

# Climate and climate trends for the City of Johannesburg



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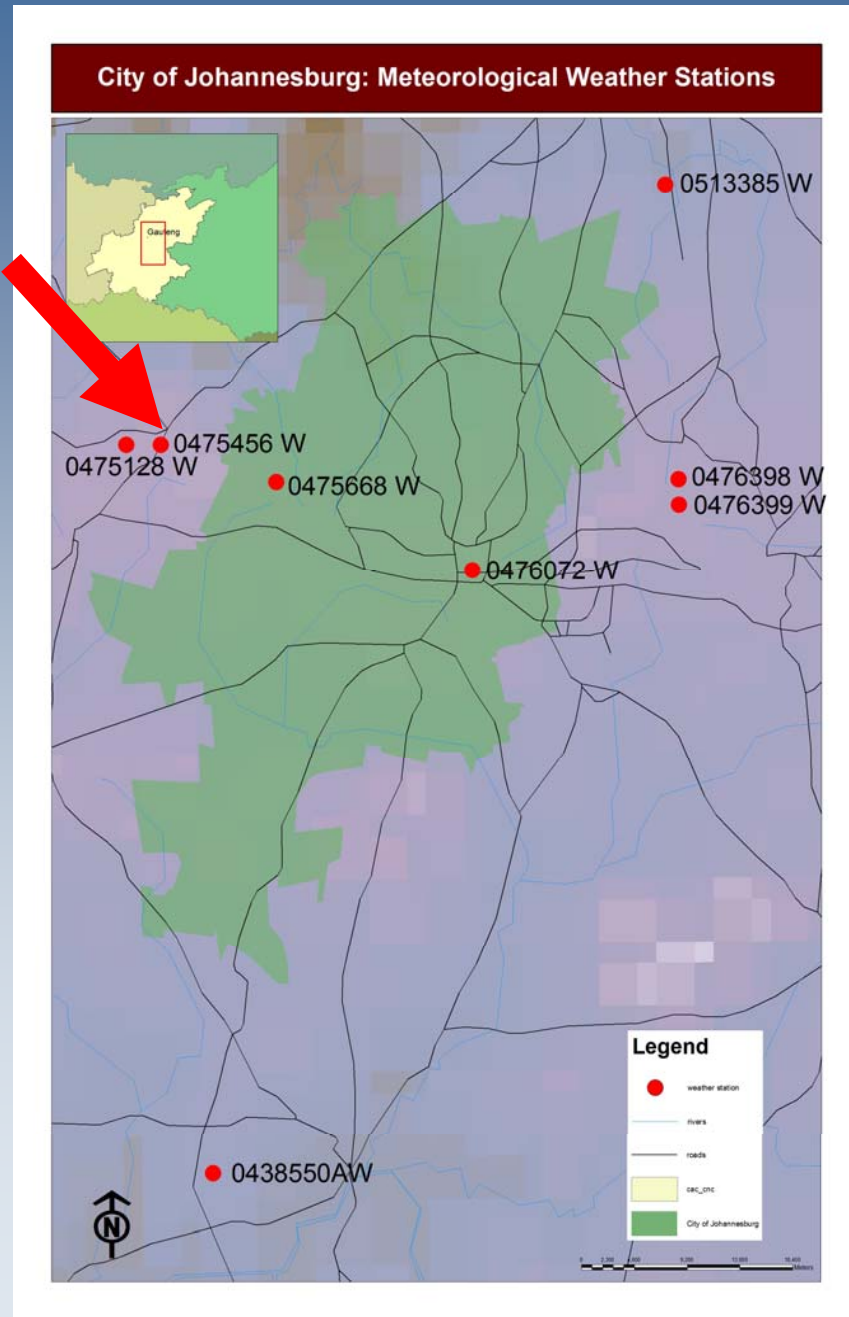
Winter School 2009

# Questions

- What are the questions we are wanting to answer?
- How will these station records help?
  
- What stations are there?
- How many are useful / usable?
- Are they in the “right” place?
- Are they for the “right” period?
- How many do we use?
- Do we average stations or keep them separate?
- What variables and statistics do we require?

