Involving K-12 Students in Aerospace Engineering: The JPL Mars Global Surveyor CD-ROM

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Abstract

Educational outreach programs have become an important objective for many public organizations. These programs have been developed to educate the public, particularly High School students, about their organizations. NASA has been one of the strongest direct supporters on these programs through their Space Grant Consortium Grants and many fellowship programs. In addition to the large centrally coordinated outreach programs, NASA is also encouraging all individual research centers, such as the Jet Propulsion Lab (JPL), to operate outreach programs for each project. A good point in case is the Mars Global Surveyor Mission that will be Launched in November 1996 to place a small satellite into orbit around Mars. This project is one of the new 'small' science oriented missions that NASA has been encouraging and is sponsored by JPL. These projects have very tight budgets and specific goals, one of which is to get information about the mission and its results to K-12 students.

This paper looks at the outreach program in the School of Aerospace Engineering at Georgia Institute of Technology for the Mars Global Surveyor (MGS) Mission that has been in operation since June of 1995 and how it effects Aerospace Engineering. The main objective of the project is to instruct K-12 students in the Atlanta area about Aerospace Engineering and the JPL/NASA MGS Project. This is accomplished by giving lectures and seminars that discuss and demonstrate how Aerospace Engineering directly effects the lives of people living in Atlanta and the benefits of MGS. Indirectly, the students have learned how science, engineering and math are applied to an aerospace project, i.e. MGS. The secondary goal of these presentations have been to instill in the students a desire to learn more about technical issues. Various workshops for students have also been given to teachers that then use the materials and information in their classrooms.

One of the difficulties that become evident in giving lectures was the lack animations and simulations available to demonstrate aerospace concepts. To assist the author, a multimedia program has been developed, called SpaceGuide. The original goal of SpaceGuide was to liven up the seminars on the Mars Mission with sound, animations, and computer simulations. A second goal of the multimedia program was to leave something in the schools as a permanent source of information about the Mars Mission. This was accomplished by giving each school that was visited a CD with all lecture notes, graphs, pictures, animations, and simulations. It is expected that the CD left at the

schools will be used by many more students and teachers than initially attended the seminar.