

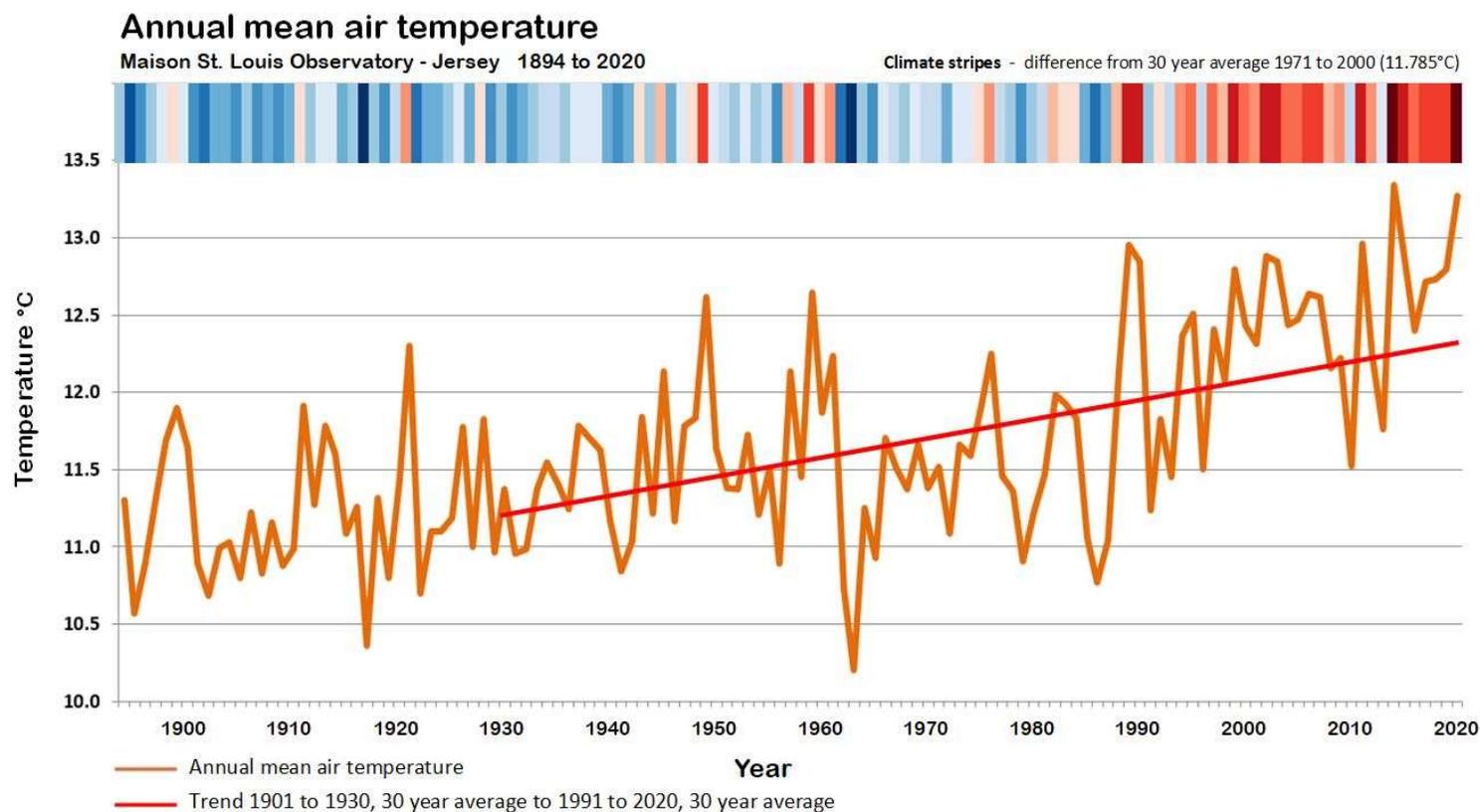
Factsheet – climate change: the local context

What does climate change mean for Jersey?

Climate change is already causing observed changes in Jersey. The primary source of evidence of this is the temperature record.

