

## Temperature and metallic atom variability near the mesopause obtained from a frequency-tunable resonance scattering lidar at Syowa, Antarctica in 2017-18.

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The National Institute of Polar Research (NIPR) is leading a prioritized project of the Antarctic research observations. One of the sub-project is entitled the global environmental change revealed through the Antarctic middle and upper atmosphere. Profiling dynamical parameters such as temperature and wind, as well as minor constituents is the key component of observations in this project, together with a long term observations using existent various instruments at Syowa, Antarctica (69S). As a part of the sub-project, we developed a new resonance lidar system with multiple wavelengths. The lidar has a capability to observe temperature profiles and variations of minor constituents such as Fe, K, Ca<sup>+</sup>, and aurorally excited N<sub>2</sub><sup>+</sup>. The lidar system installed at the Syowa Station by the 58th Japan Antarctic Research Expedition (JARE 58) in January 2017 and then its observation has been continued. In this presentation, we will report temperature and metallic atom density variability in Mesosphere-Lower Thermosphere region based on 2-years observations from 2017 to 2018.