



Climatological Analysis of Daily rainfall amounts over over Addis Ababa

Project No. 5

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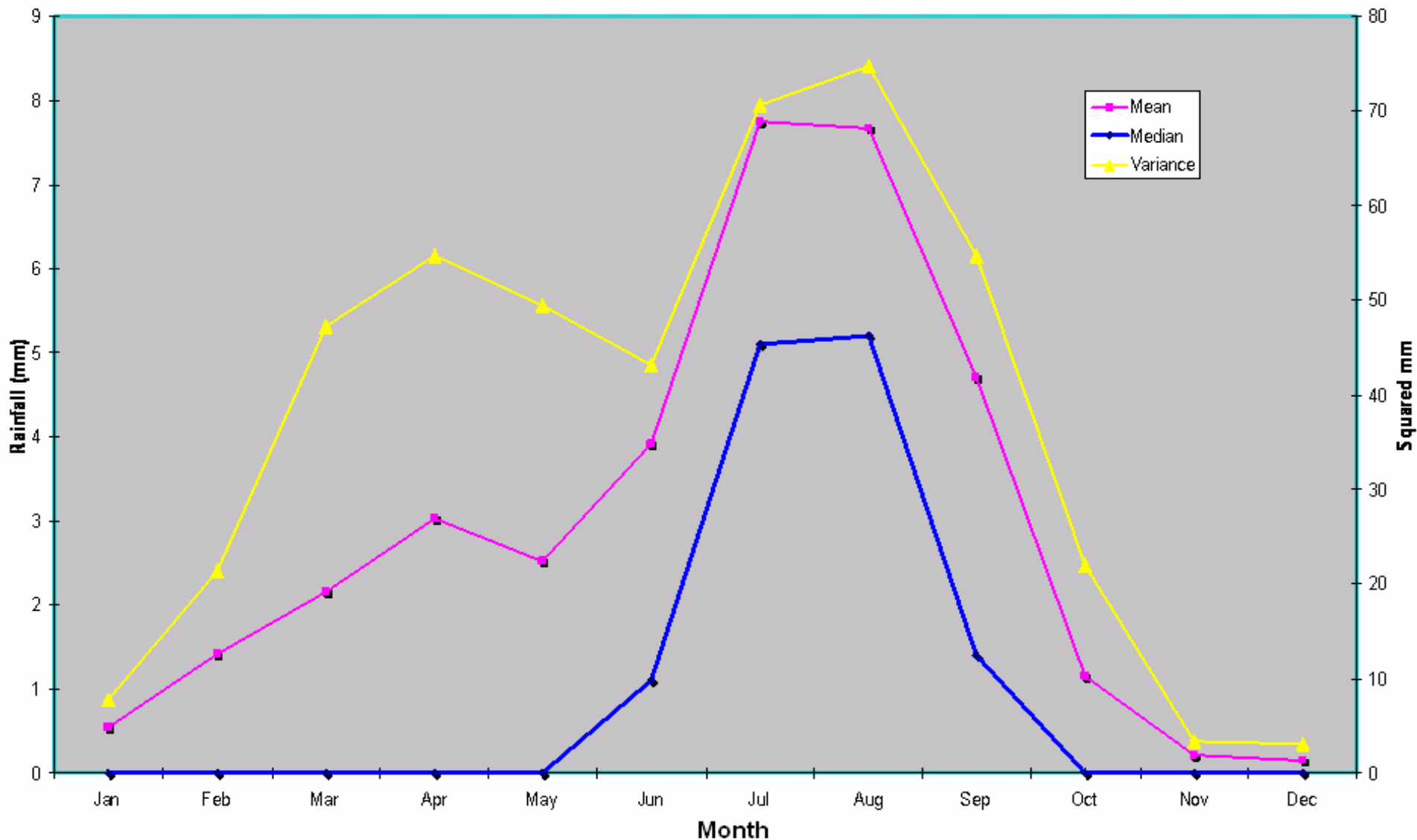
Alfred Tladi



Outline

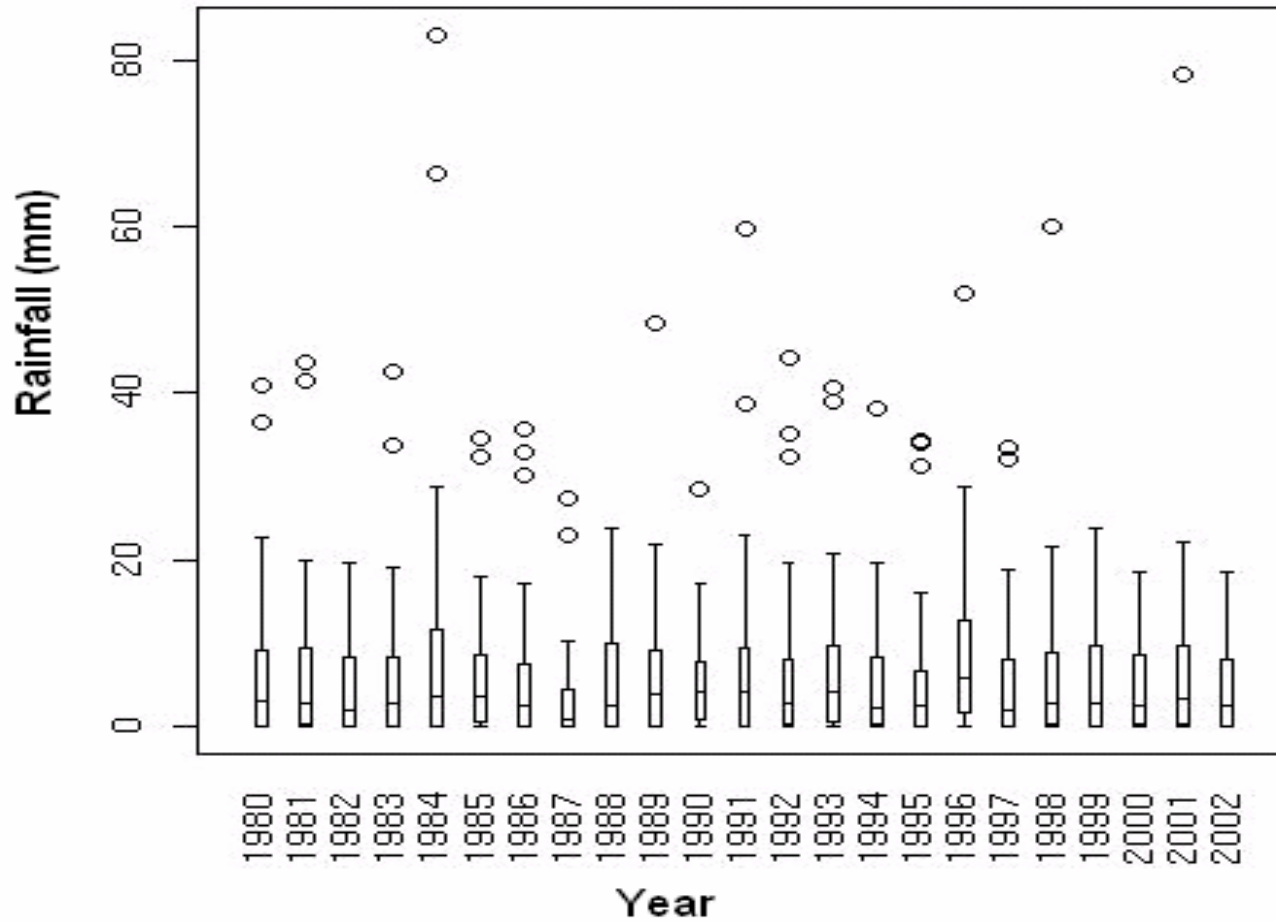
- Background
- Daily rainfall averages and dispersion
- Graphical representations of rainfall climatology
- Monthly and annual rainfall patterns
- Conclusion

