

## **Simultaneous Inversion of TEC and UV Radiance Data to Produce F-Region Electron Densities**

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The High Resolution Airglow and Aurora Spectroscopy (HIRAAS) experiment was launched from Vandenberg AFB, CA aboard the *Advanced Research and Global Observation Satellite (ARGOS)* on 23 February 1999 at 2:29:55 AM Pacific Standard Time. The ARGOS is in a sun synchronous, circular orbit at an altitude of 843 Km. The ARGOS operated from mid-May 1999 through March 2002. The HIRAAS experiment contains the Low Resolution Airglow and Aurora Spectrograph (LORAAS). The LORAAS gathers limb scans over the 750–100 Km altitude range, covering the 800–1700 Å passband at 17 Å resolution. The LORAAS observes limb profiles of the 911 Å emission during the daytime and the O I 1356 Å at night; these emissions are both produced by radiative recombination of F-region O<sup>+</sup> ions and electrons and therefore are useful for characterizing the ion density distribution in the F-region. The Coherent Electromagnetic Radio Tomography (CERTO) radio beacon also flew on the ARGOS. The CERTO is a coherently radiating radio beacon operating at 150 and 400 MHz. The slant total electron content (TEC) between the ARGOS and the ground was measured, using the CERTO emissions, by a receiver located at the Naval Research Laboratory during early 2001.

We present a comparison of the UV derived TEC and the radio beacon derived TEC over the NRL during January – April of 2001. Additionally, we present the electron densities derived by simultaneously inverting both the UV radiances and the radio derived TEC. These results are validated against ionsondes.