



## **IMPACT OF THE SH MAJOR WARMING ON THE HADLEY CIRCULATION**

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It is known that stratospheric warmings modulate the Brewer Dobson circulation and produce changes in the equatorial stratosphere as well as in the polar region. It is, however, not well known how deep such influence can penetrate and produce detectable effects.

The result of a case study on the major warming of the SH in September 2002 shows that in association with the warming of the polar stratosphere, cooling occurs in the equatorial regions as expected. In addition, when the warming starts the Hadley circulation in the troposphere shifts southward and the convective activities become active over the equatorial region.

In order to check whether the change in Hadley circulation happened by chance, archived operational 9-day forecast data by JMA are also analyzed. Southward shift of the Hadley circulation in association with an enhanced meridional circulation due to the sudden warming is well forecasted.