**EDUCATION AND PUBLIC OUTREACH FOR THE MARS SCIENCE LABORATORY CURIOSITY ROVER'S SAMPLE ANALYSIS AT MARS.** A. J. P. Jones[1,2] and L. V. Bleacher[2], [1]Lunar and Planetary Institute, 3600 Bay Area Blvd, Houston TX 77058 (andrea.j.jones@nasa.gov), [2]NASA Goddard Space Flight Center, 8800 Greenbelt Road, Greenbelt MD 20771.

**Introduction:** The overarching Education and Public Outreach (EPO) goal for the Sample Analysis at Mars (SAM) instrument suite [1] onboard the Mars Science Laboratory (MSL) Curiosity rover [2] is to make this complex chemical laboratory and its data widely available to educators, students, and the public [3]. The SAM Education and Public Outreach (EPO) team strives to communicate SAM science and engineering in the context of MSL mission and Mars science and exploration and in ways that are interesting to and appropriate for these audiences in a variety of educational settings. The SAM EPO team works closely with the SAM science and engineering teams and coordinates efforts with the Mars Public Engagement Team and other MSL instrument EPO teams. The following is a summary of the main components of the SAM EPO program.

**Formal Education:** A cornerstone of SAM's formal education program is the Curiosity Landing Site Selection activity; an activity designed to simulate the landing site selection process for students and teach them about Mars science, the Curiosity mission, and mission scientific and engineering considerations. Students participating in this activity engage in scientific debates and develop their critical thinking skills. This activity is currently in review by the SAM science team and in a pilot-testing phase. It will be submitted to NASA's Earth & Space Science Education Product Review in spring of 2012.

The SAM EPO team represents SAM in teacher professional development workshops organized by the Mars Public Engagement Team, such as the National Mars Education Conference held in Cocoa Beach, FL in association with Curiosity's launch in November 2011, and by the Office of Education at NASA Goddard Space Flight Center (GSFC) in Greenbelt, MD. Templates are available for half- and full-day SAM- and MSL-related teacher professional development workshops that include hands-on activities pertaining to Mars geology, habitability, landing site selection, and rover operations, as well as recommendations for presentations by SAM and other MSL scientists.

The SAM EPO team will coordinate with the American Chemical Society to publish an article featuring SAM in ChemMatters once MSL's surface mission is underway. ChemMatters is distributed nationally to high school chemistry classes, with information and suggestions for laboratory activities and demonstrations. SAM's previous article in this publication (February 2008) [4] was well-received and very popular.

The SAM EPO team also shares information about SAM, Curiosity, and available educational resources in Educator Share-A-Thons, for both formal and informal educators.

**Informal Education:** The SAM EPO team is beginning a partnership with the National Park Service (NPS), built on the idea of comparing exploring Mars to exploring Earth in National Parks. This partnership will build on work started with a Death Valley Analog Festival partnership as well as input from a focus group of Earth-to-Sky participants [5].

The SAM EPO team will also facilitate SAM contributions to NASA Museum Alliance [6] training telecons and make the Curiosity Landing Site Selection Activity available to informal educators, which can be adapted for use in informal settings.

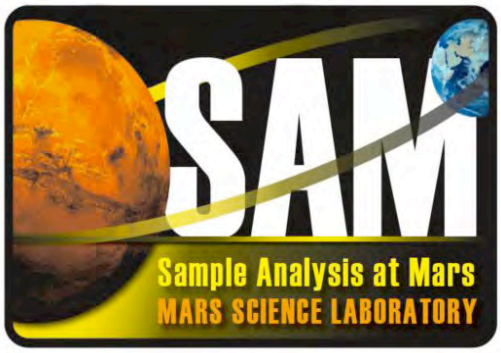


Fig. 1. SAM Art.

**Outreach:** The SAM EPO team helps organize and implement a number of outreach activities, with significant support and participation from the SAM Science and Engineering teams. Outreach events include a SAM Sunday Experiment, as well as launch and landing events, at NASA GSFC Visitor Center. These events included a number of hands-on activities designed to help the public better understand SAM, Curiosity, and their potential contributions to Mars science; speakers from the SAM science and engineering teams; and Science on a Sphere shows. The SAM team also provided interpretation for a full-scale Curiosity model exhibit at the Maryland Science Center in Baltimore, MD in fall of 2011. The SAM EPO team will support a Death Valley Mars Analog Festival, in

partnership with NASA Spaceward Bound [7] and Death Valley National Park, tentatively scheduled for spring of 2012.

The SAM team will also support a public SAM website that will feature information about SAM science and engineering, news, blog entries, images and visualizations, team member profiles, and EPO content that will help interested students, educators, and the public get more involved with SAM. The website is scheduled to launch in winter of 2012.

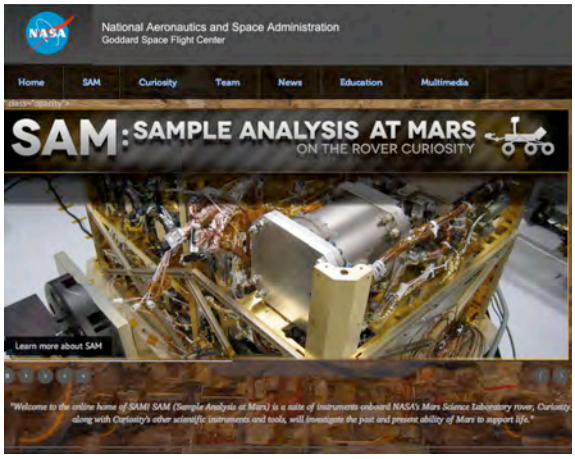


Fig. 2. Screen shot of the SAM website, to be launched winter of 2012.

**Higher Education:** The SAM team supports internships for undergraduate and graduate students. Through partnerships with minority institutions such as the Minority Institute Astrobiology Collaborative, the SAM team will make efforts to recruit minority students for internships.

**SAM Science and Engineering Team Involvement:** SAM EPO efforts are strongly supported by SAM's science and engineering teams. EPO team members regularly meet with the science and engineering teams to keep abreast of mission updates and seek input and participation in EPO activities. The science and engineering teams review educational products, discuss ideas about how to represent SAM science through demonstrations and activities, and lead hands-on activities at outreach events. They give talks at professional development workshops and outreach events, visit classrooms to talk about SAM science and engineering, and contribute to the SAM website. The enthusiastic support of SAM's science and engineering teams greatly enhances SAM's EPO program and contributes to its continued success.

**References:** [1] Mahaffy P. R. (2008) *Space Sci. Rev. 135*, 255. [2] Mahaffy P. R. (2009) *Geochem. News, 121*. [3] Mahaffy P. R. et al. (2010) *AGU Fall Meeting 2010*, Abstract #ED21D-08. [4] Bleacher L. (2008) *ChemMatters, February Issue*, 16–19. [5] Earth-to-Sky website: http://earthtosky.org/. [6] Museum Alliance website: https://informal.jpl.nasa.gov/museum/. [7] NASA Spaceward Bound website: http://spacewardbound.nasa.gov/index.html.