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.

Charles Swenson, charles.swenson@usu.edu
Utah State University, Logan, Utah, United States
Rebecca Bishop, rebecca.l.bishop@aero.org
The Aerospace Corporation, Los Angeles, California, United States
Joaquim Costa, joaquim.costa@inpe.br
National Institute for Space Research (INPE), Sao Jose Dos Campos, Brazil
Clezio Marcos Denardini, clezio.denardin@inpe.br
National Institute for Space Research (INPE), Sao Jose Dos Campos, Brazil
Otavio S Cupertino Durao, otavio.durao@inpe.br
National Institute for Space Research (INPE), Sao Jose Dos Campos, Brazil
Roderick Heelis, heelis@utdallas.edu
University of Texas at Dallas, Richardson, Texas, United States
Linda Krause, linda.h.krause@nasa.gov
NASA MSFC, Huntsville, Alabama, United States
Guan Le, guan.le@nasa.gov
NASA GSFC, Greenbelt, Maryland, United States
Luis Loures, loures@ita.br
Instituto Tecnologico de Aeronautica, José Dos Campos, Brazil
Marco Ridenti, marcoridenti@gmail.com
Instituto Tecnologico de Aeronautica, São José Dos Campos, Brazil
James Spann, jim.spann@nasa.gov
NASA Headquarters, Washington, District of Columbia, United States

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.