

“Impact of the solar activity on the Earth’s atmosphere”

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The solar activity is the most important natural external forcing in the climate system and it affects all physical, chemical, and biological processes. It includes both transient and long-lived phenomena and influences the terrestrial environment by the direct output of the electromagnetic radiation and through the variability of the incoming solar and galactic cosmic ray fluxes. Therefore, we have carefully to take this into account when trying to evaluate man-made climate changes.

The impact of the electromagnetic and corpuscular solar radiation on the atmosphere is latitude dependent. Strongest effects induced by cycles in solar irradiance (e.g., 11-year and 27-days) are found at low latitudes, while energetic particles of solar origin (i.e., transient events called SEP) impact mainly Polar Regions. In this talk, after a brief introduction on the topic, examples of solar-induced variability of ozone and other atmospheric components will be provided, with a special care to the Polar Regions.

Martes 17 JULIO 2012, 13:00 horas

Sala de Conferencias, Tercer Piso, Departamento de Física
Universidad de Santiago de Chile

