

# Earth2Class: A Compendium of Educational Resources for You and Your Students

- Earth2Class:

  - [www.earth2class.org/site](http://www.earth2class.org/site)

  - Archived **workshops** presented by Lamont-Doherty Earth Observatory research scientists

- **Curriculum units** for teaching Earth Science

- **Educational resources** (slideshows, lesson plans, teaching tips, images, etc.)





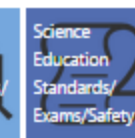
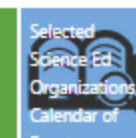
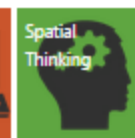
## i Earth2Class (Earth to Class)

E2C is a unique science/math/technology resource for K-12 teachers, students, the general public, and geoscientists. It is a collaboration among researchers and an Earth Science educator at the Lamont-Doherty Earth Observatory of Columbia University; technology integration specialists from Colégio Bandeirantes, São Paulo, Brasil; and classroom teachers from New York, New Jersey, and elsewhere.

E2C centers around "Saturday Workshops for Educators" held at Columbia's Lamont Campus in Palisades N.Y. One key feature to E2C is involvement of LDEO scientists. Their availability through workshops, web site postings, and e-mail allow teachers and students access to cutting-edge research which can be used to develop learning activities directly linked to "real-world problems," and provide scientists with an effective format to disseminate their discoveries more broadly. Since 1998, we have provided more than 120 Workshops featuring over 80 LDEO scientists.

## 🕒 2014 – 2015 Earth2Class Workshops

<p>☰ "Trees, Climate, and Societal Relevance: A Case Study in Mongolia" with Caroline Leland and Mukund Palat Rao (Sep 2014)</p>	<p>☰ "How Have Glaciers Behaved in Patagonia in the Past?" with Michael Kaplan (Oct 2014)</p>	<p>☰ "How does the land affect climate?" with Alexis Berg (10 Jan 2015)</p>	<p>☰ "The So Arsenic Mar 2015"</p>
<p>☰ "GEOTRACES Project Education Outreach: Demystifying Radioactivity" with Tim Kenna and Margie Turin (22 Nov 2014)</p>	<p>☰ LDEO Open House 2014</p>	<p>☰ "New Insights about Ocean Acidification" with Taro Takahashi (7 Feb 2015)</p>	<p>☰ "Global Predictions"</p>



ADDITIONAL EDUCATIONAL RESOURCES

# Educational Resources

Home / Educational Resources

### Earth Science Curriculum Units and Teaching Tips



### For Teachers



### For Students



### Educational Technology Resources



### PD Courses and Curriculum Resources



### Spatial Thinking



### LDEO Programs



### ES Conferences



### AMS @ LDEO



### Standards



### Virtual Tours





## Earth Science Curriculum Units and Teaching Tips

[Home](#) / [Educational Resources](#) / [Earth Science Curriculum Units and Teaching Tips](#)

### Earth Science Curriculum Units and Teaching Tips

[Click for the background of this project and more information.](#)

[Key Vocabulary Terms for High School \(PSES\) and Middle School \(ILS\) courses](#)

[Key Ideas](#)

[Selected Labs and Activities](#)

[Selected Websites](#)

[Links to NYS Earth Science Reference Tables](#)

[State Standards for NYS High School \(PSES\) and Middle School \(ILS\), + Others](#)

[NESTA Fall 2014 Workshop slideshows](#) — For all [NESTA/Windows to the Universe workshops presentations](#)

- [How Weird Can It Get Fall 2014 Long Beach](#)
- [Earth Science Rocks Workshop Fall 2014 NSTA Orlando \(I\)](#)
- [Harnessing ESS Fall NSTA 2014 Long Beach](#)
- [Using Data Workshop NSTA Fall 2014 Long Beach](#)

**Note:** This is a continuous work-in-progress. If you have suggestions for additions or find problems, please notify [michael@earth2class.org](mailto:michael@earth2class.org).

