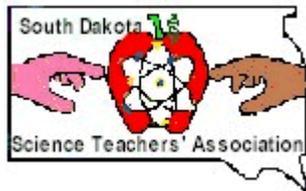


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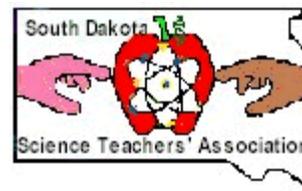
# South Dakota Science Teachers' Association



## Fall 2014

October 2014

Volume 134



### President's Letter—Julie Olson

I would like to welcome everyone back as well as those new to the organization. How does the summer seem to go by more quickly than the year before? This summer had an abundance of exemplary professional development opportunities. I had the good fortune to be a research intern with Sanford Research this summer as well as take part in several university courses. I am so amazed and thankful for the willingness of Sanford's researchers and education outreach to help further science education in South Dakota! During the internship, I also got to meet other science educators that are so passionate about what they do one cannot help but to be inspired. I had previously mentioned in other newsletters the exceptional new teachers coming up through the ranks. You can rest assured that that was not a one observation statement as I met and worked with several new and pre-service teachers that inspired me and sparked interest in trying new ideas and really wanting to connect with our students in the upcoming year.

Please take some time to thank those that put on profes-

sional development opportunities this summer. The amount of time and effort to not only plan and present but also to write the grants to fund such opportunities is unbelievable!

As I write this, I am also thinking about those SLO's – yes, the Student Learning Outcomes every public school teacher in South Dakota has to write as part of the teacher assessments being developed. Look for some hints inside this newsletter. Don't be afraid to reach out to other science educators. It wasn't long ago (well maybe a few years...) that I was the lone high school science and math teacher at Emery High School. I remember (yes I still have my mind intact – I think?) how nice it would be to have another science teacher to bounce ideas off of on a daily basis. I know I am dating myself by saying these conversations would require a telephone (not cell phone) and not simple email (it was available but not common). I did live in Mitchell so had the luxury of being able to talk things over with Jerry Opbroek and Judy Vondruska when I came home at night.

We are also in the process of planning the state SDSTA/

SDCTM joint conference. Please consider presenting. Ask someone else to co-present. I challenge everyone to step up to the plate and share those wonderful ideas that you have developed, modified, or came across. The new teachers in the state need your help. New teachers, you have a lot to offer in teaching the old dogs new tricks. We welcome your ideas and want to introduce you to the organization.

On a final note, please make sure you review the proposed South Dakota Science Standards located on the DOE website. Make your legislators aware of your position. Answer their questions. Tell them how you will be able to use them to make science education even better than it is for our South Dakota students.

Have a great school year.  
Sincerely,

*Julie Olson*

SDSTA President 2014-2016

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## SLO Hints

With new teacher and school accountability assessments, comes the writing and administration of Student Learning Outcomes or SLO's. In science, I am writing my first SLO on the Scientific Method. I know it is a pretty broad topic but none-the-less important and applies to all levels and areas of science. Science data can be obtained for all seniors that took the DSTEP test last spring. The current South Dakota state standards are assessed with this test. The only problem with using this as your sole source of data is that you may not have these same students in class let alone another science course. They cannot take the DSTEP again either so there would be

trouble making a valid comparison for assessing improvement. Since time is something coveted in the teaching profession, I would suggest using an on-line program called Quia. There are several very good assessments dealing with the scientific method. The program also allows you to edit an existing quiz to make comparable assessments to be used during and after instruction.

Some excellent instructional resources can be found at:

Lesson Plans Inc. "Scientific Method" - [www.lessonplansinc.com/biology\\_lesson\\_plans\\_scientific\\_method.php](http://www.lessonplansinc.com/biology_lesson_plans_scientific_method.php)

This web-page has not only in-

structional materials that are short, to the point, and well written, there are also materials dealing with scientific procedures and graphical analysis. These would also be excellent SLO topics for assessment.

The Biology Corner - <http://www.biologycorner.com/lesson-plans/scientific-method/>

Not only is there a series of scientific method materials that cover the most basic of steps to designing investigations to answer questions.

ETLS Wiki - <https://mast.wikispaces.com/file/view/Scientificmethod.pdf>

Hands-on as well as paper-pencil instruction and assessment materials.