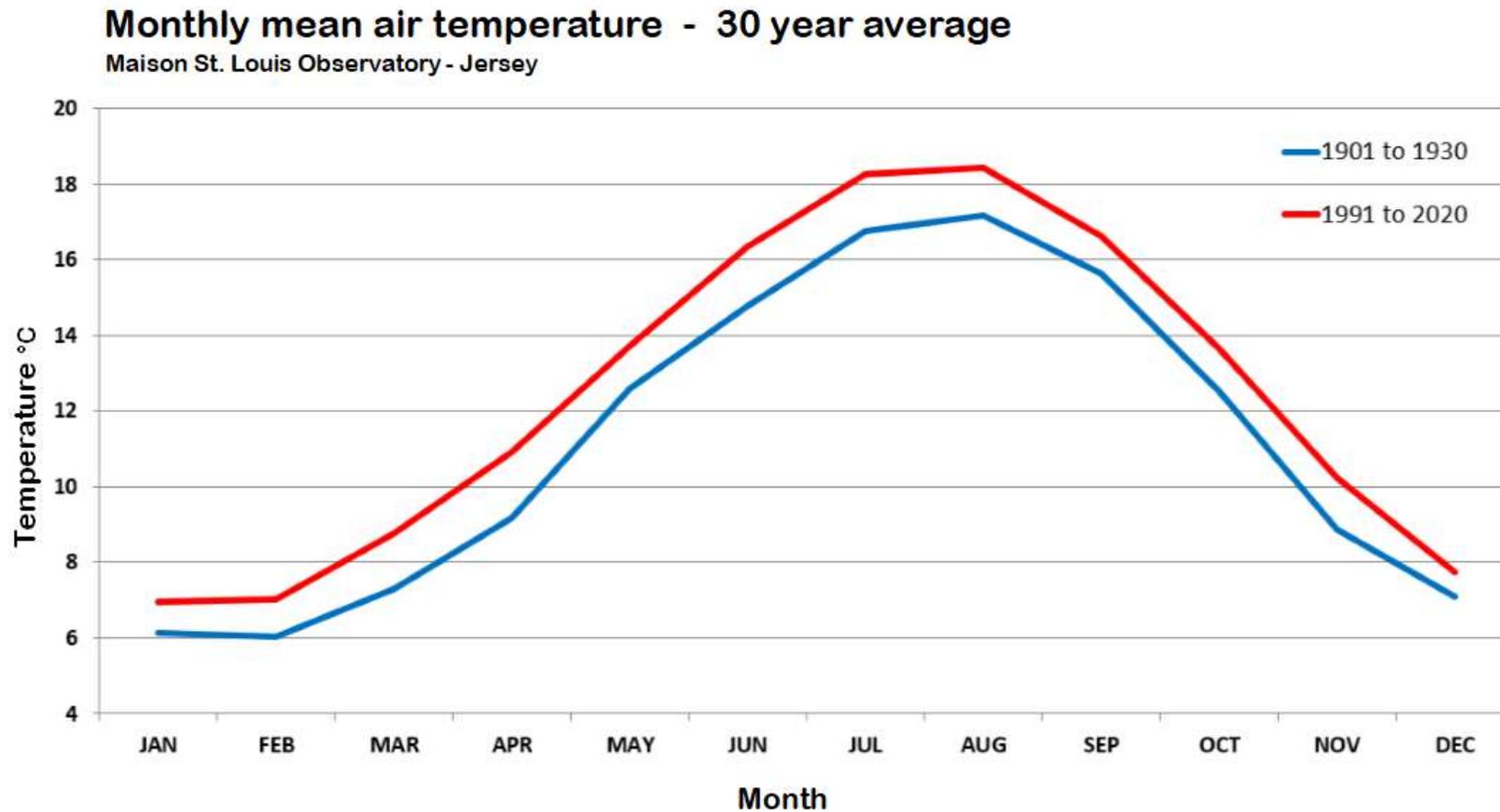
Temperature

The figure below shows Jersey's average annual air temperatures since 1894, which has increased by 1.16°C since 1900.



The figure also includes the 'climate stripes', where the colour of each stripe represents the average annual temperature (blues are cooler and reds are warmer), used to raise awareness of the issue of climate change.

The graph below shows how the 30-year average of monthly mean air temperature in the period of 1991-2020 is consistently higher than in the period 1901-1930.



