

# OBSERVED PAST WEATHER

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Somerset

September to March 1981-2014

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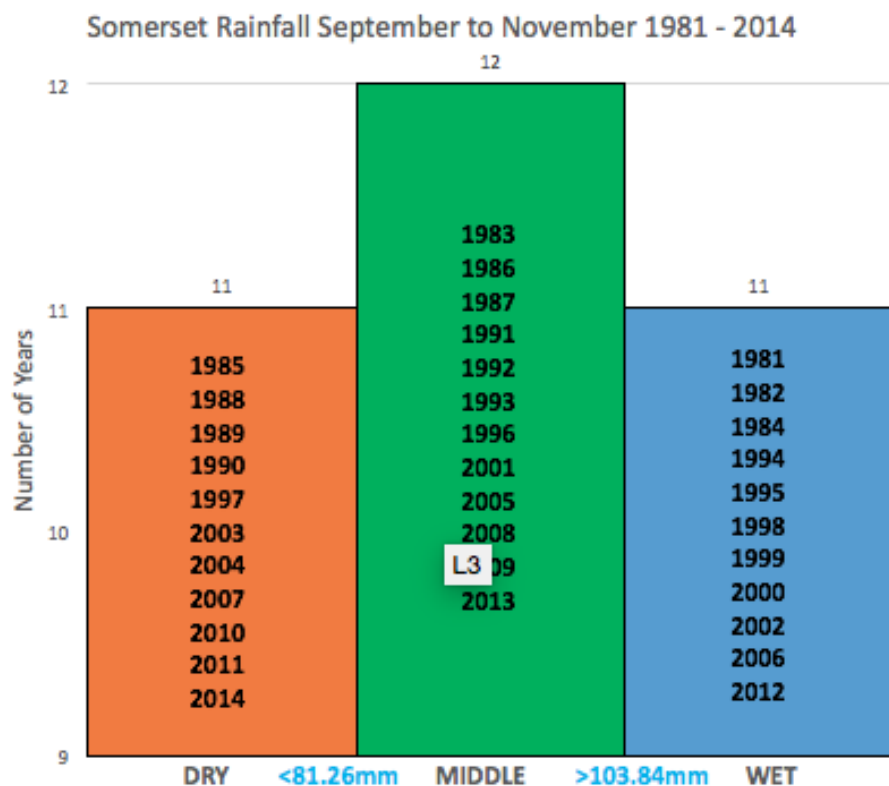
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This catalogue can be used along side the 3 month weather forecasts to compare previous years weather to what it is predicted to be in the 3 month forecast.

For each 3 month category we have taken the observed actual weather from 1981 to 2014 and placed the average values over the 3 month period into 3 tercile categories: BELOW AVERAGE, AVERAGE & ABOVE AVERAGE. So for example, when looking at rainfall, below average would indicated a dryer than normal 3 month period.

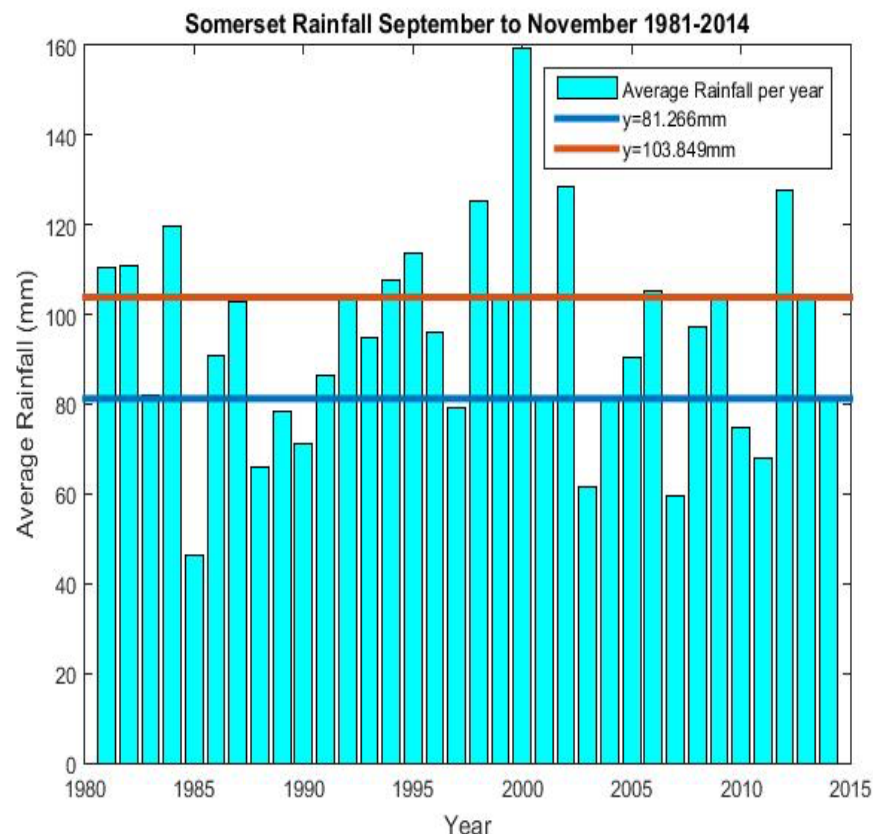
These graphs can be used in line with observations you have made over the years to be able to make decisions on how to best manage your land.

# September to November - Rainfall



The rainfall for the 3 month period in each year was split into 3 categories, showing where the rainfall has been less or more than the average.

EG. September to November in 2014 was dryer than average, with rainfall less than 81.26mm

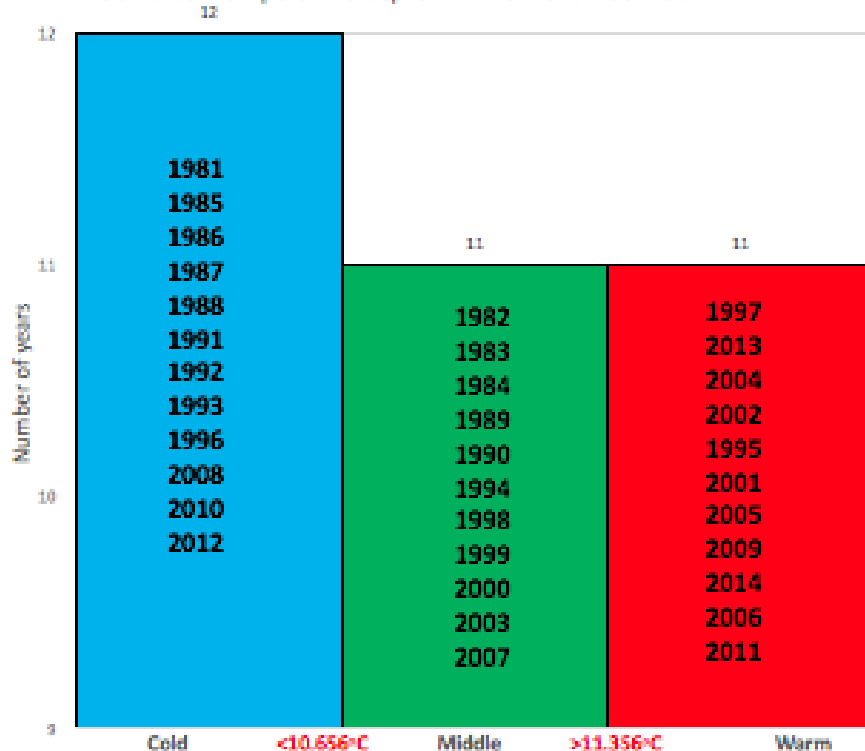


This next graph shows the distribution of the years within the boundaries i.e how close the years rainfall values are to the boundaries, also giving the actual rainfall values for each year. The horizontal lines represent the boundary values.