- [Science Literacy Initiatives](#)
- [Observation And Measurement](#)
- [Models Of The Earth](#)
- [Minerals, Rocks, And Resources](#)
- [Earthquakes, Volcanoes, And Plate Tectonics](#)
- [Shaping The Earth's Surface](#)
- [The Water Cycle And Groundwater Systems](#)
- [New York State](#)
- [Earth History](#)
- [Weather And Climate](#)
- [Earth And Space \(Astronomy\)](#)
- [Oceanography](#)

# NESTA—NATIONAL EARTH SCIENCE TEACHERS ASSOCIATION

[www.nestanet.org](http://www.nestanet.org)

- ❑ Largest professional society focused on supporting K – 12 Earth Science education
- ❑ Website provides online teacher resources, links to PD opportunities, and more
- ❑ Quarterly journal, *The Earth Scientist*, provides peer-reviewed articles of value to K – 12 teachers
- ❑ Monthly E-News with timely information for ES educators
- ❑ Conference workshops, rock raffle, other programs





# National Earth Science Teachers Association

Serving the Earth Science educator community



- Home
- My NESTA
- Teacher Resources
- Publications
- Conferences
- PD Opportunities
- Join NESTA
- Contact Us
- Facebook
- Store

You are here: Home >> Home

Search [Member Login](#)

Welcome to NESTA

- About NESTA
- NESTA Officers
- Membership Benefits
- Grants, Contests, Fellowships
- Field Trips and Field Conferences
- Teacher Employment
- Policy and Press
- Discussion Forum
- Standards and Frameworks
- Geoscience Careers
- Rocks, Minerals and Sand
- Supporting NESTA
- Affiliates, Affiliations, and Sponsors
- Serving NESTA
- Media Kit/Ads
- Search

Development of the NESTA website is supported through a grant (NSF 0742222) from the National Science Foundation's Geoscience Education Program.

## Welcome to NESTA

### [Schedule of NESTA/W2U workshops at the Fall NSTA Conferences](#)

Our Space Science and Astronomy Education web seminar series is now complete. All web seminars have been recorded and are available for free on the [Windows to the Universe Web Seminar page](#). Powerpoints presented in the web seminars are available for download by Windows to the Universe Educators on this same page.



The National Earth Science Teachers Association is a nonprofit 501(c)(3) educational organization, founded in 1985, whose mission is to facilitate and advance excellence in Earth and Space Science education. NESTA's purpose is the advancement, stimulation, extension, improvement, and coordination of Earth Science education at all educational levels. NESTA is an organization made up of and governed by classroom teachers, and extends its influence through association with other professional societies and organizations. We always welcome new members - [JOIN NESTA](#) today!

Visit our [About NESTA](#) pages to find out more about our organization. Links below the banner at the top of this page, as well as in the navigation panel to the left, provide links to NESTA resources and services. NESTA members can login in the box at the right to access resources available only to Members, such as our publications ([The Earth Scientist](#), [NESTA E-News](#)), [My NESTA](#), [Teacher Employment](#), and to recommend or share curriculum resources, images, and multimedia with the NESTA community.



[Membership](#) in NESTA provides many benefits to Members. Find out more on our [Membership Benefits page](#).

Visit our [conference page](#) to find out about our sessions at the upcoming NESTA

### Member login

Username \*

Password \*

- [Create new account](#)
- [Request new password](#)

### Upcoming Events

Members - Log in for access to the full calendar of upcoming events

[NASA Offers Space Tech Grants to Early Career University Faculty](#)

12/18/2014 - 5:00pm

### Earth and Space Science Today



Now you can easily access information on topics that highlight our active Earth. [Learn all](#) about the latest earthquakes, volcanoes, hurricanes, severe weather, wildfires, tides and currents, droughts, a calendar of solar and lunar eclipses, and daily streamflow information.

# Windows to the Universe

[www.windows2universe.org](http://www.windows2universe.org)

- One of the most widely-used online resources for Earth and Space Science (> 12 million users)
- Themes include: Sun, Earth, Solar System, Sciences, Culture, People, Just Fun
- Archived teacher workshops, PowerPoints, pdfs
- “Public” site contains ads, unable to print resources
- “Member” site lacks ad, allows printing, other privileges