Comparison of mean, median and variance of daily rainfall over Addis Ababa



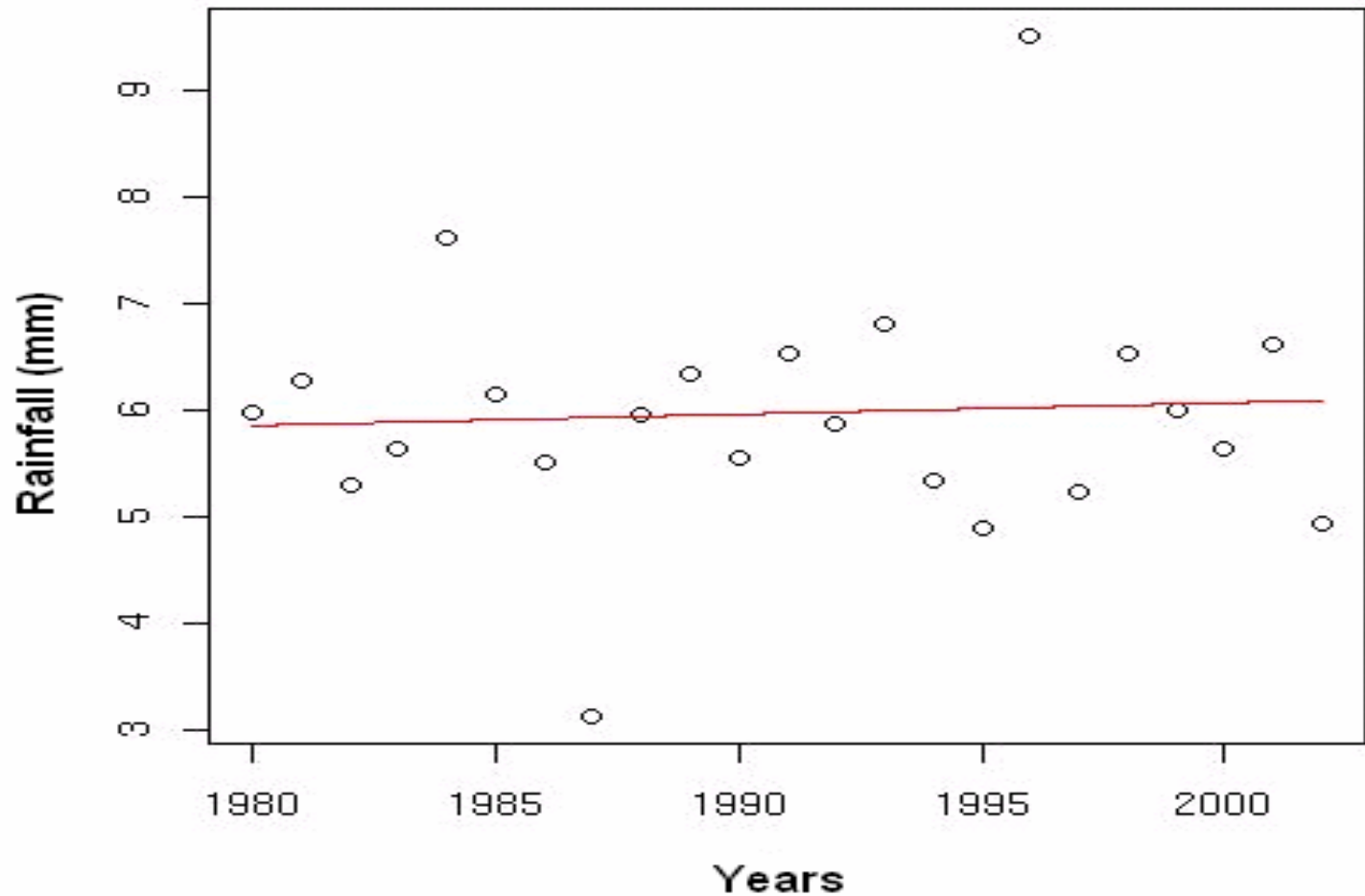
Rainfall is uni-modal as reflected in climatological graph.
Summer is a rainy season.

Box and whisker plots of the daily rainfall amounts for each year



No evident trend in the median, as there are extreme values.

