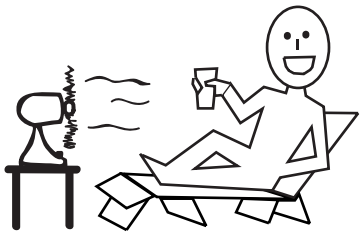

S'COOL BREEZE

Engaging students in authentic science to advance our knowledge of Earth through
Students' Cloud Observations On-Line

Volume 3, Issue 11 March 2005

Outreach Ambassadors

by Katherine E Lorentz, SAIC - NASA Langley Research Center

The Science Directorate education outreach team at NASA Langley Research Center works diligently to inspire young explorers to study the world around them, specifically Earth's atmosphere. Through programs like S'COOL, or Students' Cloud Observations On-Line, NASA scientists and education specialists are able to share their expertise and their resources with thousands of teachers and students across the nation and even around the world. Limited by budgets, manpower, and time, when the small team was first formed in 1997, they often thought, "How can we reach MORE teachers and students?"

They soon realized that the solution to their problem was right in front of their eyes: the teachers themselves. Each summer since 1999, teachers from across the country have come to the Langley Research Center to participate in workshops where they are trained to implement the Science Directorate outreach programs in their classrooms.

"Immediately, we recognized that these teachers are an important investment: we can give them the training and the tools, and they can put their talents to work by sharing our programs with their school systems and home states or regions. They are 'ambassadors' for the educational outreach programs," said Roberto Sepulveda, education specialist with the Science Directorate.

Eileen Poling demonstrates a cloud cover activity at the West Virginia Teachers Conference.

In just five years, the number of people advocating the NASA Langley outreach programs increased to more than 100 ambassadors. "Every time there's a workshop, the participants return home and we see at least two or 3 people sign up in their state," said Joyce Fisher, administrative assistant for the outreach programs.

The most recent group of ambassadors came to Langley Research Center in August 2004, when the Science

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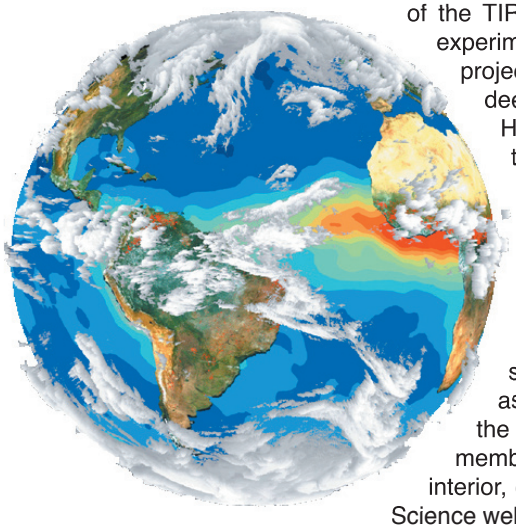
Visionary Attitude

by Roberto Sepulveda, SAIC - NASA Langley Research Center



April 1st, 1960, developed into a milestone date for NASA Earth Science Exploration. With the launching of the TIROS-1 spacecraft (Television Infrared Observation Satellite) NASA embarked on its first experiment to determine the usefulness of satellites for the study of Earth. The top priority for this project was the development of a meteorological satellite information system. Many at the time deemed weather forecasting as the most promising application of space-based observations. However the story doesn't stop here. In 2004, President Bush announced his new challenge to NASA in his Vision for Space Exploration (http://www.nasa.gov/). This was not limited to space but included a Vision to Explore Earth. NASA's study of Earth will continue what was started with the TIROS missions and focus on global environmental systems (encompassing air, land and water). The future of Earth Exploration will focus on making agriculture more efficient and productive. This "green" approach to farming will allow farmers to use data from satellites to detect problem such as drainage, insects and weeds.

We hope that you're excited! The future of NASA's Vision to Explore Earth rests on the shoulders of teachers and students. That's right…YOU! For years, one of NASA's biggest assets has been the dedicated folk that work as a team to make our vision a reality. With the proper guidance, commitment and perseverance students can become geoscientist and members of NASA's Earth Science team. Geoscientists are people that explore the surface, interior, oceans, atmosphere and outer space environment of Earth. At NASA's Careers in Earth Science website students can learn about the many promising careers available. In addition, they can

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S'COOL

In this Issue:

STUDENTS' CLOUD OBSERVATIONS ON-LINE

(continued from page 1 - Outreach Ambassadors)

Dr. Lin Chambers (seated) discusses strategies for an upcoming presentation with Carol Clark, S'COOL ambassador (left), and Susan Moore, education specialist for the S'COOL project.

Directorate hosted the MY NASA DATA workshop. MY NASA DATA, or "Mentoring and inquirY using NASA Data on Atmospheric and earth science for Teachers and Amateurs," was developed in order to make actual NASA data available for educational purposes. One participant of this workshop was Eileen Poling, a teacher of gifted students from West Virginia.

