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AEROSOL DISTRIBUTION CHANGE IN THE ANTARCTIC WINTER—BALLOON BORN EXPERIMENT DURING 1991— (ABSTRACT)

Masahiko HAYASHI and Yasu-nobu IWASAKA

Solar-Terrestrial Environment Laboratory, Nagoya University, Furo-cho, Chikusa-ku, Nagoya 464-01

Stratospheric aerosol concentrations and size distributions were observed during the Antarctic winter by balloon borne particle counter in the 32th Japanese Antarctic Research Expedition (JARE-32). Four balloons were launched at Syowa Station (69°S, 39°E) from May to August in 1991, giving the following results.

1) PSCs (Type-I) were observed above the descended Junge layer on July 3.

2) Junge layer was enhanced on July 21; in that region temperature was lower than the frost point of nitric acid trihydrate (NAT).

3) On August 10, PSCs were not observed even though the temperature condition was similar to that on July 21, suggesting that the Antarctic stratosphere was denitrified until early August.

4) The Antarctic Junge layer became thin during winter. This may have been caused by tropospheric erosion because of radiative cooling of the stratosphere.

These results suggest that the transport process in the Antarctic stratosphere was constructed by descent of air, particle sedimentation, and convection.

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