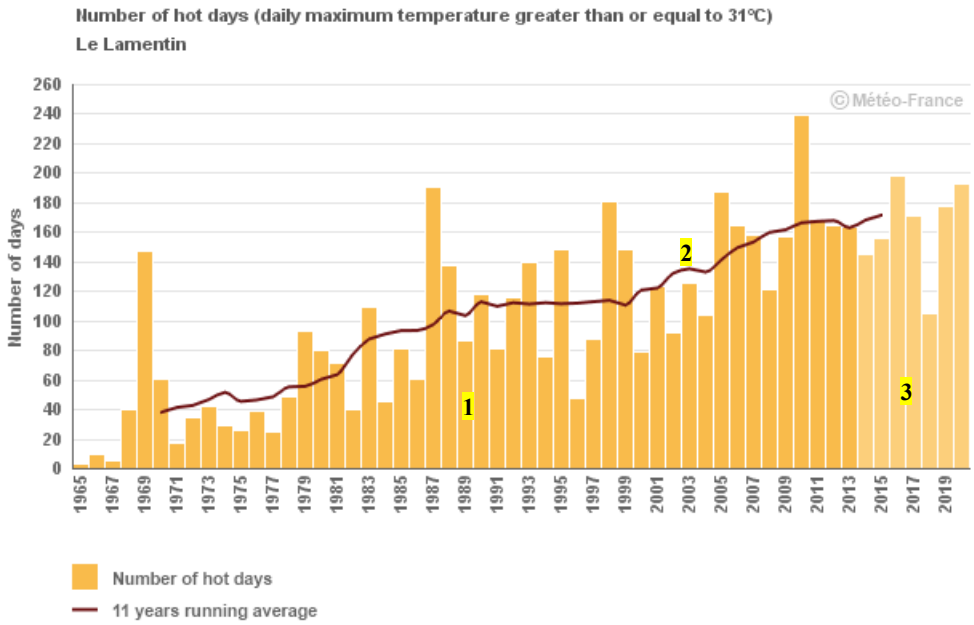
Evolution of the number of hot days
Past climate – French West Indies

1. Graph reading aid



3 time series are represented on the graph :

Series 1 'yellow histogram' :
Annual number of hot days since 1965 (*daily reference time series, see § 3. Data and methods*). Any years with missing daily data not allowing the computation of this parameter are shown in grey.

Series 2 'purple curve' :
11-year running mean of the parameter represented by the histogram. The running mean being centered on the considered year by construction, there is no value for the first 5 years of the time series, nor for the last 5 years. In case of missing annual values, the running mean is calculated only for fractions of the series without missing values during at least 20 years.

Series 3 "lighter' yellow histogram' :
Annual number of hot days since 1965 (*daily reference time series over the period following homogenized series, see § 3. Data and methods*).

2. Definitions

Daily maximum temperature (TXq) : maximum observed temperature between D-day at 8 am local time and D+1 day at 8 am local time
Hot day : day with daily maximum temperature exceeding 31°C (TXq ≥ 31°C) .

3. Data and methods

Homogenized series :
Observed time series cannot be used directly to analyze climate change. Indeed, they are affected by changes in measurement conditions over time, such as displacements of the measuring station, or changes in sensors. These changes cause shifts, which can be of the same order of magnitude as the climate signal. Homogenization is a statistical treatment that consists in detecting and correcting shifts in observed time series in order to produce reference series adapted to quantify climate change.
Homogenized series are produced for a particular period, e.g. 1965-2013.

Daily reference time series :
Homogenization applies to monthly mean time series. Homogenized series therefore do not allow analyzing changes in daily extremes, such as the number of days with temperature exceeding a certain threshold.
Daily reference time series are observed time series that have not been corrected, but have been selected because of their quality, making use of the results of homogenization among others. They may start later than homogenized series, if they do not satisfy the quality criteria at the beginning of the period. On the graph, they are represented with a lighter colour over the period following that of the homogenized series (Martinique). The same colour is also used to represent raw time series over the whole period when homogenized series (and therefore daily reference time series) are not available (Guadeloupe).

In the French West Indies, there are 4 daily reference time series of maximum temperature, all located in Martinique. Among these, 3 series have been selected according to criteria of availability, quality and representativeness.