



# OMEGA



Oceanography, Meteorology, Environment, Geology, & Astronomy

Volume 28 Issue 4

Summer 2017



## President's Message



### Who's on your PC5?

You are likely reading this newsletter because you have an interest in professional development and professional engagement. As Earth and space science educators we rely on each other to share ideas and resources, and we grow in our careers because of this camaraderie. Think back to when you entered teaching, was there someone who you could turn to for support? Someone to share your teaching ideas with to ensure they were sound? I know that if it was not for my adoptive professional circle from my first years of teaching, I would not be where I am today, and I wouldn't be promoting professional growth as a necessity for the successful career of a teacher in any discipline.

Consider the task of writing a lesson for a new topic, and all that goes into it. From learning new content, to translating the content to our grade levels, to creating all the elements for an engaging and effective 3-D lesson, the task can be daunting. In our busy schedules, we are tempted to cut corners on some of this. However, when working with colleagues not only is the work parsed out, but the rich conversations that take place assist us in identifying exemplary resources for our learners. We are sometimes limited by the number of colleagues in our schools who teach the same courses we teach, but that is where belonging to listservs and organizations can fill in some of the gaps. These digital avenues for collaboration have their limitations as nothing can replace the in-person back-and-forth and give-and-take between creative colleagues which keeps our classrooms and learning dynamic.

In our personal lives, we may have an "Executive Committee" consisting of 5 to 10 people whom we turn to for support, answers to questions, encouragement, etc. Why can't we have something similar in our professional lives, except we can instead call it our "Professional Committee of 5" or PC5? These are people who we look to as collaborators, non-judgmental reviewers of our work, and like-minded professionals. These are people who dare each other to take risks with their teaching when it comes to trying something new. These are people who join you in learning a new piece of technology or a new data tool so problem solving occurs in real-time, and therefore reducing the turn-around time to get these technologies and datatools into our classrooms. You get the idea. Listservs can offer some assistance; however, if possible, limit your digital PC5 members to just one of the five for the reasons stated in the above

paragraph.

Final thoughts – Think back to when you first began teaching and what a PC5 could have meant to your career at that point. Encourage your new colleagues to get involved professionally and suggest they create their own PC5. Even better – offer to be on their PC5! They won't regret it, you won't regret it, and our profession will continue to flourish because of it!

This is my last President's Message for OMEGA as I step down from being NJESTA's President and pass the role to Steve Timmerman. I'll remain on the NJESTA Board to assist where I can, and I'm asking you to join us in our effort to ensure that the relevancy and quality of Earth and Space Science education in New Jersey remains high. Contact Steve, myself, or one of our Board Members to become an active member in NJESTA.

Have an awesome summer! Here's to hiking, eclipse viewing & star gazing, swimming in the ocean, and flying kites – all of which have an Earth Science connection if we look hard enough!

Missy Holzer, PhD  
President, NJESTA

---

***Earth and Space Science Education News:***

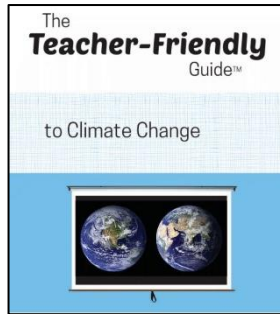
**Heartland Institute Mailing**

By now you may have received your copy of "Why Scientists Disagree About Global Warming" from the Heartland Institute. The book may appear to be legitimate with all its citations and figures, but a closer look it is quite evident it is propaganda written as an attempt to turn scientific facts into a classroom "debate." What should be taught is the historical context in how our understanding of global climate change evolved. This can be done with data-rich 3-D lessons that encourage learners to develop their understanding of the science of climate change.

If you are unsure of who the "Heartland Institute" is and what their mission is, visit their website. By doing so, you'll have an idea about the lack of veracity of their book. Here are a few resources to assist you with the backstory of this propaganda and with the accurate science content for global climate change.

