

Abstract Submitted  
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**Laboratory development and testing of spacecraft diagnostics<sup>1</sup>**

WILLIAM AMATUCCI, ERIK TEJERO, DAVE BLACKWELL, US Naval Research Laboratory, DAVE WALKER, Sotera Defense Solutions, GEORGE GATLING, LON ENLOE, ERIC GILLMAN, US Naval Research Laboratory — The Naval Research Laboratory's Space Chamber experiment is a large-scale laboratory device dedicated to the creation of large-volume plasmas with parameters scaled to realistic space plasmas. Such devices make valuable contributions to the investigation of space plasma phenomena under controlled, reproducible conditions, allowing for the validation of theoretical models being applied to space data. However, in addition to investigations such as plasma wave and instability studies, such devices can also make valuable contributions to the development and testing of space plasma diagnostics. One example is the plasma impedance probe developed at NRL. Originally developed as a laboratory diagnostic, the sensor has now been flown on a sounding rocket, is included on a CubeSat experiment, and will be included on the DoD Space Test Program's STP-H6 experiment on the International Space Station. In this talk, we will describe how the laboratory simulation of space plasmas made this development path possible.

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