Scattered plot of mean daily rainfall over Addis Ababa

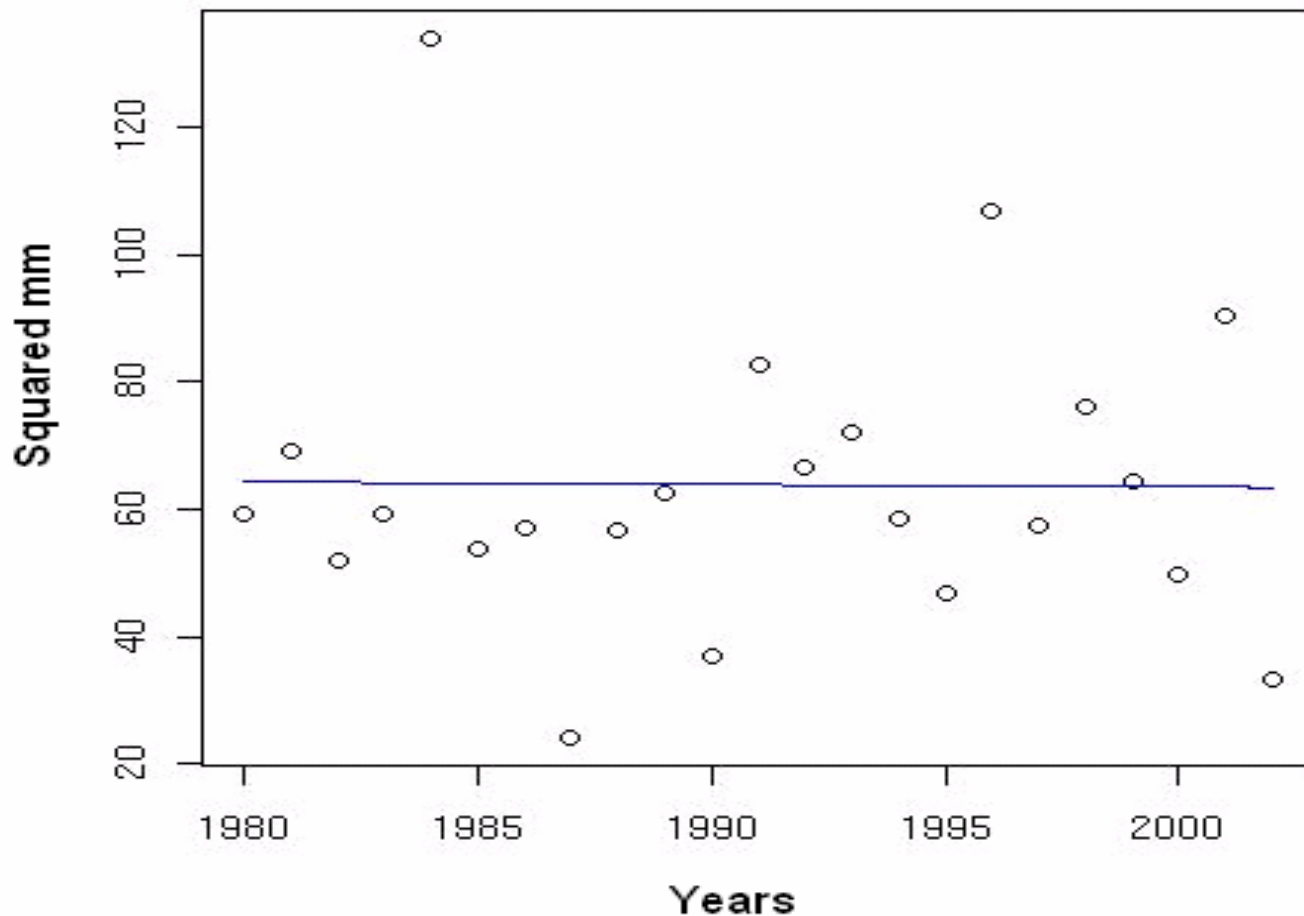


From the scatter plot:

Mean: rainfall is between 5-7 mm apart from 1987 (dry) and 1996(wet)

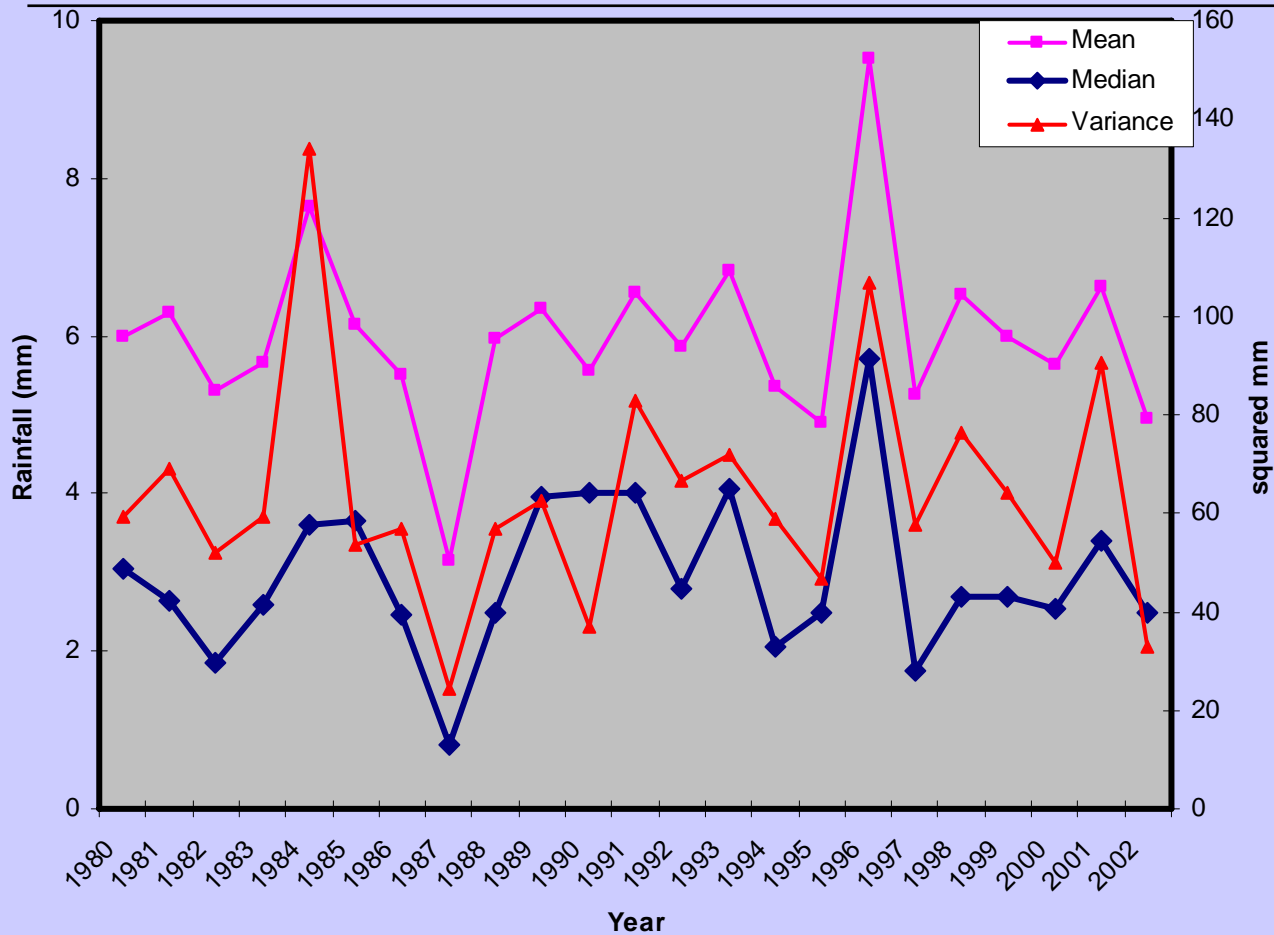
No distinct trend pattern.

