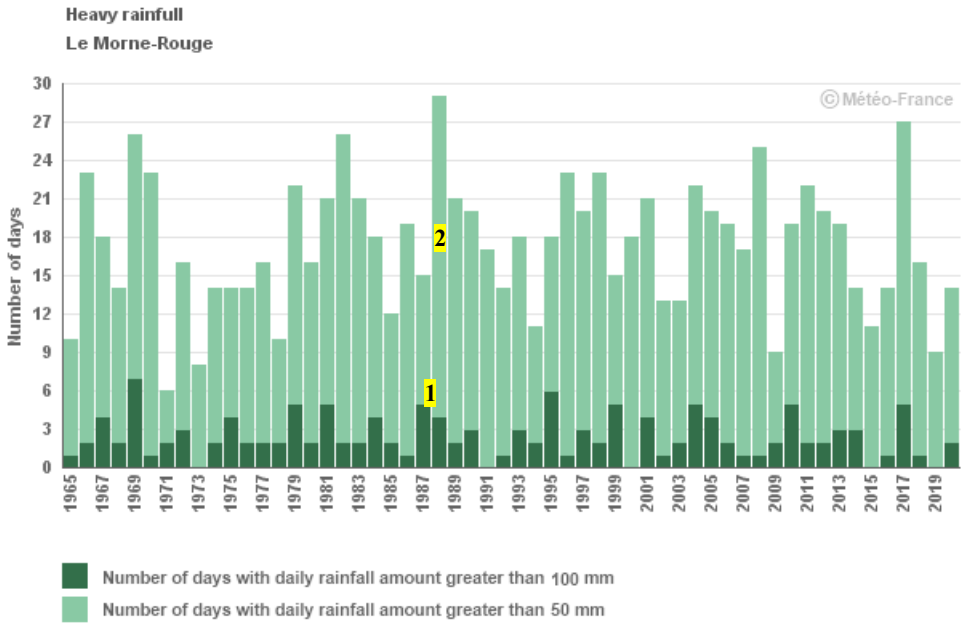
Evolution of intense rainfall
Past climate – French West Indies

1. Graph reading aid



2 time series are represented on the graph :

Series 1 'dark green histogram' :
Annual number of days with daily precipitation exceeding 100 mm at the considered station 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. In this example, the year exhibiting the largest number of events is 1969 with 7 events.

Series 2 'light green histogram' :
Annual number of days with daily precipitation exceeding 50 mm at the considered station 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. In this example, the year exhibiting the largest number of events is 1988 with 29 events.

2. Definitions

Daily precipitation : amount of water collected between D-day at 8 am local time and D+1 day at 8 am local time.

Intense rainfall : a day of intense rainfall corresponds to a day with daily precipitation exceeding 50 mm.

Extreme rainfall : a day of very intense rainfall corresponds to a day with daily precipitation exceeding 100 mm.

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. 1950-2013.

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 rainfall amount 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.

In the French West Indies (Guadeloupe and Martinique), there are 31 daily reference time series of precipitation. For indices related to daily precipitation, 6 daily reference time series have been selected, according to criteria of quality and representativeness.

4. References

The website of Météo-France for extreme rainfall in the French West Indies (in French)
http://pluiesextremes.meteo.fr/antilles/