

Cassini's recent high inclination views of Saturn's UV aurorae

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Abstract

On 22 May 2012, Cassini flew by Titan at a closest approach distance of 955 km. This T83 flyby significantly changed the inclination of the spacecraft's orbit and marked the beginning of the XXM inclined phase 1 which will last until March 16, 2015. During this 3-year period, the inclination of Cassini's orbit reaches very high values, up to 62° in April 2013. This makes it possible to obtain exceptionally good views of Saturn's poles to observe the auroral emissions in different wavelength ranges.

In this presentation, we will summarize the auroral observations taken in the UV with the UVIS camera. We will focus on the morphology of the emission and pinpoint signatures that are attributed to various magnetospheric processes, such as dayside reconnection and auroral bifurcations, nightside reconnection, hot plasma injections. We will also take advantage of the view from nearly above the poles to describe the overall shape and size of the aurora, which are expected to respond to the solar wind conditions. This set of data is to be compared with the contemporaneous observations obtained from the different remote and in situ instruments onboard Cassini. It will also be completed by quasi-simultaneous UV observations of the northern aurorae caught by HST in April 2013 and may allow inter hemispheric comparisons. This information will be used to constrain the various processes at play in Saturn's magnetosphere.