Going Long on Temperature

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Introduction

Idea

My project started with the idea of showing trends in temperatures from randomly selected stations. I downloaded the list of station names from the Time Series Browser, and wrote a short Python script to select station names at random. I then manually selected stations, see link here. However, there is a problem as the figure makes clear: *stations are not distributed uniformly, so the selection will also be skewed.*
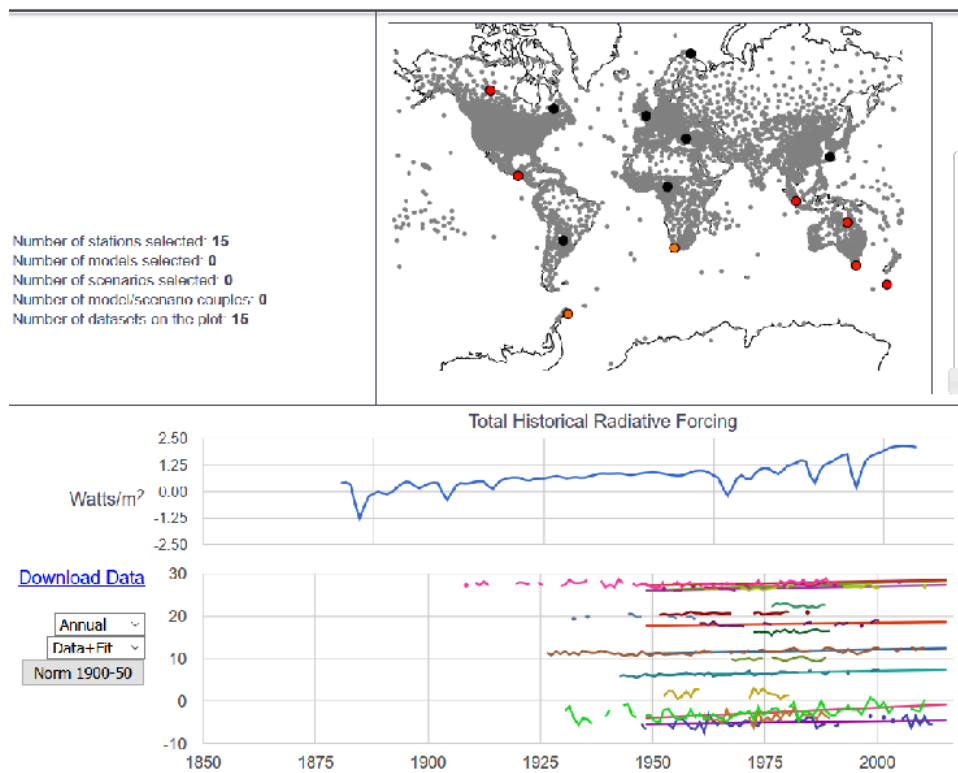
I therefore decided to sample uniformly across the globe: select positions at random, and take the readings from the nearest stations with adequate data. See Methodology Secyion below.

References

- Code is stored in my Github repository - user name 'weka11'
- The alogorithm for uniformly sampling points on the surface of a globe is doumented in Statistical Mechanics: Algorithms and Computations, Werner Krauth, PDF here
- Time Series Browser
- NOAA National Climatic Data Center

Methodology

I decided against using the Time Series Browser, as it was designed for accessing data by station name, not latitude and longitude. I could have written a script to generate random locations, and then screen scrape the data, but past experince with other websites has taught me that this is fraught with difficulty (typically this requires the exploitation of undocumented features in the website:*here be Dragons!*). I diecded to use the data behind the Time Series Browser instead.

- Download stations and monthly average temperature readings from NOAA National Climatic Data Center
- Randomly sample 25 locations, uniformly distributed distributed on the surface of the Globe, using the algorithm from Werner Karuth's book, above.
- Filter the list of stations so they are restricted to those with readings in the time interval of interest (currently 1950 to the present)
- For each of the 25 locations, find the nearest station.
- Tabulate the stations, and plot the time annual average temperatures, along with a regression line

