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Abstract Text:

We present preliminary results from a coordinated Hisaki/Chandra/XMM-Newton observational campaign of the Jovian aurora and Io plasma torus. The data were taken over a three week period in April, 2014. Jupiter was observed continuously with Hisaki, six times with the Chandra/HRC instrument for roughly 12 hours per observation, and twice by XMM-Newton. The goal of this observational campaign was to understand how energy and matter are exchanged between the Jovian aurora, the IPT, and the Solar wind. X-ray observations provide key diagnostics on highly stripped ions and keV electrons in the Jovian magnetosphere. We use the temporal, spatial, and spectral capabilities of the three instruments to search for correlated variability between the Solar wind, the EUV-emitting plasma of the IPT and UV aurora, and the ions responsible for the X-ray aurora. Preliminary analysis suggests a strong 45 min periodicity in the EUV emission from the electron aurora. There is some evidence for complex variability of the X-ray auroras on scales of tens of minutes. There is also clear morphological changes in the X-ray aurora that do not appear to be correlated with either variations in the IPT or Solar wind.

Session Selection:

Dynamics of the Io-Jupiter System

Title:
Preliminary Results from a Coordinated Hisaki/Chandra/XMM-Newton Study of the Jovian Aurora and Io Plasma Torus