Observations in Jersey relating to temperature

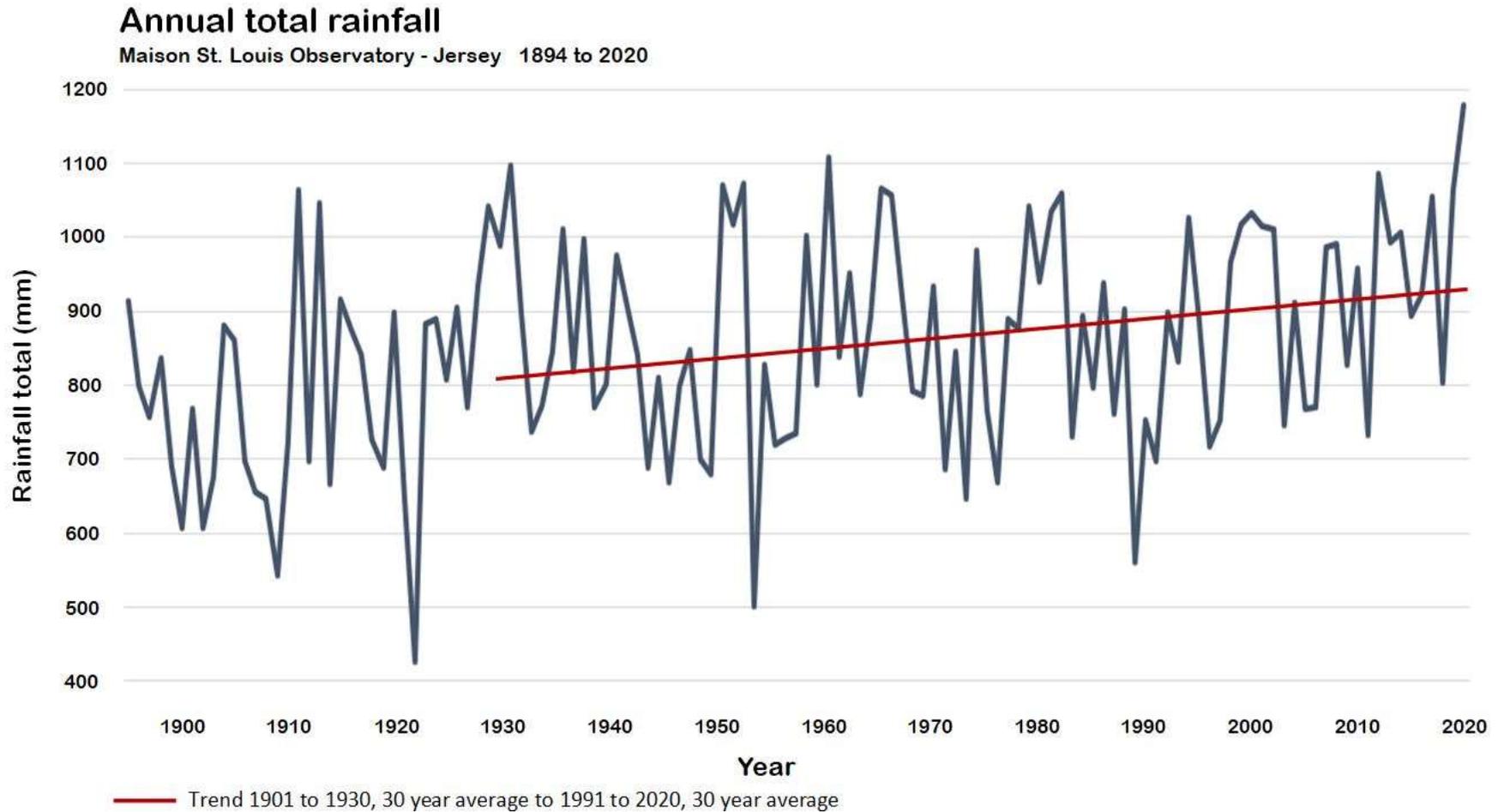
- Seven of the ten hottest years on record have happened since 2000.
- Fourteen of the twenty hottest years on record have happened since 2000.
- In 2020, six individual months were in the top ten hottest for their respective month.
- Spring in 2020 was the hottest since records began.
- The hottest year on record was 2014, with 2020 being the second hottest.
- Looking at the two 30-year periods, as shown on the graph above, 1901 to 1930 and 1991 to 2020, Jersey's average annual temperature has increased by 1.16°C.

What are the potential local impacts of such changes in temperature?

- Some evidence that the incidence of ground and air frost is reducing. 2020 had just 18 ground frosts, much lower than the 30-year average of 46. This was the least recorded in a year since records began in 1897.
- The increase in frequency and intensity of heatwave events can have severe impacts on people, ecosystems, and infrastructure.
- During a peak week in the summer demand for water can increase by over 30% above average usage rates. Potential impact on species range (see separate factsheet on biodiversity and climate change).

