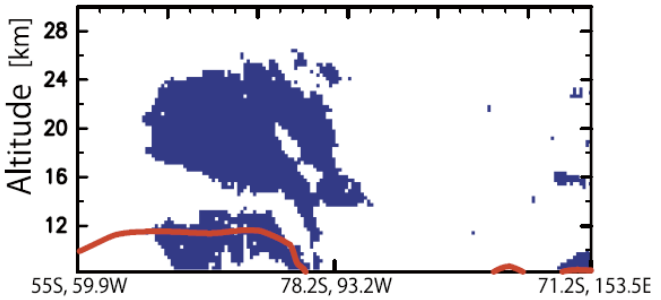
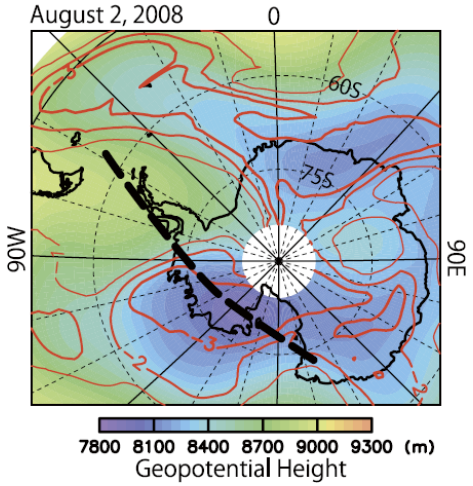
Simultaneous occurrence of polar stratospheric clouds and upper tropospheric clouds

- This study statistically examines the simultaneous occurrence of polar stratospheric clouds (PSCs) and upper tropospheric clouds using the CALIPSO satellite observations for the five austral winters of 2007–2011.
- The tropospheric clouds observed simultaneously with PSCs reported in previous case studies are likely located around and slightly above the tropopause.
- The simultaneous occurrence of PSCs and upper tropospheric clouds is frequently associated with blocking highs that have large horizontal scales and tall structure.
- The proportion of the PSCs consisting of nitric acid trihydrate (NAT) particles is higher on the leeward of blocking highs compared to the windward side.

(Kohma and Sato, 2013, Atmos. Chem. Phys.)



PSCs and tropospheric clouds observed by CALIPSO satellites on August 2nd, 2008.



Geopotential heights (p=300hPa, color) and potential vorticity (θ=300K, contour) on August 2nd, 2008. Black broken curves indicate the CALIPSO's satellite track.