### .Submission from Janet Wagner

How well do you know your first aid?

With all the lab safety rules we cover in our science classes, it is inevitable someone will get a burn or cut a finger and we all know how to treat such injuries. We have all placed bandages on student's fingers but with the changes in our society, so have our first aid needs changed.

With the growing list of allergies we have more and more students with epi pens. Do you feel safe administering the dosage if the need arises? Do we even know who has epi pens in our classes?

Diabetes has become a greater concern in the classroom with the increase in obesity. Do you know the signs of a diabetic reaction? What to do if you observe a diabetic reaction and the student becomes semiconscious? What do you do if the student loses consciousness?

We have all been trained in CPR and think it would be needed just for fellow teachers or administration, but that has changed also. Students now are experiencing heart attacks and our schools have become equipped with AED's. Do you know when to use and how to use the AED?

With all of the new requirements of teachers, how much is the teacher responsible for in case of a medical emergency? How much information

are we given about student's medical history? What avenues do we pursue to increase the awareness of our first aid responsibilities?

These are some of the questions that need to be addressed by school administration in the near future before we have a disaster in our classrooms.

As an addition, it is recommended for all teachers to take the on-line safety course offered by Flinn Scientific at <http://labsafety.flinnsci.com/Home.aspx>. If you register first, you can print off a certificate. If you go to <http://www.flinnsci.com/teacher-resources/safety/general-laboratory-safety.aspx> you can access a variety of safety topics.

American Physiological PhUn Week - <http://www.the-aps.org/mm/Education/K-12/EducationProjects/PhUn-Week>

PhUn Week is a nationwide outreach program building connections between scientists and their local schools. PhUn Week is distinctive for two reasons:

- It fosters grassroots partnerships between biomedical researchers and K-12 teachers; and

It is carried out into classrooms by “citizen scientists” composed of a senior researcher along with his or her undergraduate, graduate, or postdoctoral students. As the leading professional organization of physiology re-

searchers and educators in the U.S., the APS is uniquely positioned to deploy a national coordinated event to promote the understanding of physiology in health and disease. Individual physiologists, physiology departments, and regional chapters of the APS all coordinate PhUn Week events and activities, ranging from single classroom visits to large-scale local events at schools, universities and museums.

The goals of PhUn Week are to:

- Increase student interest in and understanding of physiology in their lives.
- Increase teacher recognition of physiology in their standards-based science curriculum.

- Introduce students to physiology as a possible career. Involve more physiologists in outreach to the students and teachers in their communities. During PhUn Week classroom visits in November, APS members engage students in interactive, hands-on physiology activities. Through this real-life, face-to-face encounter with practicing biomedical researchers, students learn about how their bodies function and how scientific discoveries are made.

Submission from Robin Dirksen

via DOE listserv

I just started an invasive study with my high school advanced bio class and think the curriculum will be very useful to enhance my activities and I thought other life science teachers out there might also like it. Invasives: Plants on the Move Curriculum

This curriculum from the Oregon Natural Resources Education Program (Corvallis) is designed for teachers who want to integrate the topic of invasive weeds in the classroom, develop weed awareness, and provide students in grades K-12 with an understanding of the serious problem of invasive weeds. Explore the site at: <http://weedinvansion.org>

#### Quotes:

*Ralph Waldo Emerson* “Men love to wonder and that is the seed of science.”

*Carl Sagen* “Science is a way of thinking much more than it is a body of knowledge.”

*Unknown* “Teach children how to think not what to think.”

If your address changes,  
please drop us a  
line with your  
new address so  
we can keep your  
newsletter coming  
your way.  
[Newsletter@sdsta.org](mailto:Newsletter@sdsta.org)



Shell Science Lab Challenge -

<http://www.nsta.org/shellsciencelab/>



**NSTA** National Science Teachers Association

Shell Science Lab Challenge

The Shell Science Lab Challenge, sponsored by Shell Oil Company (Shell) and administered by NSTA, encourages teachers (grades 6–12) in the U.S. and Canada, who have found innovative ways to deliver quality lab experiences with limited school and laboratory resources, to share their approaches for a chance to win up to \$93,000 in prizes, including a grand prize school science lab makeover support package valued at \$20,000. The deadline for submissions is December 19, 2014

