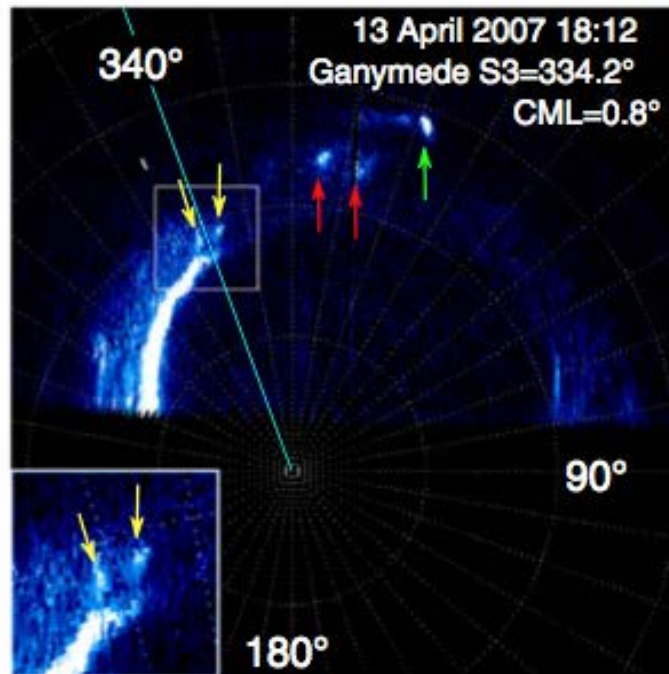
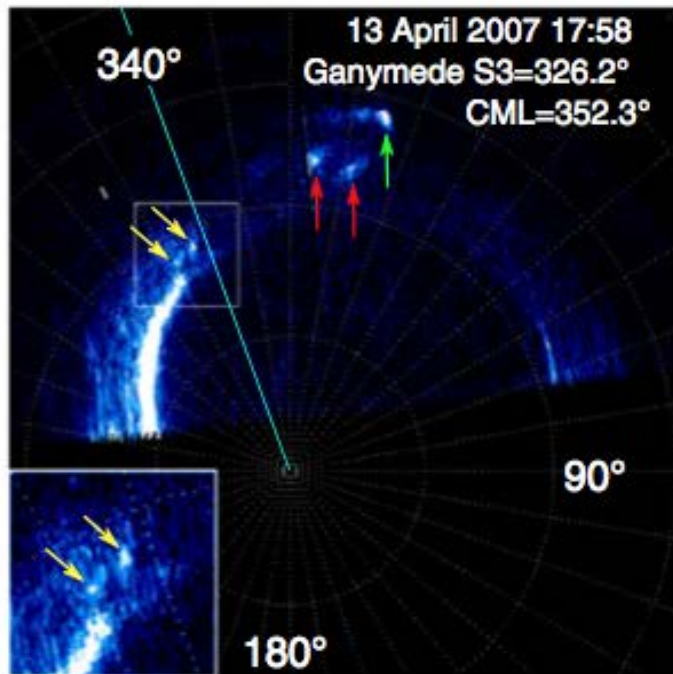


Understanding the Plasma Field Around Jupiter by Looking at Auroras from its Moons



Two images from 2007, acquired 14 min apart by the Hubble Space Telescope. The yellow arrows point to the Ganymede footprint; the green arrow shows one of the footprints from Io; the red arrows point at two emission patches associated with injection signatures. During the elapsed time, the footprints moved through approximately 8° of longitude, but the patches (red arrows) remained largely fixed.

Individual satellite footprints have been detected for all of the Galilean moons of Jupiter, but for the first time, multiple spots have been associated with Ganymede, a feature previously only associated with Io.

- These footprints are auroral signatures in the planetary atmosphere and are a feature of the interaction between the moons and the magnetosphere of giant planets.
- Similarly to the Io satellite footprint, the separation of the spots in the Ganymede footprint changes as Jupiter rotates, changing its position relative to Jupiter's plasma sheet – indicating that the processes creating the multiple spots are universal.
- Observations of a rapid change in the separation of the spots in the Io footprint shortly after a volcanic outburst indicate that continuing to observe these changes for both moons could increase the understanding of plasma density variations in time and at different distances from Jupiter.