

SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
New Worlds - Innovative Space Education And Outreach (5)

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NASA CASE STUDIES: REACHING OUT TO THE BROADER ACADEMIC COMMUNITY

Abstract

Case studies are a well-known tool in legal, medicine and business education. Unfortunately, there have been few case studies written about space exploration other than high-profile disasters such as Apollo 13, Challenger and Columbia. In 2003, the NASA Goddard Space Flight Center embarked on a case-writing program to develop a library that would eventually be made available online for education and outreach.

In 2010, the first catalog was published with over 40 cases, resulting in a broad source of space industry case material for academics. A mature case collection will provide information about NASA missions and management to various educational programs that would otherwise not have access. A number of cases have been tested with positive results in academic settings and conferences. Some of these cases are now being adopted in university programs in engineering, business management and management of technology.

Many students who are interested in science, technology, engineering and mathematics (STEM) or NASA have little exposure in higher education to actual NASA mission management stories. These case studies make the business of space missions accessible and meaningful to students, and illustrate the widespread and diverse roles required for mission success. These studies also increase the appeal of aerospace careers by balancing technical aspects with mission management realities needed to execute complex international missions.

These cases explore the intersection of policy and technology, for instance the effects of procurement on mission success or safety rules on costs. Teaching notes help faculty more readily apply the cases into their courses. Many more students in all fields of study will have the opportunity to learn the stories of NASA's phenomenal success.

The National Aeronautics and Space Act of 1958 mandated that NASA "provide for the widest practicable and appropriate dissemination of information concerning its activities and the results thereof", and this paper will establish the innovative use of case studies to complement space education and outreach. This paper examines how the case study project was nurtured and matured, including lessons learned along the way for others who might want to produce their own case studies. The paper summarizes the impact cases have had on the development of project managers and the adoption of cases with academic faculty. The paper showcases the possibilities for future application in space education and outreach. The paper also includes an overview of the case study methodology developed at NASA Goddard.