



# EARTHQUAKE

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

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June 2013  
Volume 2, Issue 6

## ESM 2012-2013 Year in Review

By Shirley Coté, Ray Grant and Harvey Jong

The Earth Science Museum's second year was busy and productive in its continuing plan to create a new museum in the Phoenix area.

In June 2012, we received our IRS letter of determination granting us 501(c)(3) non-profit status retroactive to July 2011 allowing the ESM to receive tax deductible donations.

In July 2012, the Friends of the Arizona Mining and Mineral Museum donated \$20,000 for the ESM outreach program. We also launched our new website.

In October, we sponsored the Family Days Rock & Gem Show in conjunction with four local lapidary, rock and mineral societies and we also launched our e-newsletter.

November brought the news of our first corporate grant. We received \$3500 from the Staples Foundation® allowing us to add three books and a magnifier to the teacher kits.

Jan 2013 - We expanded our presence at Flagg Gem & Mineral Show which included a fluorescent display in 10' x 20' tent. Also, the Flagg Mineral Foundation and the Arizona Leaverite Rock & Gem Society made monetary donations to the ESM.

In February, the ESM opened a booth at the Tucson Gem & Mineral Show for the first time where we featured a Periodic Table of Elements display. The ESM also established "club hubs" in which one or more members of a rock and mineral club in Arizona will

volunteer to provide ESM outreach programs to school children in their respective areas.

The ESM received donations of rocks & minerals for the egg carton & outreach programs and for the teacher kits and the Wickenburg Gem & Mineral Society provided a monetary donation.

In April, the ESM set up a table at the Minerals of Arizona Symposium where our own Mardy Zimmermann received the A. L. Flagg Distinguished Service Award for her efforts in promoting earth science education.



The ESM Outreach volunteers increased the number of schools and events attended this year including 25 schools, Boy Scout troupes, science fairs, etc. Through all outreach activities volunteers served 4,598 children.

And finally, in June 2013, we received a financial donation from the White Mountain Gem & Mineral Club.





## Arizona Rocks 1

Text and photos by Ray Grant

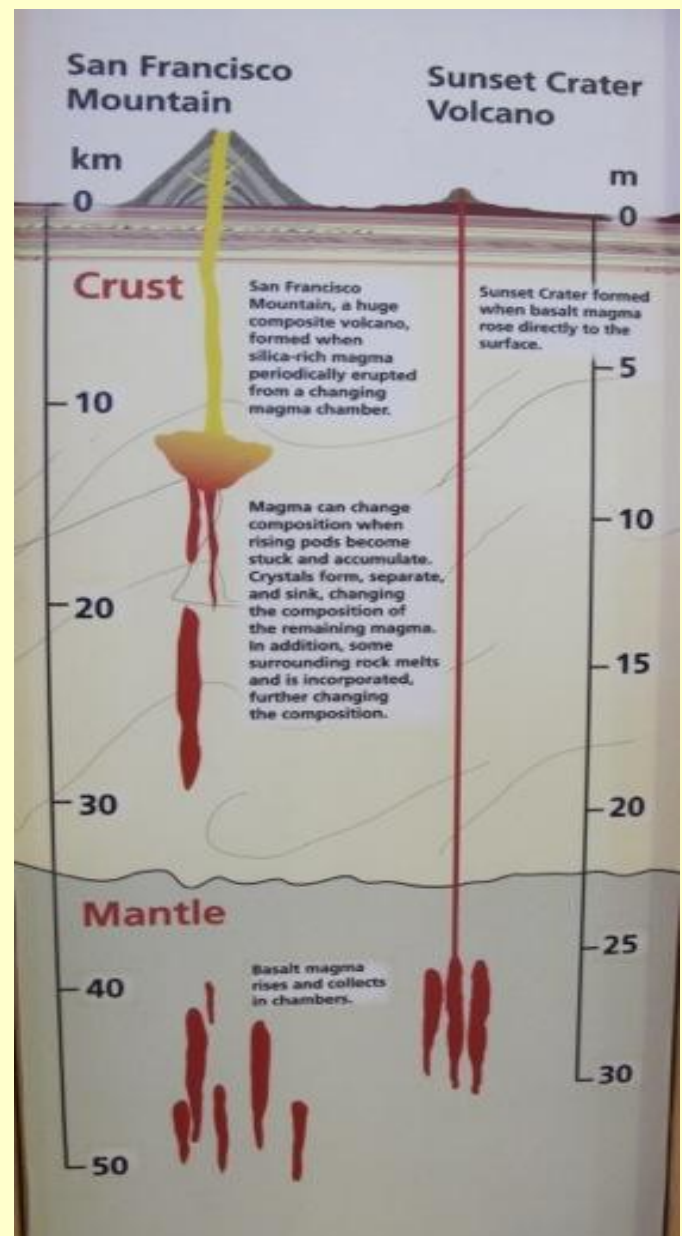
One of the most common rocks found in Arizona is basalt. It is a fine-grained (aphanitic) dark gray to black rock made up of two major minerals, pyroxene and plagioclase and contains minor amounts of the mineral olivine. The crystals of the minerals are usually too small to be seen.