EG. In 2013 the rainfall was nearer to the above average boundary (WET) compared to the below average boundary (DRY).

# September to November - Temperature

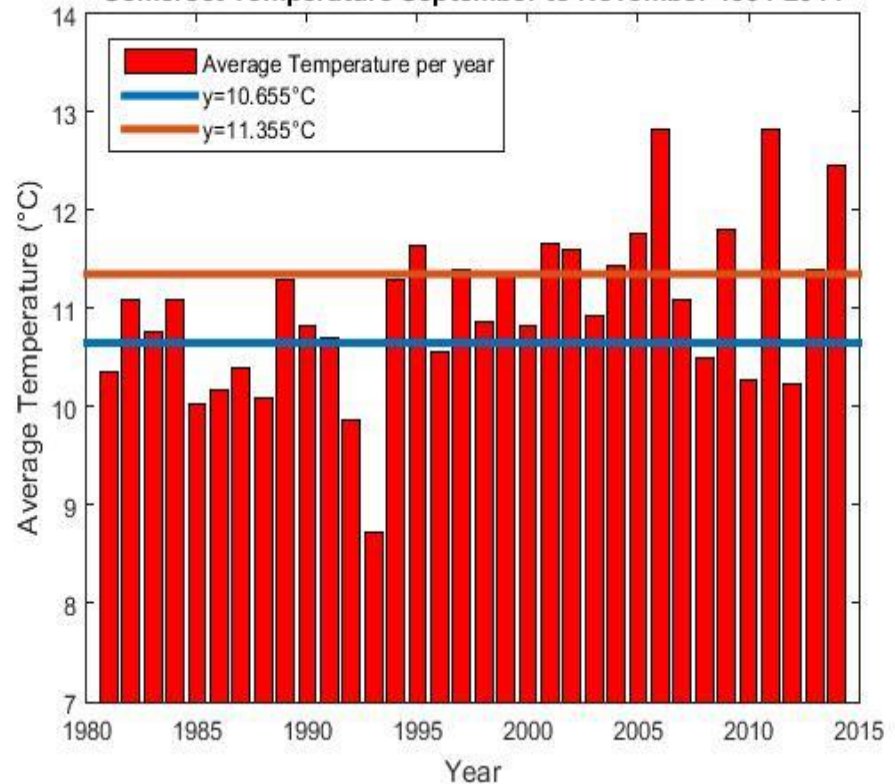
Somerset Temperature September to November 1981-2014



The Temperature for the 3 month period in each years was split into 3 categories, showing where the temperature has been less or more than the average.

*EG. September to November in 2012 was colder than average, with average temperature less that 10.656°C.*

Somerset Temperature September to November 1981-2014



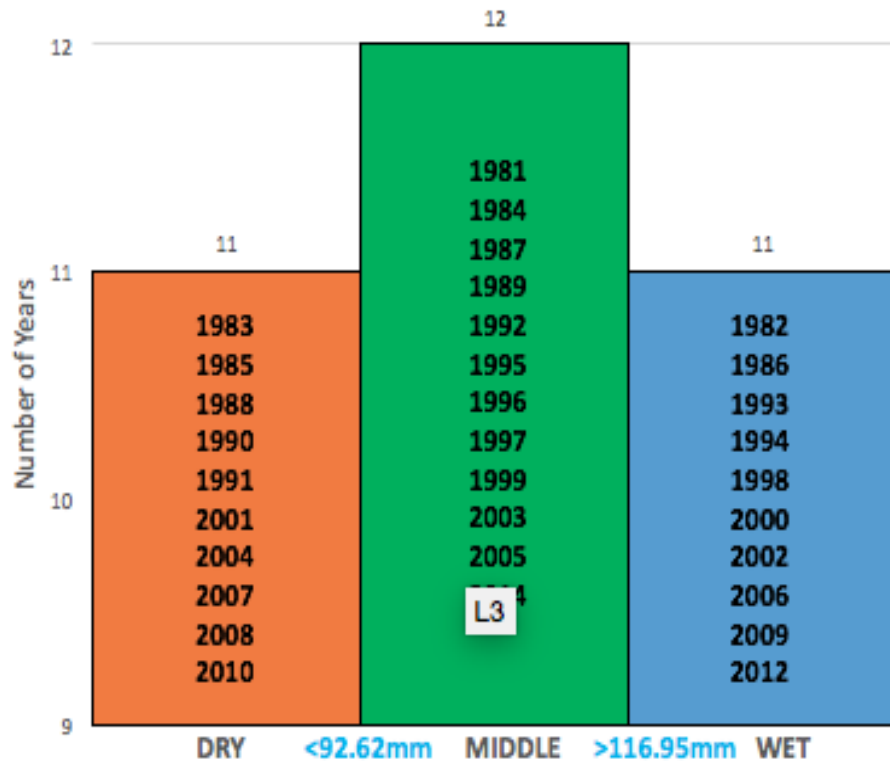
This graph shows the distribution of the years within the boundaries i.e how close the years temperature values are to the boundaries, also giving the actual temperature values for each year.

The horizontal lines represent the boundary values.

*EG. In 2007 the temperature was nearer the above average boundary (WARM) than the below average boundary (COLD).*

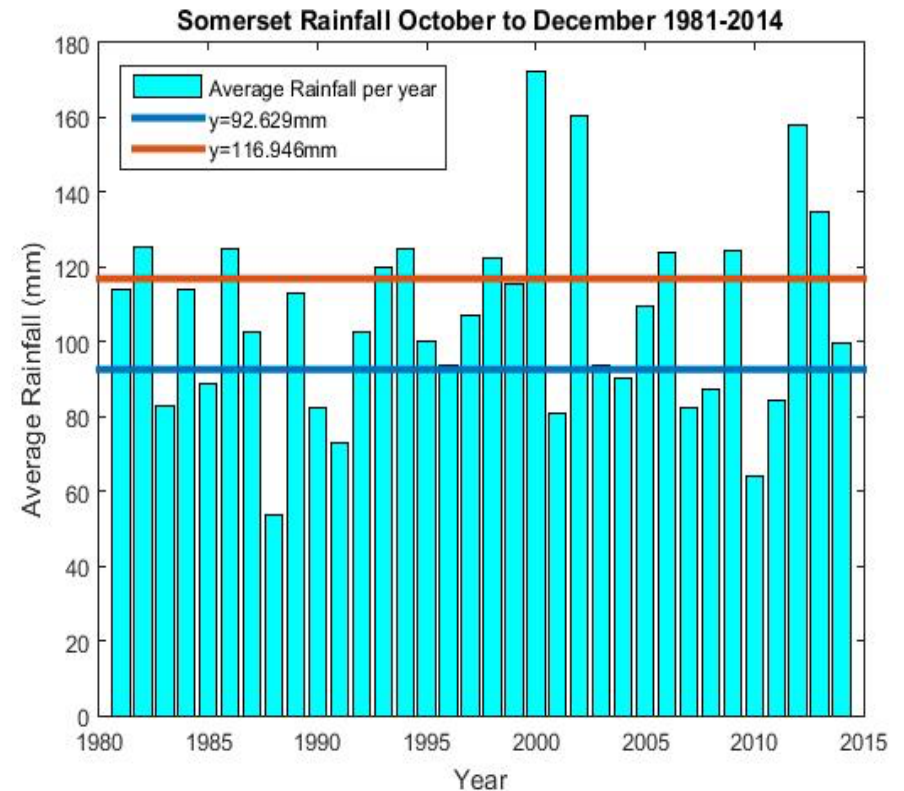
# October to December - Rainfall

Somerset Rainfall October to December 1981 - 2014



This graph shows the boundaries of the three categories and which years fit into each.

