Oral | Symbol A (Atmospheric, Ocean, and Environmental Sciences) | A-AS Atmospheric Sciences, Meteorology & Atmospheric Environment

[A-AS21_30AM1] Stratospheric Processes And their Role in Climate
Convener:*Kazuyuki Miyazaki(Research Institute for Global Change, JAMSTEC), Masakazu Taguchi(Aichi University of Education), Yoshio Kawatani(Japan Agency for Marine-Earth Science and Technology), Kaoru Sato(Graduate School of Earth and Planetary Science, The University of Tokyo), Chair:Yoshio Kawatani(Japan Agency for Marine-Earth Science and Technology)
Wed. Apr 30, 2014 9:00 AM - 10:45 AM  313 (3F)
The Stratospheric Processes And their Role in Climate (SPARC) is one of the major projects of the World Climate Research Programme (WCRP), and is characterized by its focus on chemical and dynamical coupling based on both observations and modeling. In this session, we welcome presentations on various processes in the troposphere to the mesosphere.

10:30 AM - 10:45 AM
[AAS21-P02_PG] Balloon-borne observations of lower stratospheric water vapor at the Antarctic Syowa Station
3-min talk in an oral session
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Keywords:water vapor, sonde, Antarctic, lower stratosphere

A variation of water vapor in the lower stratosphere has a large radiative forcing. It is considered that increase and decrease of lower stratospheric water vapor before and after 2000, respectively, altered the surface temperature trend by up to 30% in each period. However, since the water vapor content abruptly changes with height around the tropopause, it is hard to capture its variation exactly by satellite observations with a low vertical resolution. Many in-situ (i.e., balloon-borne and aircraft) observations with a high vertical resolution have been performed in low and middle latitudes, but few in the polar region. At the Antarctic Syowa Station (69.0S, 39.6E), three balloon-borne cryogenic frost-point hygrometer observations were performed in 2013 by the 54th Japanese Antarctic Research Expedition (JARE54), so that high precision and high vertical resolution data up to about a 25km altitude were obtained successfully. In this paper, a preliminary result of these observations is presented, and it will be discussed how important it is to continue the water vapor observation at Syowa Station.