

PLANETARY ROVER UNIT: A HANDS-ON EDUCATIONAL FACILITY TO MOTIVATE K-12 STUDENTS TOWARDS EXCELLENCE IN SCIENCE AND MATHEMATICS: A. V. Murali, Space Science and Technology Educational Program, Department of Geology, P. O. Box 10031, Lamar University, Beaumont, TX 77710

We have built a Planetary Rover Unit (PRU) on the Lamar University-Beaumont (LU-B) campus as a part of the hands-on educational facility of Space Science and Technology Educational Program (SSTEP) for K-12 students in the region. The PRU consists of a mobile planetary rover and a base-camp unit which is functionally similar to the mission control room at NASA/Johnson space Center, Houston.

The PRU is equipped with the following:

- 1) **Global positioning system** [that gives the position (latitude, longitude, and altitude) of the rover on the earth's surface]
- 2) **Computer link-up** [through 1200-Baud modems, using packet (HAM) radios] between rover and base-camp,
- 3) **Audio communication link-up** (through two citizen band radios) between rover and base-camp, and
- 4) **Video communication link-up** (providing an instantaneous transfer of the video images from the rover to the base-camp which can be viewed both on the computer monitor and on on-line T. V. screen simultaneously).

The essential elements incorporated in our PRU student/public hands-on education programs are as follows:

- 1) General introduction about the history and evolution of the U. S. space program, including multimedia presentations of the historical events of the space program and planetary exploration missions, and a demonstration of space suits and other equipment (by NASA/JSC team) followed by a question and answer session,
- 2) A brief introduction to Lunar Science [atmosphere, physics, chemistry, and geology of moon; accomplishments of Apollo and Lunar missions; petrographic features of lunar samples (breccia, basalt, glass, anorthosite, etc.) using terrestrial analogues] followed by a question and answer session,
- 3) Handout of an *impromptu* lunar terrain map [identifying the local landmarks as lunar terrain analogues (craters, highlands, etc.)],
- 4) Division of the students into teams of mission control room personnel and astronauts (two groups of 4 members each) and briefing them about the purpose of the mission, their individual responsibilities, communication protocol, etc.,
- 5) Training the students for the designated activities at the mission control room and on the rover,

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- 6) Allowing the student teams to make decisions and carry out sample collection, and
- 7) Return of the astronauts to base camp followed by mock press conference.

(A minimum of 2 graduate student assistants with HAM radio operator licenses, are required (one at the mission control room and the other at the rover) during the PRU training program).

The PRU has proved to be a powerful tool of space science education for public and K-12 students and has become a highly visible and much sought-after student/public education program in the southeast Texas.

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