



Iowa Science Teachers Section of the Iowa Academy of Science

September 15, 2006

Nadine Weirather, Editor

Contents of the ISTS E-Newsletter that Follows:

- A Message from Your President
- Fall Conference News
 - from the Past President/Conference Chair
 - An Invitation
 - Breakfasts (Yum!)
 - 15 Reasons to Attend (Read this!!)
- Announcements
- Your ISTS Leadership Team

A message from your President:

All of our life is about choice. I want to thank you, in advance, for choosing to further your professional development by attending our Fall 2006 ISTS science conference to be held **Wednesday, October 18, 2006 at The Crowne Plaza Hotel in Cedar Rapids, Iowa.**

Each year, and culminating with the fall conference, your ISTS leadership team expends a huge amount of effort to assure that the conference will fuel your professional development. We do not take our responsibility lightly. We believe our members and guests deserve a conference devoted to helping them

teach children.

Time still exists to preregister at <http://ists.pls.uni.edu/> or, if you make a last minute decision to attend, you can register the day of the meeting. Also, please notice the savings by joining the Iowa Academy of Science at the same time you register for the conference.

Since every presenter will be showcasing their best, we each have a wonderful opportunity to augment our teaching techniques and content knowledge. I know all of us who choose to come to this conference have a real desire to help our students learn, and I know each of us will be richly rewarded for having been here. Thank you for choosing to come!!

Sincerely, Gale Vermeulen, ISTS President '06-07

FALL CONFERENCE NEWS

1.

IOWA SCIENCE TEACHERS 2006 FALL CONFERENCE

Theme: Teaching as a Sacred Activity

Please mark your calendar now to attend the *ISTS Fall Conference* on Wednesday, October 18th at the Crowne Plaza Hotel in Cedar Rapids!

Begin your conference day by attending one of the morning section breakfasts. Then choose from dozens of invigorating sessions to acquire science teaching ideas that will engage your students. Visit the always-popular exhibit hall, and mingle with hundreds of colleagues from across the State. **Dr. Jim Colbert**, as luncheon keynote speaker, will educate all of us with an engaging presentation on teaching science concepts through service learning. If you intend to arrive on Tuesday evening for this great conference, please attend the *President's Reception* that evening from 6-8 PM and join us in honoring **Tony Heiting** who has retired after a distinguished career serving Iowa science teachers and students.

The theme of this conference, Teaching as a Sacred Activity, reflects how very important teachers are, the philosophical and moral aspects of teaching and schooling, and how so many teachers unselfishly give fully of themselves to

positively impact the lives of children. You deserve the opportunity to attend the 2006 ISTS Fall Conference on Wednesday, October 18th at the Crowne Plaza Hotel in Cedar Rapids. Please go to <http://ists.pls.uni.edu> to see an Advance Conference Program and to register for the conference.

Sincerely,

Michael Clough, 2006 ISTS Fall Conference Chair, Past-President of ISTS

2. AN INVITATION:

Please join us Tuesday evening, October 17, from 6-8 PM in Cedar Rapids at the Crowne Plaza Hotel for the President's Reception. Consider this an opportunity to relax and connect with you colleagues from across the state as we prepare to launch the 2006 ISTS Fall Conference the next day.

Additionally, as Tony Heiting has retired as the Science Consultant for the Iowa Department of Education, the President's Reception will offer an informal opportunity to recognize Tony for all he has done for the state of Iowa.

Refreshments (including my homemade Dutch letters, warm homemade salsa dip with chips), and beverages will be served. All ISTS members are welcome!

Come for fellowship, food and a visit with Tony!!!

3. Breakfasts -- Updated and Improved!!

• Biology -- hosted by Alicia Schiller, Central Lee HS

I would like to encourage Biology Teachers, as well as all other science teachers to come and participate in a breakfast discussion on Biotechnology. A couple of teachers will share some of their classroom-integrated lessons using biotechnology, as well as teacher centered research programs in this field of study. Ernie Schiller will discuss the ISU Biotechnology support program available for Iowa science teachers and Mike Zeller will be sharing about the Biotechnology Training Workshops that are available each summer through his outreach program at ISU.

There will be many handouts on Biotechnology as well as possible curriculum ideas. So, start the morning off with a timely topic as well as some good science discussion.