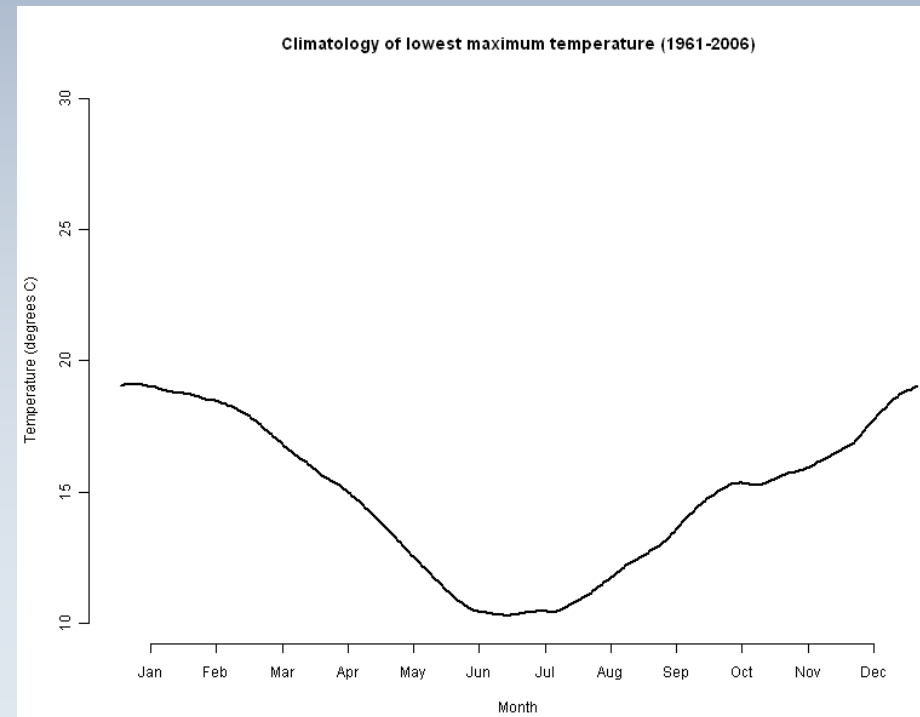
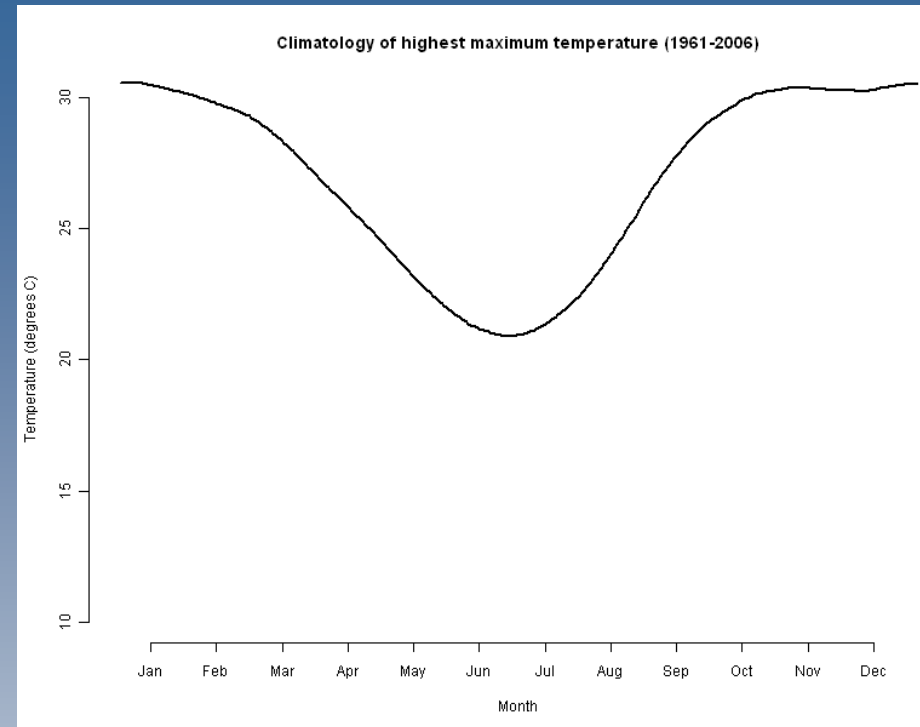
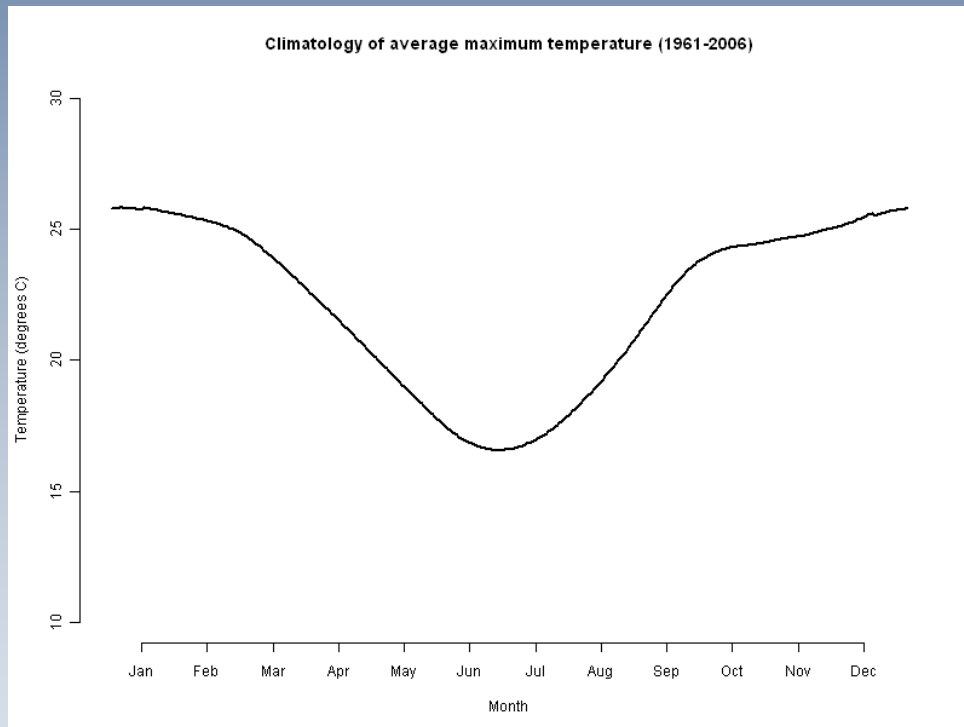
# Weather Stations

