

# **Mesosphere-stratosphere coupling by polar winter descent of odd nitrogen**

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Polar winter descent of odd nitrogen produced by energetic particle precipitation (EPP) represents an important vertical coupling mechanism transferring the solar signal from the mesosphere and lower thermosphere down to the polar stratosphere and possibly below. While the production mechanisms of odd nitrogen and the dynamical processes affecting its downward transport are qualitatively well understood, uncertainties remain, however, with respect to their quantitative assessment. This talk summarizes recent progress in constraining these processes by observational data with particular emphasis on the analysis of the 10-years record of global NO<sub>y</sub> obtained from MIPAS-Envisat during 2002-2012. Implications for the representation of EPP impacts in atmospheric models will be discussed.

Key words: EPP, vertical coupling, solar influence