



Statistical study of Titan's upper atmospheric and ionospheric composition distributions from Cassini

Jen-Kai Hsu (1), Wing-Huen Ip (1,2), Rebecca S. Perryman (3), and J. Hunter Waite (3)

(1) National Central University, Graduate Institute of Space Science, Taoyuan City, Taiwan (tabriskai.hsu@gmail.com), (2) National Central University, Graduate Institute of Astronomy, Taoyuan City, Taiwan, (3) Space Science and Engineering Division, Southwest Research Institute, San Antonio, Texas, United States of America

Titan, the largest moon of Saturn, is the most important research target of the Cassini-Huygens mission. Since 2004, Cassini had made over 100 targeted flybys. The Ion and Neutral Mass Spectrometer (INMS) provided the ion and neutral density, Ion Beam Spectrometer (IBS) of the Cassini Plasma Spectrometer (CAPS) provided positive ion density profiles, and the Radio and Plasma Wave Science (RPWS) instrument provided electron densities and temperature. In addition, Cassini magnetometer (MAG) data shows the ambient circumstances of the magnetic region when these targeted flybys happened. By analyzing the acquired extensive data set from the decadal coverage of the measurements during numerous close encounters, we will present a study of the spatial variations of Titan's nitrogen-rich atmosphere.