Station used = Krugersdorp



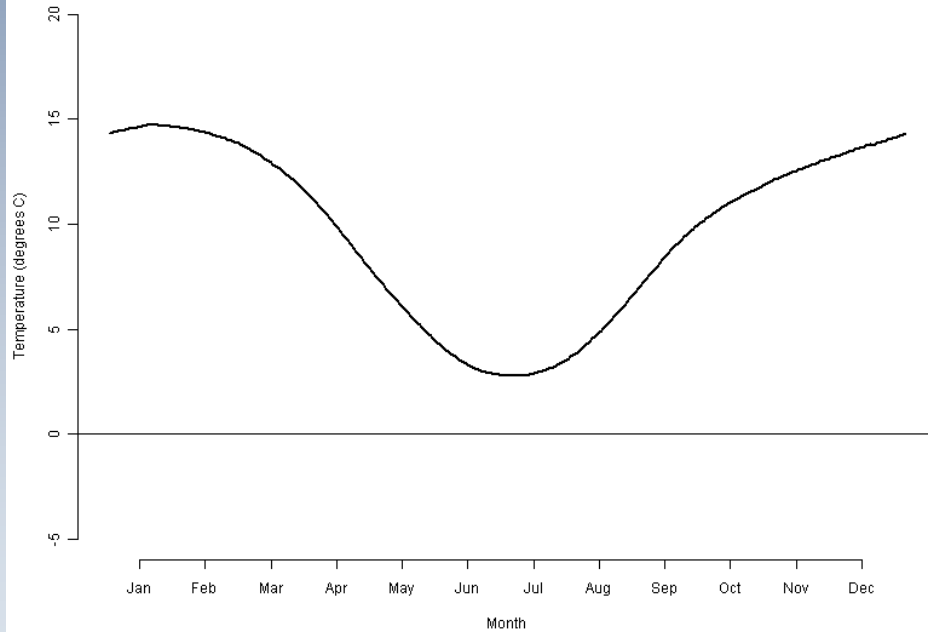
Station ID	Name	Latitude (decimal degrees)	Longitude (decimal degrees)	Altitude (m)
0513385_W	Irene	-25.9	28.22	1450
0476398_W	O R Tambo Airport	-26.13	28.23	1688
0476399_W	O R Tambo WK 30L	-26.15	28.23	1695
0476072_W	JHB Joubert Park	-26.2	28.05	1737
0475668_W	Roodepoort	-26.13	27.88	1676
0475456_W	Krugersdorp	-26.1	27.78	1710
0475128_A	Krugersdorp West	-26.13	27.58	1700
0438550AW	Vanderbylpark Yskor	-26.67	27.82	1496

# Climatology – Maximum Temperature

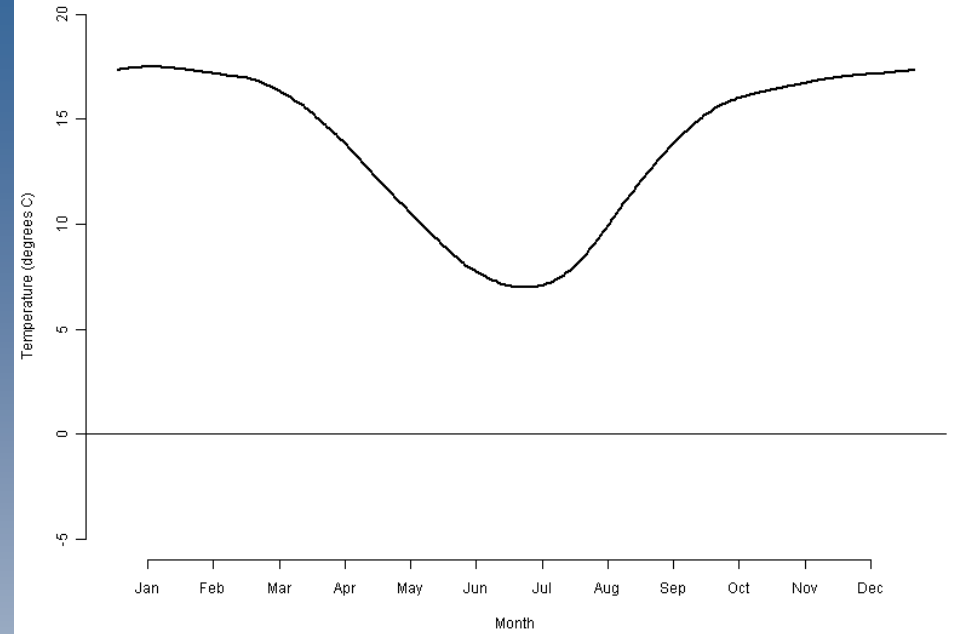


# Climatology – Minimum Temperature

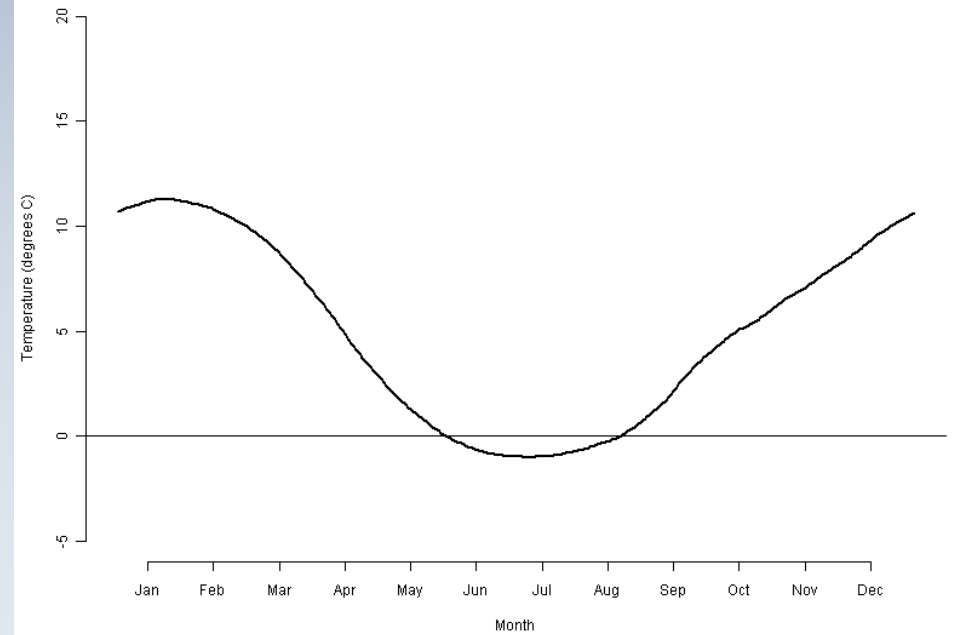
Climatology of average minimum temperature (1961-2006)



