

Inter-hemispheric Coupling During Sudden Stratospheric Warming Events

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Long-term data sets of mesospheric winds and temperatures from the Antarctic station at Rothera (68 S, 68 W) and the Northern Hemisphere radar at Trondheim (64 N, 10.5 E) have been used to examine the Southern Hemisphere (SH) response to sudden stratospheric warmings (SSW) in the Northern Hemisphere (NH). Temperatures and winds in the upper mesosphere (80-100 km) in the SH from a Skiyet meteor radar system are compared to those from a similar system in the NH to examine whether the SSW perturb the global circulation or whether the effects are confined to the NH only. The winds and temperatures from both systems are also compared with re-analysis and satellite data to examine the role of equatorial ozone in the coupling. The analysis first characterized and removed seasonal cycles, and then performed a superposed epoch centred on SSW events. The results of this comparison, as well as possible mechanisms for the SH signature, will be presented and discussed.

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