

Frequency and spatial scale of the Polar Stratospheric Clouds observed with ILAS over both polar regions

Sachiko Hayashida [1], Naoko Saito [2], Hideaki Nakajima [3], Yasuhiro Sasano [3]

[1] Nara Women's Univ., [2] Sci,Nara Womens' Univ, [3] NIES

The Improved Limb Atmospheric Spectrometer (ILAS) on board Advanced Earth Observing Satellite (ADEOS) was launched in August 1996 and continued its regular operation from November 1996 until 30 June, 1997. ILAS could observe many Polar Stratospheric Clouds (PSCs) during the period of its operation over both polar regions.

More than hundred PSC profiles were identified during the period from November 1996 though March 1997 over the Arctic. Most of the PSC events took place under low-temperature conditions below NAT temperature. In June 1997, many PSC events were observed over the Antarctic. The ILAS data were compared with some balloon-borne measurements and lidar measurements to discuss spatial and time scale of PSC distribution.

The Improved Limb Atmospheric Spectrometer (ILAS) on board Advanced Earth Observing Satellite (ADEOS) was launched in August 1996 and started its regular operation in November 1996. ILAS could observe many Polar Stratospheric Clouds (PSCs) during the period of its operation over both polar regions. The observed PSCs in the 1997 Arctic winter were characterized by their prolonged appearance until mid-March. More than hundred PSC profiles were identified during the period from November 1996 though March 1997. In January and February, most PSCs appeared over around Greenwich at about 23 km altitude, while in March PSCs appeared much more to the east, at approximately 120 E at lower altitudes. PSC sighting probabilities were calculated as the ratio of the number of PSC events to the total number of measurements for every altitude and every 10-day period. The highest value of the sighting probability was about 0.5 in mid-January. Most of the PSC events took place under low-temperature conditions below NAT temperature. The movement of the PSC locations was strongly connected with the displacement of polar vortex and cold air mass. In June 1997, many PSC events were observed over the Antarctica until ADEOS operation stopped on 30 June, 1997 because of battery trouble. The ILAS data were compared with some balloon-borne measurements and lidar measurements to discuss spatial and time scale of PSC distribution.