



## **The impact of solar wind co-rotating interaction regions on the dynamics of the neutral middle atmosphere**

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The study of a link between solar forcing and short-term (regional) climate variability is a particularly active area of research. Long term studies have shown correlations between the solar wind pressure and features of the lower atmosphere such as the behaviour of the northern annular mode and the quasi-biennial oscillation. A definitive mechanism to explain these correlations remains elusive but a strong candidate is the chemical and dynamical changes due to energetic particle precipitation (EPP) into the middle atmosphere. This EPP is highly correlated with solar wind transients such as c-rotating interaction regions (CIR), which drive geomagnetic activity.

The aim of this study is to identify whether such drivers have a significant effect on the dynamics of the middle atmosphere, an important link in the chain to explain possible impacts on the lower atmosphere. Past studies used geomagnetic indices to examine the response of the mesosphere to this activity with highly variable results. Here we use direct observations of the solar wind driver and middle atmosphere radars to investigate the impact of CIR on the neutral winds.