

## NAGT & GSA GEOSCIENCE EDUCATION DIVISION AWARDS FOR 2012

### THE JAMES SHEA AWARD: BILL MCKIBBEN

The Shea Award is presented annually for exceptional contributions in the form of writing and/or editing of Earth science materials that are of interest to the general public and teachers of Earth science.

The contributions of William Ernest "Bill" McKibben to the Earth sciences as an author, editor, lecturer, advocate, and activist are legendary. His first book, *The End of Nature* (1989), established him as a highly skilled interpreter of Earth systems and the impacts of human activities. His landmark 2010 bestseller, *Eaarth: Making a Life on a Tough New Planet*, brought the reality of human-caused climate change and its manifold impacts to a wide audience.

A Schumann Distinguished Scholar at Middlebury College, where he also directs the Middlebury Fellowships in Environmental Journalism, Bill has provided all of us a role model for education in action beyond the classroom and the written word. In 2009, he led the organization of 350.org based upon James Hansen's recommended target for atmospheric carbon dioxide. This produced what *Foreign Policy* magazine called "the largest ever global coordinated rally of any kind," with 5,200 simultaneous demonstrations in 181 countries.

Bill McKibben is a passionate and highly skilled communicator of the immeasurable value of our magnificent planet and of the responsibility for stewardship that we share. He is one of a few courageous educators who continue to play a leading role in calling the attention of the public to what many consider the overriding environmental challenge of the twenty-first century: anthropogenic climate change.

[Photo, top right, by Nancie Battaglia]

### THE NEAL MINER AWARD: STEPHEN MARSHAK

The Neal Miner Award, presented by NAGT since 1953, honors exceptional contributions to the stimulation of interest in the Earth sciences.

Stephen Marshak, a driving force in geoscience education at the University of Illinois at Urbana-Champaign and nationwide, embodies the Miner Award's ideals of personal excellence and effective teaching.

Early in his career, Steve's charisma, energy, and skill helped fuel growth of the "Planet Earth" course at Illinois, which now introduces several hundred students to geoscience each semester. He has also earned top ratings for his work teaching structural geology, geotectonics, and advanced structures courses. He was, until recently, a key player in the Wasatch-Uinta field camp, which serves four major universities. On top of that, he has selflessly worked to build new courses as needs have arisen, including one in Earth resources for students in a new interdisciplinary major, and another in geomorphology.

Steve's contributions reach far beyond the Illinois campus via his best-selling introductory textbook, *Earth: Portrait of a Planet*. The near-obsessive attention he pays to scientific quality, clarity and visual presentation sets this book apart, and he works constantly to update it.

Amazingly, he accomplished much of the above while also serving as department head and more recently, director of a new school. In the latter role, he has led development of a highly successful new interdisciplinary major. In light of Steve's many contributions and selfless devotion to geoscience education, he is most deserving of this award.

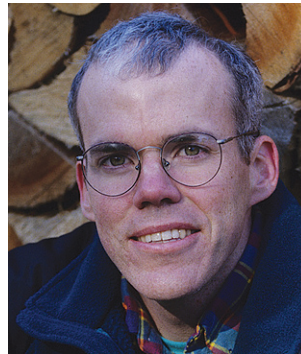
### THE BIGGS AWARD: KATHLEEN D. SURPLESS

The Biggs Award for Excellence in Earth Science Teaching, the GSA's Geoscience Education Division's Named Award, recognizes innovative and effective teaching among faculty at all institutions engaged in undergraduate education who have been teaching full-time for 10 years or less.

This year's recipient is Kathleen D. Surplless, Trinity University, San Antonio, Texas. During the three years Kathy taught at Stanford and worked as undergraduate program coordinator there, the number of geosciences majors more than doubled. The same thing has happened since she joined the faculty at Trinity in 2004 as an assistant professor: A colleague has dubbed the phenomenon "the Surplless Syndrome" in recognition of Kathy's "uncanny ability to explain difficult concepts to a broad audience and [engage] her students with meaningful learning experiences."

Kathy has taught courses ranging from freshman seminars to an environmental studies summer field course in Colorado. At all levels, says her citationist, she challenges her students to learn and discover on their own. She views research as an integral part of an excellent undergraduate education: Her students give presentations at GSA conferences and much of her work with them has been published in articles with the students as co-authors. All of her research students subsequently have entered graduate school or plan to do so in the future.

In support of her own research, Kathy has received funding from the Petroleum Research Fund. She is the recipient of a prestigious NSF CAREER award and was awarded the 2009 Trinity University Junior Faculty Award for Distinguished Teaching and Research.



