

# **CHAMP and SAC-C studies of gravity waves during stratospheric warming events**

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We present a study of gravity wave response to major mid-winter stratospheric warmings. The investigation is carried out by using the GPS radio occultation data collected by the CHAMP and SAC-C satellites. The analyzed CHAMP database covers a period of 56 months starting from May 2001 to December 2005, and the SAC-C data are for the period July 2001 to December 2004. We have identified the periods of major warmings during the corresponding winter periods in the Northern Hemisphere. It is found that during major warming periods the temperature is increased by an additional 25-30 K. During the warming conditions, the gravity wave energy ( $E_p$ ) is observed to increase by 2-3 times larger than that during the normal period. We will also describe the other characteristics of gravity waves and their response to the warming events.