EG. 2012 was wetter than average with rainfall greater than 116.95mm

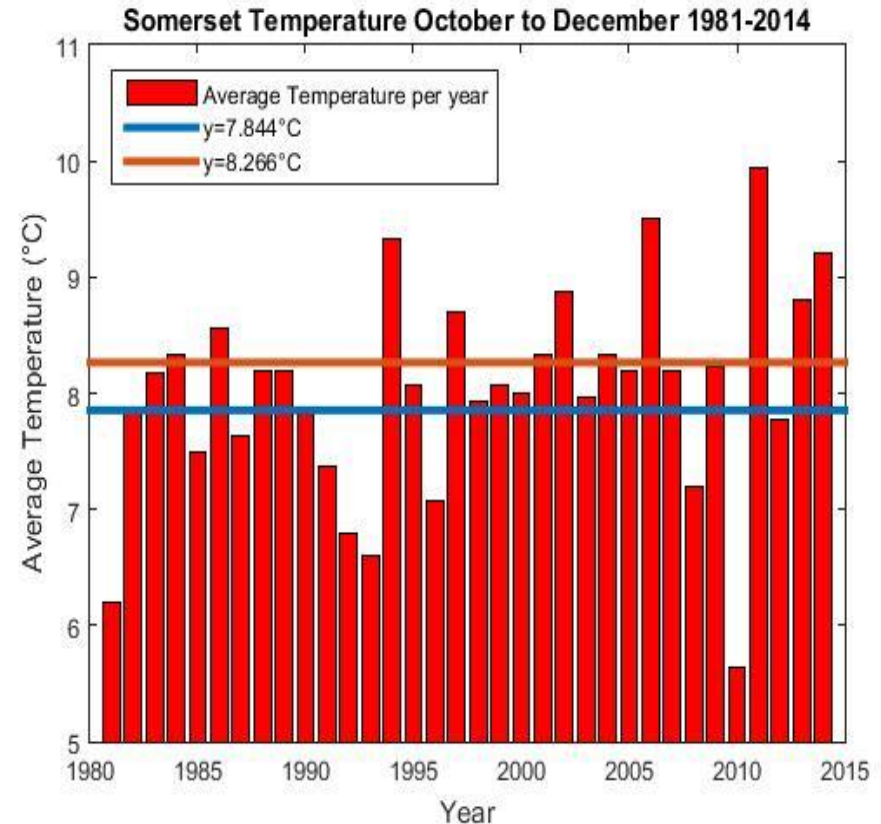
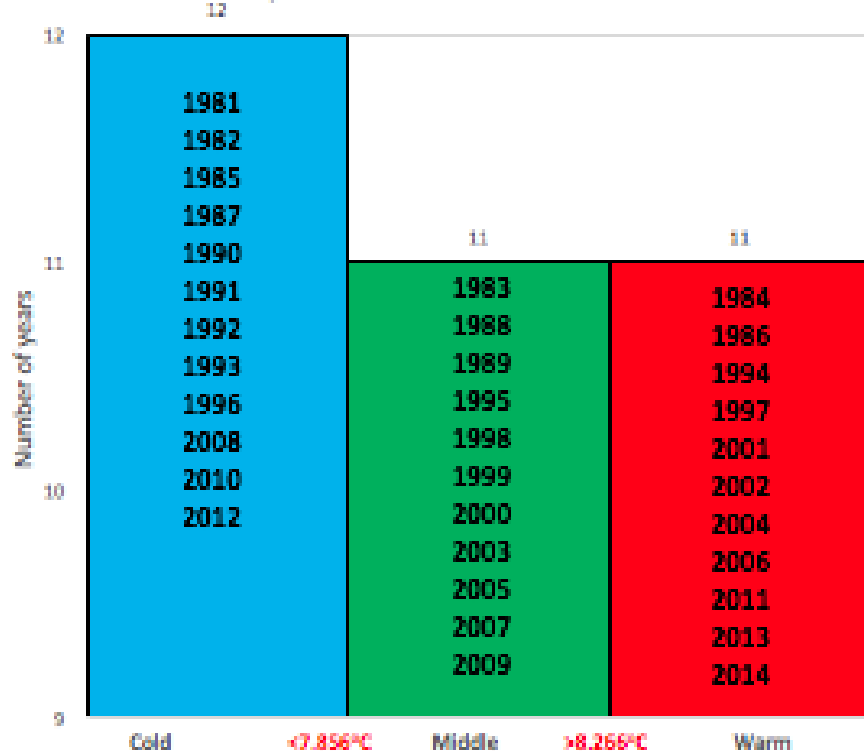


This graph shows how close each years rainfall lies to the boundaries of Drier than average and Wetter than average.

EG. 2009 was just in the wetter than average category, so 2009's rainfall was only a bit greater than 155.91mm

