

TEMPERATURE VARIATION IN THE ANTARCTIC STRATOSPHERE (ABSTRACT)

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The analysis on stratospheric temperature measured at Syowa Station (69°00'S, 39°35'E) showed the following features:

- i) mostly averaged temperature of the Antarctic stratosphere became lower year by year;
- ii) year-to-year changes in vertical temperature distribution are found from fall to spring;
- iii) the number and location of tropopause height, in relation to ii), shows excellent year-to-year change.

Previously, the appearance of a cold spring or an increase in the length of winter (*i.e.* lengthening into spring) was pointed out (*e.g.*, IWASAKA and KONDOH: *Geophys. Res. Lett.*, **14**, 87, 1987), but there were no comments regarding the fall temperature. The present analysis, in addition to spring temperature decrease, suggested that the change in Antarctic stratospheric temperature started in fall. One example taken from many samples is shown in Fig. 1. The solid line shows temporal variation of the first tropopause. Second and third tropopauses are indicated by the arrows; the length and direction of the arrows show the wind speed and wind direction, respectively, at these tropopauses. The year when many second and third tropopauses were measured corresponded to the year when a cold spring appeared. The present analysis shows the possibility that the appearance of a cold spring is related to the change in temperature distribution of the fall season in the same year.

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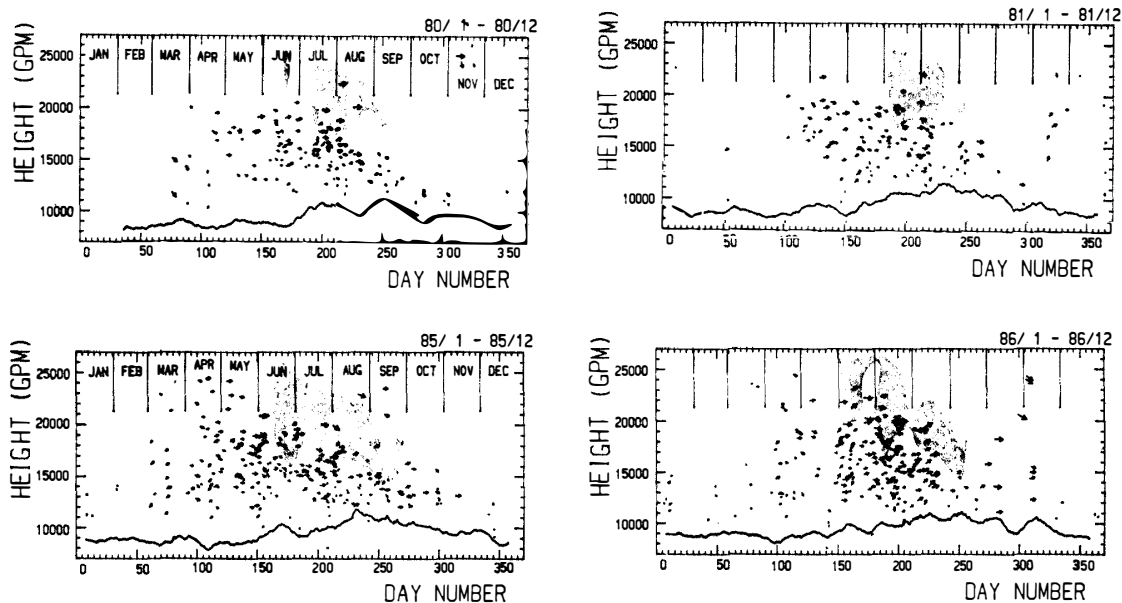


Fig. 1. Annual variation of tropopause height at Syowa Station.