

SNOOPY: STUDENT NANOEXPERIMENTS FOR OUTREACH AND OBSERVATIONAL PLANETARY INQUIRY

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Abstract

As scientists and engineers primarily employed by the public, we have a responsibility to “communicate the results of our research so that the average American could understand that NASA is an investment in our future...” [1]. Not only are we employed by the public, but they are also the source of future generations of scientists and engineers. Student Nanoexperiments for Outreach and Observational Planetary Inquiry (SNOOPY) is an example of directly involving students and teachers in planetary science missions.

The Mars Environmental Compatibility Assessment (MECA) Student Nanoexperiment Project was a partnership between MECA, The Planetary Society (TPS) and Visionary Products, Inc. (VPI). The MECA instrument suite, developed at the Jet Propulsion Laboratory (JPL), was scheduled for launch aboard the canceled Mars Surveyor Lander 2001. The MECA Patch Plate was designed to expose various materials to the Martian environment and be observable by the Robotic Arm Camera (RAC). Students 18 years of age and younger were invited to propose experiments that were consistent with MECA’s Mission: to help us better understand how humans will be able to live on Mars.

The students were asked to submit both a short proposal and a prototype of their experiment. While most entries came from the United States, several were received from Canada, Australia, Brazil, Israel, Japan, and the United Kingdom. Two finalists and an alternate were selected based on scientific merit, feasibility and relevance to MECA’s mission. Chosen for flight were “Angle of Repose of Martian Dust,” proposed by Lucas Möller of Moscow, Idaho and “Contradistinctive Copper,” proposed by Jessica Sherman and Kelly Trowbridge of Lansing, New York. These experiments addressed the behavior of windblown Martian dust on surfaces and the oxidation of different textures of copper. An alternate student nanoexperiment was selected to investigate the behavior of spacesuit materials on Mars.

An important goal of this project was publication of the students’ work and results in the scientific literature. One student, Lucas Möller presented the results of his Angle of Repose nanoexperiment using JSC Lunar-1 [2] and JSC Mars-1 [3] simulants at the 32nd Lunar and Planetary Science Conference [4]. The SNOOPY team plans to produce curricula describing how students and teachers can reproduce the nanoexperiments and perform their own calibration experiments. When SNOOPY eventually goes to Mars, the data returned will be released to students and teachers as soon as it is released to the SNOOPY team. In the interim, the students will publish their calibration results in the scientific literature.

References: [1] Goldin D., (1999) Testimony before the Committee on Science, U.S. House of Representatives, April 28, 1999. [2] McKay D. S., et al. (1993) *LPSC XXIV*, 963-964. [3] Allen C. C. et al. (1997) *LPSC XXVII*, 27-28. [4] Möller L. (2001) *LPSC XXXII*, Abstract #1470.