



Worldwide influence of Lamb Weather Types on Temperature, Precipitation and Wind Speed

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One of the main objectives of synoptic climatology is the detection of large-scale atmospheric drivers determining local climate variability. Especially in the extra-tropical regions, synoptic circulation plays an important role in driving local climate; for example, it is known that Atlantic weather fronts are responsible of a high amount of winter precipitation in Europe.

In this research, the Weather Type catalogue developed by Lamb to classify the continuum of the atmospheric circulation in 10-26 classes was obtained individually at each grid point of the mean sea level pressure Era-Interim dataset (spatial resolution 0.7°), spanning the whole world. Although the analysis was performed globally, Tropical and Polar regions were excluded, the former because the Coriolis effect is weak at $0-23^\circ$ N-S (nullifying the vorticity index), and the latter due to the spatial distortion of the Lamb grid at very high latitudes.

Each resulting Weather Type was related to the local observed average daily 2-m Temperature, Precipitation and 10-m Wind speed anomalies from Era-Interim during last 30 years (1985-2014) to identify the Weather Types that behave as climate drivers at seasonal and yearly time scale.

While some countries and regions have already been analysed in detail individually at higher spatial and/or temporal resolutions, this study provides a global view, filling the existing gap in literature, particularly in the Southern Hemisphere (South Africa, South America, Australia) and over oceans, providing a bigger picture of the influence of Weather Types on climate.