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Measured Elevation of Lightning and Aurora in the Jovian Atmosphere

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As part of the Juno MAG investigation, each magnetometer features dedicated star trackers providing accurate bias free attitude information continuously throughout the mission. These optical sensors are optimized for low-light scenarios, which enables detection of stars and objects as faint as 7-8Mv. The Juno mission features a highly elliptical polar orbit with a period of ~53 days, with periapsis as close as 3.300km above the cloud tops. In combination with the 13° off pointing of the star tracker cameras from the Juno spin axis in anti-sun direction, the Jovian night side high latitude regions regularly enters the field of regard of these star trackers. This geometry facilitates imaging low light phenomenas as lightning and aurora at a large slanted angle in the upper parts of Jupiter's atmosphere. The large slant angle enables estimation of the vertical structure, by combining the detections with accurate attitude and spacecraft position information. We present up-to-date images of detected lightning events, visible wavelength aurora and the measured vertical structure, and discuss implications of these measurements for the Jovian atmosphere at the resulting altitudes