



EARTHQUAKE

e-Newsletter about what's movin' and shakin' at the Earth Science Museum

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May 2015
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ESM NEWS and EVENTS

By Shirley Cote, Ray Grant and Harvey Jong

OUTREACH REPORT - May 2015

By Mardy Zimmermann

May ended our Outreach Program to Schools, and was a very busy month. We again increased the number of school students served. End of May total was 5,727 compared to 4,428 last school year. Community Outreach efforts showed a very significant increase: 5,112 at the end of May, vs. 3,393 last year. We will still have a few events in June, so final statistics will be tabulated then. It was a very good year for all of our Outreach efforts, and a big thanks to all who participated. Our grand total is 10,839. A highlight for this year was the rapidly increasing popularity of the Middle School Program—Properties of Minerals. Next year, we will begin work on an additional program at that level involving plate tectonics, earthquakes, land formations, etc. We will be designing some hands-on activities in this area. Our Rocks and Fossils, and Minerals Kits remain very popular and teach to the standards for rocks and fossils, and raised the bar by including minerals.



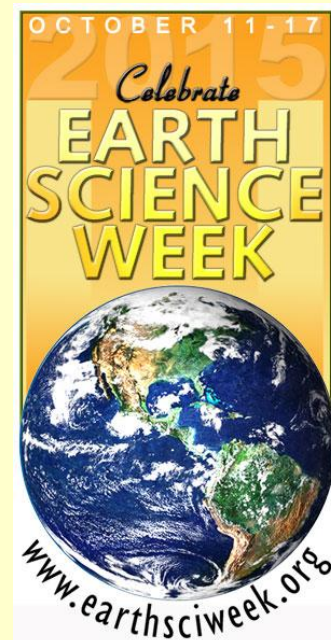
STEM Night at Madison Park MS, Phoenix, AZ
May 7, 2015
Terry Dyer (right)
Photo by Lynne Dyer

MARK YOUR CALENDAR!

The Earth Science Museum is planning Earth Science Day for October 17th in celebration of Earth Science Week which is October 11-17, 2015.

“Visualizing Earth Systems.” the theme of Earth Science Week 2015, explores what it means to see our planet through eyes informed by the geosciences. Using technologies ranging from on-site data collection to satellite-based remote sensing, scientists investigate conditions of Earth systems. And today’s geoscientists display their findings in charts, graphs, diagrams, illustrations, photos, videos, computer-generated animations, and 3D-printed creations.

STAY TUNED FOR MORE INFORMATION!





Arizona Rocks 24

Text and photos by Ray Grant

We are starting the third group of rocks, the metamorphic rocks. Metamorphic rocks are those that have changed from any pre-existing igneous or sedimentary rock by an increase in temperature and/or pressure to form a new type of rock. The increase in temperature and pressure is usually associated with burial in the earth's crust.

As with the other rock types (igneous and sedimentary) texture and mineralogy will be used to classify metamorphic rocks. There are two major classes of metamorphic rocks, foliated and massive. The foliated rocks have flat or needle shaped minerals that grow parallel to each other in response to the pressure during their formation. A massive texture develops in rocks that have irregular shaped randomly oriented minerals that do not line up.

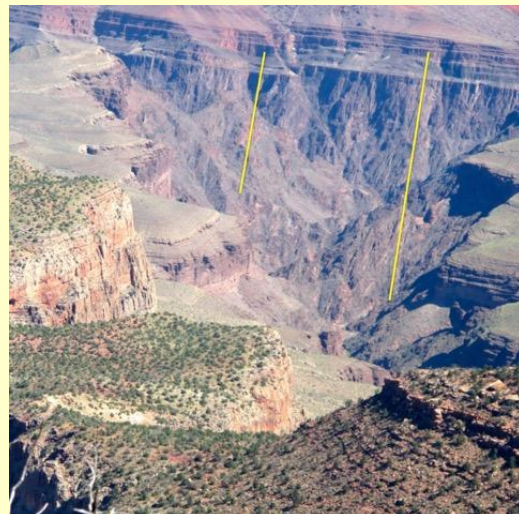
Also, for metamorphic rocks, there are two things we would like to know, first what was the original rock and second what the temperature and pressure were that caused the metamorphism. The mineralogy and chemistry of the rock will be used to answer these questions.

Two, billion years ago there was no Arizona, there was only ocean here. From 1.8 to 1.7 billion years ago series of igneous and sedimentary rocks were added to North America to form Arizona. These early rocks have all been metamorphosed and form the basement rocks of Arizona. Over most of the state these older rocks are covered with younger rocks, but there are areas scattered around where the younger rocks are all eroded away. As you travel around the state, when you see rocks that are standing vertically you are most likely looking at metamorphic rocks.

Next month we will begin the classification and names of metamorphic rocks.



Vertical metamorphic rocks at Piestewa Peak Phoenix



Vertical metamorphic rocks in the inner gorge of the Grand Canyon



Vertical metamorphic rocks in San Tan Valley

ESM's Upcoming Meeting

The Earth Science Museum's next scheduled Board meeting on June 10, 2015, at the Burton Barr Library, located near Central Ave. and McDowel in Phoenix at 6:30 p.m. in Rm. B. Everyone is welcome to attend.

BECOME A MEMBER!
Join the Earth Science Museum's



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**ESM Earth Science Investigation
Team Membership Form**
_____ New Member _____ Renewal

Membership levels:
_____ ESI Family \$20
_____ ESI Individual \$10
_____ ESI Student (16 & under) \$5

Membership benefits:

- ◆ Monthly e-newsletter *Earthquake*
- ◆ Official team membership card
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We're on the Web!

Visit us on  and at:
www.earthsciencemuseum.org

Mission

Our Mission is to excite and inspire all generations about earth sciences through educational outreach.

Vision

We envision a community where students and the general public have curiosity about, passion for, and understanding of the underlying principles of earth sciences.

For more information about the ESM, how to become a member or how to arrange for a school visit or Community function, go to:
www.earthsciencemuseum.org.

Please join us at the next ESM Board meeting Wednesday, June 10, 2015, at the Burton Barr Library in Phoenix at 6:30 p.m. Rm. B.

THANK YOU FOR YOUR CONTINUING INTEREST & SUPPORT!!!

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NON-PROFIT BOARD OF DIRECTORS**

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