Scattered plot of variance for daily rainfall over Addis Ababa



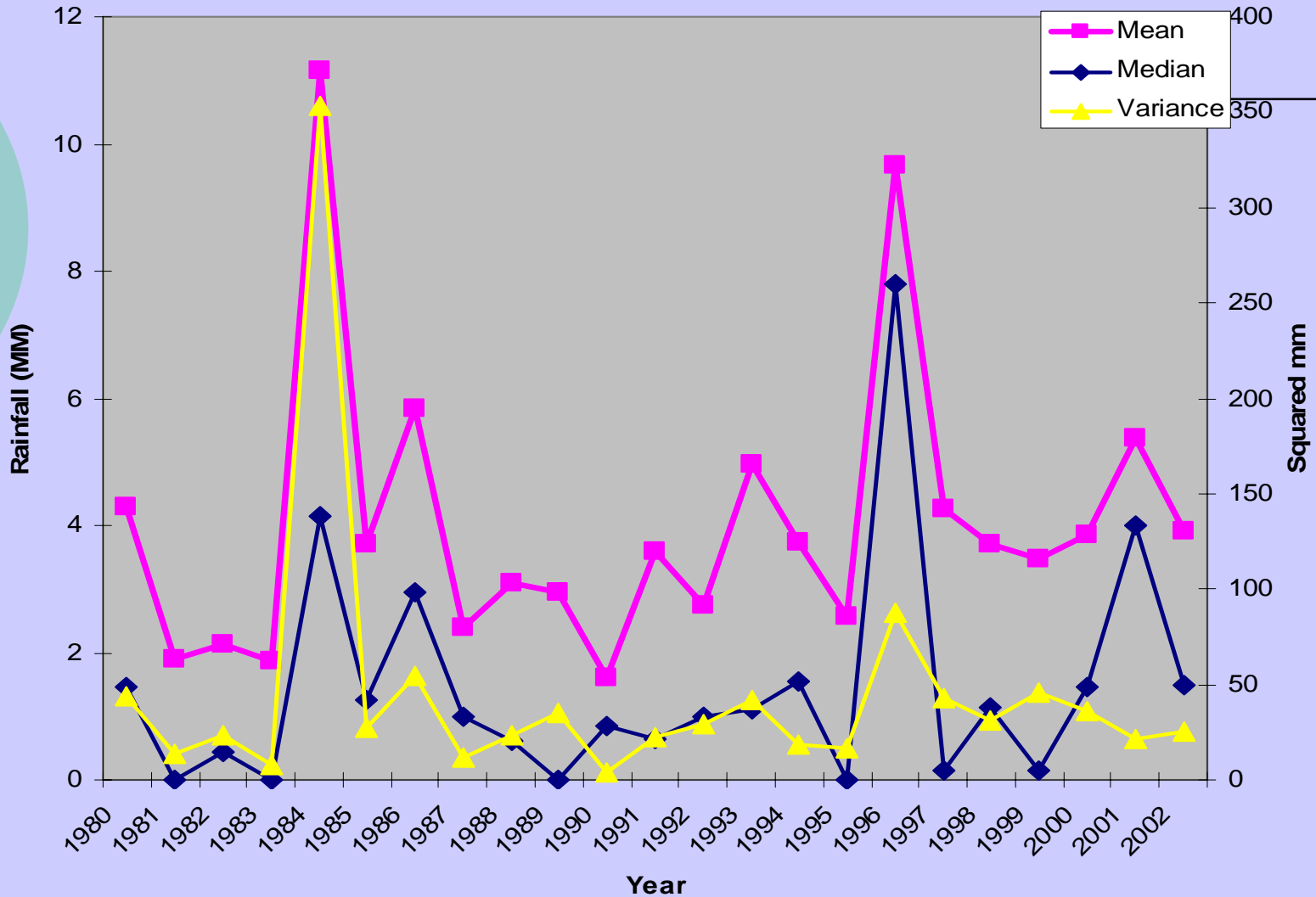
Variance: Variability is high the last decade, rainfall is more variable
For 1984 the variability was highest

Comparison of yearly mean, median and variance of daily rainfall over Addis Ababa



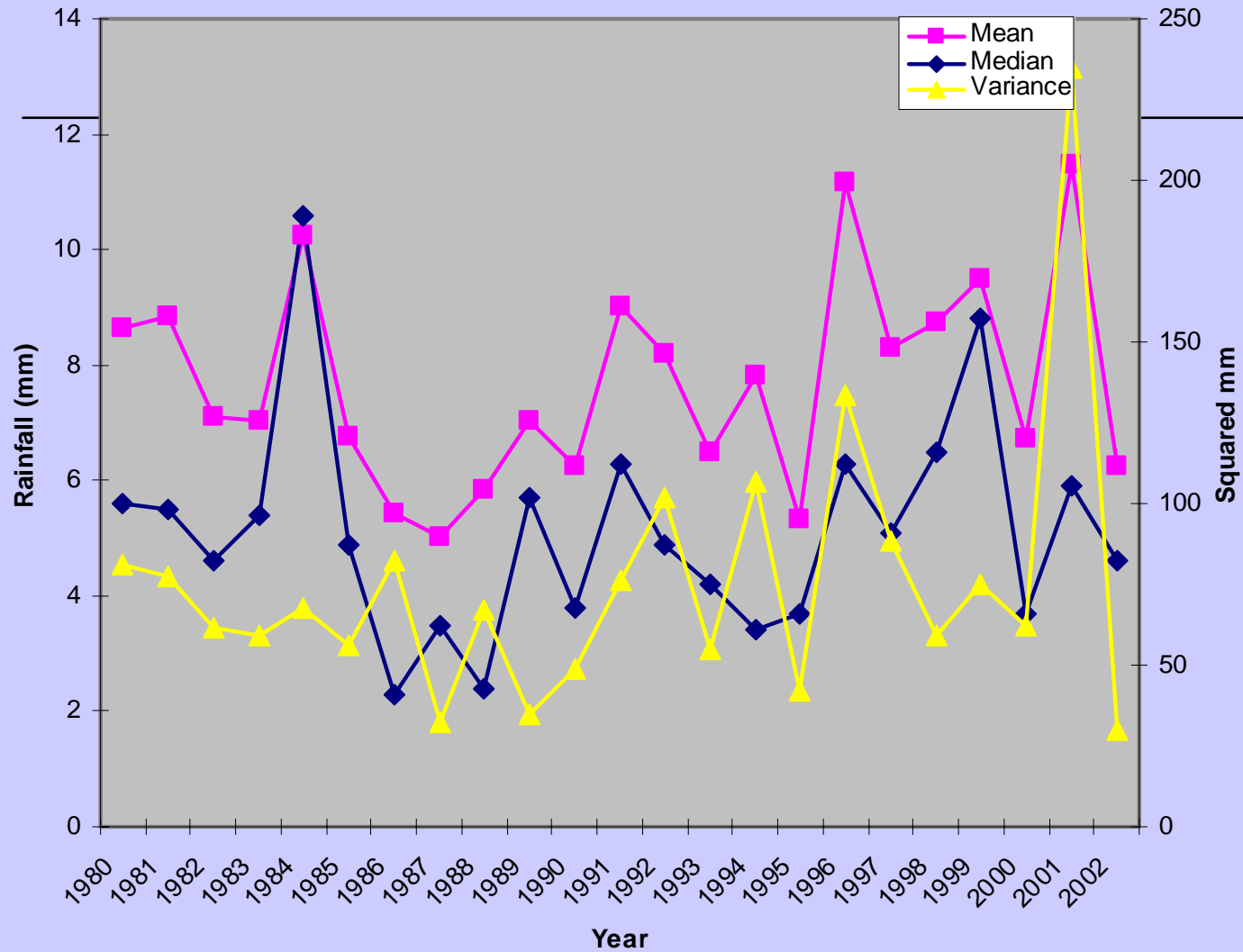
The mean daily rainfall time series shows 1984 and 1996 became highly variable.

