

The Newsletter of the New Jersey Earth Science Teachers Association



OMEGA



Oceanography, Meteorology, Environment, Geology, & Astronomy

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President's Message – OMEGA!

John Dobosiewicz
Kean University



OMEGA, Oceanography, Meteorology, Environment, Geology, & Astronomy is the title of the newsletter and has always provided the rationale and vision for Earth Science Education and for the NJ Earth Science Teachers. Omega (Ω) is the last letter in the Greek alphabet and is used for many mathematical and scientific purposes, from sub-atomic particles, to atmospheric patterns and angular velocity, species pecking order and fatty acids to the density of the universe! The term "Omega Point" is a controversial idea that the universe continues to evolve to a maximum level of complexity and consciousness invented by the French Jesuit Pierre Teilhard de Chardin. (http://en.wikipedia.org/wiki/Omega_point). OMEGA is multidisciplinary and multidimensional. Earth Science educators should follow suit and goes much deeper than simply teaching within the content areas of the OMEGA acronym. Our teaching should reflect the multidisciplinary connections, feedback processes and cyclical nature of the planet, solar system and universe. Indeed, Earth Science education is the ideal forum for stewardship, sustainability and the "greening" of the planet. With these ideas in mind, I am pleased to announce that this year's annual conference will be held on Saturday, March 28, 2009. In addition, we are planning to hold the conference at Ocean County College, indeed putting the "O" in OMEGA first instead of last!

*OMEGA will continue to be printed in a limited capacity but we hope to move exclusively to a secure on-line newsletter for both time and cost savings. We are in need of an OMEGA editor as well as other executive board positions. Members will be informed via e-mail when the newsletter is available with a secure members only link to download and print. We hope to be able to provide more timely newsletters, with more detail and with full activities and lesson plans for use in classrooms. **Get involved in NJESTA TODAY!**

The Winter Solstice !

The winter holiday season is celebrated in many ways but even though the celebrations vary most share a common theme “Light”. The winter solstice is the time of the low sun and least amount of daylight hours in the northern hemisphere. The sun at noon reaches its lowest altitude “stands still” in the sky and begins to rise higher and higher each day at noon reaching a maximum altitude during the summer solstice. How much does the sun vary in New Jersey? Well let’s first take a simpler case: The equator. The maximum solar angle will be 90° at the equator (0°) only on the equinox days. The maximum solar angle in NJ (40°N) on an equinox day will be 50°. So what’s the connection between location (latitude), the day of the year and the sun’s altitude? One more bit of information is needed, the sun’s declination, the location on Earth which receives direct (90°) sunlight. Other terms used to describe how the declination of the sun varies are the solar equator, the ephemeris and the analemma.

So try this mathematical calculation:

$$\text{Solar angle} = 90 - \text{latitude} + \text{declination of the sun}$$

Why does it work?

Well on an equinox, the declination of the sun is 0°, so if you are at the equator (latitude=0°), the formula looks like this:

$$\text{Solar angle} = 90-0-0!$$

If you are in NJ, the formula looks like this:

$$\text{Solar angle} = 90-40-0$$

Give this a try with your class. See if they can make the connection and then on the Vernal Equinox, take a group outside and see if it works! Remember never look directly at the sun! Use your shadow and some geometry! Just like early astronomers!



EARTH SCIENCE @ KEAN

SAVE THE DATE!!!!

26th Annual NJESTA CONFERENCE

Date: Saturday March 28, 2009

OMEGA

Oceanography, Meteorology, Environment, Geology, & Astronomy

DEPARTMENT OF GEOLOGY & METEOROLOGY

LOOKING FOR A GRADUATE COURSES IN SPRING 2009?????

ASTR 5101 Planets and Moons 3 credits

Meeting Time: by Arrangement

Contact Dr. John Dobosiewicz for more details

For non-matriculated students fill out the form at the end of the Spring Bulletin. You may take up to 6 credits as a non-matriculated student.

<http://www.kean.edu/2009SpringBulletin.pdf>

To request an application to a graduate program via phone call, please call:
908-737-GRAD

To request an application via postal mail, please send your request to:
Graduate Admissions Office
Kean University
1000 Morris Avenue
Union, NJ 07083

NAGT-ES SPRING CONFERENCE MAY 14-17, 2009

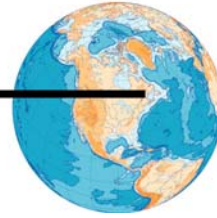
FEATURING THE DIVERSE GEOLOGY AND HISTORICAL SITES OF NORTHERN VIRGINIA AND THE GREATER DC/BALTIMORE REGION

Co-hosted by Frederick Community College, Northern Virginia Community College and the U. S. Geological Survey