USE YOUR L.L.BEAN VISA EVERYWHERE YOU SHOP

WATCH YOUR \$10 L.L.BEAN COUPONS ADD UP

LEARN MORE

GROCERIES + GASOLINE + FOOD AND DRINK + MOBILE PHONE

# WINDOWS TO THE UNIVERSE

Brought to you by the National Earth Science Teachers Association

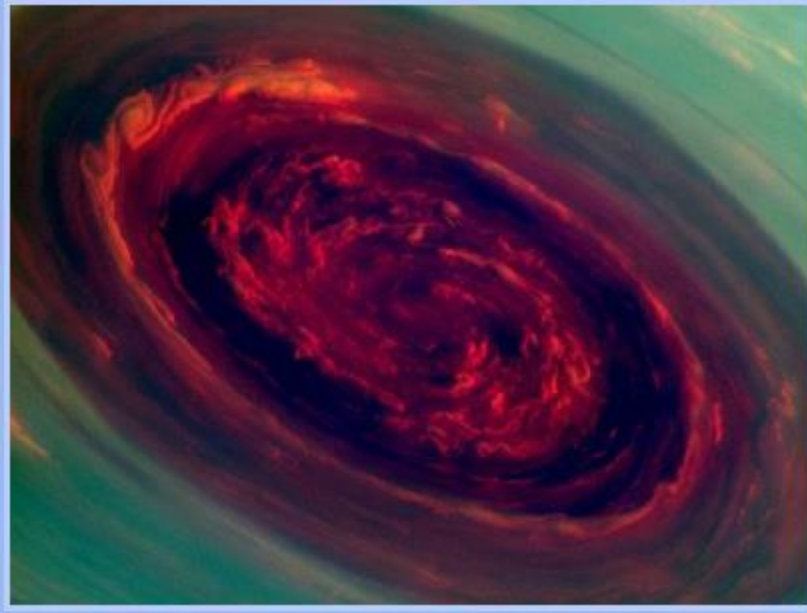
English Español Beginner Intermediate Advanced

Become a Member  
Member Benefits, I

- Sun
- Earth
- Solar System
- Space
- Sciences
- Culture
- People
- Just Fun
- Teachers
- more...

Physics  
Chemistry  
Biology  
Custom Kit  
and more.

- Share this page
- Sun
  - Earth
  - Solar System
  - Space
  - Sciences
  - Culture
  - People
  - Just Fun
  - Teachers
  - Space Weather
  - News
  - Research



The spinning vortex of [Saturn's](#) north polar storm resembles a giant deep red rose surrounded by green foliage in this false-color [image](#) from NASA's [Cassini spacecraft](#). The eye is 2,000 kilometers across with cloud speeds as fast as 150 meters per second. It is not known how long this newly discovered north-polar [hurricane](#) has been active. The view was acquired at a distance of approximately 419,000 kilometers from Saturn.

NASA/JPL-Caltech/SSI

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- 4
- 5
- 6

Please log in

Username:

Password:

Log in Forgot password

Undergrad Student L  
Undergrad Faculty L

Become a member  
Member Benefits, No

Attention Educator Member Teachers! Go to our [special offers page](#) for information about attractive upcoming professional development events next year. Not an Educator Member? [Join Today!](#)

Check out resources from our Affiliates!

Like 184





# NYESTA – New York State Earth Science Teachers Association

□ <http://www.nyesta.org/>

Affiliate of NESTA, with NY focus

[2<sup>nd</sup> Geologic Field Conference](#)

8 – 10 July

SUNY Stony Brook



# Resources for 'Do-Now' Daily Observations

- Sun/Moon/Rise/Set/Phases

[http://aa.usno.navy.mil/data/docs/RS\\_OneDay.php](http://aa.usno.navy.mil/data/docs/RS_OneDay.php)

- Current Weather & Weather Hazards

<http://www.weather.gov/>

Use search box to get local conditions

- Tide Predictions

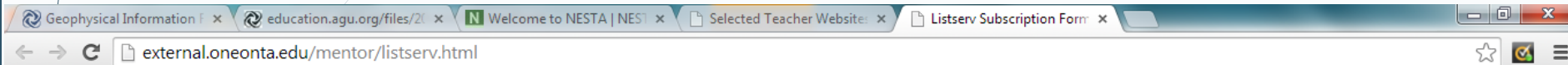
[http://tidesandcurrents.noaa.gov/tide\\_predictions.html](http://tidesandcurrents.noaa.gov/tide_predictions.html)

- Teaching Climate

<http://climate.gov/teaching>



# Teacher List-Servs from SUNY Oneonta



## State University of New York College at **Oneonta**

### Listserv Subscription/Unsubscription Application

These listservs provide a service where members post questions, responses, and discussion of materials related to the listserv(s) to which you are subscribing. **New subscribers should keep in mind that joining a listserv means that you will be receiving ALL of these messages as they are posted. Please be prepared for an increase in the volume of email that you receive when joining a listserv.** Also, anti-spamming software and/or settings on your email service provider will adversely affect your subscription to OMNI listservs. We thank you for your interest, and your participation, in OMNI. Look below the subscription form for information on the Math listserv from AMTNYS.

