



The infrared aurora of Uranus

Henrik Melin (1), Tom Stallard (1), and Steve Miller (2)

(1) University of Leicester, Leicester, United Kingdom, (2) University College London, London, United Kingdom

Uranus is unique planet within the solar system, with its rotational axis lying in the plane of the ecliptic and its magnetic field being offset some 90 degrees from that. Its aurora has only been observed once, on the nightside, by the Voyager space-craft as it flew past in 1986.

The molecular ion H_3^+ is a well established probe of the auroral morphology and thermospheric conditions of both Jupiter and Saturn and has the significant advantage that it can be observed sing ground-based telescopes.

Here, we present the results from an extended ground-based campaign of Uranus observations, attempting to detect aurora on the dayside of the planet. Data has been taken on numerous occasions between 1995 and 2006, providing a total H_3^+ emission from the disk of the planet. By accounting for the expected H_3^+ produced by solar radiation, this data reveals that the intensity of the emission is not directly correlated to the fluctuations in solar cycle. This means that there is an additional component produced by particle precipitation providing, for the first time, direct evidence of an H_3^+ aurora on Uranus