U.S. Automated Rendezvous and Capture Capabilities Review
Category 1 - Hardware Systems



**Abstract Title:** DGPS For Space And Return

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**Technical Details:**

A different type of differential GPS (DGPS) configuration is described and compared to the standard DGPS configuration.

Implementation options for either configuration for space and return are discussed.

**Historical Background:**

DGPS has been studied by numerous organizations as a highly sought after accuracy improvement to standard GPS, particularly with selective availability applied. Flight tests of DGPS have been conducted by NASA LaRC and NASA JSC.

**Technology Maturity:**

This is a first look at a different type of DGPS configuration. Promising analysis results should be followed up with experimental field testing. Implementation options will address use of current and near term technology.

**Sponsorship and Funding:**

Currently, the development of the DGPS For Space And Return is being pursued on IR&D funding.

**Biography:**

Stanley C. Maki, as Advanced Avionics senior engineering specialist, is performing studies pertaining to low-cost application of the Global Positioning System (GPS)/Inertial Navigation System to space boosters. He was responsible for the Orbital Transfer Vehicle (OTV) avionics predesign with GPS application; more recently, he has been involved in Centaur GPS experiments and system analysis for the Multi-Path Redundant Avionics Suite (MPRAS) study, including a GPS element. Mr. Maki has been continuously engaged in space vehicle guidance and control since 1956, starting with design of the first space-flown solid-state digital flight sequencer for the Atlas intercontinental ballistic missile. He has a BSEE from the University of Minnesota and an MS in Engineering from the University of California at Los Angeles.