

AEM011-05

Room: Function Room A

Time: May 27 10:00-10:15

Comprehensive observational plans at the EISCAT Tromsø site 'Initial results with the new Sodium LIDAR'

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In this talk, we describe scientific targets based on our observational plans for the polar upper atmosphere at the Tromsø EISCAT site (i.e., Ramjordmoen) in northern Scandinavia, and introduce the current status and a plan of development of the sodium LIDAR. The aim of the research is to understand more deeply the Magnetosphere/Ionosphere/Thermosphere/Mesosphere coupling process in the polar region by making comprehensive observations. By using radio instruments (i.e., EISCAT, MF, meteor radars) as well as optical instruments (i.e., LIDAR, FPI, all sky imager) together, all the instruments are installed at Ramjordmoen, we can obtain comprehensive physical parameters (i.e., temperature and velocity) of the neutral gases as well as ionized particles independently with good time and altitude resolutions. We newly installed a FPI and an all-sky imager in January 2009. One of the key parameters to understand the coupling process is the temperature of the neutral atmosphere. Therefore, a sodium LIDAR has been desired. We have been developing a new sodium LIDAR for 3 years. In November and December 2009, we made test observations with the LIDAR at Wako and succeeded observing temperature profiles of the mesosphere and the lower thermosphere. In February 2010, we are going to install the LIDAR and start operations of the LIDAR at the site. We will present initial results obtained with the LIDAR and describe scientific plans using the LIDAR.

Keywords: Sodium LIDAR, magnetosphere-ionosphere-thermosphere, Tromsø, EISCAT