



## **The Geodetic Reference Antenna in Space (GRASP) - A Mission to Enhance the Terrestrial Reference Frame**

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The Geodetic Reference Antenna in Space (GRASP) is a micro satellite mission concept, currently being proposed to NASA, that is 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 modeled 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).

We will describe how errors in the TRF impact our ability to answer key science questions, such as mean sea level rise, and present new analysis of GRASP's capability to improve various aspects of the TRF. We will also discuss opportunities for the geodetic community to contribute, support, and enhance this mission.