- NSTA: <http://www.nsta.org/climate/> (send NSTA a photo of your book, and get a free E-book!)
- NRDC: <https://www.nrdc.org/onearth/climate-deniers-seize-day>
- NCSE: <https://ncse.com/news/2017/03/frontline-climate-change-denial-0018501> and
- <https://ncse.com/files/nipcc.pdf>
- A Teacher's Blog: <http://sustainableschoolteacher.blogspot.com/2017/04/an-open-letter-to-teachers.html>
- Skeptical Science: <https://www.skepticalscience.com/>
- An Inspiring story on how to teach about climate change  
[https://www.washingtonpost.com/national/health-science/how-to-teach-kids-about-climate-change-where-most-parents-are-skeptics/2017/06/03/1ad4b67a-47a0-11e7-98cd-af64b4fe2dfc\\_story.html?utm\\_term=.9ec58ald81bb](https://www.washingtonpost.com/national/health-science/how-to-teach-kids-about-climate-change-where-most-parents-are-skeptics/2017/06/03/1ad4b67a-47a0-11e7-98cd-af64b4fe2dfc_story.html?utm_term=.9ec58ald81bb)
- Why do politicians deny our climate is changing?  
<https://www.nytimes.com/2017/06/03/us/politics/republican-leaders-climate-change.html>
- Climate Feedback: <http://climatefeedback.org/report-heartland-institute-sent-to-influence-us-teachers-on-climate-change-earns-an-f-from-scientists/>

## Teacher-Friendly Guide to Climate Change



Related to the above topic, The Paleontological Research Institute, has just released their most recent addition to their Teacher Friendly collection. From Don Duggan-Haas:

I'm pleased to announce that the new [Teacher-Friendly Guide to Climate Change](#) is now available free online (click the title). Print copies are available for sale at the same site. This is the tenth volume in our [Teacher-Friendly Guides Series](#). All are available free online, or in print at low cost.

*The Teacher-Friendly Guide to Climate Change* addresses both the science of climate change and psychological, social, and political issues that add to the challenges of teaching and learning the science. The primary audiences for the book are high school and middle school science teachers, professional development providers and curriculum developers, but we think anyone interested in climate change and how to teach or talk about it will find it interesting and worthwhile. I'm attaching the table of contents for your information.

Don Duggan-Haas, Ph.D.  
Director of Teacher Programming  
The Paleontological Research Institution and its  
Museum of the Earth & Cayuga Nature Center  
259 Trumansburg Road • Ithaca, NY 14850 •  
[museumoftheearth.org](http://museumoftheearth.org)

Direct link to the book:

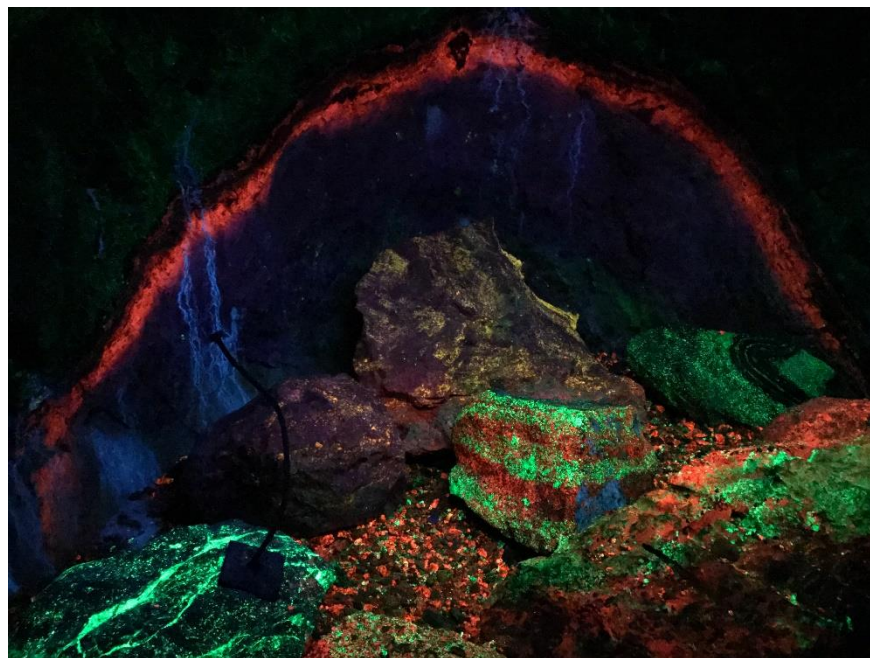
[http://www.priweb.org/outreach.php?page=teacherprofdev/Teach\\_Guides](http://www.priweb.org/outreach.php?page=teacherprofdev/Teach_Guides)