The DuPont Challenge© Science Essay Competition - [www.nsta.org/about/competitions.aspx](http://www.nsta.org/about/competitions.aspx)



As one of the foremost student science and technology prize programs in the U.S. and Canada, the Challenge helps to increase science literacy among students and motivates them to excel in communicating scientific ideas. Students in grades 7–12 are asked to write a 700- to 1,000-word essay in one of four categories: food, energy, protection, or innovation. Prizes include U.S. Savings Bonds and a special awards trip to the Walt Disney World® Resort and the Kennedy Space Center. Teachers advising winning students receive a cash grant, the awards trip, and an expenses-paid trip to the NSTA National Conference on Science Education.

eCYBERMISSION - [www.ecybermission.com/](http://www.ecybermission.com/)



As one of the US Army's Educational Outreach Programs (AEOP), eCYBERMISSION is a free, web-based STEM competition for students in grades 6 through 9. eCYBERMISSION challenges students to think about real-world applications of STEM by working in teams to identify a problem in their community and use scientific practices or the engineering design process to find a solution. Students compete for state, regional, and national awards, with potential winnings of up to \$9,000 (maturity value) in U.S. Savings Bonds.

INTEL ISEF Science and Engineering Fair –

Affiliate fair information - <https://student.societyforscience.org/affiliated-fair-home> and Fair forms and rules - <https://student.societyforscience.org/resources-2>

South Dakota state VEX robotics competition - <http://www.robotevents.com/south-dakota-state-vex-robotics-competition.html>



South Dakota Science Olympiad -

<http://sites.usd.edu/sdscienceolympiad/>



SD—AAPT Photo Contest

<http://sdaapt.sdsta.org/>



Ready SET Go! is a one-day workshop for high school girls (grades 9-12) during which they will have an opportunity to explore interests in science and technology. The students will interact with professional women from IBM, Daktronics, Banner and Associates, Sencore, and other technology companies, as well as with professors and students from SDSU. The goals of this workshop are to:

Introduce high school girls to engineering, math, and science through

a highly dynamic program of hands-on activities

Increase student and parent knowledge of engineering, math, and science with regard to academic preparation and professional opportunities

Provide an environment that facilitates learning and excitement about engineering, math and science

Inspire girls to continue to pursue the courses of study introduced during the workshop



**Register online: <http://www.sdstate.edu/engr/camps/ready-set-go.cfm>**

\$20 per student

FREE for parents & teachers  
Lunch, refreshments & a T-SHIRT provided

**For info: Jerome J. Lohr**  
**College of Engineering**  
South Dakota State University  
Box 2219  
Crothers Engineering Hall 201  
Brookings, SD 57007  
(605) 688-4161

## Biomedical Research Investigations

Curious about what it's like to be a laboratory scientist? The Biomedical Research Investigations Program at the Sanford PROMISE Community Lab is a unique opportunity for middle and high school aged students sponsored by the Sanford Program for Midwest Initiative in Science Exploration (PROMISE). Throughout each workshop, students are engaged in biomedical research by performing authentic, hands-on laboratory activities.

Applications are open to students currently in sixth through tenth grade. Up to 16 qualified students are accepted with a completed application. Students will be notified of their acceptance and details for attendance two weeks prior to the workshop. There is an activity fee

of \$20 for the accepted applicants, paid at the first class. Limited scholarships are available for students in need of financial assistance.

Classes are held at:  
Sanford Center  
PROMISE Community Lab  
2301 E. 60th Street North  
Sioux Falls, SD 57104

For each session students must enter through the main entrance, located in the southeast corner of the building (adjacent to the globe).

Upcoming Series:

Neuroscience Get up close and personal with the brain and brain physiology in this week-night Biomedical Research Investigations Series.

Workshop series is scheduled from 4:15pm-6:15pm on the following Wednesdays: October 22nd, October 29th, November 5th, November 12th

\*Applicants. must commit to attending the entire series.

Please apply online at:  
[www.sanfordresearch.org/education](http://www.sanfordresearch.org/education)

For questions or additional information:

Please contact 605-312-6590 or [sanfordoutreach@sanfordhealth.org](mailto:sanfordoutreach@sanfordhealth.org).