# October to December - Temperature

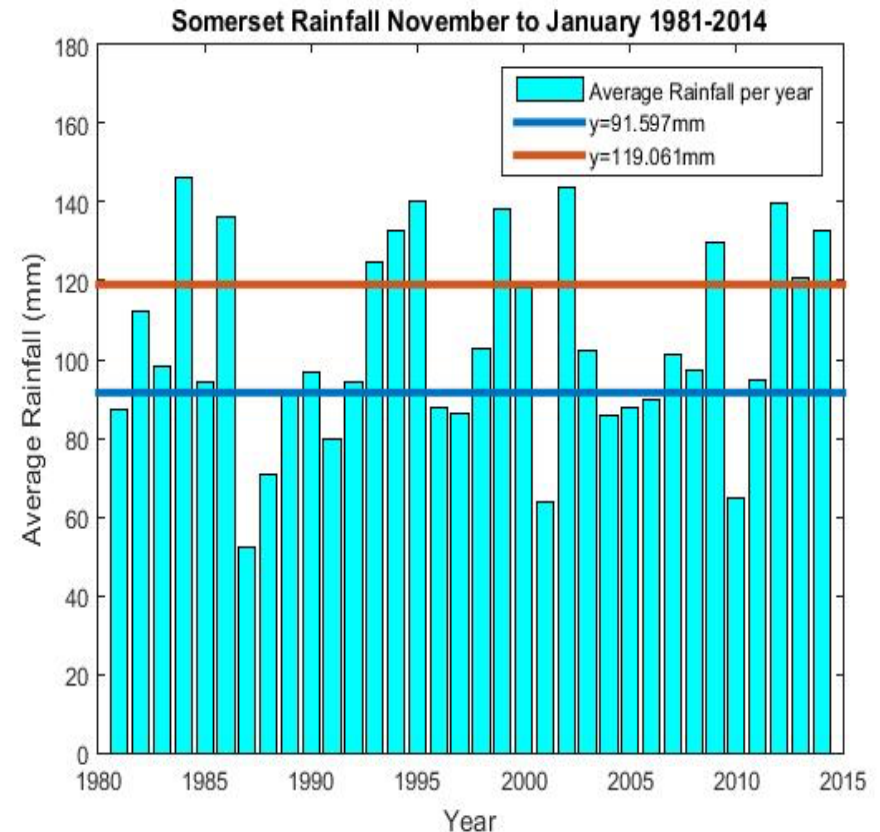
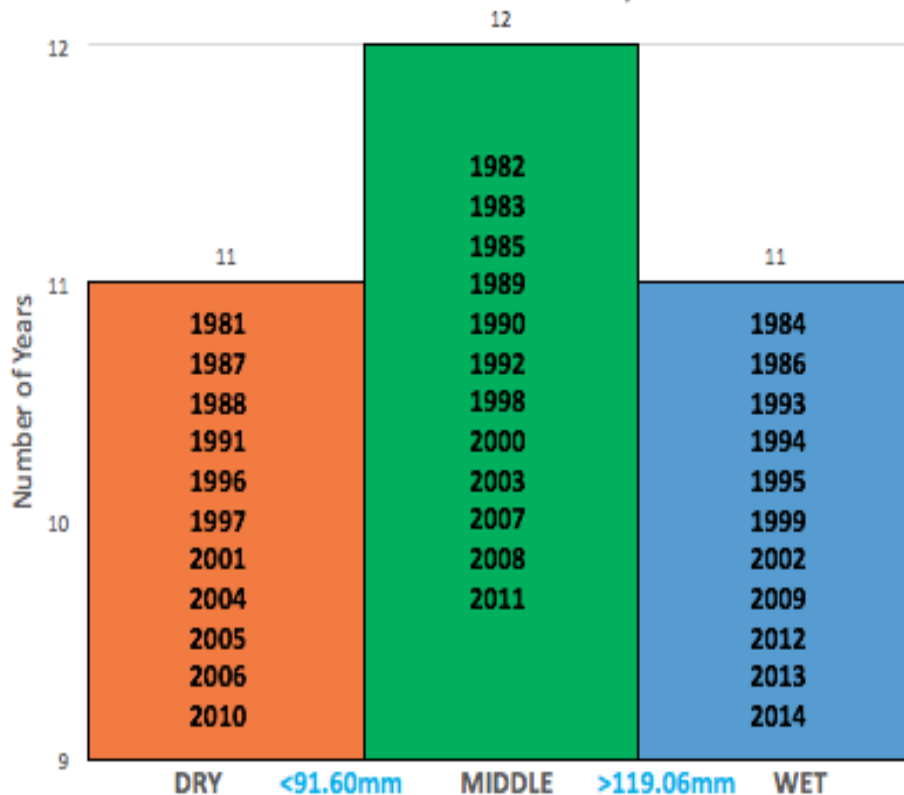
Somerset Temperature October to December 1981-2014



*As you can see in the first graph, 2010 was colder than average with temperature lower than 7.856°C. From the second graph you can see that 2010's temperature was dramatically lower than the colder than average boundary.*

# November to January - Rainfall

Somerset Rainfall November to January 1981 - 2014

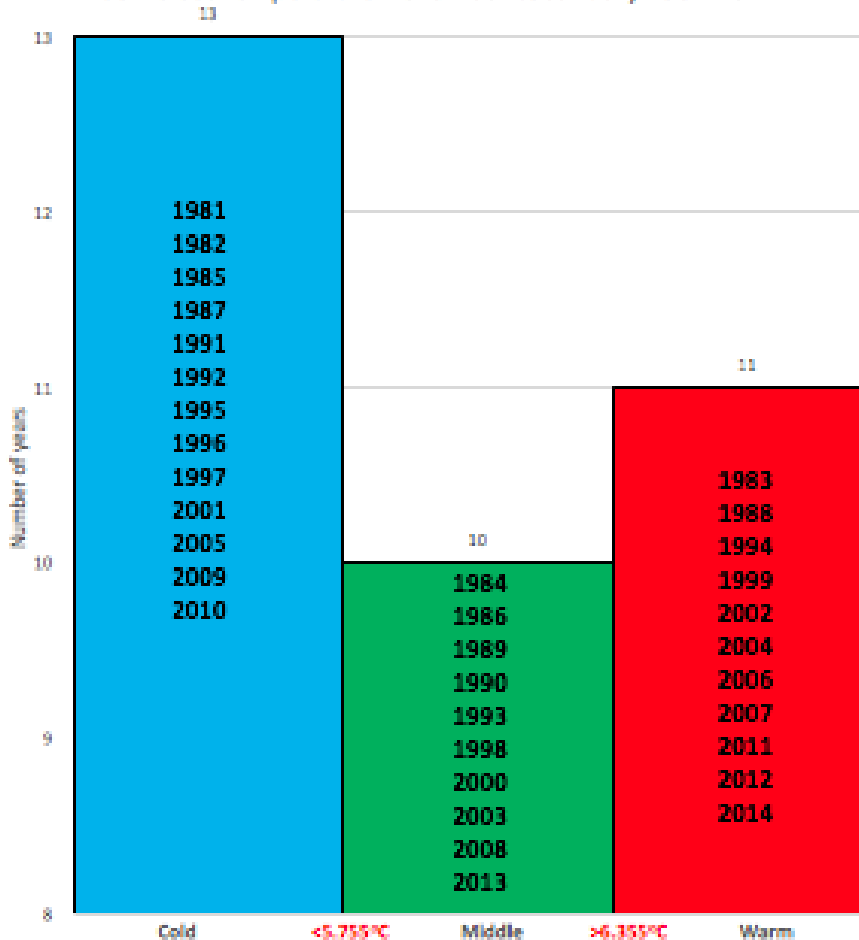


*From the first graph you can see that 2011 is in the average rainfall category. However from the second graph you can see that it is only just in this category, with the rainfall being very close to the lower 91.60mm boundary value.*