---

### **NJESTA & NYESTA Members-only behind the scenes tour of Sterling Hill Mining Museum Saturday May 20, 2017 *Recap***

The first NJESTA-NYESTA members-only event was a hit! The New York and New Jersey Earth & Space Science teachers received a personalized tour of the site from Bill Kroth, President of Sterling Hill Mining Museum. The three-hour tour included Zobel Hall which has one of the most

magnificent mineral collections in the area and rivals what is found in some of our larger museums and it also has an extensive collection of artifacts from the mining that took place on the property. Our tour of inside the mine took us back in time and provided us with a detailed look at what it was like to be a miner, as well as the science and engineering of the mining process. Our last stop was in the Warren Museum of Fluorescence which houses a phenomenal collection of fluorescent minerals and everyday products. By the end of the tour, our brains were full and we were still in awe of all we saw. We are looking forward to visiting the mine again, and using what we learned in our teaching.



*The Rainbow Wall in Sterling Hill Mining Museum. Photo courtesy of Rose Sanders.*

What should be our next members-only event? We are open to suggestions, but it should be a place that is easily accessible by car for New York and New Jersey teachers. Contact Missy Holzer at [mholzer@monmouth.com](mailto:mholzer@monmouth.com) with your ideas. – Let's make it happen!



***Listservs & E-News that Rock! + NGSS Tip:***

### **NSTA Next Gen Navigator E-News *A Glimpse Into 3-Dimensional Teaching***

I know you are probably thinking, "No, not another newsletter!" However, you may find this one to be one worthy of your in-box space. Converting our classrooms into Next Generation Science Standards (NGSS) classrooms is challenging, and whatever professional help

(especially when its free and of high quality!) we can get is worth the time to explore. The Next Gen Navigator from NSTA is a monthly newsletter focusing on a pedagogical practice in each issue. They provide reading material, examples and resources to assist us with translating these practices into our own settings. For example, during the month of April the focus was on 3-dimensional teaching and included pieces from classroom educators on how to make the transition to 3-dimensional teaching. Because the tips are from classroom educators, I think you'll find their suggestions practical. The April edition also had links to other NGSS related resources including their searchable curated lessons. Be careful, just because the lessons were curated doesn't mean that they are NGSS congruent! You may need to add a dimension or two to make them 3-dimensional. But this issue of the Navigator will help you do that!

To sign up for the NSTA Next Gen Navigator, go to: <http://www.nsta.org/publications/archive-nextgennavigator.aspx>



## **Jersey Gems for Earth & Space Science Teachers and Students**

Its summer time and time to get outside and enjoy the weather! Like the spring edition of OMEGA, to support your efforts in doing so, this installment highlights some of NJ's best parks.

### **North Jersey: Jenny Jump State Park in Hope, New Jersey.**

"Jenny Jump State Forest is located in Warren County along the stunning rolling terrain of Jenny Jump Mountain Range. Panoramic vistas of the Highlands and the Kittatinny Mountains and Valley to the west, and scenic views of the Great Meadows in the east dramatically greet the visitor who climbs the narrow path leading to the top of Jenny Jump Mountain. Rocky outcroppings and boulders line the trail - evidence that great glaciers once covered what is now known as Jenny Jump State Forest."

<http://www.state.nj.us/dep/parksandforests/parks/jennyjump.html>

### **Central Jersey: Poricy Park, Middletown-Lincroft Road in Middletown.**

"The Poricy Brook Fossil Beds are well known to fossil collectors in the Northeast. The fossils are from the Cretaceous period of the Mesozoic era, 145 to 65 million years ago. Although the dinosaurs were at their peak, the first mammals and birds had begun to appear. Tree ferns, ginkos, and pines were being joined by flowering plants like oak, magnolia, and grass."

