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Jupiter Magnetosphere and Moons Plasma (JuMMP) Investigation

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Abstract

We will describe the Jupiter Magnetosphere and Moons Plasma investigation, JuMMP, a proposed plasma instrument suite for the EJSM JGO spacecraft. Development of JuMMP for JGO will be coordinated with that of an instrument package to be proposed in a somewhat modified format for the JEO spacecraft., The instrument targets a 4π field of view for the electron and negative ion (JENI) and ion mass spectrometer (JIMS) sensors. An energetic neutral atom sensor (LENA) and an Advanced Mass and Ionic Charge Composition Experiment (AMICCE) will also be described. The JENI and JIMS sensors each have strong individual outer planets heritage from Cassini CAPS (ELS and IMS) and use detailed design knowledge from the Juno (Jupiter polar orbiting mission) plasma electron and ion instrument (JADE). The LENA sensor has strong design heritage from similar instruments on BepiColombo. Plasma measurements in an adverse high penetrating radiation environment represent a significant challenge. However, our Juno experience enables us to define the required approach regarding the radiation environment with confidence, and minimum resource impact. We will describe the scientific drivers and some design issues for the proposed investigation.