June mean, median and variance of daily rainfall over Addis Ababa



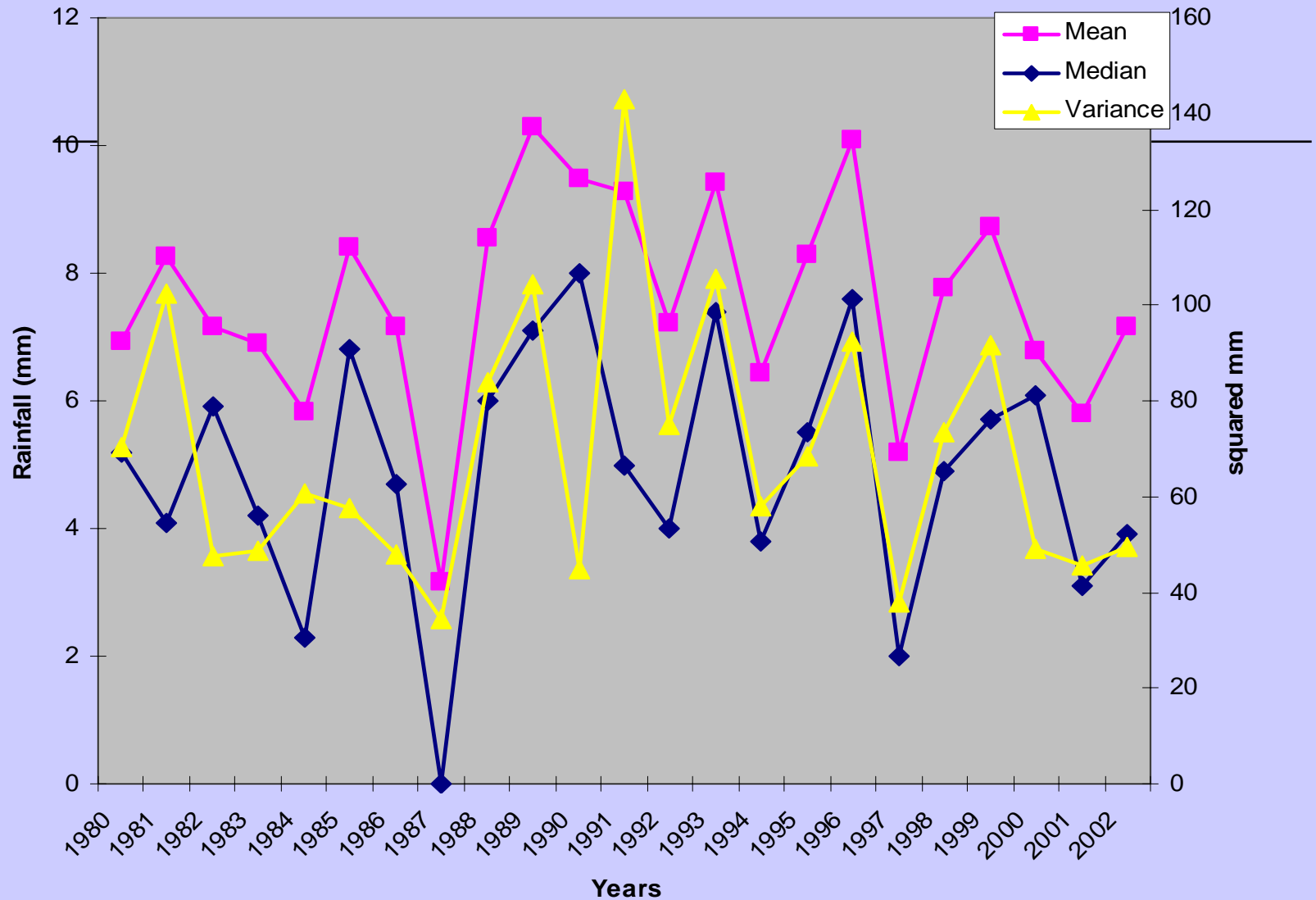
High variance for 1984 and 1996

July mean, median and variance of daily rainfall over Addis Ababa



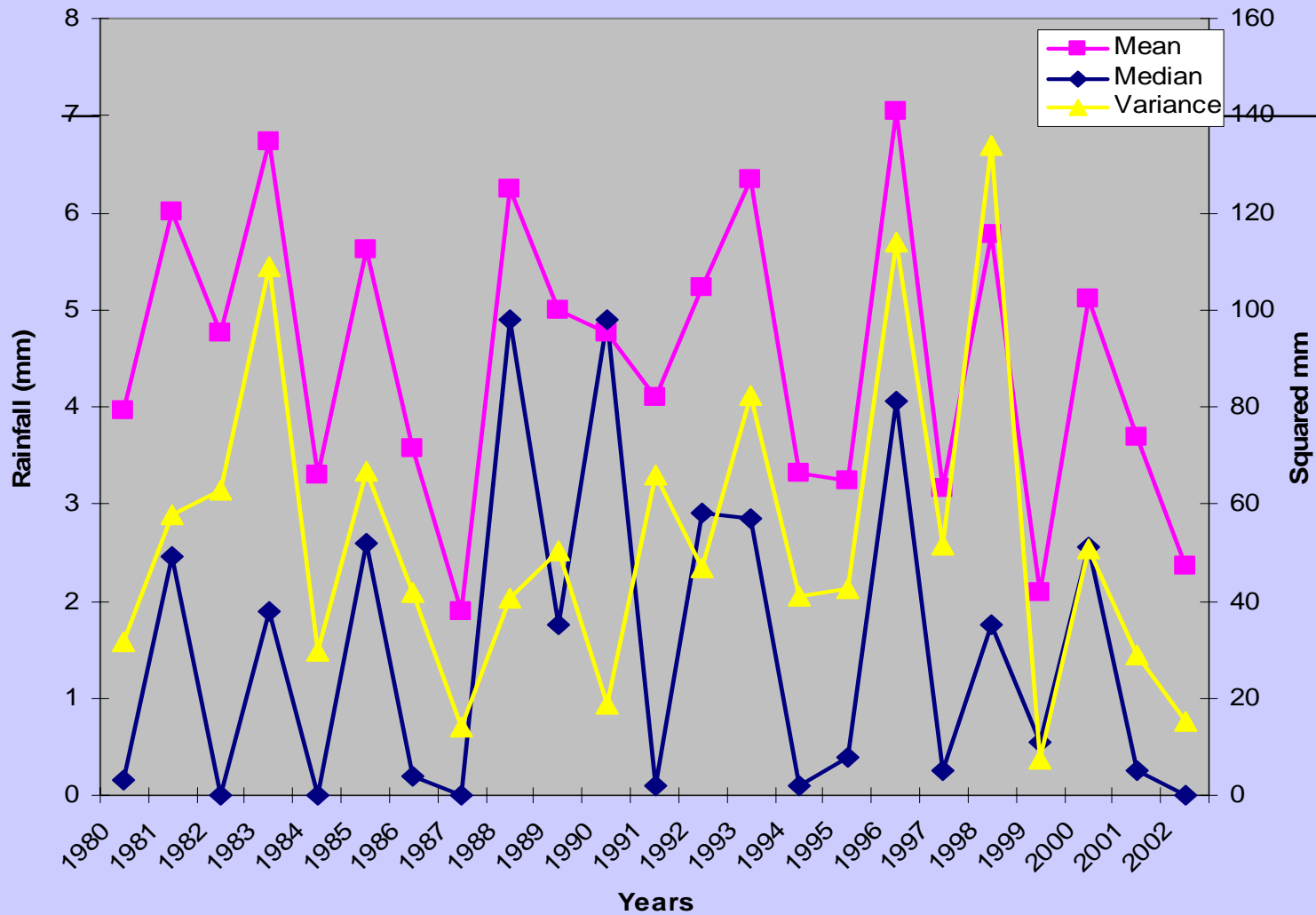