"During the Cretaceous period, the area of Poricy Brook and the rest of the Atlantic Coastal Plain was a shallow ocean. When the ocean animals died, they were buried in the bottom. While their soft parts decayed, the harder parts, like bones, teeth, and shells, were preserved. Over millions of years, the ocean level rose and fell to form different layers of deposits with the remains of different animals. The layer exposed by the cutting action of Poricy Brook is called the Navesink Formation and is approximately 72 million years old. Although fossils of many animals have been found in the Poricy Brook Fossil Beds, most are of shellfish."

<http://www.poricipark.org/fossilbedsfossilhunt.html>



**South Jersey:** Warren E. Fox Nature Center, Atlantic County Park in Estell Manor on Route 50.

“Stop into the Nature Center - it is full of information in the form of displays, brochures, and our dedicated staff. We have a display of trees and their leaves, for those of you that are stuck on that school project. There are stuffed animals, so you can see what a certain animal really looks like. We have artifacts from Native Americans, the Glassworks and the Bethlehem Loading Company [view our history web page](#). If you don't see it in our Nature Center, just ask. Our Naturalists have an extensive knowledge of the natural world. Besides, if they don't know, they have a large library in which to search.”

<http://www.atlantic-county.org/parks/nature-center.asp>

Do you have suggestions for our list of Jersey Gems? Send them to Missy Holzer at [mholzer@monmouth.com](mailto:mholzer@monmouth.com)



Missed an issue of OMEGA? Go to [njesta.org](http://njesta.org)



### **Lesson Spotlight: SSSA Soils Overview Unit for Grades 6-8**

Are you looking for a middle school unit on soils with a plethora of activities and content? Look no further than the Soil Science Society of America's Soils Overview Unit. Here is a description:

**Goal:** The lessons in this unit provide students with a basic understanding of the fundamentals of soil science through the integration of disciplinary core ideas, science and engineering practices, and crosscutting concepts in the lessons, investigations, and activities.

**Unit Layout:** The lessons in this unit capitalize on the wealth of teaching resources found on the K-12 education websites of the Soil Science Society of America. The Soils 4 Kids ([www.soils4kids.org/](http://www.soils4kids.org/)), Soils 4 Teachers ([www.soils4teachers.org/](http://www.soils4teachers.org/)), and International Year of Soils ([www.soils.org/IYS](http://www.soils.org/IYS)) websites contain numerous resources that can be combined to create a unit focused on soils, or taken separately to enhance other sciences units to include soil science. The unit includes six “Parts” key to the field of soil science and to middle school science. Each Part includes learning objects, teacher background information, student information, and selected lesson resources to support learning. These parts, like the selected teaching resources, may be used individually or combined to create a unit. A Glossary of Terms can be found on the Soils 4 Teachers web site ([www.soils4teachers.org/](http://www.soils4teachers.org/)).

Here is a direct link to the unit: <http://www.soils4teachers.org/files/s4t/lessons/soils-overview-unit.pdf>



**\*\*\*Repeat\*\*\***

**Solar Eclipse  
August 21, 2017**

On August 21, 2017 those of us in the United States will be treated a total solar eclipse! The last time this event took over the USA was in 1979. A 70 mile swatch from South Carolina to Oregon will provide the venue for observing this 2+ minute event. But in case you can't get somewhere to see the total eclipse, you will be treated to a partial eclipse in your backyard in the USA, assuming clouds don't crash the party!

Is viewing the total eclipse in your summer plans? If so, be sure to follow all necessary safety protocols to protect your eyes. There are numerous websites that can assist you with guides on safe viewing along with tons more information to build a classroom lesson around the event. Here are a few:

NASA Solar Eclipse pages: <https://eclipse.gsfc.nasa.gov/solar.html>

And <https://eclipse2017.nasa.gov/>

And <https://www.nasa.gov/eclipse>

Eclipse 2017: [http://www.eclipse2017.org/eclipse2017\\_main.htm](http://www.eclipse2017.org/eclipse2017_main.htm)

Space.com: <http://www.space.com/33797-total-solar-eclipse-2017-guide.html>

EarthSky: <http://earthsky.org/space/total-eclipse-of-sun-august-21-2017>

Astronomical Society of the Pacific:

<https://www.astrosociety.org/education/2017-solar-eclipse-information-resources/>

