THE EFFECT OF THE NOVEMBER 2001 SOLAR PROTON EVENT ON OZONE IN THE SOUTHERN POLAR CAP REGION

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The solar proton event on the 4th of November 2001 was the biggest proton event since the so-called Bastille day event in July 2000 according to the flux of protons with energy greater than 10 MeV recorded by the GOES 8 satellite. The November proton event was triggered by solar X-class flare followed by earth-warded Coronal Mass Ejection.

Proton events cause increased ionization in the middle atmosphere i.e. altitudes 10 - 90 km. Ion chemistry leads to increased production of odd nitrogen ($NO_x$) and odd hydrogen ($HO_x$) in this atmospheric area. These gases participate in several chemical reactions that decrease the amount of ozone in middle atmosphere. Because of the effect that the Earth's magnetic field has on charged particles (e.g. electrons, protons and other ions) the effects of proton events are greatest in the polar cap regions. Therefore we can expect a decrease in the amount of ozone in these areas.

At the time the proton event occurred the OSIRIS-instrument on board the Odin satellite was making aeronomy measurements. We will present the results of the ozone measurements in the SH polar region made before, during and after the proton event.