

ON THE REMARKABLE STRATOSPHERIC WARMING IN THE WINTER 2008/09

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It is well known that the interannual variability of the stratospheric winters over the Arctic is very large. Based on data of more than 60 winters this variability has been studied with the aim of understanding and possibly forecasting the type of the coming winter, in the stratosphere and also in the troposphere.

Today, there is general agreement that the variability of the stratospheric circulation during the Arctic winters is due to different forcing mechanisms:

To the tropospheric planetary waves which penetrate into the stratosphere; to the Quasi-Biennial Oscillation (QBO) and the Southern Oscillation (SO) in the Tropics which influence the stratospheric polar vortex; and to the 11-year sunspot cycle (SSC) which interacts with the QBO and probably also with the SO.

For the winter 2008/09 all of the known signals pointed to a stable, cold stratospheric polar vortex throughout the winter, but in the real atmosphere a Major Midwinter Warming (MMW) developed in January and February with record breaking temperatures.

The synoptics of this winter will be discussed in the context of all of the above mentioned forcing mechanisms.

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