

Space Studies of the Upper Atmospheres of the Earth and Planets including Reference Atmospheres (C)  
Probing the Lower-Thermosphere-Ionosphere with In-situ Measurements (C1.4)

## **MEASUREMENTS OF THE LOWER-THERMOSPHERE-IONOSPHERE REGION USING THE SPORT CUBESAT MISSION.**

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The Scintillation Prediction Observations Research Task (SPORT) is a 6U CubeSat mission to advance the scientific understanding of both the preconditions leading to equatorial plasma bubbles and the structures that result in scintillation on RF signals. As such it has a relatively complete complement of instruments for ionospheric plasma diagnostics, a combined retarding potential analyzer and ion drift meter, GPS radio occultation experiment, a science grade magnetometer, a Langmuir probe, a impedance probe, and one axis of an electric field double probe. SPORT is an international partnership between Brazil and the United States with a target launch date of August 15th, 2022 from the ISS at 400 km and 51° Inclination. The SPORT spacecraft has a relatively high ballistic coefficient, and its orbit will decay over the succeeding years until it begins to enter the Lower-Thermosphere-Ionosphere region. This talk will present an overview of the SPORT mission, observation strategy, and science ob-

jectives. It will then review the feasibility and performance of SPORT instrumentation, and similar mission designs, for collecting in-situ scientific observations near end-of-life within the Lower-Thermosphere-Ionosphere region. SPORT will make relatively few orbits within the Lower-Thermosphere-Ionosphere, but the dataset produced will continuously cover all longitude sectors contrasting with dipper missions which sample sporadically in longitude sectors but provide observations covering a longer period. We will review plans to recover data from SPORT within the Lower-Thermosphere-Ionosphere region.