

Observations of dynamical and chemical variations of mesosphere, thermosphere, and ionosphere at the EISCAT Tromsø site

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We will introduce our activities at Tromsø (69.6N, 19.2E) in northern Scandinavia, and will talk about our future plan as well. The EISCAT radar system has been operated over 30 years, and Japan joined the EISCAT scientific association in 1996. Since then, Japanese scientists have used the EISCAT radars to study the polar ionosphere and thermosphere. To facilitate the activities as well as extend height and horizontal coverage of observations which lead us to study the atmospheric vertical coupling and the ionospheric currents/aurora dynamics in more detail, we have installed and operated several instruments at the EISCAT Tromsø site. A sodium LIDAR, an MF radar, a meteor radar, an FPI, a photometer, all-sky auroral imagers, an all-sky airglow imager, satellite beacon receivers are under operation. By utilizing these instruments, we study several topics occurring in the polar mesosphere/thermosphere/ionosphere. In the near future, a millimeter wave receiver for measuring minor constituent in the stratosphere/mesosphere/lower thermosphere will be installed. Furthermore, the new EISCAT radar, so-called EISCAT_3D, is planned.

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