Ground-based remote sensing of clouds and aerosol in the arctic Svalbard

SHIOBARA, Masataka¹ ; YABUKI, Masanori² ; KUJI, Makoto³ ; TAKANO, Toshiaki⁴ ; OKAMOTO, Hajime⁵

¹National Institute of Polar Research, ²Research Institute for Sustainable Humanosphere, ³Division of Natural Sciences, Faculty, Nara Women’s University, ⁴Chiba University Graduate School of Engineering, ⁵Kyushu University Research Institute for Applied Mechanics

Ground-based remote-sensing measurements for aerosol and clouds using Sky-Radiometer, Micro-Pulse Lidar (MPL) and All-Sky Camera have been performed continuously in Ny-Alesund, Svalbard on a long-term basis since early 2000’s. Further in addition, several new measurements have started with a polarization MPL in August 2013 and a 95GHz Doppler cloud radar in September 2013 for cloud microphysics and phase classification, and a dual frequency microwave radiometer in June 2014 for precipitable water and liquid water path. In this paper, preliminary results from those remote-sensing measurements will be presented in regard to physical characteristics of clouds, aerosol and water vapor, and the relationship in their interaction.