SMC-IT 2009
Closing Panel Discussion
Thursday, July 23, 2009, 3:30pm – 5:00pm

How Much Onboard Computing Do We Need in Space?

Abstract

Historically, most spacecraft have been able to accomplish their mission with the most minimal of onboard computing resources. Typically, this has meant "preprogramming" a spacecraft's actions to observe and collect instrument data according to a prescribed plan and then down link that data periodically. However, this operational paradigm has begun to show its limits as spacecraft venture further out into space with ever higher capacity instruments that outstrip telecommunications downlink capacity, endure longer light time delays back to Earth, and explore more uncertain interactions with their environment demanding more local autonomy. The end result is that more onboard processing and storage must be engineered into the spacecraft to support this increased functionality and intelligence. The question is: How much more?

This panel will attempt to answer this question by enlisting the views of a number of spacecraft designers, technologists, mission scientists, and visionaries.

Panel Chair: Richard Doyle, JPL