**SANFORD**  
RESEARCH



College of Arts and Sciences  
Physics Department  
SDEH 255, Box 2222  
South Dakota State University  
Brookings, SD 57007  
Phone 605-688-5428

October 2014

Dear Colleague:

The South Dakota Science Teachers Association in conjunction with 3M and coordinated by the SDSU Physics Department announces the 37th presentation of the Outstanding Physical Science Teacher Award in the state of South Dakota. The recipient of this award receives a plaque and a cash award to support their efforts to teach physical sciences with equipment or perhaps help to attend a conference or workshop. Darwin Daugaard, of Dell Rapids Public School, was the recipient of the 2014 South Dakota Outstanding Physical Science Teacher Award. This year the award will go to a teacher at a school in a larger population area with a teacher in a smaller population area being recognized next year. You are encouraged to submit nominations for this year regardless of your school's size as nominations are saved and reviewed for several years.

Teachers in the areas of physical science, physics, chemistry, meteorology, and astronomy including grades 7-12, are eligible for the award. To apply, a nominee must submit:

- An application form
- An educational philosophy statement
- At least four recommendation forms (more if you wish) from
  - A supervisor (principal or superintendent)
  - A colleague (another teacher but does not have to be teaching in the physical sciences)
  - Two former students

The required forms are available from the SDSU Physics Department website:

<http://www.sdstate.edu/phys/> or by e-mailing [Sally.Krueger@sdstate.edu](mailto:Sally.Krueger@sdstate.edu). It is important that the information on these forms be as detailed as possible to adequately evaluate each application/nomination.

The forms should be returned by Monday, **January 5, 2015** to:

Dr. Larry Browning  
Department of Physics, Box 2222  
South Dakota State University  
Brookings, SD 57007

We are trying to recognize those teachers who are doing or who have done an outstanding job in their profession. We would appreciate your cooperation in this effort. If you have any questions, please call 688-5428.

The recipient for the 2015 Outstanding Physical Science Teacher Award will be announced at the **SD Science Teachers Association/SD Council of Teachers of Mathematics meeting in Huron on February 5-6, 2015.**

Sincerely,



Dr. Larry Browning  
Department of Physics

# 2015 SPEAKER / PRESENTER PROPOSAL FORM

23rd Annual Joint Conference of SDCTM and SDSTA

February 5-7, 2015

Crossroads Hotel/Huron Event Center

Huron, SD

1-800-876-5858

OFFICE USE ONLY:
Session No. _____
Day _____
Time _____
Location _____
Repeat Session _____

Submission of this form constitutes acceptance unless otherwise notified.

## All speakers must also register for the conference.

Download registration form at [www.sdctm.org](http://www.sdctm.org) or [www.sdsta.org](http://www.sdsta.org)

\_\_\_\_\_  
(Name as you wish it to appear in program booklet)

\_\_\_\_\_  
(Name as you wish it to appear in program booklet)

\_\_\_\_\_  
(Name of School/Affiliation)

\_\_\_\_\_  
(Name of School/Affiliation)

Preferred Address:      work                  home

\_\_\_\_\_  
(Address)

\_\_\_\_\_  
(City)

\_\_\_\_\_  
(State)

\_\_\_\_\_  
(Zip)

\_\_\_\_\_  
(Work Phone)

\_\_\_\_\_  
(Home Phone)

Email \_\_\_\_\_

Include emailly gdukg in program?      Yes      No

Website http://

Grade level (select only one)  
(select only one)

**K-5**  
Science

**6-8**  
Math

**9-12**

Title of presentation: \_\_\_\_\_

Description (may be edited) max. 50 words:

Length of presentation:	One hour	Two hours
Date of presentation:	Friday	Saturday
	Either day	Both days
Request LCD projector?	YES	NO
<b>Only requested equipment will be provided.</b>		
<b>Speakers are encouraged to bring their own equipment.</b>		
<b><u>The conference cannot guarantee compatibility of</u></b>		
<b><u>electronic components.</u></b>		
<b>Speakers are expected to bring their own</b>		
<b>computers and software.</b>		

If you have a last minute change or cancellation (after midnight Feb. 6, 2015) please call Crossroads Convention Center 1-800-876-5858

**Speakers are requested to provide handouts for 30 on a first come, first served basis.**

Return this form by **OCTOBER 15, 2014** to:

Jean Gomer  
Box 96  
White, SD 57276

email: [jeanann@itctel.com](mailto:jeanann@itctel.com)

