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APOLLO: LEARNING FROM THE PAST, FOR THE FUTURE

Abstract

This paper will share an interesting and unique case study of knowledge capture by the National Aeronautics and Space Administration (NASA), an ongoing project to recapture and make available the lessons learned from the Apollo lunar landing project so that those working on future projects don't have to "reinvent the wheel". NASA's new Constellation program, the successor to the Space Shuttle program, proposes a return to the Moon using a new generation of vehicles. The Orion Crew Vehicle and the Altair Lunar Lander will use hardware, practices, and techniques descended and derived from both Shuttle and Apollo. However, the new generation of engineers and managers who will be working with Orion and Altair are largely from the decades following Apollo, and are likely not well aware of what was developed in the 1960s. In 2007 a project at NASA's Johnson Space Center was begun to find pertinent Apollo-era documentation and gather it, format it, and present it using modern tools for today's engineers and managers. This "Apollo Mission Familiarization for Constellation Personnel" project is accessible via the web from any NASA center for those interested in learning "how did we do this during Apollo?"

The paper will illustrate the various components of the project, beginning with making the original paper documents available in readable electronic format in a common location. In most cases, the reports and handbooks were written between 1965 and 1975, and the original authors frequently left "lessons learned" sections in their reports for future engineers and designers. Next, the various team members reviewed and summarized the pertinent information from the reports using web-based collaborative documentation ("wiki") software, and created short summary briefings using presentation software and captured video. The original and new material is available via hyperlinks from the project's main web site. Additionally, newly-added material such as lectures by Apollo-era experts and briefings by lunar scientists originally outside the scope of the project have been added.

The Apollo Mission Familiarization website provides training material and reference documentation on the Apollo program for Constellation program personnel. A work in progress, this site focuses on three main areas: spaceflight fundamentals, the lunar environment, and Apollo mission techniques. The ongoing project has high visibility from NASA management and has won high praise from its users.

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