- **Earth Science -- hosted by De Anna Tibben, Ames HS**

Please join Iowa earth science teachers as we share ideas, eat, and listen to an awesome speaker at breakfast at the ISTS Fall Conference in Cedar Rapids on October 18. Here is the topic and bio of the speaker, who you will not want to miss!!!!

"Bad Moon Rising: Dealing with common misconceptions in astronomy"

Abstract: If you were to ask the average teenager if people ever walked on the Moon, odds are you'd find responses that include "yes", "I don't know", "no, it was all faked". Thanks to highly publicized, unscientific "documentaries", most young people have a hard time telling the difference between scientific fact and science fiction fantasy. Combine that with some basic misconceptions about how the laws of nature work and you have some difficult hurdles to overcome in the classroom. The best way to combat these beliefs is to provide rational, reasoned responses (a new version of the "3-Rs"). I will provide some on-line and off-line resources that you can use.

Biography: Dr. Siobahn Morgan has been teaching astronomy at UNI since 1991. She has completely transformed her course to an on-line version, and updates the course notes constantly. Dr. Morgan is also interested in providing resources for teachers and has dabbled in making some simple on-line Java programs that simulate gravity, orbital motion and stellar evolution. When not teaching, Dr Morgan spends her time reading comic books, science fiction and working on her "Doctor Who" website.

- **Elementary -- hosted by Lynne Campbell, Woodward-Granger**

Join us for breakfast as guest speaker, Lynn Hockenberry, discusses science and literacy with us.

Lynn will explain how we can improve student understanding of science through embedded language and literacy experiences. Implementation of the Science Writing Heuristic (SWH) within elementary schools places demands on the use of talk, reading, and writing as critical functions to promote an enriched understanding of science and to build purposes for writing about science.

- **Chemistry -- hosted by Sara Coleman, Norwalk HS**

Dr. Maria Dean, Associate Professor of Coe College will be speaking on the Coe College chemistry program and high school preparation of students for chemistry. Door prizes include gift certificates from Flinn Scientific and Sargen Welch.

Come reconnect with chemistry teachers, enjoy breakfast, and learn about college preparation of our high school students.

4. 15 Reasons to Attend the ISTS Fall Conference!

submitted by Traci Maxted, your President-Elect

15

Door prizes!

(Last year they included a TV and a sheep's brain. Can't get better than that!)

14

Great Lunch included!

13

Professional Development without statistics

12

Professional Development with topics YOU get to choose.

11

Find other professional development opportunities

10

New ideas you can use in your classroom.

9

New activities you can use in your classroom

8

New resources you can use for your classroom. Find the latest technology.

7

Lots of other science teachers: Contacts! Networking!

6

Find out what's happening around Iowa and the U.S. in the field of science teaching.

5

Opportunity to share your frustrations and ask for help from some of the state's best science teachers!

4

Opportunity to share your successes and ideas!

3

President's reception

2

Keynote speaker: Dr. Jim Colbert
Using Local Biodiversity and Service-Learning
to Engage Students in Learning Science.

1

A really nice "artifact" to put in your portfolio.

Announcements:

- **NASA's 21st Century Explorer Podcast Competition**

<http://www.explorationpodcast.com> .

It's an exciting time for educators and students. Before the end of the next decade, NASA astronauts will return to the moon. This time, we're planning to stay, building outposts and paving the way for eventual journeys to Mars and beyond. Today's students will be tomorrow's explorers. How will space exploration benefit their lives in the future?

That's the question this competition asks of students ages 11-18. The first NASA 21st Century Explorer Podcast Competition challenges students to create unique audio and video podcasts. The topic? How will space exploration benefit your life in the future?

Running from September 1 through October 10, 2006, this competition is open to United States citizens ages 11-18. Students are grouped into two age divisions: 11-14 and 15-18. Each division will have two separate categories: audio podcast and video podcast. First, second, and third place prizes will be awarded in each category and age group. An additional "People's Choice Award" will honor one podcast for each age division.

Students may choose to create several podcasts, but only one entry may be submitted for each person.

Jay Staker, Program Director

Extension - Science, Engineering & Technology (E-SET).

