第 VIII 期重点研究観測による昭和基地上空の中層超高層大気の観測

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Observations of the middle and upper atmosphere over Syowa station, Antarctica by JARE VIII-th term prioritized research project

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Japanese Antarctic Research Expedition (JARE) has started the VIII-th six-year mid-term project in 2010, and the 52th JARE departed in November 2010 commenced observations of the six-year project. The middle and upper atmosphere study in the VIII-th therm, named as `Global environmental change revealed by observing the Antarctic middle and upper atmosphere', is one of the sub-projects of the prioritized research project entitled “Global warming revealed from the Antarctic”.

PANSY(Program of the Antarctic Syowa MST/IS) radar, and a Rayleigh/Raman lidar system have been newly installed besides the existing radio and optical instruments such as an MF radar, HF radar (Super DARN radar), ionosondes, an OH spectrometer and an all-sky airglow imager in Syowa station, in order to clarify variabilities on the atmosphere from the ground to the upper atmosphere. Also installed was a millimeter wave spectrometer.

PANSY radar is a 47 MHz VHF radar with 500 kW output power and 20,000 m^2 antenna array. The radar observes wind velocities from the troposphere to the mesosphere, as well as plasma parameters in the ionosphere. Initial results of the tropospheric winds was successfully observed in March 2011 by a partial system. The Rayleigh/Raman lidar observes temperature and clouds in the mesosphere, the stratosphere and part of the troposphere. The millimeter spectrometer measures density profiles of O3 and other species.

The current status and the future plan of the project will be presented in the talk.

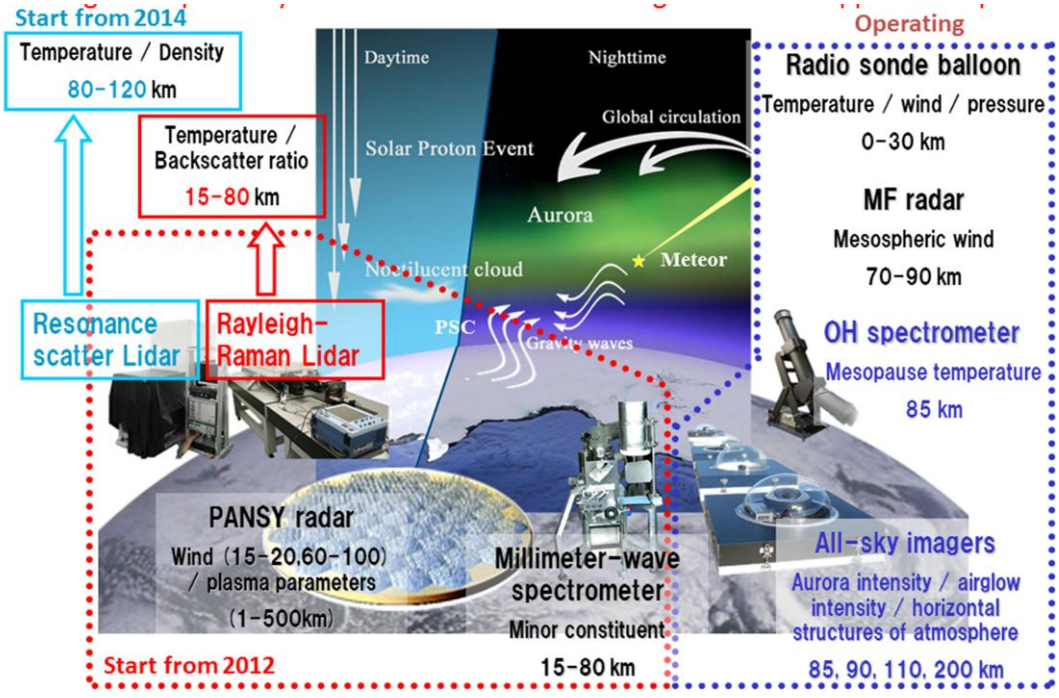

Fig 1 Outline of the project