Climatology of highest minimum temperature (1961-2006)

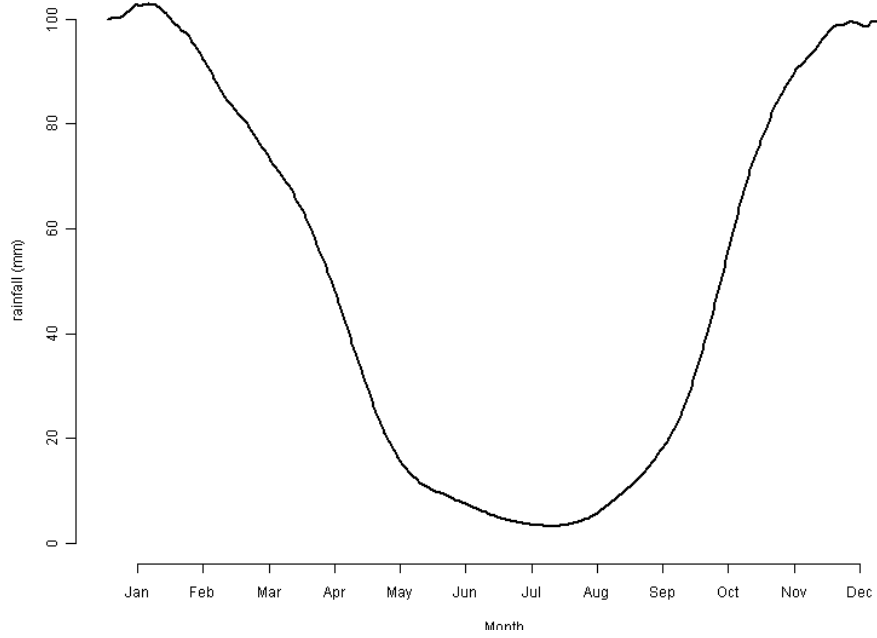


Climatology of lowest minimum temperature (1961-2006)

