

Preparatory analysis of the Europa plasma environment

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Europa is one of the few bodies in our solar system theoretically capable of supporting life. As such it is a source of great scientific interest, but despite the progress we've made, much of Europa's surrounding environment is not well understood, largely due to the poor data results of the Galileo mission. In preparation for Juno's arrival at Jupiter in 2016, I have begun the process of reanalyzing Galileo's MAG and PLS data, attempting to gain more information from the PLS instrument by reprocessing the Maxwellian fits of the raw data at a higher resolution. This produced mixed results, as the fits were now being performed over smaller amounts of data, causing larger uncertainties. Throughout this process I referred to a hybrid simulation of Europa's surroundings, both as a reference for the new data and to help refine the simulation itself. Additionally, possible new insight was gained into the composition of the near-moon environment, specifically in the relative abundance of externally produced SO_2^+ ions.