



## **SEP impact on the terrestrial environment\***

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The impact on the terrestrial atmosphere of Solar Energetic Particles (SEPs) is known to be an important aspect of Space Weather, since they can be both precursors of the arrival at the Earth's location of interplanetary perturbations (able to generate geomagnetic storms through the solar-wind magnetospheric coupling) and generators of disturbances in the environmental conditions. Indeed, when SEPs hit our planet the chemical abundances and temperatures of the middle/upper atmosphere can drastically change, particularly at high-latitude regions, where SEP access is facilitated by the low geomagnetic field. Several case studies are used to illustrate such variability, including some non solar-induced phenomena related to the descent of air in the winter polar vortex.

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