

Observations of tenuous atmospheres at Jupiter's icy Galilean moons: HST and future missions

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In this presentation, the UV observations by the Hubble Space Telescope (HST) of the tenuous atmospheres of Jupiter's large icy moons are reviewed. We discuss the previous detections of O₂ at Europa and Ganymede through auroral emissions and at Callisto through photo-electron emissions. In addition, we show new results from the HST data that reveal the presence of sublimated H₂O atmospheres in the sub-solar region in addition to O₂. HST also discovered atomic hydrogen coronae at all three moons and measured localized H and O atomic emissions at Europa, interpreted as first evidence for the existence of plumes. At the end, we give an overview on future measurements of the icy moon atmospheres by ESAs JUperiter Icy Moon Explorer (JUICE) and NASAs Europa Clipper mission, with focus on the UVS instruments.

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