

CLIVAR-SPAIN contributions: Trends in dry spells across Catalonia (NE Spain) during the second half of the 20th century

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A spatiotemporal trend analysis of different magnitudes related to the number and length of the dry spells in Catalonia (NE Spain) has been conducted based on daily rainfall records taken from 40 rain gauges during the second half of the 20th century. Dry spells have been computed for threshold levels of 0.1, 1, 5 and 10mm/day at annual and semi-annual scales. The winter half-year is defined from October to March and the summer half-year from April to September. The magnitudes considered are the number, the maximum length and the mean length of the dry spells for every year and half-year. The spatial patterns of the average values of these magnitudes at the annual scale show a greater similarity with those of the summer half-year than with those of the winter half-year. A S-N or SW-NE gradient of the number of dry spells appears during the summer half-year for every threshold level. Trends of the analysed magnitudes are derived from linear regression and local statistical significances at the 95% confidence level are established using the Mann-Kendall test. Field significant trends are investigated by means of Monte Carlo simulations. The most relevant finding is that the number of dry spells per year depicts significant trends for the annual and winter-half series, with an overall decreasing trend for 5 and 10mm/day thresholds. Keywords: CLIVAR-SPAIN, CLIMATE VARIABILITY AND CHANGE, SOUTHWESTERN EUROPE