



Climate Atlas of mainland Portugal

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In this work we present the Climate Atlas of mainland Portugal for the 1971-2000 period. This atlas provides monthly climatology of temperature (mean, minimum, maximum temperature) and precipitation. Moreover, the monthly number of frost days (days with minimum temperature below 0°C), tropical nights (minimum temperature above 20°C), hot days (maximum temperature above 25°C) and very hot days (maximum temperature above 30°C) are computed. The monthly number of rainy days (≥ 1 mm), heavy precipitation days (≥ 10 mm) and very heavy precipitation days (≥ 30 mm) are also presented.

The data used in this work includes 61 climatological stations and 268 rain gauges, considering the quality control analysis. Only stations with at least 20 years of data in this thirty-year period are used. Additionally, spatial consistency of monthly values and visual inspection of time series plots are performed.

The 100 meters resolution gridded maps are obtained using advanced geostatistical interpolation methods, namely ordinary and residual kriging. In the last case, the predictor variables are altitude and distance to coast. The validation of interpolation process, specifically the semivariogram modelling and neighbourhood searching, is done not only optimizing the cross-validation errors, but also, by visual analysis and expert examination of the prediction maps.