<b>SedGeoNet</b>	This listserv promotes communication among sedimentary geologists. SedGeoNet was created as a result of the EarthCube Workshop for Sedimentary Geology held at the University of Utah, March 25-26, 2013. Currently hosted by the Department of Earth and Atmospheric Sciences at the State University of New York – Oneonta, eventually SedGeoNet will be migrated to and hosted by the STEPPE coalition: Sedimentary Geology, Time, Environment, Paleontology, Paleoclimatology, and Energy.
<b>Esprit</b>	This listserv provides a forum for discussion and professional support of teachers of Earth Science. This is an especially active list with subscribers from all across the United States.
<b>BioForum</b>	This listserv provides a forum for discussion and professional support of science teachers engaged in teaching New York's Commencement Level Living Environment Core Curriculum.
<b>5-8Science</b>	This listserv provides a forum for discussion and professional support of middle level science teachers engaged in teaching New York's Intermediate (5-8) Science Core Curriculum.
<b>Ophun-L</b>	This listserv provides a forum for discussion and professional support of science teachers engaged in teaching New York's Commencement Level Physical

To SUBSCRIBE to one of these lists create a new email message addressed to [listserv@listserv.oneonta.edu](mailto:listserv@listserv.oneonta.edu) from the email account you wish the list to use with the following in the body:

SUBSCRIBE listname ANONYMOUS  
or  
SUBSCRIBE listname Full\_Name

*example: SUBSCRIBE ESPRIT Joe Smith*

You will get a confirmation email. \*Check your junk mail!

To UNSUBSCRIBE to one of these lists create a new email message addressed to [listserv@listserv.oneonta.edu](mailto:listserv@listserv.oneonta.edu) from the email account you are subscribed under with the following in the body:

SIGNOFF listname

*example: SIGNOFF ESPRIT*



# STANYS – Science Teachers Association of New York State

- <http://stanys.org/>
- State-wide network for all science educators
- Local Sections (Nassau, Suffolk, NYC)



# NYSMEA – New York State Marine Educators Association



- <http://www.seagrant.sunysb.edu/nysmea/>
- Provide awareness of NY's marine environments
- Foster exchange of educational resources



# American Museum of Natural History Educational Programs

- <http://www.amnh.org/learn-teach>
- [Experiences for students & families](#)
- [Experiences for Educators](#)



## Online Course for Teachers - Examples

- “Seminars on Science”  
American Museum of Natural History  
<http://www.amnh.org/learn-teach/educators/seminars-on-science-online-graduate-courses-for-teachers>  
6-week courses on a variety of topics
- Basic fee to AMNH, with option to earn credit through cooperating institutions

Experience  
**Seminars on Science**

Online Courses for Educators

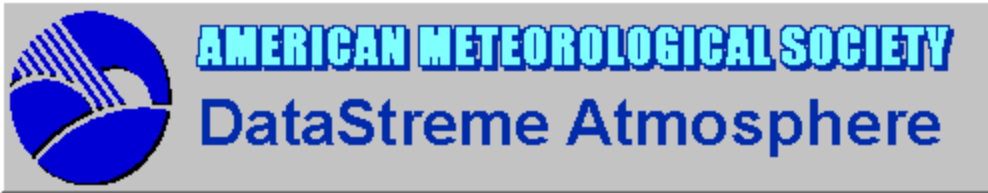


# “DataStreme” Courses

American Meteorological Society

<http://www.ametsoc.org/amsedu/>

- Free online courses in Fall & Spring
- 3 grad credits from SUNY Brockport





# NSTA – National Science Teachers Association



- <http://www.nsta.org/>
- Online resources and journals
- National and Area Conferences  
[Philadelphia](#) 12 – 14 Nov

# Science Standards & Curriculum Guidelines

- NYSED  
[NGSS Strategic Plan & Survey](#)
- [Science Learning Standards and Core Curriculum](#)
- [Assessment/Archived Regents Exams](#)
- NYC Department of Education  
[High School Scope & Sequence](#)  
[K-8 Scope & Sequence](#)



# American Geosciences Institute Education Programs

[www.americangeoscience.org/education](http://www.americangeoscience.org/education)

- Educational resources:
  - “Big Ideas in Earth Science”
  - “Earth Science Week”
  - “Center for Geoscience and Society”
  - “Earth Science World Image Bank”, etc.
  
- Awards
  - Edward C Roy Award for Excellence in K-8 Teaching
  
- Curriculum materials—print, online



Education and Outreach  
Home

Awards

Curricula

Professional  
Development

Resources

Outreach

Social Media

## Educational Resources



Beth Stettner, USGS

### AAPG/AGI Geoscience Handbook

This handbook, developed cooperatively by AGI and the American Association of Petroleum Geologists (AAPG), offers ideas and resources for geoscience professionals visiting classrooms, leading student field trips, and involving student research.



### Big Ideas in Earth Science

Big Ideas videos bring to life the "big ideas" of Earth science—the nine core concepts that everyone should know. Teachers can use the videos in many ways.