Modified 02/17/2014 CK
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I agree to comply with the guidelines in the "Minimum Safety Guidelines for NSTA Presenters and Workshop Leaders:" during my presentation. NSTA Minimum Safety Guidelines are located online at <http://www.nsta.org/coru/safety.html>

Signature \_\_\_\_\_

Date \_\_\_\_\_

Contact SDCTM with any special needs requests as defined by ADA by emailing Jean Gomer at [jeanann@itctel.com](mailto:jeanann@itctel.com) before October 15, 2014

**All speakers must also register for the conference:**  
**Download registration form at [www.sdsta.org](http://www.sdsta.org) or [www.sdctm.org](http://www.sdctm.org)**

Conference program information and booklets will be available for download from [www.sdsta.org](http://www.sdsta.org) and [www.sdctm.org](http://www.sdctm.org)

**2015 SDCTM/SDSTA JOINT CONFERENCE**

Conference information and program booklets will be available online at [www.sdctm.org](http://www.sdctm.org) and [www.sdsta.org](http://www.sdsta.org)

**ADVANCE REGISTRATION**

Crossroads Events Center, Huron South Dakota  
 February 5-7, 2015 1-800-876-5858

*Please print clearly. Postmark by January 20, 2015. After this date, please register on-site.*

Name \_\_\_\_\_  
 Permanent Address \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
 School/District \_\_\_\_\_ E-mail \_\_\_\_\_  
 Home phone \_\_\_\_\_ School Phone \_\_\_\_\_

*Please check the appropriate categories for membership, conference registration, and payment.*

**1. SDCTM/SDSTA MEMBERSHIP(s) and DUES**

*Please check the appropriate categories. You may join one, both, or neither organization.*

<p><b>Begin/renew SDCTM (math) for one year</b></p> <p>_____ Elementary \$5                  _____ Middle School \$20                  _____ High School \$20                  _____ Post-Secondary \$20                  _____ Student \$5                  _____ Retired \$5                  _____ Other \$20</p>	<p><b>Begin/renew SDSTA (science) for one year</b></p> <p>_____ Elementary \$5                  _____ Middle School \$20                  _____ High School \$20                  _____ Post-Secondary \$20                  _____ Student \$5                  _____ Retired \$5                  _____ Other \$20</p>
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**2. CONFERENCE REGISTRATION**

*Please check the appropriate categories. Noon luncheon is included for each day that you register.*  
**NOTE: The Friday night banquet is NOT included. Banquet tickets may be purchased for \$25 each.**

I will attend the conference on (check one): \_\_\_\_\_ Friday \_\_\_\_\_ Saturday \_\_\_\_\_ Both days

<p><b>SDCTM or SDSTA Member</b></p> <p>_____ One day \$50                  _____ Two days \$75</p>	<p><b>Non-Member</b></p> <p>_____ One day \$100                  _____ Two days \$125</p>	<p><b>Student Member</b></p> <p>_____ One day \$15                  _____ Two days \$25</p>
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**College credit will be available; information/registration will be available at the conference registration table.**

**3. PAYMENT**

*Make checks payable to SDCTM.  
 Purchase orders will NOT be accepted.*

Membership(s) total	\$ _____
Registration	\$ _____
Friday Night Banquet (\$25 each)	\$ _____
<b>TOTAL ENCLOSED</b>	<b>\$ _____</b>

*Requests for refunds must be received by January 20, 2015*

**4. SEND THIS FORM WITH PAYMENT**

**Steve Caron**  
 907 South 16<sup>th</sup> Street School phone (605) 725-8208  
 Aberdeen, SD 57401 Home phone (605) 226-2292

Email: [steve.caron@k12.sd.us](mailto:steve.caron@k12.sd.us)

*Advance registration must be postmarked by January 20, 2015.  
 After this date, please register on-site.*

Please check here if you have also submitted a speaker proposal form for the 2015 Conference.

# Where does the sun's energy come from?

National Aeronautics and Space Administration



Every 1.5 millionths of a second, the sun releases more energy than all humans consume in an entire year. Its heat influences the environments of all the planets, dwarf planets, moons, asteroids, and comets in our solar system.

And that light travels far out into the cosmos—just one star among billions and billions.