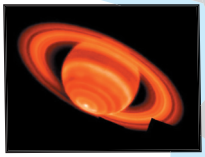
In November 2004, Poling took what she learned at this workshop back to the teachers in her state by giving a presentation at a West Virginia Education Association conference. "Robert sent me lots of wonderful hands-on info that I was able to use in the presentation," said Poling, who shared information on both MY NASA DATA and S'COOL. "I started the presentation with a jeopardy-like game, and then dressed up like Ms. Frizzle [the well-known lead character from The Magic School Bus series of books and television programs]. The teachers loved it!"

Dressing like Ms. Frizzle and finding other creative presentation techniques, Poling hopes to engage the teachers in learning about science research while getting them excited about sharing the S'COOL and MY NASA DATA programs with their students.

Another excellent example of the great things the ambassadors can do is Carol Clark, an educator from Oregon. Clark has used S'COOL with her students for the past four years. As an ambassador, Clark has traveled throughout her home state and recently to Alaska. On being an ambassador, she said, "It's great getting out and talking to people. Learning what problems other teachers face, specifically in implementing these programs, has benefited all of us: me, my students, the other teachers, and the outreach team."

S'COOL and MY NASA DATA ambassadors have helped the outreach team to overcome many limitations and reach teachers and students they otherwise wouldn't have reached. Look for one of these ambassadors at your next education conference, or become one by contacting Roberto Sepulveda: r.sepulveda@larc.nasa.gov

Quarter's Worth of Websites



Science@NASA Images and Multimedia: http://science.hq.nasa.gov/multimedia/index.html
This is the best image and multimedia website you can find at NASA. It is loaded with non copyrighted images that anyone can use in the classroom or for presentations. Visualization technologies allow NASA to turn extremely large amounts of remote sensing data into meaningful, readable knowledge. Now you too can have this well developed set of visual "**Art of Science**."

NASA Spinoffs: http://www.nasa.gov/vision/earth/technologies/spinoffs_index.html
Some of the most frequently asked questions about the U.S. space program are "Why go into space when we have so many problems here on Earth?" and "What does the space program do for me?" These are legitimate questions and unfortunately not enough people have been made aware of the vast benefits the space program provides that increase the quality of our daily lives. Applications on Earth of technology needed for space flight have produced thousands of "**spinoffs**" that contribute to our lifestyles.

Teacher Corner

Over 1820 participants are now registered.
Keep spreading the word!

Have you changed your school information? Please remember to notify us of any changes in your school information or e-mail address.

Remember! **DAYLIGHT SAVING TIME** begins soon!!! When submitting your request for a satellite overpass scheule be sure to select 'daylight saving time' on the Overpass Calculator. Your school's schedule will be automatically adjusted to include the time change.

INTENSIVE OBSERVATION PERIOD – IOP
SKY AWARENESS WEEK
April 24-30
Observe during IOP week and receive a free classroom set of NASA's "Celebrating a Century of Flight" booklet. Look at the message of the month on the S'COOL website for more details.

Thank you for your continuted participation!

Cloud Picture of the Month

You may have heard of the Astronomy Picture of the Day http://antwrp.gsfc.nasa.gov/apod/astropix.html or the Earth Science Picture of the Day (http://epod.usra.edu/). S'COOL would like to take a small step in this direction with the Cloud Picture of the Month. We invite contributions of recent photos you or your students have taken, with captions. We will select one interesting photo each month to be featured on the S'COOL website.

Introducing the CERES PLAYERS!

by Roberto Sepulveda, SAIC - NASA Langley Research Center

Teamwork! "The cooperative effort by the members of a group to achieve a common goal." How does that sound for a dictionary definition of teamwork? Well, we here at NASA believe that the word **teamwork** symbolizes so much more.

Throughout the course of time great individuals have commented about their ideas on teamwork. Take for instance this anonymous statement, "Teamwork: simply stated, it is less me and more we." This statement goes right along with the fact that "there is no **I** in TEAMWORK." Other great clichés which describe teamwork include: a successful team beats with one heart, the fuel that allows common people to attain uncommon results, the ability to work toward a common vision, and people working together effectively and efficiently.

Thomas Edison, when asked why he had a team of twenty-one assistants stated, "If I could solve all the problems myself, I would." Simply stated, working together works! The great NBA coach, Phil Jackson, once stated, "The strength of the team is each individual member…the strength of each member is the team." It is amazing how much can be accomplished when it doesn't matter who gets the credit.

The CERES team is proud to exemplify these team concepts as they strive together to understand the complexity of Earth's climate and how to use this knowledge to benefit mankind worldwide. It is with great pleasure that we introduce our new feature to the S'COOL BREEZE: Spotlight on Atmospheric Careers, which will introduce members of the CERES team with each issue. It is our hope that students will gain a true appreciation for the value teamwork plays in the world around them.

Spotlight on Atmospheric Careers

Dr. Bruce A. Wielicki

Principal Investigator

Responsible for leading the science efforts for the CERES project.

