

## **Dayside high latitude UV imaging of the ionosphere**

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Special Sensor Ultraviolet Limb Imager (SSULI) is an optical limb scan imager developed by the Naval Research Laboratory (NRL) for the Defense Meteorological Satellite Program (DMSP). Retrieval algorithms will be used to image ionospheric electron density and atmospheric composition. As a prototype to SSULI, Low Resolution Airglow/Auroral Spectrograph (LORAAS) was flown on the Advanced Research Global Observation Satellite (ARGOS) beginning in 1999. This paper examines the performance of the dayside electron density retrieval algorithm at high latitudes using the 911 Å spectral line.

High latitude retrievals of dayside electron density from LORAAS UV limb scans are compared to retrievals of electron density from radio beacon receivers. Four beacon receivers, located along the west coast of Greenland, provide coverage in the polar cap and subauroral ionosphere. Since the ARGOS satellite carries a beacon transmitter and an aft-looking, UV limb scan imager, the retrievals resulting from the two techniques are reasonably close in time and space. Additional ionospheric diagnostics in the region are employed when available. These include additional beacon-satellite passes, incoherent scatter radar at Sondrestrom and ionosondes. While the first objective is to validate the limb scan dayside retrieval algorithm, the benefit of multiple sensors specifying the plasma distribution over a large area near the dayside cusp is also discussed. The operational version of this UV limb scan imager will provide many years of high latitude plasma imaging and significant opportunities for research.