

## Upgrading the sodium lidar in the Arctic region for the measurement of the MLT region

KAWAHARA, Takuya<sup>1\*</sup> ; NOZAWA, Satonori<sup>2</sup>

<sup>1</sup>Faculty of Engineering, Shinshu University, <sup>2</sup>STEL, Nagoya University

The sodium LIDAR installed at the EISCAT Tromso site has been successfully operated for four winter seasons (i.e., October to March) since October 2010. We had almost no system trouble in each season, and the fact clearly proved the high performance of the all solid-state (Nd:YAG) laser stability. Five-direction observation is also the best performance that the high power laser (4W) at 589 nm made possible. In the next step, we are conducting the following topics for upgrading the lidar performance; (1) simulation of a narrow-band optical filter for the daytime observation, (2) multi-direction observation targeting aurora with EISCAT radars, (3) reconfiguration of the laser frequency shifter for switching the frequency pulse by pulse and for optimizing temporal resolution.

In this talk, we show the calculation and experimental results for each topic.