Born 1952 in Milwaukee, Wisconsin, USA

Education:
B.S. Applied Math and Engineering Physics at University of Wisconsin - Madison
PhD Physical Oceanography at Scripps Institute of Oceanography

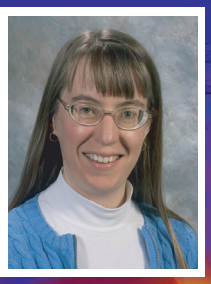
Favorite School subject(s):
I liked Science and Creative Writing

Favorite Hobbies:
Reading, Golf, Radio Control Airplanes and Woodworking

What made you enter your profession?
Putting clouds into a toy climate model and watching it run off to an ice covered Earth.

What do you like most about your job?
Working on something important to society, something unknown and working with a great team of researchers. Every day is different!

What advice do you have for someone interested in an Atmospheric Science Career?
Get a solid background in applied math, engineering and basic physics at the undergrad level. Choose a grad school excellent for both teaching and research then get training in Earth science particulars.



Spotlight on Atmospheric Careers

Dr. Lin Hartung Chambers

Physical Scientist

Responsible for leading education and outreach efforts for CERES and doing analysis of data products.

Born 1963 in Madison, Wisconsin, USA

Education:
B.S. & M.E. Aeronautical Engineering at Rensselaer Polytechnic Institute
PhD Aerospace Engineering at North Carolina State

Favorite School subject(s):
I liked most subjects and in particular finding the connections between them.

Favorite Hobbies:
Knitting, Volleyball and reading

What made you enter your profession?
As a child I spent a lot of time on airplanes. Dad was a physicist and private pilot.

What do you like most about your job?
Having the chance to share knowledge and ideas with educators.

What advice do you have for someone interested in an Atmospheric Science Career?
It's a very broad and inter-connected field, so learn as much as you can and find the part that most interests you.

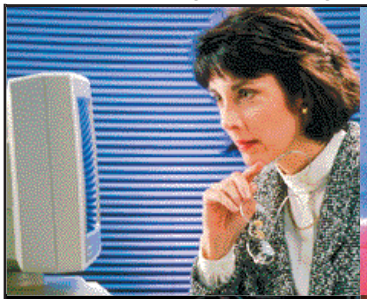
(continued from page 1 - Visionary Attitude)

visit the American Geophysical Union (AGU) Career home website for more about geosciences.

Perhaps the students are interested in the study of our atmosphere, the climate or even the oceans. If this sounds like one of your students then perhaps they can become an atmospheric scientist. Perhaps they are interested in putting their scientific knowledge to practical usage. NASA has a place for these students also, as engineers. If your students love science they can also choose a career as a Chemist, Geologist, Meteorologist or Marine Biologist.

Oh, science doesn't excite them? That's OK! NASA needs graphic designers to display images from space in an artistic manner with the use of computer software and raw talent. They can become science writers for topics ranging from climate change, erosion, forest fires, rain forest destruction and many other environmental issues. If they like computers, NASA employs programmers, system administrators, designers and network architects. In addition, they could become Internet designers.

NASA encourages all students to explore the many fascinating subjects available in Earth Science. Spark your students by challenging them to explore a career in Earth Science that will help them make a difference! For more career information, visit the following web sites.
Careers in Earth Science:
http://kids.earth.nasa.gov/archive/career/
American Geophysical Union: http://www.earthinspace.org/careersindex.html



Writers, *hired by major publications, must run regular features about the many topics in the field of Earth Science.*

Geologist *understand how the dynamic forces which shape our earth work, and use this knowledge to predict their affect on mankind.*

Programmers *must maintain the specifically designed computers being used to capture the complex data Earth-observing satellites send back and analyze that data.*

Oceanographers *seek a better understanding of how our oceans, and living creatures in them, function as an ecosystem.*

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CERES S'COOL Project
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UPCOMING EVENTS

National Science Teachers Association Conference
March 31-April 3, 2005
Dallas, TX, USA

National Council of Teachers of Mathematics
April 6-9, 2005
Anaheim, CA, USA

Conference on Teacher Research Experiences
April 24-27, 2005
Narragansett, RI, USA

AGU Joint Assembly Meeting/GIFT Teacher Workshop
May 23-27, 2005
New Orleans, LA, USA

http://asd-www.larc.nasa.gov/SCOOL/visits.html

For more information contact us:

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Roberto Sepulveda, editor
Dr. Lin Chambers, French translator
Roberto Sepulveda, Spanish translator

Thank Goodness for Wrong Predictions!

"I have been amazed at how S'COOL has quickly spread from just a few schools to a global reach. I was very skeptical when Lin Chambers first came up with the idea for S'COOL, and it has been wonderful to be proved so wrong! In science sometimes you get just as excited about being wrong as you are about being right. The reason is that the "wrong" prediction is of course always a surprise. And science is indeed about being able to enjoy mystery, uncertainty, and surprise."

Dr. Bruce A Wielicki, Principal Investigator, NASA Langley Research Center, Hampton, VA,USA