

The Geodetic Reference Antenna in Space (GRASP) Mission Concept

*Yoaz Bar-Sever, Bruce Haines, and Sien Wu, Jet Propulsion Laboratory
Pascal Willis, Institut de Physique du Globe de Paris*

The Geodetic Reference Antenna in Space (GRASP) is a micro satellite mission concept dedicated to the enhancement of all the space geodetic techniques, promising revolutionary improvements to the definition of the TRF, its densification, and accessibility. GRASP collocates GPS, SLR, VLBI, and DORIS sensors on a supremely calibrated and modelable spacecraft, offering an innovative space-based approach to a heretofore intractable problem: establishing precise and stable ties between the key geodetic techniques used to define and disseminate the TRF. GRASP also offers a solution to another difficult problem, namely, the consistent calibration of the myriad antennas used to transmit and receive the ubiquitous signals of the present and future Global Navigation Satellite Systems (GNSS). The resulting improvement in GNSS signal modeling will benefit all precision applications of these systems, which are the cornerstone of many Earth science missions.

This paper will describe the GRASP mission concept, and highlight the challenges and benefits to DORIS from participating in GRASP. We solicit expressions of interest for participation in GRASP from Space Agencies and institutions who may contribute to the mission and to the derived science.