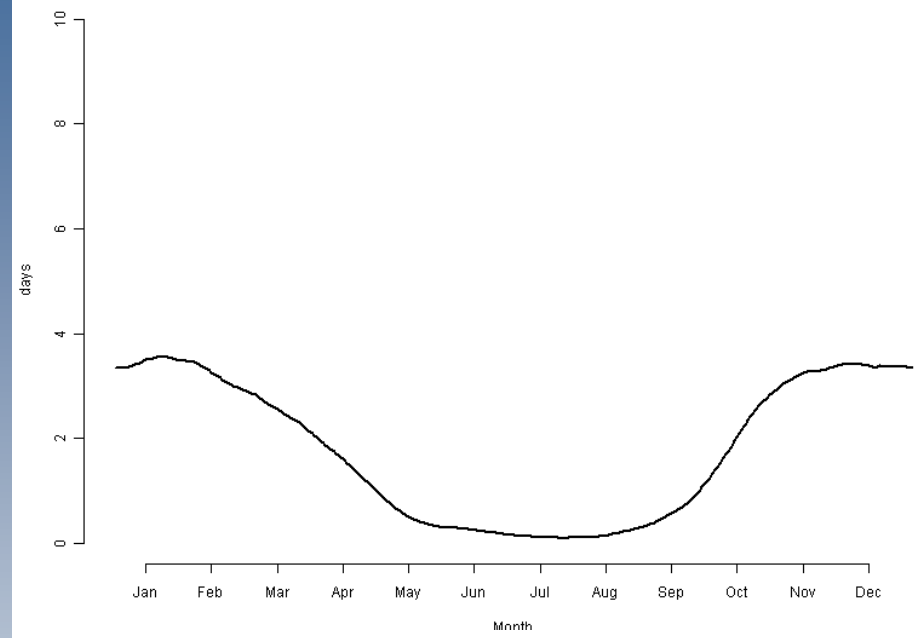


# Climatology - Precipitation

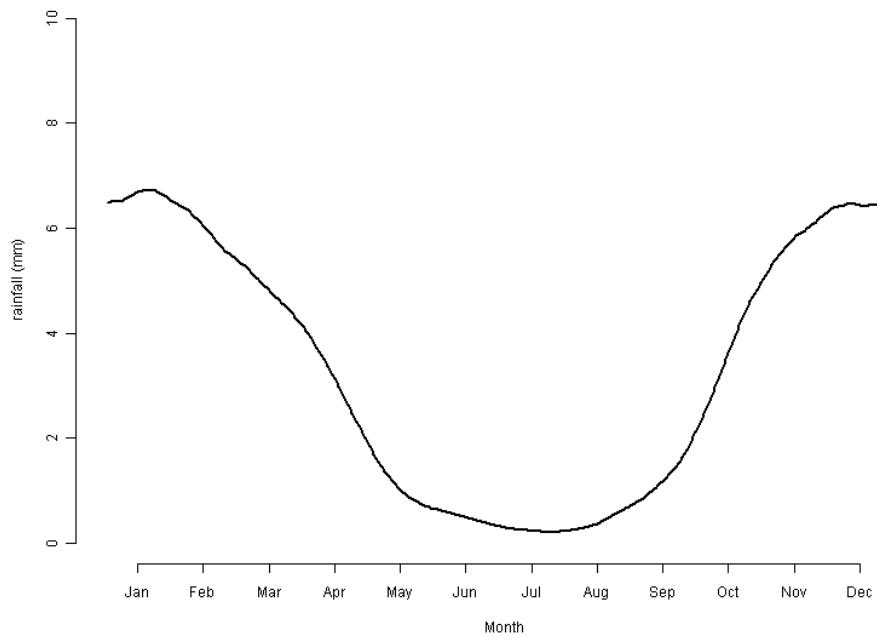
Climatology of 30-day total rainfall



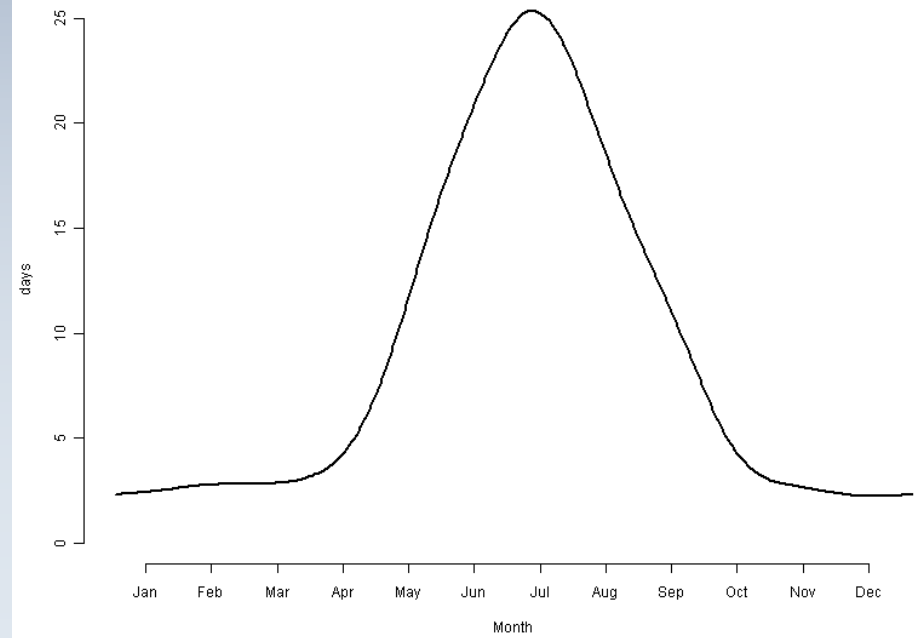
Climatology of raindays > 10mm (1961-2006)



Climatology of rainfall per rainday (1961-2006)



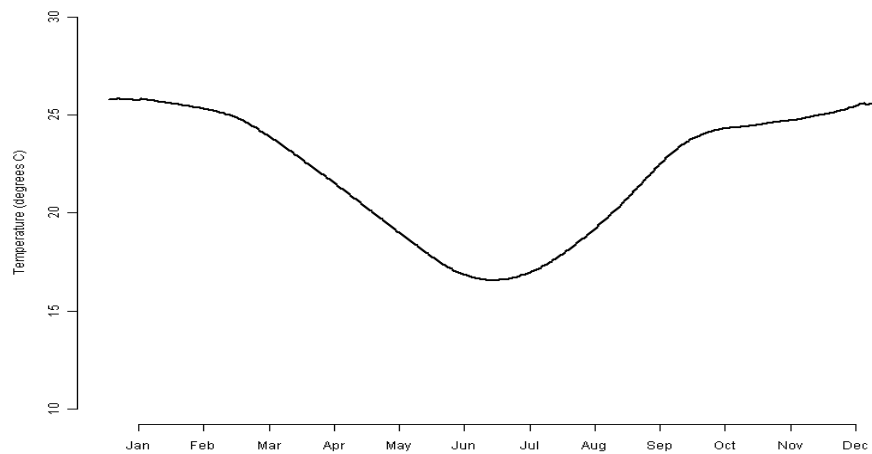
Climatology of dry spell duration (1961-2006)



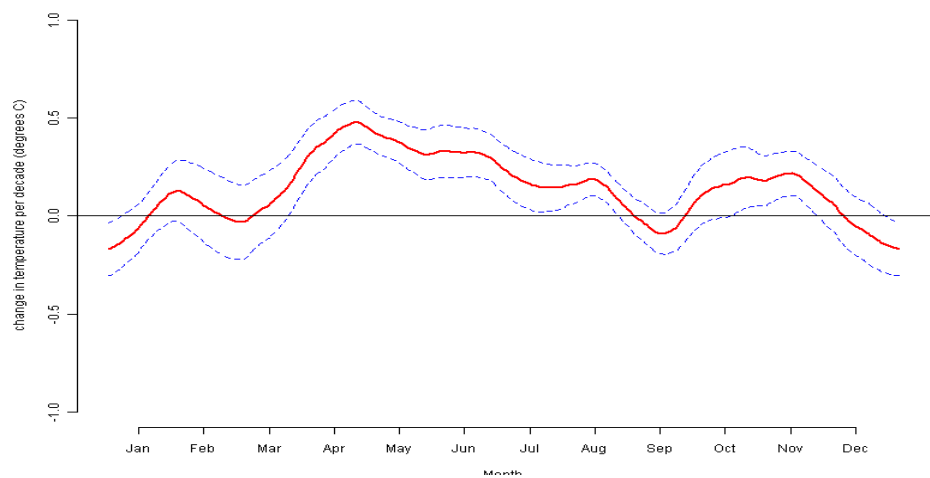
# Trend Analysis

- In this analysis we calculate the trends of the entire series as well as those of the multitude of sub-series by considering all possible combinations of start and end dates.
- This provides a set of trends that describe the range of possible trends occurring within the data.
- From this we can calculate the median trend, and obtain a sense of to what degree the trend is persistent by considering how many of the sub-series trends are of the same sign.