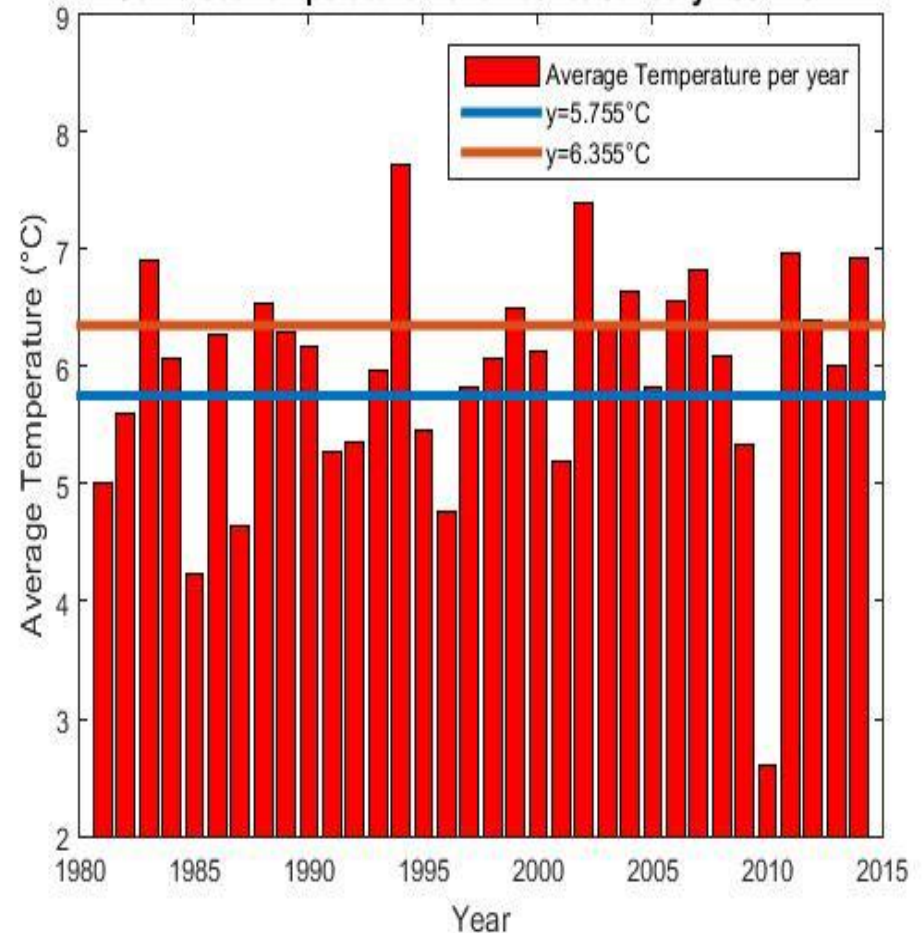


# November to January - Temperature

Somerset Temperature November to January 1981-2014

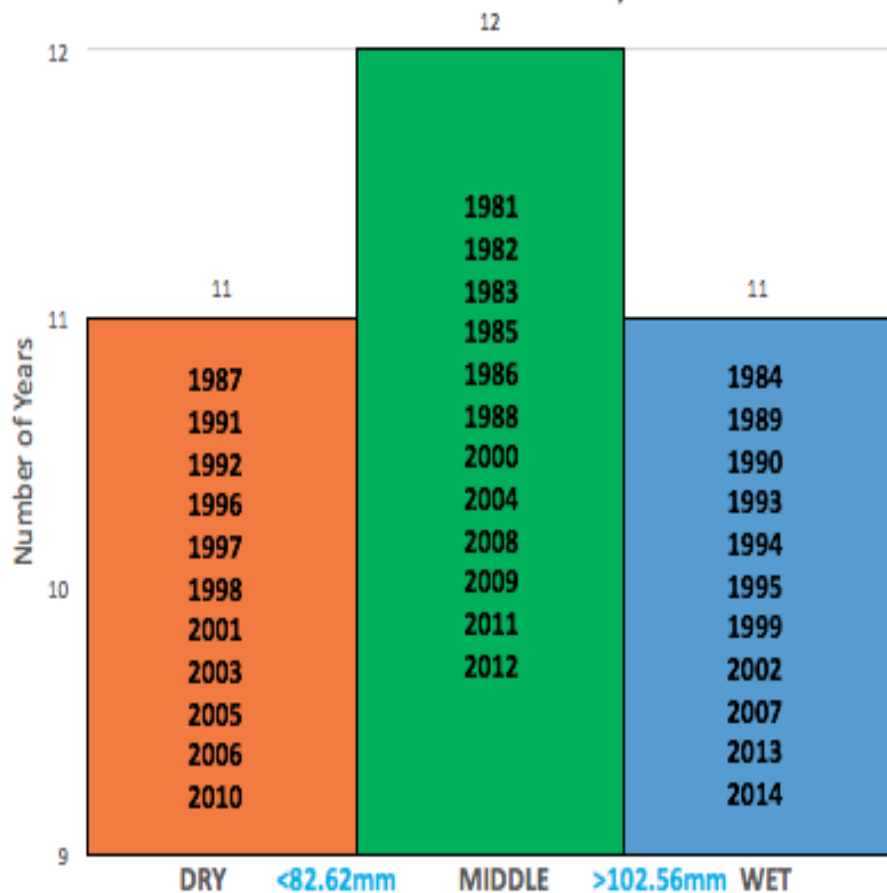


Somerset Temperature November to January 1981-2014

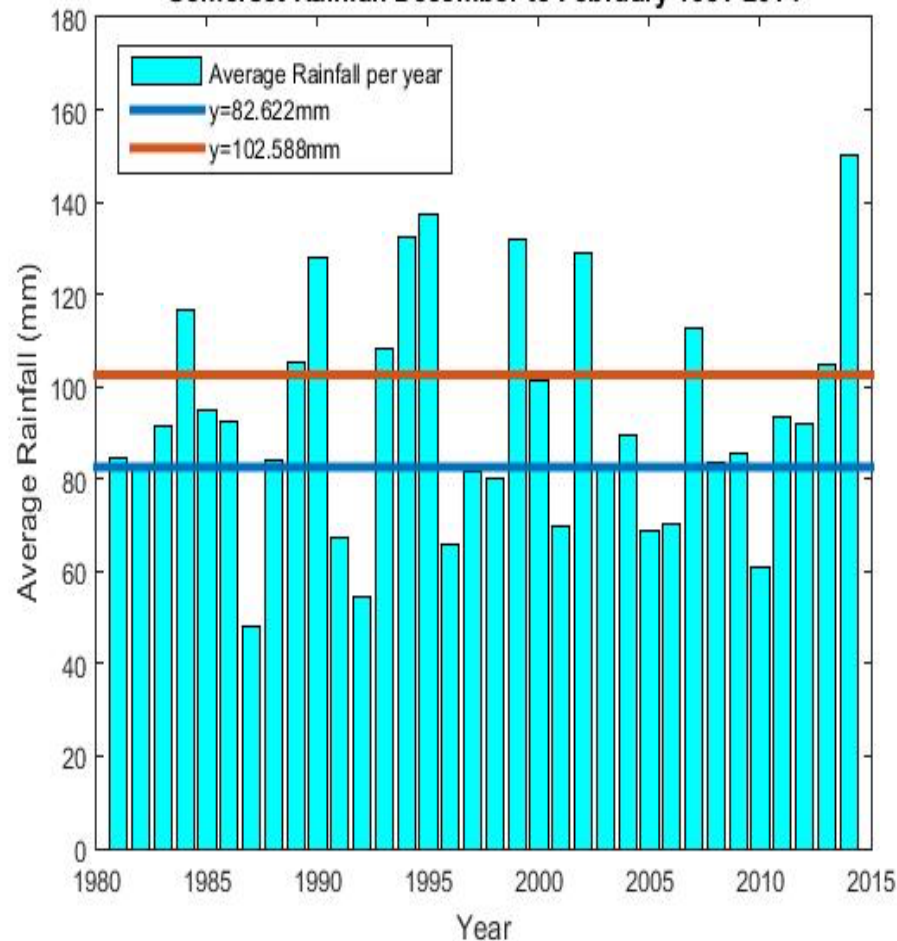


# December to February - Rainfall

Somerset Rainfall December to February 1981 - 2014



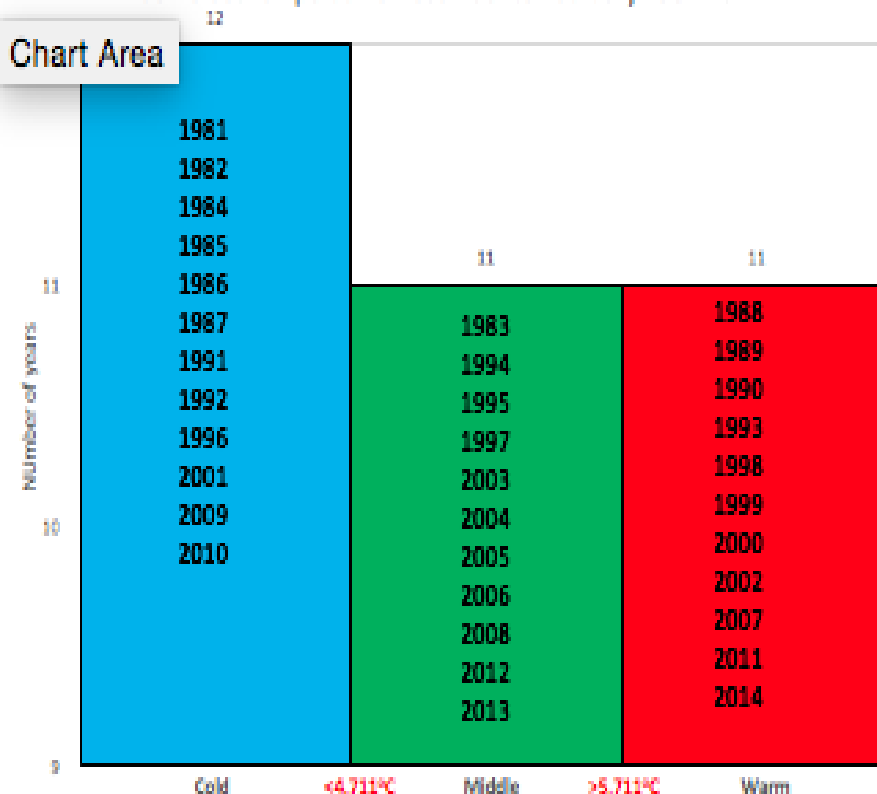
Somerset Rainfall December to February 1981-2014