High rainfall for 1984, high variance in 2001

August mean, median and variance of daily rainfall over Addis Ababa



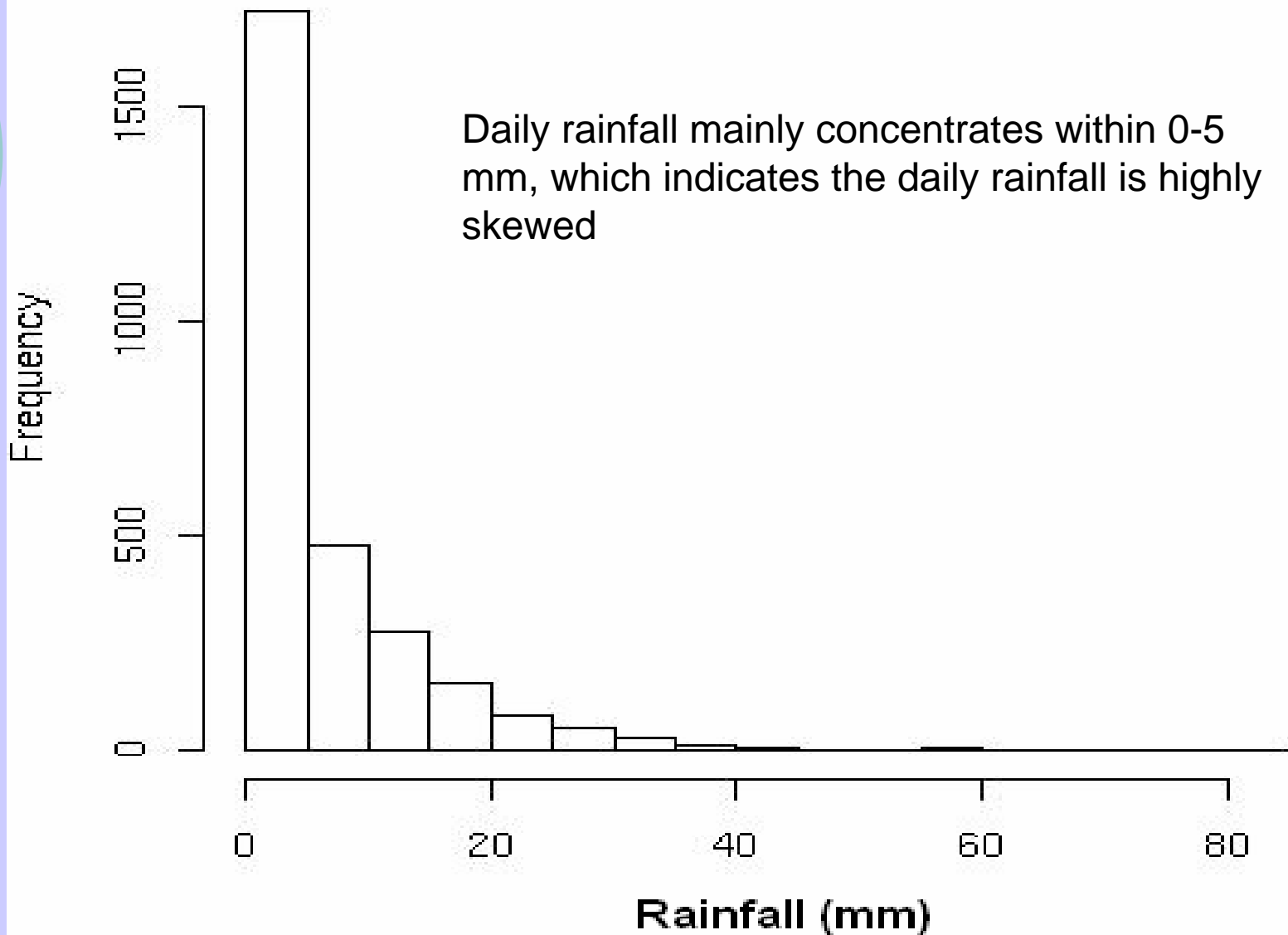
The mean daily rainfall show high fluctuation (high intra-annual variability)