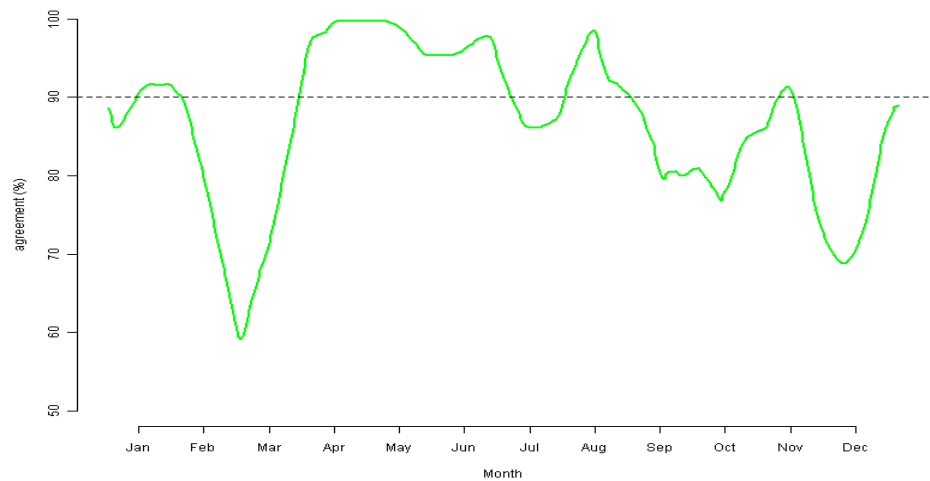
Climatology of average maximum temperature (1961-2006)



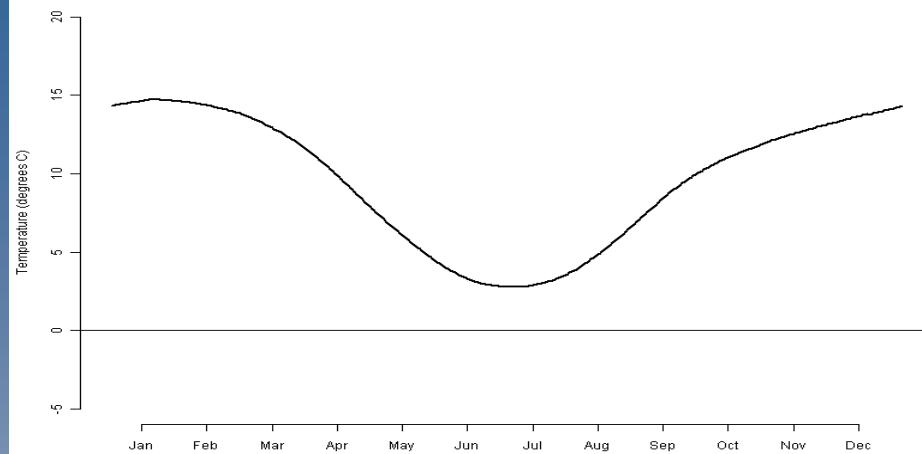
Trend in average maximum temperature (1961-2006)



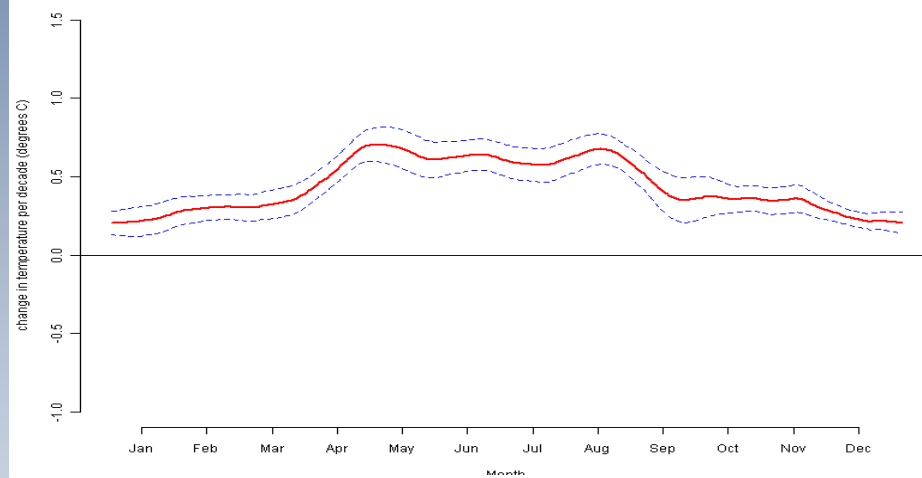
Agreement in sign of trends in average maximum temperature (1961-2000)



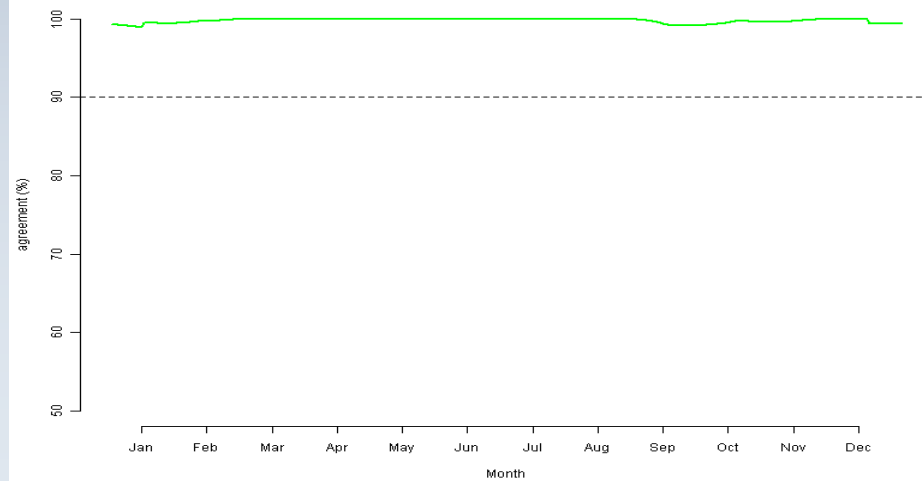
Climatology of average minimum temperature (1961-2006)