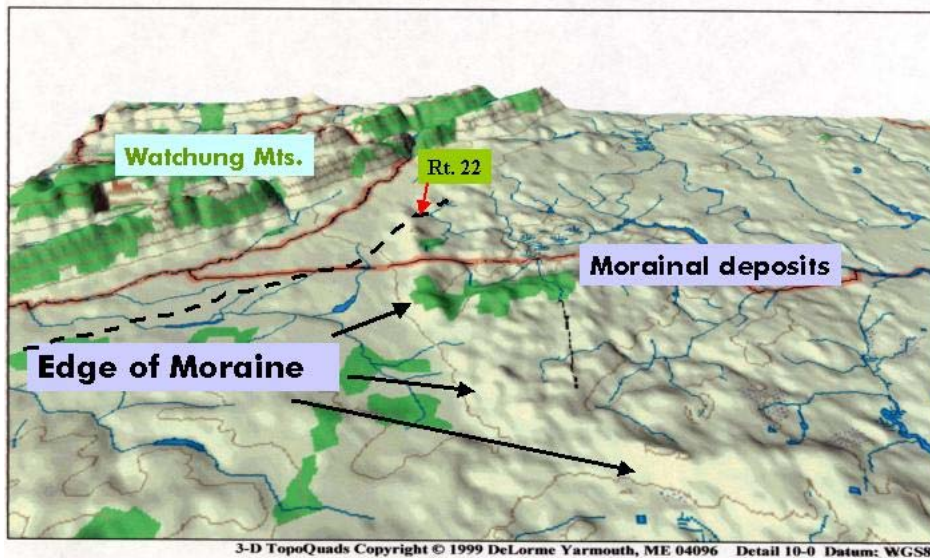
Richard Gottfried, Conference Coordinator

Contact: Email: <rgottfried@frederick.edu> or <rgottfried@nvcc.edu>

Phone: (301)-846-2581



Check out the on-line Geology of New Jersey at <http://hurri.kean.edu/~rkroll/geonj/geonj.html>



Exaggerated topographic view of the terminal moraine as it curves across the towns of Mountainside and Plainfield. Rt. 22 approximately shown. Note the hummocky appearance of the area of morainal deposits.



Check out the new website for the
Center for Earth System Education
at Kean University
<http://hurri.kean.edu/~cese>

Schedule a show at the Kean University Alumni Planetarium located in the Science Building Third Floor C-330
Featuring a digital star lab projector !
(used to make the background on this page)

Presentations include:

**The Night Sky
Seasons**

**Phases of the Moon
Planets & Moons in the Solar Systems**

**Stellar Evolution
Galaxies & Black Holes!**

Tell us what topic you are teaching and we'll create a show to suit your needs. Objectives and assessments provided!

Contact: Dr. John Dobosiewicz (908) 737-3696 or jdobosie@kean.edu

INSTITUTE FOR URBAN ECOSYSTEM STUDIES

at KEAN UNIVERSITY

The mission of the Institute for Urban Ecosystem Studies (IUES) is consistent with the overall mission of Kean University and its goal is to prepare students to think critically and creatively so that they can adapt to changing social, economic and technological conditions, particularly as they pertain to urban ecosystems. The mission statement of IUES emphasizes that IUES provides a setting conducive to interdisciplinary discourse that leads to investigations of both the basic and applied aspects of urban ecology. By encouraging community-based land stewardship and environmental education and engaging in research in the natural, applied and health sciences, IUES aims to further understand and foster the biodiversity of urban environmental systems.

Project ASTRO NOVA: Bringing Astronomers into New Jersey Classrooms since 1998

<http://www.raritanval.edu/planetarium/astro/astronova.htm>

Project ASTRO is a National Program which creates long-term partnerships between astronomers and teachers or youth group and community leaders. The philosophy behind Project ASTRO is that students learn best when using hands-on Project Astro (cont...) inquiry-based activities in combination with a constructivist

approach to teaching. The astronomer is a resource for the teacher both in and outside the classroom and provides students with the unique opportunity to have long-term interactions with a scientist. Project ASTRO NOVA has trained over 200 teachers and over 120 astronomers and reached over 35,000 New Jersey students.

For more information about Project ASTRO or other NJACE astronomy workshops, call Theresa Moody at 908-526-1200 x 8942. Application forms and more information can be obtained at www.raritanval.edu/planetarium/astronova or from the New Jersey Astronomy Center, Raritan Valley Community College, P.O. Box 3300, Somerville, NJ 08876, Fax (908) 526-7938, or email tmood@raritanval.edu.

RUTGERS GEOLOGY MUSEUM

The Rutgers University Geology Museum , which is open to the public, features exhibits on geology and anthropology, with an emphasis on the natural history of New Jersey. To arrange a group tour of the Geology Museum, please contact R. William Seldon at (732) 932-7243, or rwseldon@rci.rutgers.edu. There is no charge for admission and the museum even has a small rock shop!

Annual OPEN HOUSE

Saturday, January 31, 2009 9:00 a.m. to 4:00 p.m.

PRESENTATIONS 123 Scott Hall

ROCK AND MINERAL IDENTIFICATION 202 Geological Hall

MINERAL SALE 135 Scott Hall

Information:

William Seldon, Collections Manager at (732) 932-7243 rwseldon@rci.rutgers.edu

The Museum entrance is the iron gate on the corner of George and Somerset Street in New Brunswick, NJ.

ALL EVENTS FREE NO REGISTRATION Educators who attend Museum presentations can receive credit toward their professional development requirements. The Geology Museum is registered as a Provider with the NJ Department of Education.



80 GALLERIES OF INSPIRATION & EXPLORATION

THE NEWARK MUSEUM

Visit the Dynamic Earth Exhibit Live or virtually! <http://newarkmuseum.org>

Or take your students to a planetarium show

Go to Collections → Natural Sciences → Dynamic Earth or Planetarium

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Dept. of Geology & Meteorology
Kean University
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stamp

label

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