Associate Director of Education, Iowa Space Grant Consortium

Extension 4-H Youth Building, ISU

Ames, IA 50011-3630

515-294-8417

FAX: 515-294-4443

Email jstaker@iastate.edu

<http://www.extension.iastate.edu/e-set>

<http://www.ia.spacegrant.org>

- **The Space Place: Earthy Word Games**

The interdependent web of life on Earth is a fine principle to teach kids and adults. But understanding how it works in detail is a

lifelong process, even for Earth scientists. A good way to introduce some basic concepts to kids is through a small, simple model wherein life forms survive by depending on each other. Such is the EcoSphere®, a small, closed-system aquarium that needs only light to stay healthy and in balance. A new game activity on The Space Place explains the EcoSphere® as a microcosm of Earth. Visitors to the page can then choose one or more interactive word-find puzzles to solve, using words related to air, water, land, and life. <<http://spaceplace.nasa.gov>>

Nancy Leon
Education and Public Outreach Lead
NASA New Millennium Program/Space Place
NASA/JPL 4800 Oak Grove Drive
Mailstop 301-235
Pasadena, CA 91109

(818) 354-1067

nancy.j.leon@jpl.nasa.gov



• Toyota TAPESTRY Grants

Now it's even easier to apply for a grant in the Toyota TAPESTRY Grants for Science Teachers program. Just log on to <http://www.nsta.org/programs/tapestry> and apply online for one of 50 large grants of up to \$10,000 each or 20-25 mini-grants of up to \$2,500.

Sponsored by Toyota Motor Sales, U.S.A., Inc. and NSTA, the program will award K-12 teachers of science with a total of \$550,000 in three categories: environmental science; physical science; and literacy and science education.

Toyota TAPESTRY recognizes outstanding educators who are making a difference by demonstrating excellence and creativity in science teaching. Since 1991 the program has awarded more than \$7 million to 826 teams of teachers for innovative science classroom projects. Toyota and NSTA hope these grants continue to inspire teachers and serve as a catalyst for lifetime science learning.

To apply for funding, qualified teachers must prepare an online Toyota TAPESTRY proposal according to the proposal requirements. The deadline for the submission of proposals is **January 18, 2007**. Visit <http://www.nsta.org/programs/tapestry> to start your application!

- **[National Congress on Science Education 2006 Is a Success](#)**

Over 100 science education leaders gathered in Toronto in July for the 2006 National Congress on Science Education. Read a summary of the Congress at

http://science.nsta.org/nstaexpress/nstaexpress_2006_07_24_congress.htm.

- **NASA Space Place**

Deadly Planets

By Patrick L. Barry and Dr. Tony Phillips

About 900 light years from here, there's a rocky planet not much bigger than Earth. It goes around its star once every hundred days, a trifle fast, but not too different from a standard Earth-year. At least two and possibly three other planets circle the same star, forming a complete solar system.

Interested? Don't be. Going there would be the last thing you ever do.

The star is a pulsar, PSR 1257+12, the seething-hot core of a supernova that exploded millions of years ago. Its planets are bathed not in gentle, life-giving sunshine but instead a blistering torrent of X-rays and high-energy particles.

"It would be like trying to live next to Chernobyl," says Charles Beichman, a scientist at JPL and director of the Michelson Science Center at Caltech.

Our own sun emits small amounts of pulsar-like X-rays and high energy particles, but the amount of such radiation coming from a pulsar is "orders of magnitude more," he says. Even for a planet orbiting as far out as the Earth, this radiation could blow away the planet's atmosphere, and even vaporize sand right off the planet's surface.

Astronomer Alex Wolszczan discovered planets around PSR 1257+12 in the 1990s using Puerto Rico's giant Arecibo radio telescope. At first, no one believed worlds could form around pulsars-it was too bizarre. Supernovas were supposed to destroy planets, not create them. Where did these worlds come from?

NASA's Spitzer Space Telescope may have found the solution. Last year, a group of astronomers led by Depto Chakrabarty of MIT pointed the infrared telescope toward pulsar 4U 0142+61. Data revealed a disk of gas and dust surrounding the

central star, probably wreckage from the supernova. It was just the sort of disk that could coalesce to form planets!