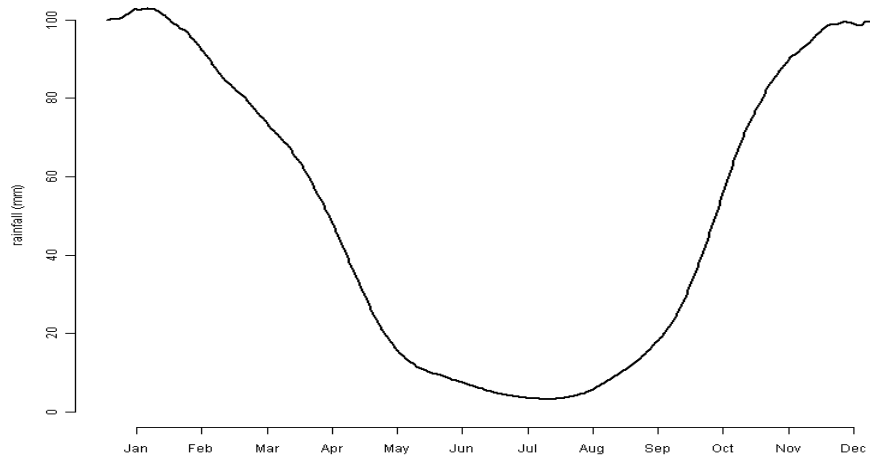
Trend in average minimum temperature (1961-2006)



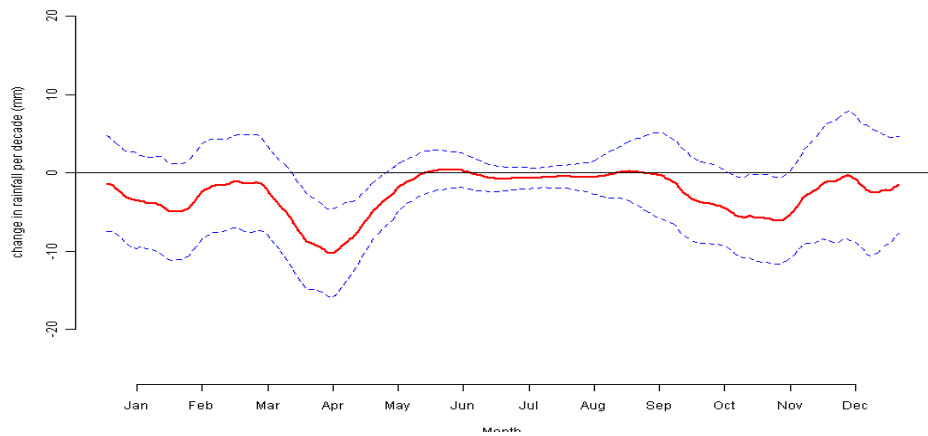
Agreement in sign of trends in average minimum temperature (1961-2000)



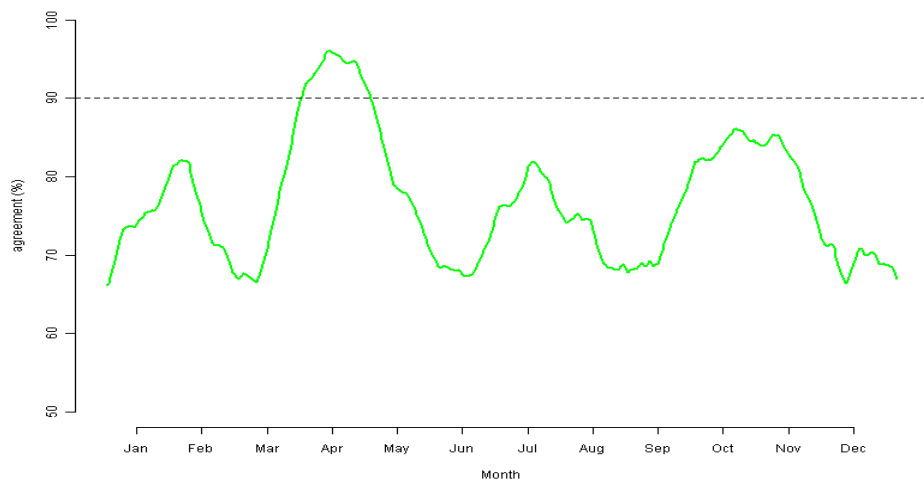
Climatology of 30-day total rainfall



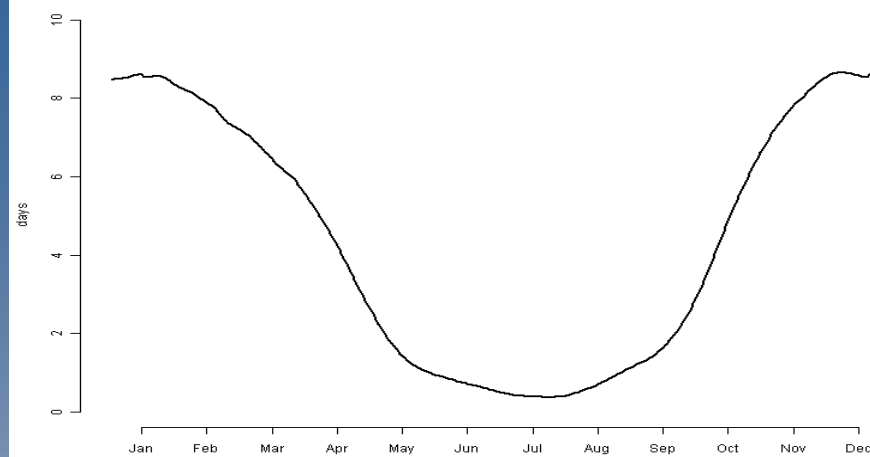
Trend in 30-day total rainfall (1961-2006)



