
Polar Phenomena in the Stratosphere of Jupiter

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The Infrared Interferometer Spectrometer (IRIS) on Voyager 1 and 2 has yielded significant information on the atmospheres of outer planets. On Jupiter, in particular, Voyager 1 IRIS data have been primarily used to study thermal structure, composition, and dynamics. Since the Voyager Jupiter encounters, ground-based studies have also provided greater detail on Jupiter's atmospheric composition, including its temporal and spatial variability. Anomalous phenomena, such as enhanced polar emissions, were first discovered from ground-based data and then studied using Voyager 1 IRIS data. We investigated selected polar regions on Jupiter using Voyager IRIS database, in particular, Voyager 2 data, which as yet, have not been fully evaluated. This investigation is a preliminary effort to study the physics, chemistry, and composition in the north and south polar auroral regions. The compositional studies include the major hydrocarbons (methane, ethane, and acetylene), as well as less abundant species (C_2H_4 , C_3H_4 , and C_6H_6) observed only in the auroral regions of the planet.