McKibben



Marshak



Surplless

## THE OUTSTANDING EARTH SCIENCE TEACHER AWARDS FOR 2012

Outstanding Earth Science Teacher (OEST) Awards are given for "exceptional contributions to the stimulation of interest in the Earth sciences at the pre-college level." Any teacher or K-12 educator who covers a significant amount of Earth science content with his or her students is eligible. Ten national finalists are selected, one from each NAGT regional section. Some sections also recognize state winners.

### CENTRAL SECTION

No award in 2012

### EASTERN SECTION (& NEW JERSEY)

**EDWARD COHEN**  
Quibbletown Middle  
School, Piscataway, NJ

Edward Cohen adds OEST section and state honors to a long list of achievements, including a Fulbright scholarship to Japan in 2011, a 2010 AGU Teacher Leadership Training Award, being named New Jersey Governor's Teacher of the Year in 2009—and completing his Ed.D. at Rutgers University. In addition to presenting papers at National Association of Research in Science Teaching, National Association of Science Teachers, and American Geophysical Union conferences, he has published regarding the teaching of greenhouse effect using inquiry-based computer simulations and created curricula for his work with the Marine Activities Research Education. His nominator writes: "His teaching philosophy is to take every child that walks into his room from their personal starting point, to the highest possible peak of their learning. He does this in a fun, laid-back, non-judgmental atmosphere, in a work and creativity intensive environment."

### FAR WEST SECTION

No award in 2012

### MIDCONTINENT SECTION

No award in 2012

### NEW ENGLAND SECTION

**RAY PAVLIK**  
Concord Carlisle High  
School Concord, MA

Ray Pavlik's energy and enthusiasm is contagious, says his nominator: "He gives students the message that the work they do is important, that each student is capable of achieving the learning goals, and he will not give up on them. He promotes confidence and perseverance..."

One of the things that Ray is famous for are his field trips, including day excursions and a weekend trip to the coast of Maine where students investigate and map the scenic coastal rocky shoreline using iPads. He has also taken students on week-long field trips to Iceland and Hawaii. Twenty-one of his high schoolers recently paired with college students at Boston University as part of Professor Ethan Baxter's NSF-funded "RoBOT" (Rocks Beneath Our Toes) program. Together they investigated geology via mineralogy study and local field trips.

### NORTH CENTRAL SECTION

**PAUL FECHTMEISTER**  
East High School  
Cheyenne, WY

In the last three years Paul Fechtmeister and his students have been involved with

NASA's High School Students United with NASA to Create Hardware (HUNCH) program and Team America Rocketry Challenge (TARC), sponsored by the American Astronomical Society. In the first program Paul and a student team created an experiment to study the diffusion of gases in micro-gravity in order to better understand the movement of smells and hazardous odors in the environment of space. In 2012 Paul's TARC students designed, developed, and flew one of the top one hundred rockets in the nation.

Paul believes anyone can learn and almost anything is teachable if presented with enthusiasm and attention to detail. He has relied on that philosophy while teaching English in Taiwan, as well as skiing, karate, and geoscience. His teaching honors include the Arch Coal Golden Apple Award and Canon Educators Award for Rocketry and coaching engineering teams at East High that have won ten state championships.

### PACIFIC NORTHWEST SECTION (& OREGON)

**MARIE CARVER**  
Jane Goodall  
Environmental Middle  
School, Salem, OR

In addition to serving as the executive director of the small charter school where she has worked for 11 years, Marie Carver teaches its 6th, 7th and 8th graders math, general

science, gardening, and conservation biology. The school, which focuses on field-based learning, helps students learn about the environment and then get out, get their hands dirty, and make their own discoveries. The staff puts together about 45 field trips every year, ranging from small group field research trips to large group restoration projects.

### SOUTHEASTERN SECTION (& GEORGIA)

**KEVIN McMAHON**  
Renfro Middle School  
Decatur, Georgia

The goal of 6th grade Earth science teacher Kevin McMahon is to inspire kids to become lifelong learners. He has done that by sharing with them his climate research on the Greenland ice sheet, giving them the opportunity to visit his virtual base camp, read his journals, look at photos and videos, and ask questions. Using problem-based learning (PBL) cases, he teaches them to identify facts, make hypotheses, and learn to list "learning issues" (things that they don't know but can look up in print or online). Some of their questions lead to experiments. By the end of the year, his students realize that problems of all sorts can be tackled using this approach.