### Earth Science Week

Discover the resources offered through this international event, organized by AGI each October to




Tooinka, USGS/CVO

### Earth Science World Image Bank


You'll find many images categorized by geoscience areas

#### Tweets

Follow

 **AGI Education** 4 Dec  
@AGIEducation

Learn more about the videos that help to communicate principles in the Energy Literacy Framework:  
[1.usa.gov/1tN9wC6](http://1.usa.gov/1tN9wC6)  
#energy #videos #ed  
Expand

 **AGI Education** 13 Nov



MEMBER LOGIN

SEARCH PUBS

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Leadership

Publications

Meetings

Career Center

Honors Program

Science Policy

Education

Education | Education Events at Fall Meeting | Geophysical Information For Teachers (GIFT) Workshops

# GEOPHYSICAL INFORMATION FOR TEACHERS (GIFT) WORKSHOPS

See the topics and presenters for this year's GIFT Workshop on our [GIFT 2014 page](#).



## ABOUT THE GIFT WORKSHOP

Geophysical Information for Teachers (GIFT) Workshops allow science teachers to hear

### Resources and Programs

- GIFT Workshop
- Bright STaRS
- Exploration Station
- Public Lecture
- Education at Fall Meeting
- Early Work
- Head
- Grant
- LEAR
- Unde

## CONTACTS

Pranoti Asher  
Education and Public Outreach  
Phone: +1 202 777 7522



# Teachers as Advocates Program

- Home ▾
- Resources ▾**
- Professional Development ▾
- Field Experiences ▾
- Support TAP

## Resources

- Resources
- Explore! Geoscience CD-ROMs
- Posters
- Nature of Science
- Geologic Timescale
- Free Lesson Plans
- Free Geology Images

<http://geosociety.org/educate/>

## Deep Earth Academy – Education resources based on scientific ocean drilling aboard the *JOIDES Resolution*

- <http://joidesresolution.org/node/3002>
- Online educational resources  
More than 60 downloadable activities
- Teaching kits and core models
- Videos
- Interactives
- “School of Rock” (Teachers at Sea)



Time at sea: 1 week 1 day Current time on ship: Saturday, December 13, 2014 - 00:34

# JOIDES RESOLUTION

Science in search of Earth's secrets



- HOME
- MEET THE JR
- EXPEDITIONS
- RESOURCES
- BLOG

Home > Resources > Deep Earth Academy - Educator Resources > Activity Search > Tales of the Resolution Reading Activities

## Tales of the Resolution Reading Activities

### Summary:

Students use these questions to guide their reading of the Tales of the Resolution episodes focused on careers, technology, and science process exploration. They are designed to support Common Core State Standards for English & Literacy in Science.

### Downloads and resources:

- Overview
- Teacher's Guide
- Student's Guide
- Supplemental resources:**
- Episode 1: Tales of the Resolution!
- Episode 2: Re-Fit Madness
- Episode 3: Resolution Reloaded
- Episode 4: Arctic Rainforest
- Episode 5: Choose Your Own Tales of the Resolution - Jobs on the JR
- Episode 6: In Search of Ancient Lava Flows



### GET INVOLVED

Sign up for JR

Name: \*

Organization:

Email: \*

CURRENT NEWS

COMING SOON

JR LISTS

TEACHERS



### WHERE IS THE JR?

Current location: 92° 0' 0" E



Home » HHMI's BioInteractive

# BioInteractive



[Send Feedback](#)

[Help](#)

## Free Resources for Science Education

Search (name or keyword)



### TOPICS

- About BioInteractive (11)
- Biodiversity (54)
- Biotechnology (43)
- Cardiovascular (16)

- Anatomy (39)
- Bioinformatics (19)
- Brain (40)
- Cell Biology (85)

- Biochemistry (31)
- Biological Clocks (20)
- Cancer (38)
- Cell Signaling (46)

### RESOURCE TYPE

- 3D Printing (9)
- Animation (136)
- Apps (3)
- Article (14)

[MORE](#)



## Selected Conferences Next Spring/Summer/Fall

- [SCONYC](#) (28 Mar)
- [NMEA Newport RI](#) (29 Jun – 2 Jul)
- [NYESTA Field Conference](#)  
(8 – 10 July, SUNY Stony Brook)
- [GSA Baltimore](#) (31 Oct – 4 Nov, but  
most K-12 offerings on Sat & Sun)
- NSTA [Philadelphia](#) 12 – 14 Nov
- [AGU Fall Meeting](#) (SF, 15 – 19 Dec)  
GIFT Workshop



Thank you!

Questions?

[michael@earth2class.org](mailto:michael@earth2class.org)