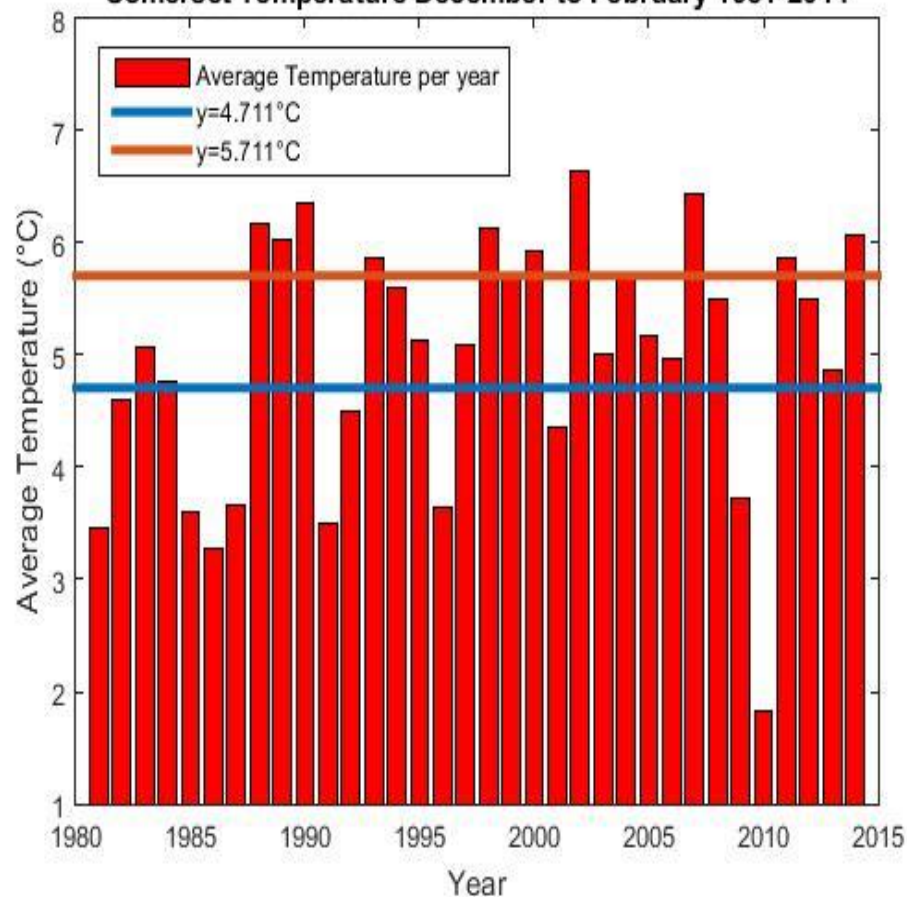
# December to February - Temperature

Somerset Temperature December to February 1981-2014

Chart Area

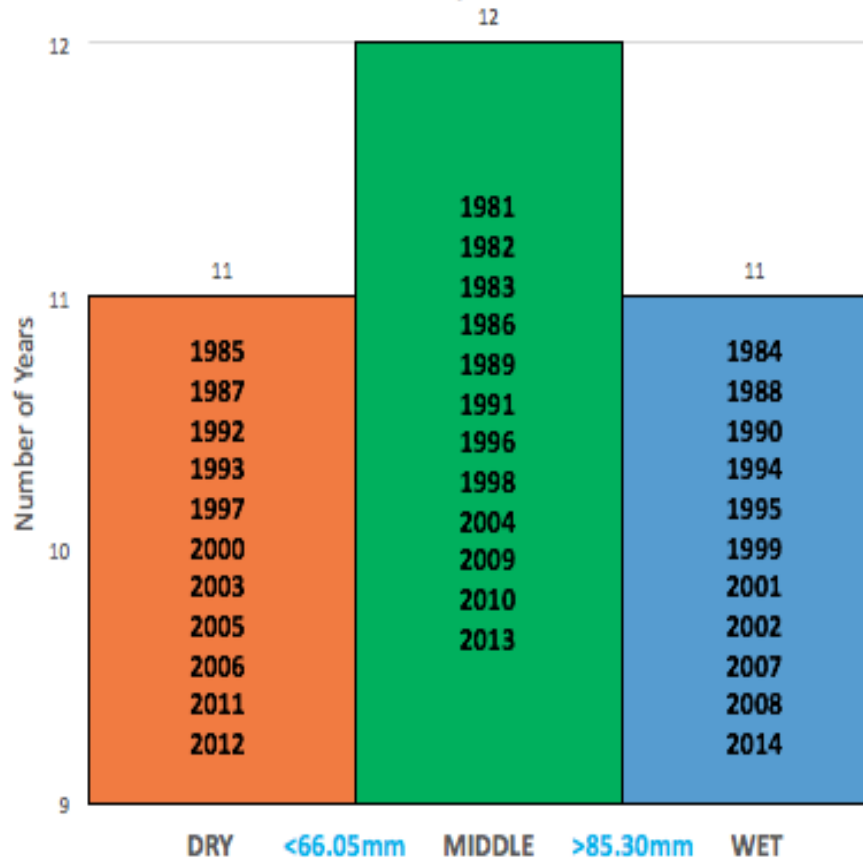


Somerset Temperature December to February 1981-2014

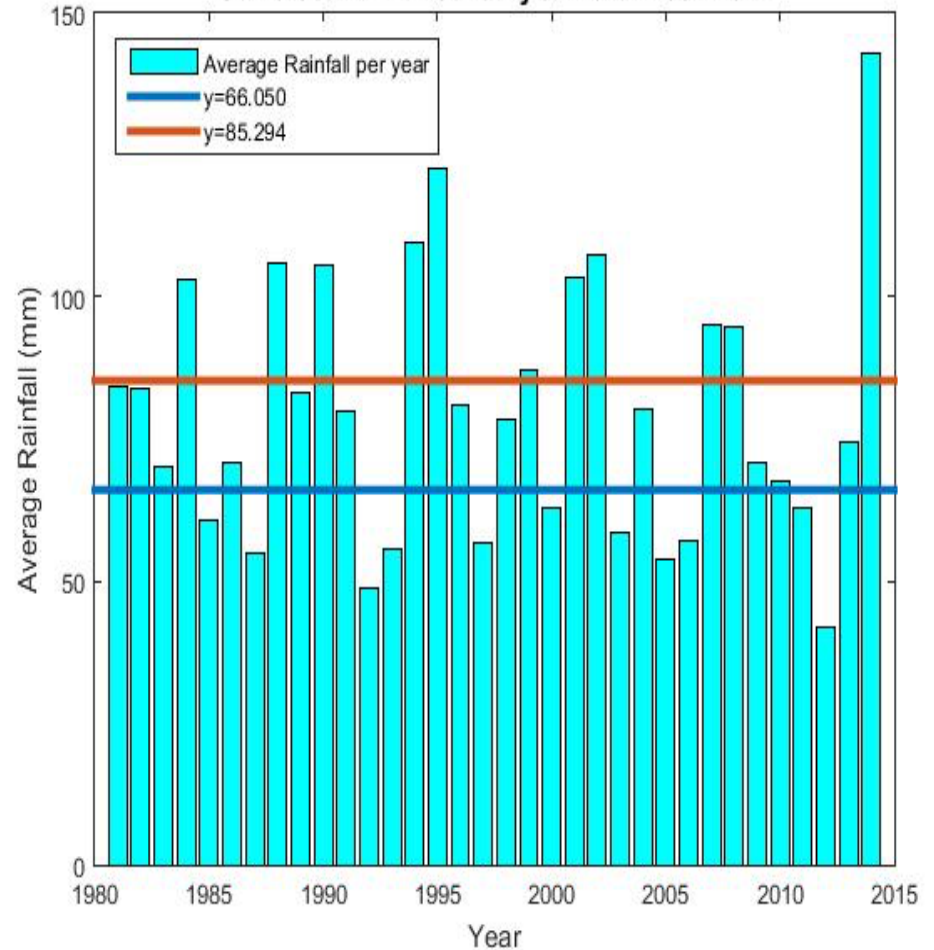


# January to March - Rainfall

Somerset Rainfall January to March 1981 - 2014