As deadly as pulsar planets are, they might also be hauntingly beautiful. The vaporized matter rising from the planets' surfaces could be ionized by the incoming radiation, creating colorful auroras across the sky. And though the pulsar would only appear as a tiny dot in the sky (the pulsar itself is only 20-40 km across), it would be enshrouded in a hazy glow of light emitted by radiation particles as they curve in the pulsar's strong magnetic field.

Wasted beauty? Maybe. Beichman points out the positive: "It's an awful place to try and form planets, but if you can do it there, you can do it anywhere."

More news and images from Spitzer can be found at <http://www.spitzer.caltech.edu/> . In addition, The Space Place Web site features a cartoon talk show episode starring Michelle Thaller, a scientist on Spitzer. Go to <http://spaceplace.nasa.gov/en/kids/live/> for a great place to introduce kids to infrared and the joys of astronomy.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

• **Podcasts: NASA Space Place To Go!**

No time to think about the wonders of the universe, much less how to explain them in a simple way to your students? Sign up for the new Space Place Podcast. Listen when you have time. In each Podcast, a NASA scientist answers fascinating questions about space and Earth science, with a little technology thrown in. Go to spaceplace.nasa.gov/en/educators/podcast/ to subscribe. Or you can listen now on your computer or read the transcripts. Best of all, you can listen while you go for a walk, looking up at the beautiful night sky and thinking about all that is out there, known and unknown.

• **Toyota International Teacher Program**

Professional Development in Costa Rica for Secondary School Teachers

Toyota International Teacher Program would like to remind you that the deadline to apply for the Professional Development in Costa Rica program is approaching quickly. What with the new school year, hectic scheduling, and juggling everything on your plate; finishing your application may have slipped your mind!

If you have a moment, revisit the Toyota Teach website at www.iie.org/toyota.

Toyota Motor Sales, U.S.A., Inc. sponsors this annual opportunity with the goal of broadening the global perspectives of educators and the students. Qualified individuals are sent to explore the unique ecosystems of Costa Rica while connecting with the people and culture of this small country. In order to be eligible you must work full time as a secondary school classroom teacher (grades 7-12) in Arizona, California, Florida, Iowa, Louisiana, North Carolina, Pennsylvania, Texas, and Wisconsin.

Full-time classroom teachers in grades 7-12, in the nine program states are encouraged to submit applications for the Toyota International Teacher Program by **October 9, 2006**. Apply online at <http://www.iie.org/toyota>.

● Globe At Night

A few of you may have heard about the first Globe At Night project last March. Globe at Night is an international science activity that encourages families to conduct a hands-on science activity to gather light pollution data where they live and contribute to a worldwide database. It is part of the Globe program that is sponsored by NASA, Dept. of State and NSF.

It will happen on March 8-21, 2007. There are educator packets that include the educational standards for the activities, and family packets to help families to do the observations at home. They received 4,500 observations in 2006 from around the world.

Here's where you can find more info: <http://www.globe.gov/GaN/>. You can learn about the activity, see what data was collected in 2006, and review the 2006 information packets. No special equipment or telescopes are needed, but you will need to be able to get your decimal latitude/longitude coordinates (using GPS, Google Earth, online geocoding Web sites) and Internet access to report your data.

The activity relates well to scientific data collection, astronomy and GIS mapping. You can also expand it to talk about other countries and the effects of population density and distribution to light pollution. Youth/families also will be contributing to a data collection that can be used by scientists and others interested in studying light pollution.

Now you'll have plenty of time to explore, share with colleagues and plan for how this activity might contribute to your programs.

Feel free to contact me if you have questions.

Jay Staker, Program Director
See Address Information Above
Email jstaker@iastate.edu

Your ISTS Leadership:

Iowa Academy of Science Mission:

- Promote scientific research and its dissemination
- Improve instruction in the sciences
- Promote public understanding of science
- Recognize excellence in science and science teaching.

Check out past issues of the ISTS newsletter at
<<http://ists.pls.uni.edu/newsletters/index.html>>.

Your ISTS Leadership Team can be found at:
<<http://ists.pls.uni.edu/officers.html>>.

We are always looking for good people. Send an email to Gale Vermeulen at vermeuleng@oskaloosa.k12.ia.us if you wish to be more involved.

Improve or contribute to this newsletter by sending a message to vermeuleng@oskaloosa.k12.ia.us or nweirather@central-lee.k12.ia.us.

