



Convective indices as indicators for the troposphere - stratosphere wave interaction

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Stratosphere-tropospheric coupling occurs most clearly and could be considered during and/or after the development of the sudden stratospheric warming (SSW). The enhancement of the convective activity was examined on the basis of global distribution of convective indices before the sudden stratospheric warming (SSW) events, at the period of SSW and afterwards. A number of convective indices such as an atmosphere statical stability parameter, Total Totals, Deep Convection Index (Falkovich's index) and K-index were considered using the results of radio occultation observations of the COSMIC experiment. Generation, propagation, reflection, and transformation of planetary waves using three-dimensional distributions of the wave activity vector and its divergence were presented in order to assess a possible impact on the tropospheric weather and temperature anomalies. Generated planetary wave packets spread to higher latitudes in several longitudinal sectors and then up into the stratosphere. Relationship of convective tropospheric activity, planetary wave propagation and circulation processes in the troposphere and stratosphere were considered using the data assimilated in the UK Met Office model.