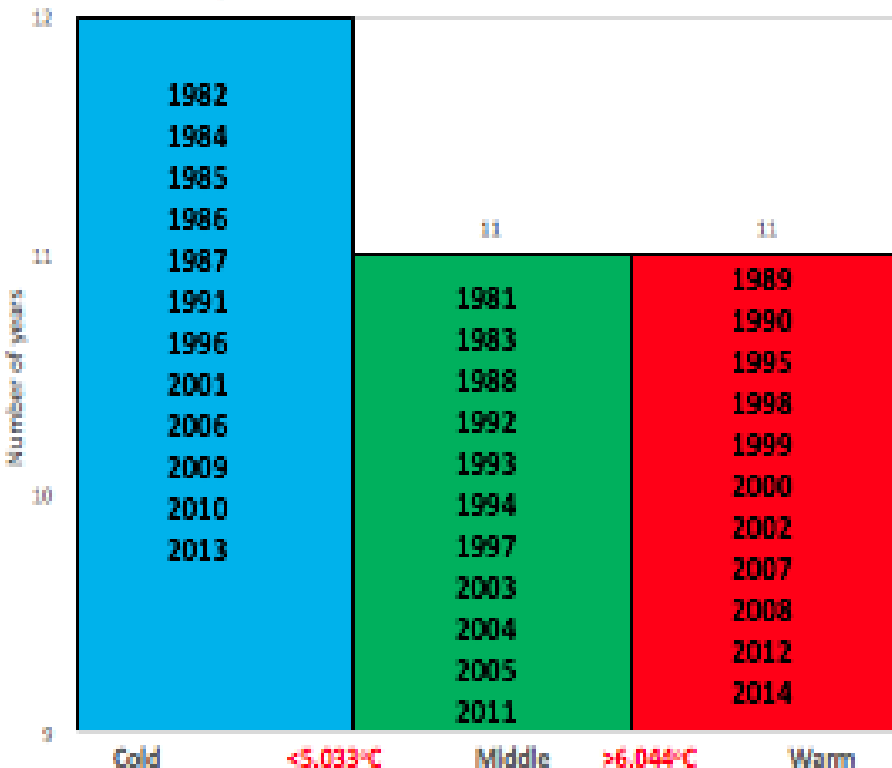
Somerset Rainfall January to March 1981-2014



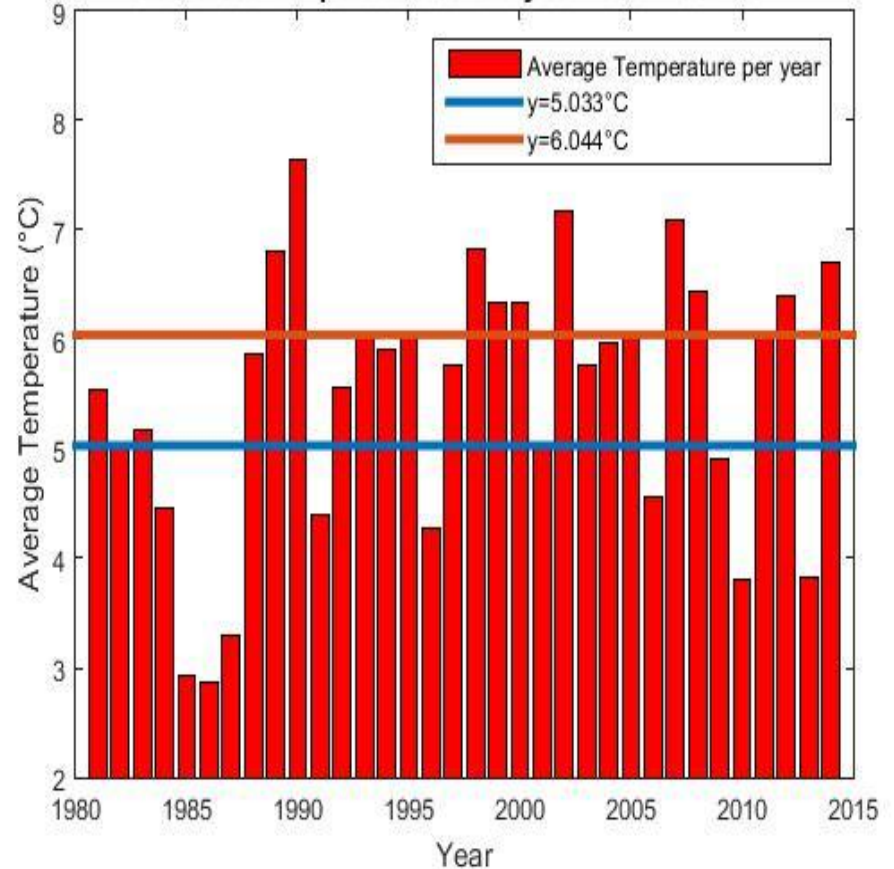
# January to March - Temperature

Somerset Temperature January to March 1981-2014

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Somerset Temperature January to March 1981-2014



