

# Autocorrelation in Weather

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## 1 Introduction

The goal in this practical is to write an r script that helps answer the question: *are temperatures of one year significantly correlated with the next year (successive years), across years in a given location?*

For this, we calculate the correlation between  $n - 1$  pairs of years, where  $n$  is the total number of years. note that one cannot use the standard p-value calculated for a correlation coefficient, because measurements of climatic variables in successive time-points in a time series (successive seconds, minutes, hours, months, years, etc.) are *not independent*.

## 2 Data

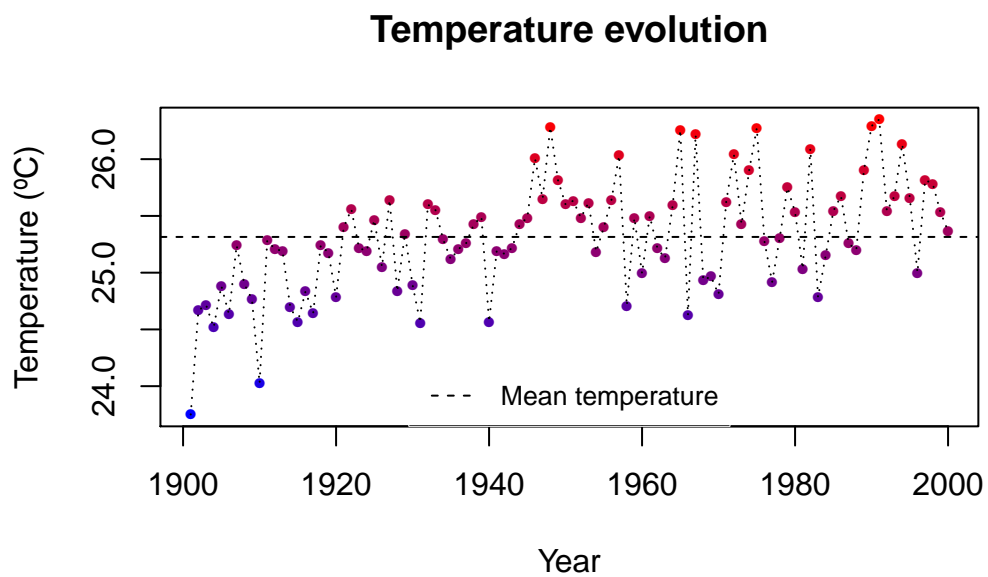


Figure 1: Temperature time series. Redder indicates warmer. A dashed line connects the points for better visualization