was formed. They also manage the worldwide Deep Space Network, which communicates with spacecraft and conducts scientific investigations from its complexes in California's Mojave Desert near Goldstone; near Madrid, Spain; and near Canberra, Australia. JPL cameras and sensors are aboard satellites circling Earth to study the ozone, oceans and other Earth sciences. To support continued exploration, JPL is making advances in technology with new instruments and computer programs to help our spaceships travel farther and our telescopes see farther than ever before.

Northrop Grumman Corporation

Contact: Ray Haynes (ray.haynes@ngc.com)

Northrop Grumman Corporation is a global defense company headquartered in Los Angeles, California. Northrop Grumman provides technologically advanced, innovative products, services and solutions in systems integration, defense electronics, information technology, advanced aircraft, shipbuilding and space technology. With approximately 125,000 employees and operations in all 50 states and 25 countries, Northrop Grumman serves U.S. and international military, government and commercial customers.

Northrop Grumman with NPOESS

Contact: Jean Fitch (jean.fitch@noaa.gov)

The National Polar-orbiting Operational Environmental Satellite System (NPOESS) is a future satellite system which will merge the current civilian and military polar environmental satellite systems. The development of NPOESS is a team effort by the federal government (NOAA, Department of Defense, and NASA) and private sector contractors led by Northrop Grumman. This booth provides teachers with educational materials developed by the government and private sector partners, including a complete satellites and orbits module developed with assistance from classroom teachers.

NASA/NOAA SciJinks

NASA Space Place

Contact: Alexander Novati (Alexander.Novati@jpl.nasa.gov)

NASA and NOAA provide “SciJinks” and “Space Place” outreach efforts which include award-winning websites and other programs targeting elementary and middle-school students with entertaining, interdisciplinary space and Earth science and technology content.

COSEE-West Marine Science Programs

Contact: Gwen Noda (gwennoda@ucla.edu)

UCLA and USC have several outreach programs in marine science education for K-12 teachers and students. The most recent of these is COSEE-West, a collaborative effort by USC and UCLA, funded by the National Science Foundation for 5 years (2002-2007). The primary goal of COSEE-West is to integrate ongoing research in the ocean sciences with K-12 education and outreach. COSEE-West increases public awareness of current ocean sciences through lectures by research scientists, helps teachers present these issues in the classrooms through workshops, online courses and materials, and heightens the interest of students in science and in ocean science careers through connections with university/college faculty and students. Our Conference exhibit showcases information about COSEE-West events plus other marine science education programs offered by UCLA and USC and their COSEE-West partners.

American Institute of Aeronautics & Astronautics

Contact: Colin McCaughey (Colin.W.McCaughey@boeing.com)

Colin McCaughey, a Boeing Senior Principal Scientist/Engineer, from the Los Angeles Section of the American Institute of Aeronautics & Astronautics (AIAA), will be describing engineering and science careers in the aerospace industry to students at the Satellites & Education Conference. Pre-college science, technology, engineering and mathematics (STEM) programs sponsored by the Los Angeles AIAA section, such as Project Lead the Way (PLTW), will also be showcased at this booth. Teachers will be provided with information on how to get free AIAA memberships (\$90 value), teaching resources and educational grants. The AIAA is the largest professional aerospace society and represents over 65,000 aerospace scientists and engineers around the world.

Association of Independent California Colleges and Universities

Contact: Lisa Douglass (lisad@aiccu.edu)

Check out their website: www.AICCU.edu

We are grateful for the guides, CDs, notepads, and leather book marks provided by the Association of Independent California Colleges and Universities.

Los Angeles County Office of Education, Science Education
Contact: Dean C. Gilbert (gilbert_dean@lacoed.edu)

“LACOE is a premier provider of integrated, educational programs and services, from birth to adulthood, in a richly diverse and multicultural global environment.” – Vision Statement, The Los Angeles County Office of Education (LACOE) is the nation’s largest regional education agency. Under the leadership of County Superintendent of Schools Darline P. Robles, Ph.D. and the County Board of Education, LACOE is dedicated to promoting the achievement of the county’s 1.7 million public school students and 80 school districts.

Global Learning and Observations to Benefit the Environment
Contact: Nan McClurg (mcclurg@atmos.colostate.edu)

Global Learning and Observations to Benefit the Environment (GLOBE) is a worldwide, hands-on, primary and secondary school-based Earth science and education program (www.globe.gov). For students, GLOBE provides the opportunity to learn by taking scientifically valid environmental measurements, reporting their results, and then using their data, and data from other schools, to collaborate with scientists and students worldwide. Many GLOBE measurements such as aerosols, cloud cover and type, and soil moisture have connections with satellite missions. Over 32,000 GLOBE-trained teachers in more than 17,000 schools around the world are helping students explore and understand their local, regional, and global environment through scientific investigation. These numbers will continue to grow as the program expands. GLOBE is a cooperative effort of schools and scientists, managed by the University Corporation for Atmospheric Research (UCAR) in partnership with Colorado State University and supported by NASA, the National Science Foundation (NSF), and the U.S. Department of State. The program in the U.S. is organized in partnership with colleges and universities, state and local school systems, and non-government organizations. Internationally, GLOBE is a partnership between the U.S. and over 100 other countries.

Our Deepest Gratitude to Our Supporters

NOAA

NASA

Northrop Grumman

Lockheed Martin

CSULA’s Charter College of Education