

Working Group Outbrief

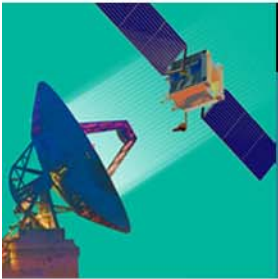
Ground System Architectures Workshop



Session 11C

Flight Software Effects on Ground
Systems

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Session Goals

- Determine the points of conflict between Space and Ground
- Identify what could be done to
 - Minimize conflict
 - Reduce cost/schedule
 - Improve mission assurance

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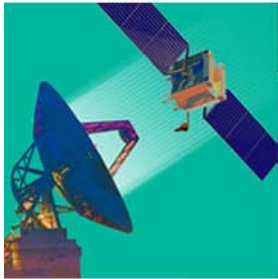
Presenters/Panelists

- Suzanne Dawes – Aerospace
- Myron Hecht – Aerospace
- Larry Miller – Aerospace
- Mark Reid – JHU APL
- Takahiro Yamada - JAXA



Key Points

- Standardization can provide significant benefits reducing disconnects between space and ground
 - Common databases
 - Standardized telemetry and command formats
 - Standardized interfaces and satellite procedures
 - ESA/JAXA/NASA all benefit to varying degrees
- Programs can benefit from additional specific system engineering functions applied early in the mission
 - Chief Data Engineer across space/ground
 - Human factors
 - Fault Management



Conclusions

- All commands to vehicle should be practiced in FSW simulator environment
 - If operators have difficulty with procedures or tracking anomalies be prepared to adjust the procedures
- Consider requirements over the mission not over each segment
 - Where requirements are implemented can have dramatic effect on the mission
- Develop CONOPS for failure and anomaly resolution
 - Helps to make sure that HCI is usable
 - Execute Stress tests of the mission (ground and space) in anomalous situations to ensure safe operations and to understand how the system degrades
- Consider Dynamic Logic modeling to ensure race and deadlock conditions are eliminated