# Extreme Weather

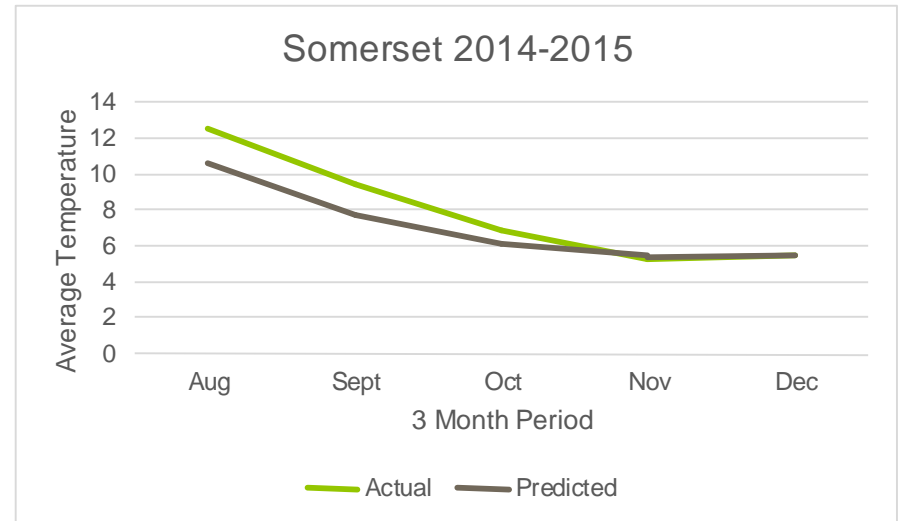
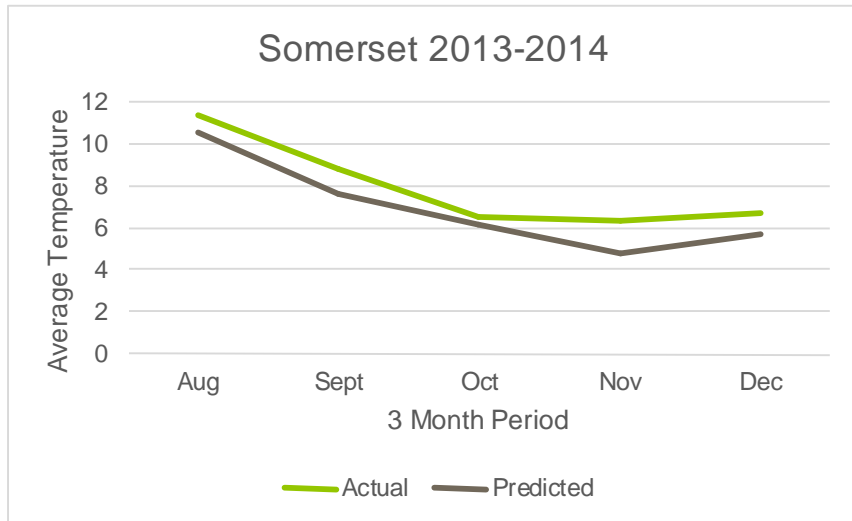
- The winter of 2013/2014 saw wettest December to January period since 1876 in the South West.
- Precipitation caused run off from agricultural land and the Somerset Levels were highly impacted.
- 14,000 hectares were underwater for 3-4 weeks.
- This caused many problems for the land such as waterlogging, sediment deposits and loss of crops.
- Huge economic toll – damage caused a cost of around £100 million to repair.
- Reliable forecasts some time in advance are imperative for putting measures into place to reduce the financial burden and damage to infrastructure.



**Somerset Levels Flooding in 2014**

<http://www.westernmorningnews.co.uk/images/local/world/ugcimages/276272/Article/images/20513189/5747873-large.jpg>

# Validation of 3-month temperature (°C) forecasts 2013 & 2014

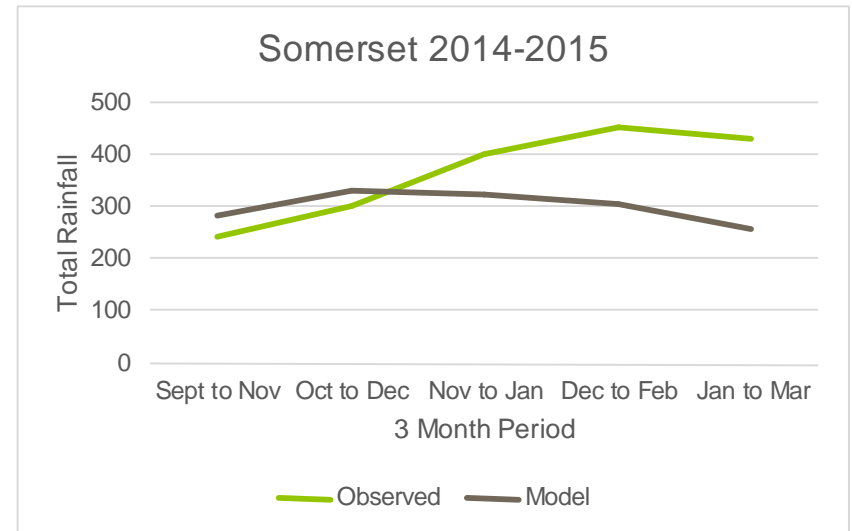
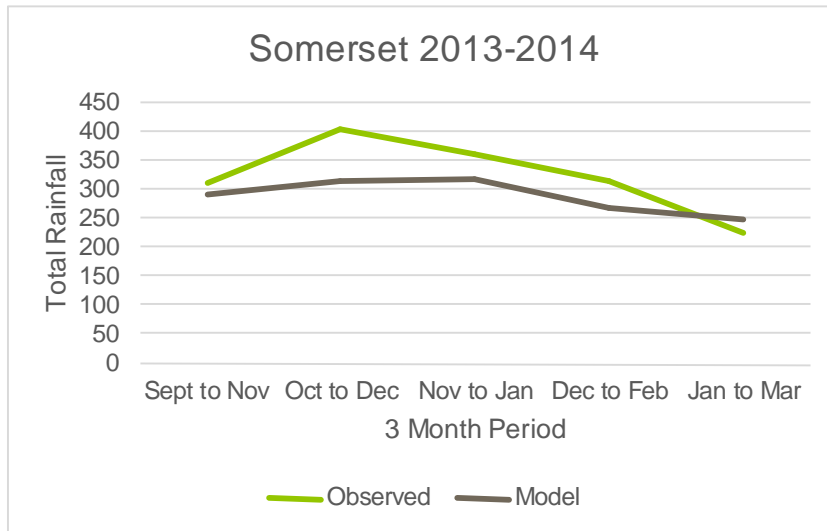


- The graphs show that the model predicts a very similar temperature pattern to the actual weather in both years. This demonstrates that the forecasts are accurate.

## Statistics

- On average the model predicts a lower rainfall by 13% for Somerset.

# Validation of 3-month rainfall (mm) forecasts 2013 & 2014



- The graphs show that the model predicts a very similar rainfall pattern to the actual weather in both years. This demonstrates that the forecasts are accurate.

## Statistics

- On average the model predicts a lower rainfall by 17% for Somerset.



# Appendix 1 – Model Accuracy

- The forecast models produce numerous values for temperature and rainfall. The table below shows the percentage of those values that predicted the correct tercile of weather (below average, average, above average) for 2013-2014 and 2014-2015

		Aug		Sept		Oct		Nov		Dec	
2013	Rainfall	63	A	31	W	28	W	28	W	32	A
	Temperature	0	H	0	H	53	H	17	H	39	H
2014	Rainfall	26	A	43	A	27	W	45	W	43	W
	Temperature	0	H	0	H	38	H	62	A	50	A

- KEY:
- H = hotter than average
- W = wetter than average
- A = average
- C = colder than average
- D = drier than average