

# **Is there an influence of short-term solar activity variations on mesopause region airglow?**

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A-priori, rapid variations of solar activity that directly impact on the terrestrial atmosphere should be expected to influence airglow brightness in the mesopause region via the photodissociative production of atomic oxygen, as it does on the time scale of the solar cycle. An alternative interaction path involving geomagnetic perturbations mediated by the solar wind can also be expected to affect the mesopause region. To find out whether these influences are supported by our midlatitude data set, we analyze the strongest geoeffective solar activity events, in times when data from the Argentine airglow spectrometer were obtained. Daily mean values of different solar and geomagnetic activity indices, and more than 1200 nights of airglow brightness and rotational temperature measurements (mostly from El Leoncito, 31.8°S) are available for this study. The diagnostic value of this investigation is augmented by using information corresponding to two different nominal altitudes (87 km for the OH(6-2) band, and 95 km for the O<sub>2</sub>b(0-1) band). Our approach ranks the solar and airglow events by their respective strength, which automatically provides emphasis on the more important cases.