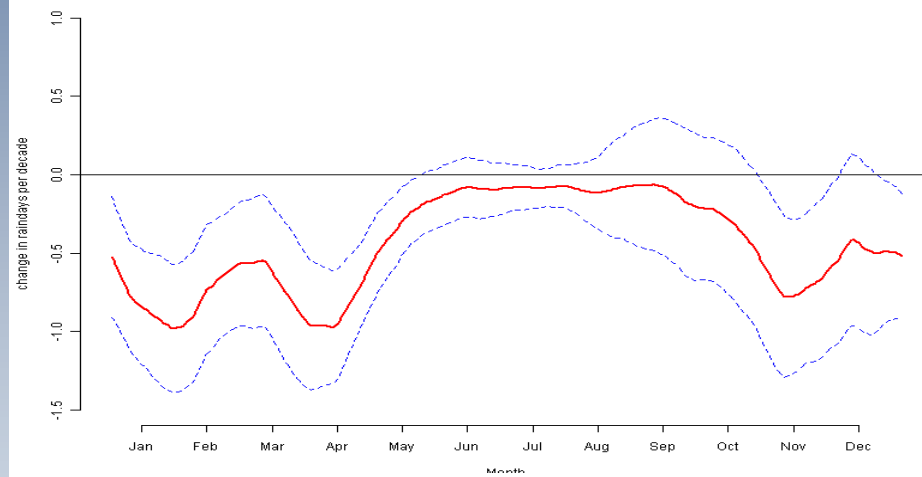
Agreement in sign of trends in 30-day total rainfall (1961-2000)



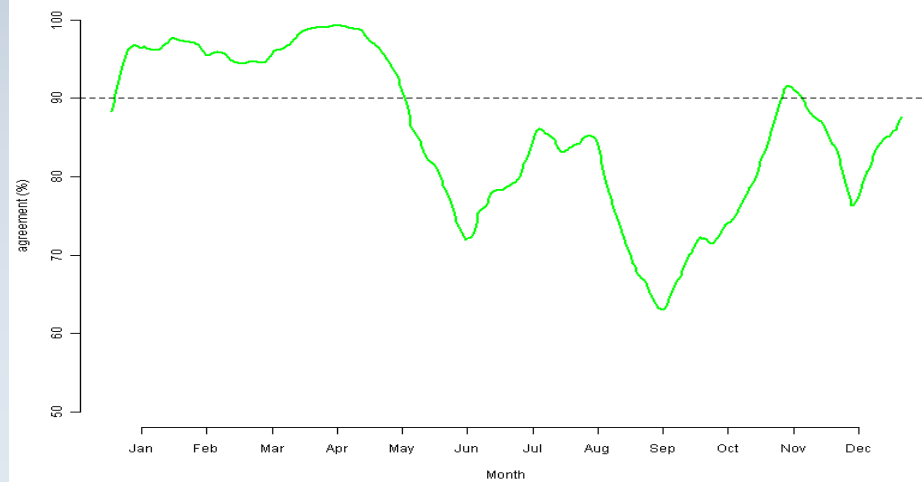
Climatology of raindays > 2mm (1961-2006)



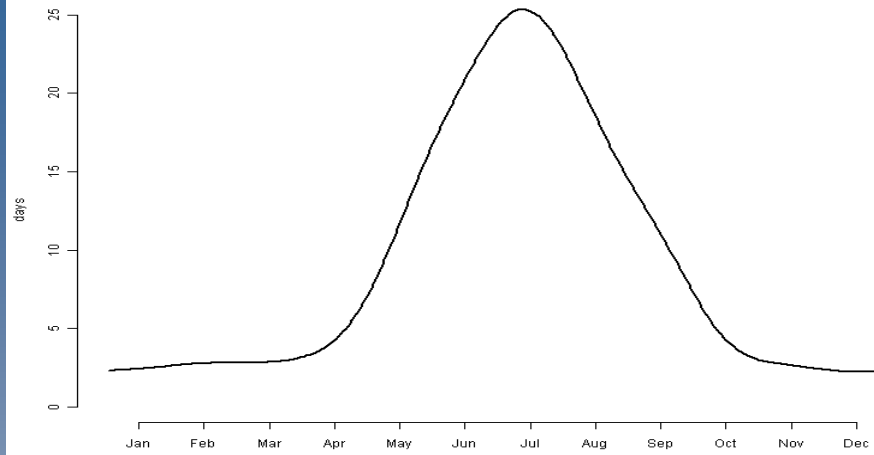
Trend in raindays > 2mm (1961-2006)



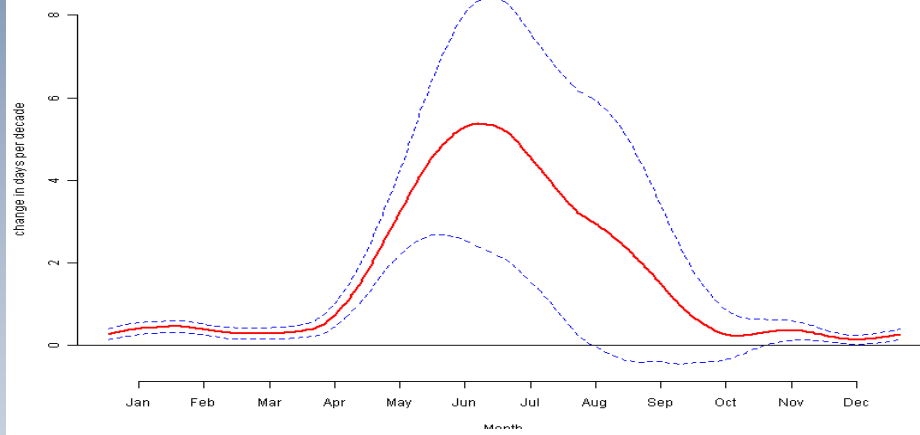
Agreement in sign of trends in raindays > 2mm (1961-2000)



Climatology of dry spell duration (1961-2006)



Trend in dry spell duration (1961-2006)



Agreement in sign of trends in dry spell duration (1961-2000)