Create a 'solar wind' that pushes against the fabric of interstellar space billions of miles away.

Allows gases and liquids to exist on many planets and moons, and causes icy comets to form fiery halos.

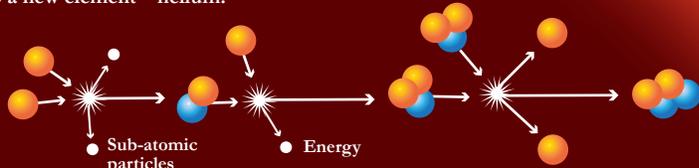
Powers the chemical reactions that make life possible on Earth.

That Heat...

The energy travels outward through a large area called the convective zone. Then it travels onward to the photosphere, where it emits heat, charged particles, and light.

How does a big ball of hydrogen create all that heat? The short answer is that it is big. If it were smaller, it would be just a sphere of hydrogen, like Jupiter. But the sun is much bigger than Jupiter. It would take 433,333 Jupiters to fill it up!

That's a lot of hydrogen. That means it's held together by a whole lot of gravity. And THAT means there is a whole lot of pressure inside of it. There is so much pressure that the hydrogen atoms collide with enough force that they literally meld into a new element—helium.



Nuclear Fusion

This process—called nuclear fusion—releases energy while creating a chain reaction that allows it to occur over and over and over again. That energy builds up. It gets as hot as 15 million degrees Fahrenheit in the sun's core.





## Twinkle, twinkle, variable star

By Dr. Ethan Siegel

As bright and steady as they appear, the stars in our sky won't shine forever. The steady brilliance of these sources of light is powered by a tumultuous interior, where nuclear processes fuse light elements and isotopes into heavier ones. Because the heavier nuclei up to iron (Fe), have a greater binding energies-per-nucleon, each reaction results in a slight reduction of the star's mass, converting it into energy via Einstein's famous equation relating changes in mass and energy output,  $E = mc^2$ . Over timescales of tens of thousands of years, that energy migrates to the star's photosphere, where it's emitted out into the universe as starlight.

There's only a finite amount of fuel in there, and when stars run out, the interior contracts and heats up, often enabling heavier elements to burn at even higher temperatures, and causing sun-like stars to grow into red giants. Even though the cores of both hydrogen-burning and helium-burning stars have consistent, steady energy outputs, our sun's overall brightness varies by just ~0.1%, while red giants can have their brightness's vary by factors of thousands or more over the course of a single year! In fact, the first periodic or pulsating variable star ever discovered—Mira (omicron Ceti)—behaves exactly in this way.

There are many types of variable stars, including Cepheids, RR Lyrae, cataclysmic variables and more, but it's the Mira-type variables that give us a glimpse into our Sun's likely future. In general, the cores of stars burn through their fuel in a very consistent fashion, but in the case of pulsating variable stars the outer layers of stellar atmospheres vary. Initially heating up and expanding, they overshoot equilibrium, reach a maximum size, cool, then often forming neutral molecules that behave as light-blocking dust, with the dust then falling back to the star, ionizing and starting the whole process over again. This temporarily neutral dust absorbs the visible light from the star and re-emits it, but as infrared radiation, which is invisible to our eyes. In the case of Mira (and many red giants), it's Titanium Monoxide (TiO) that causes it to dim so severely, from a maximum magnitude of +2 or +3 (clearly visible to the naked eye) to a minimum of +9 or +10, requiring a telescope (and an experienced observer) to find!

Visible in the constellation of Cetus during the fall-and-winter from the Northern Hemisphere, Mira is presently at magnitude +7 and headed towards its minimum, but will reach its maximum brightness again in May of next year and every 332 days thereafter. Shockingly, Mira contains a huge, 13 light-year-long tail -- visible only in the UV -- that it leaves as it rockets through the interstellar medium at 130 km/sec! Look for it in your skies all winter long, and contribute your results to the AAVSO (American Association of Variable Star Observers) International Database to help study its long-term behavior!

