

The low values suggest that the size distribution with large particles dominates in the stratosphere.

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### MICROPHYSICS ON WINTER ENHANCEMENT OF ANTARCTIC STRATOSPHERIC AEROSOL: HYDRATION OF SULFURIC ACID DROPLETS (ABSTRACT)

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Backscattering coefficient and depolarization ratio of the Antarctic stratospheric aerosols were observed by a lidar at Syowa Station (69°00'S, 39°35'E) in 1983. Their values increased extremely as the winter progressed, which suggests that most of the stratospheric particles had nonspherical shapes (possibly ice crystal particles) in winter.

The freeze-out of ice from diluted sulfuric acid droplets is possibly an important process controlling the winter enhancement of Antarctic stratospheric aerosols.

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### OBSERVATIONS OF WAVE, MEAN-FLOW INTERACTIONS IN THE SOUTHERN HEMISPHERE TROPOSPHERE AND STRATOSPHERE: A COMPARISON WITH THE NORTHERN HEMISPHERE (ABSTRACT)

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Characteristic features of the flow and wave, mean-flow interactions in the Southern Hemisphere troposphere and stratosphere are studied. An emphasis is placed upon the comparison of the stratospheric final warmings occurring in the two hemispheres. The dataset for this study consists of the NMC 1200 GMT analysis between 0.4 and 1000 mb during 1982. The transformed Eulerian mean diagnosis is used for examining the wave, mean-flow interaction.

The final warming occurred around March 31 in the Northern Hemisphere and around October 20 in the Southern Hemisphere. The final warming in the Southern Hemisphere is more rapid and intense, which is consistent with the fact that the planetary scale wave activity in the Southern Hemisphere is more intense than that in the Northern Hemisphere during the spring season.

In the Southern Hemisphere the polar easterly did not descend below 10 mb after the final warming, while the polar easterly kept descending to 50 mb in the Northern Hemisphere. The equatorial easterly in the lower stratosphere had extended and been connected to the polar easterly in the upper stratosphere of the Southern Hemisphere, while the connection was not observed in the Northern Hemisphere. It is found that both warmings were associated with the enhanced