

Abstract Submitted
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Effects of Heating Sounding Rocket Langmuir Probes¹ C.S. COMPTON, Advanced Technology Division, SFA Inc., W.E. AMATUCCI, G. GATLING, D.D. BLACKWELL, Plasma Physics Division, Naval Research Laboratory, D.N. WALKER, Advanced Technology Division, SFA Inc., C. SWENSON, Utah State University — Langmuir probes have long been used to determine plasma characteristics in various plasma environments. However, the current-collecting surface of a Langmuir probe can quickly become contaminated with adsorbed neutral gases when exposed to elevated neutral pressures. Measurements will be inaccurate when data is taken with probes whose surfaces have been contaminated. It has been shown that heating the probe will remove these contaminants and provide more accurate results [1]. This approach has recently been tested on sounding rockets, which have typically been heated in atmosphere up to the moment of launch. The effectiveness of this technique is being tested in the Naval Research Laboratory (NRL) Space Simulation Chamber, which has the capability of simulating the conditions that a sounding rocket would experience throughout its flight. Experiments will be performed to determine the benefit of probe heating up to the point of launch as well as the effect lack of heating may have. Results for a NRL Langmuir probe as well as a standard sounding rocket Langmuir probe will be presented. [1] Amatucci et al., Rev. Sci. Instrum., 72, 2052 (2001).

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