Rainfall

In addition to changes in temperature, there is evidence that rainfall patterns are also changing in Jersey. The graph overleaf shows an increasing 30-year average in annual total rainfall.



This increase in rain is not evenly distributed throughout the year. Over the period April to September we see little change in rainfall totals, with the increase being seen between October to March.

Observations in Jersey relating to rainfall

- 2020 was the wettest year on record.
- October 2020 was the wettest, and December 2020 the 2nd wettest, for their respective months since records began in 1894.
- Seven of the last ten years have been wetter than average.
- On average today we can expect an annual rainfall total more than 100mm above that of 90 years ago.
- If we split the year in half (Oct to Mar and Sep to Apr) there has been increased rainfall recorded in the winter 6 month period, but totals for the summer 6 month period have stayed fairly steady.
- During the summer 2019 Jersey experienced a drought (15 consecutive days without rain).
- The island has limited underground water reserves and no links to external water networks. It relies on rainfall for most of the mains water supplied and is therefore vulnerable to periods of drought.
- An increase in the number, duration, and severity of droughts could result in more use of the desalination plant to supplement water supplies.

What are the potential local impacts of changes in rainfall patterns?

- Increased winter rainfall can lead to increased contaminated water and surface runoff, due to shorter, heavier bursts of rain.
- With less rainfall during summer months, the need for freshwater storage will increase.
- Demand for water is expected to increase to 24 million litres a day by 2045 and at such a point demand is likely to exceed supply by 8.2 million litres a day during severe drought conditions.
- An increase in the frequency of flooding could impact infrastructure costs to the Island and the price of Islanders' insurance if damage occurs to their homes and businesses.

Sea levels

In line with global averages, the sea level around Jersey is currently increasing by 3mm per year.

There is anecdotal evidence of increased frequency of flooding in low-lying coastal areas, such as Beaumont. It is difficult to separate how much of this is due to sea level rise and how much is due to an increased intensity of rain and ground saturation or storm surges.

However, Jersey has suffered major coastal flooding events, due to a sea level rise combined with a storm surge and high tide, in particular in 2008 and 2014. The 2008 event led to sea wall damage totalling up to £500,000 and the cluster of events in 2014 led to emergency repairs in excess of £1.1 million.

With current levels of greenhouse gas emissions future climate change models predict that Jersey will have a sea level rise prediction of 0.83 metres by 2120 (Jersey Shoreline Management Plan, 2019).

What are the potential impacts of sea level rise?

- As an island jurisdiction with an increasing population, the impact that sea level rise will have on housing, infrastructure, agriculture and the natural landscape if left unchecked is predicted to be significant.
- Work has started on increasing the sea defences in the lowest lying areas of the Island such as St Aubin's bay and Havre des Pas and this investment will need to continue to protect against further flooding in the future.
- The Shoreline Management Plan aims to ensure that our coastal defences continue to protect the island over the next 100 years with a total cost estimated at £198 million.

Projected future changes to the climate for Jersey

The UK Met Office at the Hadley Centre have projected changes to the climate for the UK for the next 60 years under a high global greenhouse gas emission scenario¹. These projections provide relevant information for the future changes to the climate in Jersey as follows:

- **Rising seasonal temperatures:** winter warming projected to increase by at least 0.7°C and potentially up to 4.2°C, summer warming projected to increase between 0.9 and 5.4°C by 2070
- **Hot summer days** are projected to increase by at least 3.7°C and potentially up to 6.8°C
- **Increased frequency of hot spells** over the Southern UK is projected to increase from once every 4 years to 4 times per year

¹ Under high emissions scenarios for the period 2061-2080 relative to 1981-2000 published by the UK by the Met Office, Hadley Centre
<https://www.metoffice.gov.uk/pub/data/weather/uk/ukcp18/science-reports/ukcp-infographic-headline-findings.pdf>

- **Wetter winters, drier summers:** average winter precipitation changes are projected to be between a decrease of 1 % and an increase of up to 35% and summer rainfall is projected to be between decrease by up to 47% and an increase of up to 2%
- **Increases in extreme rainfall:** extreme hourly rainfall intensity with an event that typically happens once every two years increases by 25%

Read more about climate change in the UK and in Jersey:

- **UK Met Office**
<https://www.metoffice.gov.uk/weather/climate-change/effects-of-climate-change>
- **Jersey Met**
<https://www.gov.je/weather/pages/about-jersey-met.aspx>
- **Jersey Shoreline Management Plan**
<https://www.gov.je/environment/generateenergy/pages/shorelinemanagementplan.aspx>