Between 20 and 25 percent of the state is covered with basalt. There are basalts from the southeast corner to the northern part of the state with the largest concentrations along the Mogollon Rim and in the White Mountains and San Francisco Peaks. In the Phoenix area, basalt is found in the North Mountain Preserve, Moon Hill, and north of there.

These basalt volcanic eruptions in Arizona occurred between 15 million years ago and the present. The most recent eruption of basalt in Arizona was at Sunset Crater a little less than 1000 years ago, and this means that there is a good chance of future volcanic activity in Arizona.

The world's ocean floors are all made of basalt making it the most common rock on the earth's surface, but most of it is under water. The basalt magma that forms the ocean floor comes from partial melting of the mantle and the basalt in Arizona comes from the same source.

The magma that basalt crystallizes from is relatively fluid and therefore the volcanic eruptions associated with basalt are not very violent, similar to what we see in Hawaii today. Many of the volcanic features, lava tubes, pahoehoe and aa flows, fissure eruptions, cinders, and bombs, around Sunset Crater are exactly like those you find in Hawaii.



## ESM's Upcoming Meetings

The Earth Science Museum's next two scheduled meetings are July 17<sup>th</sup> and August 14<sup>th</sup> 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.

**EXPLORE YOUR WORLD!**



Glen Canyon Dam near Page, AZ Photo: Wikipedia



Photo: Wikipedia  
Horseshoe Bend, Colorado River south of Page, AZ

Horseshoe Bend is one of many incised or entrenched meanders where the Colorado River cuts down through the sandstone rock layers just south of Glen Canyon Dam. The original meander formed on a relatively flat surface and as the moving water in the river erodes the outer banks and widens its valley while the inner part of the river has less energy and so deposits the sediments it's carrying. As the land was uplifted, the river cut down keeping the original meander shape.

## MANY THANKS TO OUR MAJOR DONORS!

AZ Leaverite Rock & Gem Society  
[www.azleaverite.org](http://www.azleaverite.org)

Flagg Mineral Foundation  
[www.flaggmineralfoundation.org](http://www.flaggmineralfoundation.org)

Friends of the AZ Mining & Mineral Museum

Maricopa Lapidary Society

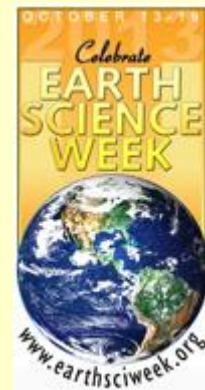
Mineralogical Society of AZ  
[www.mineralogicalsocietyarizona.org](http://www.mineralogicalsocietyarizona.org)

White Mountain Gem & Mineral Club  
[www.whitemountain-azrockclub.org](http://www.whitemountain-azrockclub.org)

Wickenburg Gem & Mineral Society  
[www.facebook.com/pages/Wickenburg-Gem-and-Mineral-Society/111216602326438](https://www.facebook.com/pages/Wickenburg-Gem-and-Mineral-Society/111216602326438)

Staples Foundation  
[www.staplesfoundation.org](http://www.staplesfoundation.org)

Stan & Susan Celestian  
Russ Hart  
Debbie Michalowski  
Dennis & Georgia Zeutenhorst



October 13-19, 2013

“Mapping Our World”

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*We're on the Web!*

Visit us on  and at:  
[www.earthsciencemuseum.org](http://www.earthsciencemuseum.org)

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**Mission**

Establish an innovative, world-class destination museum in the Phoenix area dedicated to inspiring all generations about earth sciences.

**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](http://www.earthsciencemuseum.org).

Please join us at the next ESM board meeting  
Wednesday, July 17, 2013, at the Burton Barr  
Library in Phoenix at 6:30 p.m. Rm. B.

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