Kevin was City Schools of Decatur Teacher of the Year in 2008 and a TREC/PolarTREC teacher in 2006 and 2011.



Cohen



Pavlik



Fechtmeister



Carver



McMahon

## SOUTHWESTERN SECTION

NO AWARD IN 2012

### TEXAS SECTION

#### JULIE DYESS ARCHER

Westbrook Intermediate School, Friendswood, TX

Middle school science teacher Julie Archer leads by example, giving her students the opportunity to see not only her successes but her failures and to see that she is a lifelong learner. In addition to formal education—she recently earned a master's degree in curriculum and instruction—she has participated in programs such as Boeing's Space Academy for Educators at the U.S. Space and Rocket Center and Texas A&M's G-Camp for Educators. She says, "Each time I participate in these opportunities I become more excited about sharing knowledge with my students. I hope that my passion for science and education is contagious to my students and they develop a love for both of those things as well."

### STATE WINNERS

#### ALASKA

#### JENNIFER BACUS

Lower Kuskokwim School District, Kwigillingok, AK

Jennifer Baucus has taught science and math for eight years at the middle and high school levels. Named Lower Kuskokwim School District Science Coach for 2012, she endeavors to get her students

outside to explore or to bring the local environment into the classroom. She also integrates subjects like math and art, allowing students to explore the world through a variety of materials and media. She has taught after-school programs in robotics (FLL and FTC) and this year coordinated a K-12 school-wide science fair. Trained in GIS at the University of Alaska Southeast, she has worked on science lesson plans with the University of Alaska Fairbanks Science Teacher Education Program. She says, "My hope for all my students is for them to be science literate so they can make informed decisions and be productive citizens by becoming part of the solution."

#### LOUISIANA

#### ANGIE PLAISANCE

Golden Meadow Middle School, Golden Meadow, LA

Voted Golden Meadow Middle School Teacher of the Year in 2008, Angie Plaisance uses project-based learning, visuals, and technology to foster a student-centered learning environment. With the goal of encouraging students to "become the best prepared citizens they can be," she encourages them to explore, question, work cooperatively, and think "outside the box." She has participated in the JASON Train the Trainer convention in Virginia, the "Bayou Side Water Quality Testing" program through BTNEP, and the BP/AGI Earth Science Middle School Teacher Leadership Academy in Texas and

presented at the NSTA conference in New Orleans.

#### MARYLAND

#### WILLY HERRERA

Augusta Fells Savage Institute of Visual Arts, Baltimore, MD

Willy Herrera, 2007 Teacher of the Year at Harlem Park Middle School, Baltimore, now teaches science and serves as science department chair and as a mentor teacher at an institute of visual arts. To these roles he brings experience gained in workshops such as the Honeywell Space Camp Academy and the Black Holes Workshop at Pennsylvania State University and in working as a demonstration teacher at an astrobiology workshop in California. His students design rocket launches with the Maryland Science Center and Goddard Space Center and participate in "Voyages Through Time" (SETI), "Ask a Physicist" and "Starry Night" curricula. His nominator writes "he believes that he has the power to change the path if not the destiny of every student with the help of the state, the curriculum and the parents. He always hopes for the good future and for the good life that every student deserves."

#### NEW YORK

#### JODY SUPRENANT

Fort Edward UFSD, Fort Edwards, NY

Jody Suprenant's "students know they will be learning bell to bell," wrote her nominator.

"Her enthusiasm for Earth science is contagious."

Jody has developed multiple Earth science-themed electives for her school and equipped her students who have processing delays with iPods to which they can download narrated notes, audio-visuals and blogs which she places on her website. A member of STANYS, she has served as a NASA Aquarius Mission Teacher Consultant for Concept Maps, a NASA/SUNY Buffalo S.T.U.D.I.E.S. Teacher Consultant, and Upward Bound Instructor for Adirondack Community College.

#### NORTH CAROLINA

#### BEVERLY OWENS

Crest Middle School, Shelby, NC

Eighth grade teacher Beverly Owens enjoys finding ways to use professional development opportunities in her instruction; she has provided her students with a wealth of resources including photos, rock and fossil samples, and information from scientists in the field after participating in dinosaur digs in Wyoming with the Schiele Museum of Natural History and trips with the Carolina Geological Society and serving as an Educator at Sea on the Extreme Corals Expedition. Named the North Carolina Science, Mathematics, and Technology Education Center's Outstanding K-8 Educator in 2010, she works with the members of her science department to develop innovative team-teaching activities that will spark students' interest in science.

