



Plasma Temperature Anisotropies at Io

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Abstract

The volcanic moon Io is the source of much of the plasma in the Jovian magnetosphere. Neutrals originally from Io's volcanoes are ionized in the vicinity of Io and are picked up in the Jovian plasma. We are building a hybrid (kinetic ions and fluid electrons) simulation code to study the interaction of Jovian plasma with Io. In our initial study we have used a two dimensional version of the code to study the kinetic properties of the Jovian plasma near Io. In these calculations we investigate the level of the growth of temperature anisotropy of the Jovian plasma in the immediate neighborhood of Io which may trigger waves via anisotropy driven instabilities. In particular we investigate the places where the thresholds for ion cyclotron and mirror instabilities are met.