

Interannual variability of the cloud cover in the Paris area: a synoptic regime analysis

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The major issue here is to understand the role of the cloud interannual variability on the climate. Actually, recent studies show that some temperature anomalies in Europe are not explained by a dynamical regime anomaly: a cloud cover anomaly is then a possible explanation. In particular, responses are expected concerning the mechanisms that relate cloud variability to regional climate variability. The ground-based atmospheric observatory of SIRTa collects data since about ten years, allowing the documentation of the complete atmospheric column: measurements of (i) classical meteorological parameters (temperature, pressure, relative humidity, precipitations...), (ii) water vapour using GPS and other techniques, (iii) vertical structure of clouds using lidar and radar, (iv) downward and upward radiative fluxes... The interannual variability of the cloud cover is studied using this database. These observations are classified by synoptic regime in order to differentiate the impact of general circulation from more local elements. This classification is done following two different methods: the first one is based on maps of geopotential height located mostly over the Atlantic Ocean in the North hemisphere, the second one is based on the temporal variation (24- to 48-hours) of local thermodynamical variables such as temperature, relative humidity, and sea-level pressure.