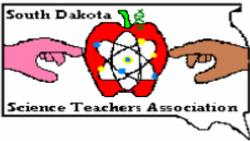
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Check out some cool images and simulated animations of Mira here: [http://www.nasa.gov/mission\\_pages/galex/20070815/v.html](http://www.nasa.gov/mission_pages/galex/20070815/v.html)

Kids can learn all about Mira at NASA's Space Place: <http://spaceplace.nasa.gov/mira/en/>

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Images credit: NASA's Galaxy Evolution Explorer (GALEX) spacecraft, of Mira and its tail in UV light (top); Margarita Karovska (Harvard-Smithsonian CfA) / NASA's Hubble Space Telescope image of Mira, with the distortions revealing the presence of a binary companion (lower left); public domain image of Orion, the Pleiades and Mira (near maximum brightness) by Brocken Inaglor of Wikimedia Commons under CC-BY-SA-3.0 (lower right).



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Ramona.Lundberg@k12.sd.us

Now accepting applications for 2015

OXFORD, Ohio (October 1, 2014) - Applications are now being accepted until January 28 for 2015 field courses and the Global Field Program master's degree, which offers groundbreaking courses in 13 countries throughout Africa, Asia, Australia, and the Americas. (See [http://earthexpeditions.org/14-15\\_news](http://earthexpeditions.org/14-15_news).)

Earth Expeditions graduate courses and the Global Field Program (GFP) master's degree bring together graduate students, scientists, educators and community leaders at critical conservation sites worldwide. Sites for 2015 include the Amazon, Australia, Baja, Belize, Borneo, Costa Rica, Guyana, Hawai'i, India, Kenya, Mongolia, Namibia and Thailand.

Tuition for seven graduate credits and all basic in-country expenses are covered in the course costs, which are reduced because of support from Miami University. Accepted students are responsible for airfare.

Earth Expeditions and the GFP can be completed part-time from anywhere in the United States or abroad. They are open to educators and other professionals who hold a bachelor's degree from any discipline. For more information and to apply, please visit:

Earth Expeditions: [http://earthexpeditions.org/14-15\\_news](http://earthexpeditions.org/14-15_news)

Global Field Program: [http://gfp.miamioh.edu/14-15\\_news](http://gfp.miamioh.edu/14-15_news)

Applicants may be interested in Project Dragonfly's additional master's degree, the Advanced Inquiry Program (AIP), co-delivered with premier learning institutions in select U.S. cities. Current AIP sites are located in Cincinnati, Cleveland, Chicago, Denver, New York, Phoenix, San Diego, and Seattle. For more information, please visit [http://aip.miamioh.edu/14-15\\_news](http://aip.miamioh.edu/14-15_news).

Project Dragonfly reaches millions of people each year through inquiry-driven learning media, public exhibits and graduate programs worldwide. Dragonfly is housed at Miami University, a state university in Oxford, Ohio, established in 1809 and listed as one of the eight original Public Ivies.

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The SDSTA Newsletter is published four times a year. The October issue (this one) is e-mailed to 130 paid members, and several school science departments.

The Membership year in SDSTA starts with the February conference and ends the first of February. Dues are due at each conference for member discount rates.

SDSTA members may give a one year free membership to their student teachers by submitting the student teacher's name & address.

One paid conference registration may be given to the SDSTA member that has made a submission to the newsletter (or given a presentation at the conference) and has referred at least three new members.

Members may also earn a 10% finders fee for any science related ads placed in the newsletter. Our rates are \$50 per page (or 3 to 4 quarter pages).

Mail to: Deirdre Peck, SDSTA Treas  
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Aberdeen, SD 57401



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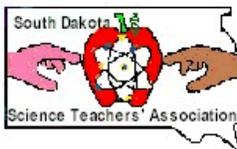
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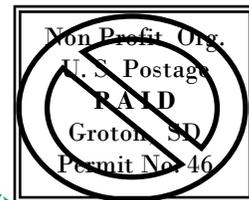
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Nessie runs wild in SD

# Calendar of Events      Calendar of Events

- Oct 22 - Nov 12    Biomedical Research Investigations at Sanford Promise Lab
- October 22        Deadline for eCybermission mini-grant application request
- November 8        Ready SET Go! Workshop at SDSU
- December 19      Shell Science Lab Challenge
- January 15         Deadline to enter the SD—AAPT photo contest
  
- February 5-6-7, 2015    Joint Science & Math Professional Development Conference
  
- April 24            SDSU Physics Bowl XLI    <http://www.sdstate.edu/phys/>

Homepage Located At      <http://www.sdsta.org>