***Fingers Crossed for Clear Skies & Clear Viewing!***

**A Morris County Resource**

Did you know that Morris Museum, the little gem of a museum in Morristown, has a loaner program of boxed exhibits? To set up your loans for next year, visit their website at:

<http://morrismuseum.org/museum-loan-program/>

**Summer 2017 Workshops & Opportunities**

The following organizations are still advertising their summer 2017 workshops:

June 11, 2017 deadline: UCAR is seeking middle school teachers to pilot a weather unit. Compensation is provided. <https://scied.ucar.edu/field-test-recruitment>

July: Workshops in Space Exploration - WiSE (Massachusetts)  
<https://sites.google.com/site/sciencegazette/workshops>

June 22 & August 22: Corals in the Classroom at National Aquarium in Baltimore (June 8 registration deadline for June 22<sup>nd</sup> event) <https://aqua.org/learn/teacher-programs/teacher-workshops>

June-August STEM Workshops at NASA Goddard in Maryland  
<https://www.nasa.gov/content/goddards-summer-stem-workshop-for-educators-2017>

July & August – various Marine Science workshops at the New England Aquarium in Boston  
<https://aqua.org/learn/teacher-programs/teacher-workshops>

Summer – various Duke Farms workshops: <http://www.dukefarms.org/classes--events/professional-development/>

## **A Rock'n App: Rockd**

Explore, learn about, and document your geologic surroundings! Whether you are a professional geoscientist or curious about the rocks around you and the stories they tell, **Rockd** allows you to explore and learn about the geologic record, contribute your own observations, and log your journey through the geologic record.

### **Features:**

- Interactive global access to more than 110 geologic maps, with more being added weekly
- Instant access to geologic and geographic summaries of your current location via a Dashboard
- Links to the published literature containing mentions of the geologic units you are observing (when available) via GeoDeepDive
- Elevation data for most points on Earth from SRTM1
- Ability to record your own observations, in both online and offline modes
- Add your own observations with or without the selectable context provided by Macrostrat and the Paleobiology Database
- Record strike and dip for geologic features, using your phone's compass or your own compass
- Track your progress through the geologic record privately, or share it with others
- Watch the public activity of other users as they make and share observations
- I-phone and Android

**Rockd** is produced by the Macrostrat lab in the Department of Geoscience at the University of Wisconsin - Madison. Support provided by the National Science Foundation (NSF) and the Dept. of Geoscience.





## **Calendar of Events of Interest to the ES Teacher**

- July 12                    **NYESTA 4th Geologic Field Conference in Fredonia, NY**  
<http://www.nyesta.org/Site/Index.html>
- August 21                **Solar Eclipse!** Make arrangements to get somewhere and see it if you can!
- October 24-25          New Jersey Science Convention <http://www.njscienceconvention.org/>

**Got Dates? Send them to [mholzer@monmouth.com](mailto:mholzer@monmouth.com) with "NJESTA Calendar" in the subject line**

### **Editor's Note from Missy Holzer:**

I hope you enjoyed and have received some value from reading this installment of OMEGA. Please do share article ideas and upcoming events so that we can share it with all the NJESTA members. Please send your ideas and events to me at [mholzer@monmouth.com](mailto:mholzer@monmouth.com).

### **NJESTA Membership Note:**

Is your NJESTA membership up to date? If not, visit [www.NJESTA.org](http://www.NJESTA.org) to renew your membership. Not sure when your membership expires? Contact Liz Georger ([lgeorger@obps.org](mailto:lgeorger@obps.org)), NJESTA Membership Chair to find out. \$15/year is all it takes to receive the advantages of being a NJESTA member!

### **NJESTA Executive Board**

President:	Missy Holzer, PhD
President-Elect:	Steve Timmerman
Past President:	Marc Rogoff
Secretary:	Angela Best
Treasurer:	Christine Girtain
NJSTA Liaison:	Angela Best
Membership Chair:	Liz Georger
Webmaster:	Marc Rogoff
SHMM Liaison:	Jeff Osowski, PhD
Awards Chair:	OPEN
Member at Large:	OPEN
Member at Large:	OPEN

Visit [www.njesta.org](http://www.njesta.org) for contact information  
Consider joining our leadership team.  
There's a place for everyone!