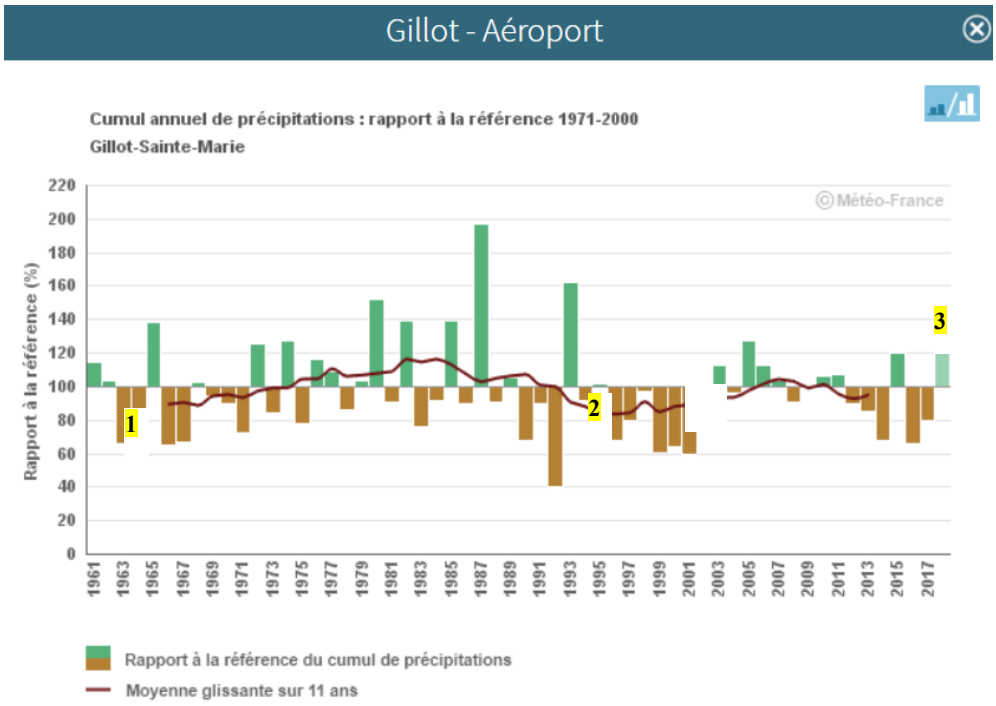
Evolution of annual and seasonal precipitation
Past climate - Reunion Island

1. Graph reading aid



3 data series are represented on the graph:

Series 1 'ochre and green histogram':
Ratio between the annual or seasonal observed rainfall amount *(homogenized series, see §3. Data and methods)* and the reference average (over the 1971-2000 period).
Values below the reference average are represented in ochre, those above in green.

Series 2 'brown curve':
11-year moving average of the parameter represented by the histogram. Due to the moving average which is centered on the concerned year, there is no value for the first 5 years of the series, nor for the last 5 years.

Series 3 '*lighter* ochre and green histogram':
Ratio between the annual or seasonal observed rainfall amount *(non-homogenized series, see § 3. Data and methods)* and the reference average (over the 1971-2000 period).

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2. Definitions

Meteorological seasons:

- January – March: austral summer (wet season)
- April – June: transition season into austral winter
- July – September: austral winter
- October – December: transition season into austral summer

Ratio between the annual or seasonal rainfall amount and the reference value:

- Annual or seasonal rainfall amount (RRs): accumulation over the year or season of daily precipitation
- Daily precipitation: quantity of rainfall collected between D-day at 7am local time and D+1 day at 7am local time
- Reference average over the 1971-2000 period (Ref RRs): average of the 30 RRs values
  = ratio between (RRs) and (Ref RRs)

3. Data and methods

Homogenized series:
Data series are not directly usable for analyzing climate change. They are affected by changes in measurement conditions over time, such as movements of the measuring station, or changes in sensors. These changes cause breaks, which can be of the same order of magnitude as the climate signal. Homogenization is a statistical treatment that consists of detecting and correcting breaks in measurement series in order to produce reference series adapted to quantify climate change.

On Reunion Island, work is in progress to homogenize the monthly rainfall series starting in the 1960s, using the HOMER method *(see § 4.References)*.
6 homogenized series were selected according to criteria of availability, quality and representativeness.

4. References

HOMER: a homogenization software – methods and applications. Idojaras, Quarterly journal of the Hungarian Meteorological Service, 117, no. 1, 2013.
Mestre, O., P. Domonkos, F. Picard, I. Auer, S. Robin, E. Lebarbier, R. Böhm, E. Aguilar, J. Guijarro, G. Vertachnik, M. Klancar, B. Dubuisson, and P. Stepanek.