

**Training and Verification for Risk Reduction on the
New Classes of Missions at
NASA's Jet Propulsion Laboratory**

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Abstract

The focus on improving and increasing planetary exploration with lower cost missions and the unfortunate incidents of the not so distant past point to a need for risk reduction without budget inflation. To satisfy this need requires a robust program well founded in standardized practices with standards of performance. Standardized practices facilitate repeating successful projects without repeating all of the original creative work that led to the initial success. Standards provide a means to measure progress and gauge performance in relation to levels that result in success. By developing, within the Jet Propulsion Laboratory's (JPL) Mission Management Office (MMO), a core program of standardized training and verification practices and standards against which the implementation of these practices can be measured, we expect to provide an affordable resource for project risk reduction in key areas.

The importance of well prepared individuals, teams, and a Mission Operations System (MOS) as the cornerstone in improving the likelihood of success and reducing risk is the focus of our program. We address individual position training and certification for operations, team rehearsals of operations processes, verification of MOS interfaces, and operations readiness testing to verify the MOS processes, functionality, and operability. These areas are addressed initially through the development of specifications and guidelines which span the breadth of JPL projects. Beyond the guidance is practical assistance through templates for training plans, rehearsals, and readiness tests as well as training modules. The training modules will cover knowledge requirements common to all projects, tools used to conduct operations, and project specific knowledge and will be developed for delivery in tutorial and lecture modes with a future option for on demand, computer based delivery. With the core program in place, it will be easier for projects to afford an effective training and verification effort which can be adapted to the unique attributes of their flight project and improve the risk reduction effort essential to mission success.