#### SOUTH CAROLINA

#### CRYSTAL TALLEY

Code Academy Alternative School, Seneca, SC

Crystal Talley, a former research biologist with the South Carolina Department of Natural Resources, believes that students learn best by conducting hands-on research of their own design. Upon joining the staff at an alternative school, she realized that her at-risk 9th- to 12th-grade students needed a learning environment tailored to their needs. She made it a priority to move learning away from the four walls of the classroom where they had already experienced much defeat. She began taking them to state parks in upstate South Carolina to learn about natural, geographical, biological, and cultural features, bringing core curriculum subjects together into one unified learning environment. The result? Over the past three years being outdoors has increased awareness, engagement and motivation in her students, and Crystal was recognized as the 2011-12 Teacher of the Year in Oconee County.

#### TENNESSEE

#### CHRIS VANAGS

School for Science and Math at Vanderbilt, Nashville, TN

Chris Vanags is the associate director of the Vanderbilt Center for Science Outreach and an instructor at the School for Science and Math (SSMV) at Vanderbilt, a joint venture

of Vanderbilt University Medical Center and Metropolitan Nashville Public Schools (MNPS) that offers high school students a four-year, interdisciplinary, research-centered learning experience. He teaches using hands-on activities, technology, field trips, and research that attempts to answer current and real world Earth science questions. He has also set up student research collaborations between the SSMV and groups such as Metro Parks, Tennessee Department of Environment and Conservation, NASA and Arizona State University, and the USGS.

#### VIRGINIA

#### DOROTHY EDWARDS

Strasburg High School, Strasburg, VA

Dorothy Edwards "believes that among her students are future leaders of the community, the state and the country and that it is part of the responsibility of the classroom teacher to not only teach the content but to help them understand why it is important to their lives and how they will use it once they are finished with their education." Some of those students, after attending the Pulsar Search program at the National Radio Astronomy Observatory in Green Bank, West Virginia, now search for undiscovered pulsars using GBT data. Others, using grant funding she secured, have built a radio telescope array and monitored solar flares using a Sudden Ionospheric Disturbance Detection Monitor.

Actively involved in

statewide assessment, developing a pacing guide, and writing an Earth Science Review Book for the Virginia State Assessment, Dorothy is part of a group working on founding the Virginia Earth Science Teachers Association.

#### WEST VIRGINIA

#### RICK SHARPE

Huntington High School, Huntington, WV

A 20-year teaching veteran, Rick Sharpe wrote curriculum for the Gold-Seal Project which serves as a state model, was awarded grant funding to engage students in studying the local watershed, and serves as a member of Huntington High School's teacher leadership. He incorporated podcasting in his instruction before it was popular and in 2012 took a team of students to the White House Science Fair. He has participated in number of professional development programs, including West Virginia Global Learning and Observations to Benefit the Environment Program (with NASA IV&V Facility Educator Resource Center), Marshall University and Carnegie Mellon's GigaPan Project, Glenville State College's Jason Project, and Health Science Technology Academy.

For more about these exceptional geoscience educators and how to nominate people for future OEST awards, see:

<http://nagt.org/nagt/programs/oest.html>

## THE DOROTHY LALONDE STOUT PROFESSIONAL DEVELOPMENT GRANTS

Dorothy Lalonde Stout Professional Development Grants are presented by NAGT in memory of Dottie Stout, a gifted geoscience educator who taught at Cypress College, El Camino College, Long Beach City College, and California State University, Fullerton, and served as the first female president of NAGT. The grants honor her outstanding work and dedication to Earth science education.

#### CARI GOMES

Palomar Community College, San Marcos, CA

Grant of \$750 for chemicals, glassware, glasses, gloves, pH tester, GPS and sieves to aid students in studying lagoons of San Diego County.

#### JAMES JOHNSON

Children's Center of Treatment and Education, Custer, PA

Grant of \$750 to help applicant complete ALI program at Astrobiology Laboratory Institute at University of Hawaii.

#### CASSANDRA STRICKLAND

Columbia Basin College, Pasco, WA

Grant of \$750 to purchase rock and mineral specimens with which to teach a series of science classes for Kittitas Valley homeschoolers (ages 5-19).



Archer



Baucus



Plaisance



Herrera



Suprenant



Owens



Talley



Vanags



Edwards



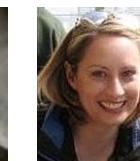
Sharpe



Gomes



Johnson



Strickland