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On-Orbit Operational Scenarios, Tools, and Techniques
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A derivation of OMV developed PC-based mission planning tools is described. Preliminary application of these tools has been shown to illustrate that detailed description of events and mission modeling complexity can be accommodated easily. Also, spreadsheet models can be expanded to increase detail.

Refinements are being done to tailor these to CTV and other future applications. Near-term modifications of spreadsheet analysis tools include: a definition of CTV operating states (13 are defined so far), the introduction of CTV power system architecture into models, and a modification of propellant spreadsheets for CTV propulsion definition.

Simulation and test data will replace analytical data in future versions of the spreadsheet tools.

Questions and concerns were addressed: How do you plan to handle CAM in a case where the approach orbit is above or crossing SSF and a failure causes loss of ability for approaching spacecraft to carry out a CAM? This is just now being addressed in CTV panels. One response would be to use only benign approach orbits. Efficiency factors during the final portion of the dock also may affect approach orbit selection.

How is the worst case scenario defined? The data presented in the paper used stacked worst case (3 sigma) estimates. The examples given were long holds and 3 docking attempts from 1000 feet.

Was GPS baselined? The GPS was baselined on CTV, but not on SSF. However, it was assumed that SSF has lights and cameras.