

Moistening of the Antarctic upper troposphere via the warm conveyor belt

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An intensive balloon observation was performed at Antarctic Syowa Station (69.0S, 39.6E) in July 2016 using 7 Cryogenic Frostpoint Hygrometers (CFH) and 24 ECC ozonesondes. It aims at examining a fine vertical structure at the Antarctic tropopause and its relationship with the stratosphere-troposphere exchange (STE). High water vapor concentration was observed in the upper troposphere in 2 observations. Trajectory analysis and several kinds of diagnostics showed that the upper troposphere moistening was induced by upward transport of humid air from the lower/middle troposphere. We will discuss characteristics of dynamical processes inducing the transport and contribution of diabatic processes in the presentation.