September mean, median, variance of daily rainfall over Addis Ababa

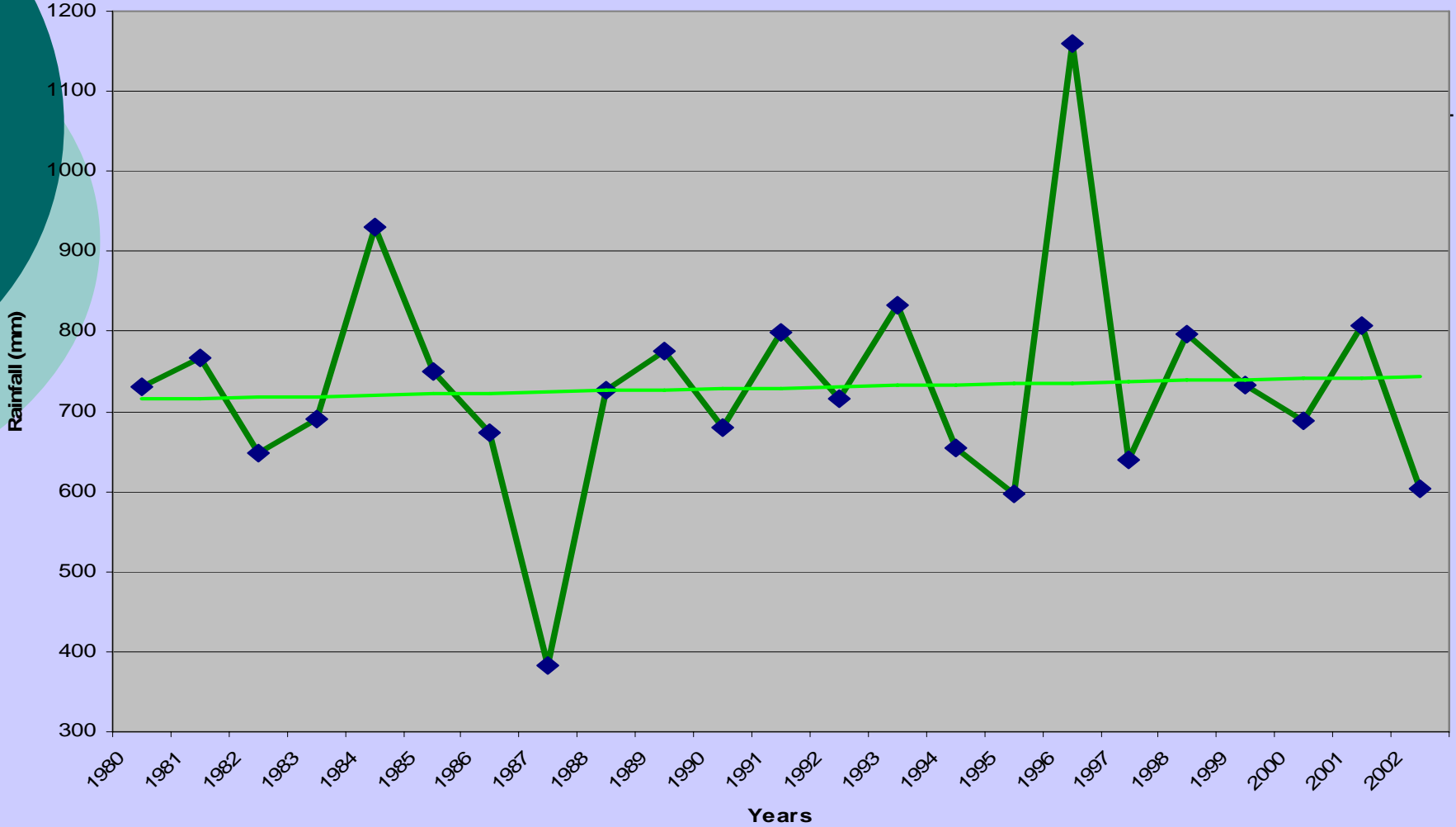


Highly variable, low rainfall

Histogram of daily rainfall amounts over Addis Ababa



Total rainfall amounts (mm) over four months

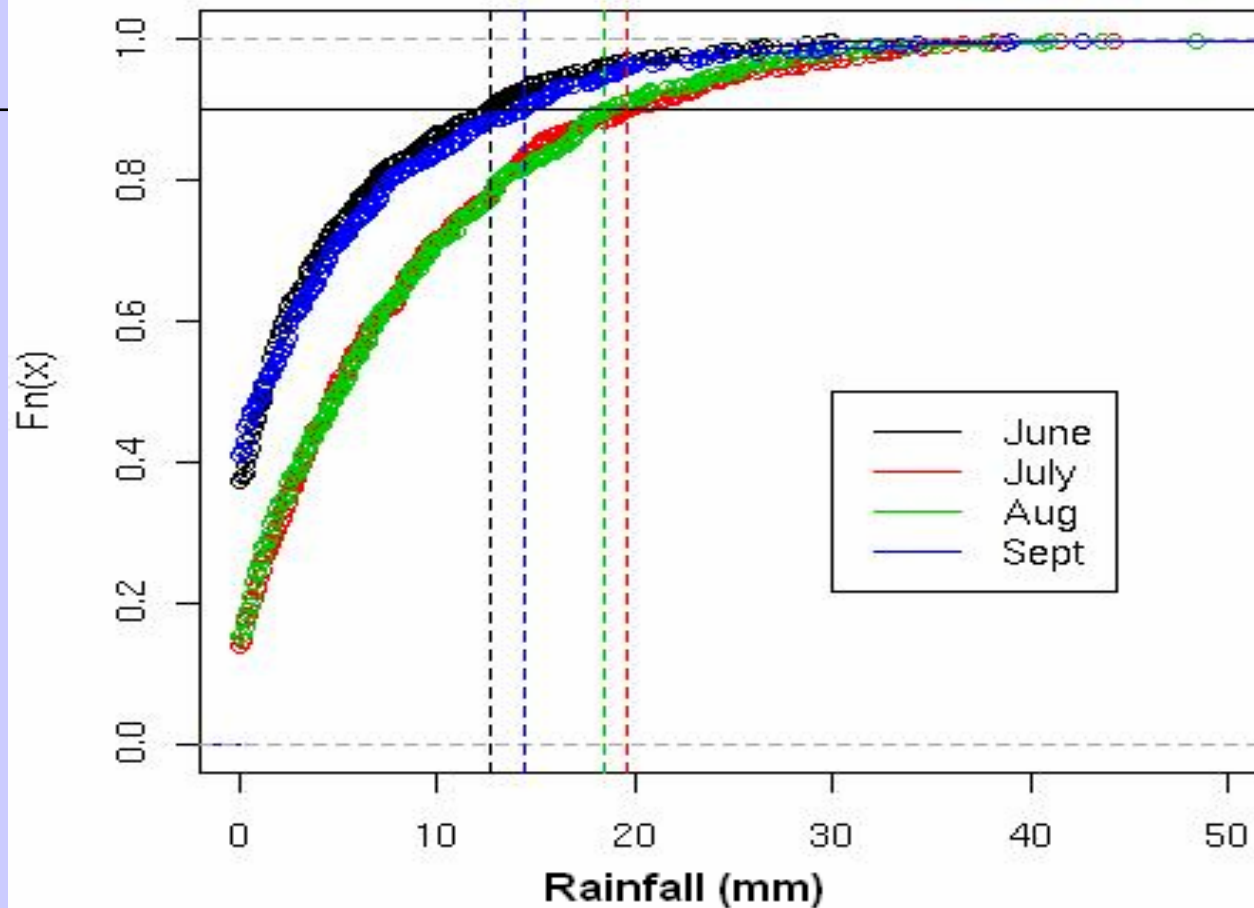


Weak rainfall trend is evident

Lowest rainfall in 1987

Highest rainfall 1996

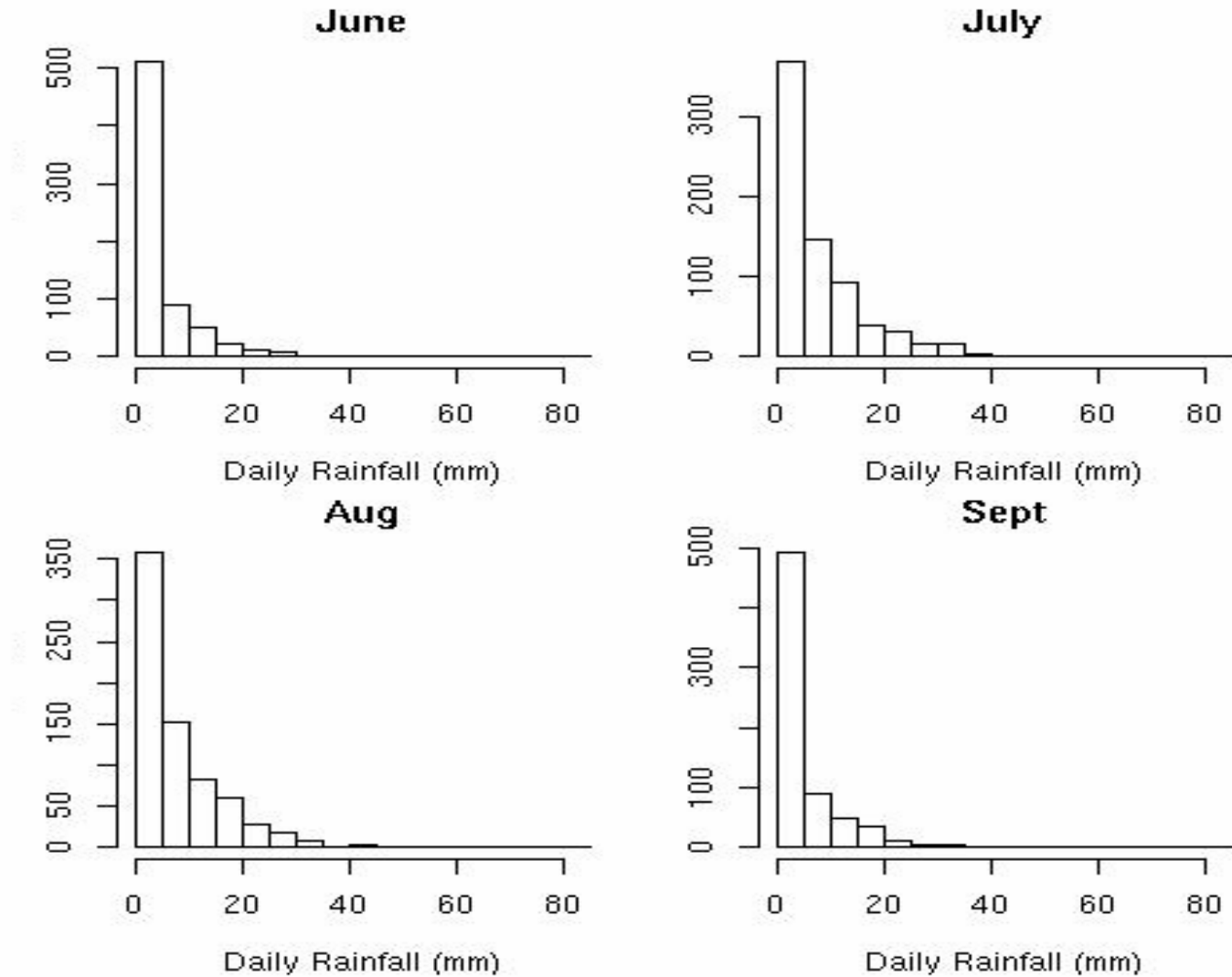
Cumulative probability distribution and 90 percentile of daily rainfall over Addis Ababa



CDF indicates:

90% of daily rainfall concentrates below 12, 19, 17 and 14 mm for Jun, Jul, Aug and Sep respectively

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Similar rainfall pattern (as show in the above CDF) are also echoed in the histogram

Conclusion

- R-Software is very useful in analysing rainfall climatology.
- From the climate user's point of view
 - July and August have more dependable rainfall, which can be useful for agriculture and water resource management.
 - Such climatological summary can be used as input for planning purposes.



THANK YOU!