Results

ID	NAME	LATITUDE	LONGITUDE
10160360000	ANNABA	36.83	7.82
10160355000	SKIKDA	36.93	6.95
10160360000	ANNABA	36.83	7.82
10160461000	ORAN	35.70	-0.65
10160355000	SKIKDA	36.93	6.95
10160360000	ANNABA	36.83	7.82
10160468000	BATNA	35.55	6.18
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10160461000	ORAN	35.70	-0.65
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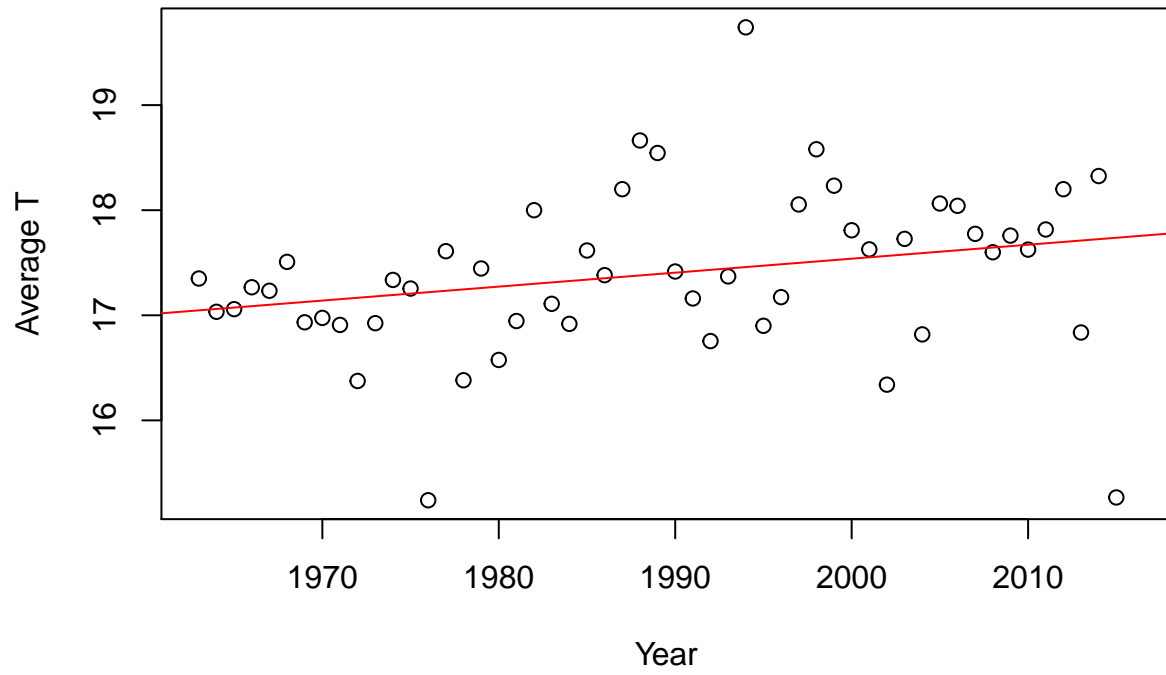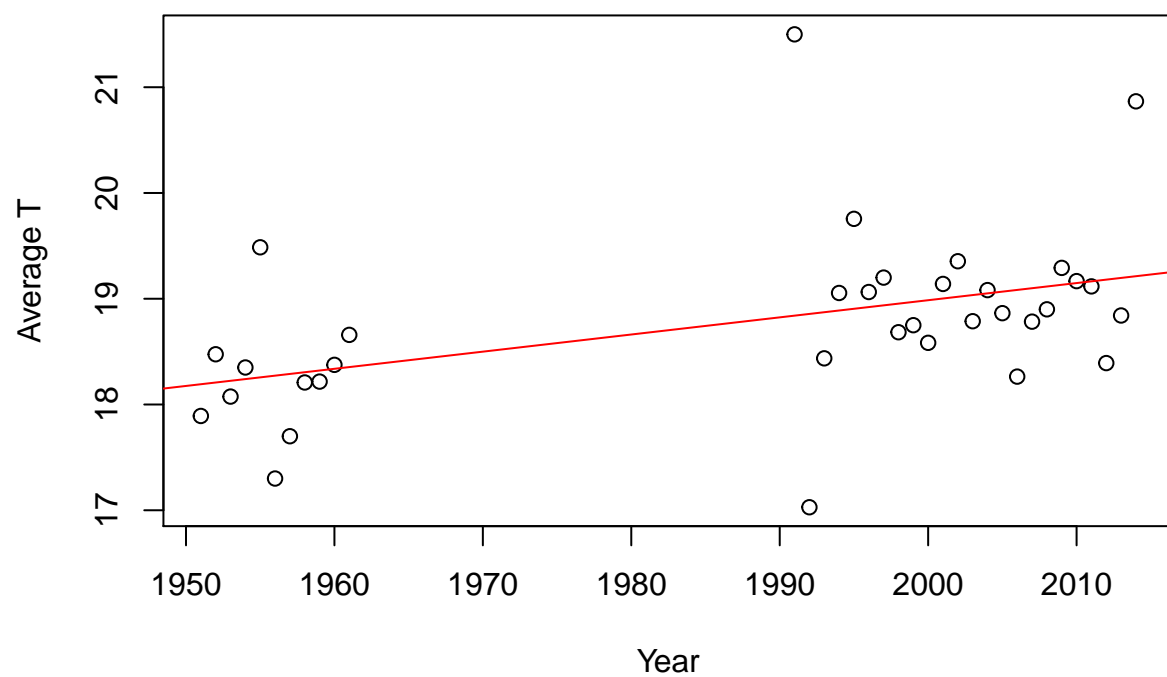| ID	NAME	LATITUDE	LONGITUDE
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10160360000: ANNABA
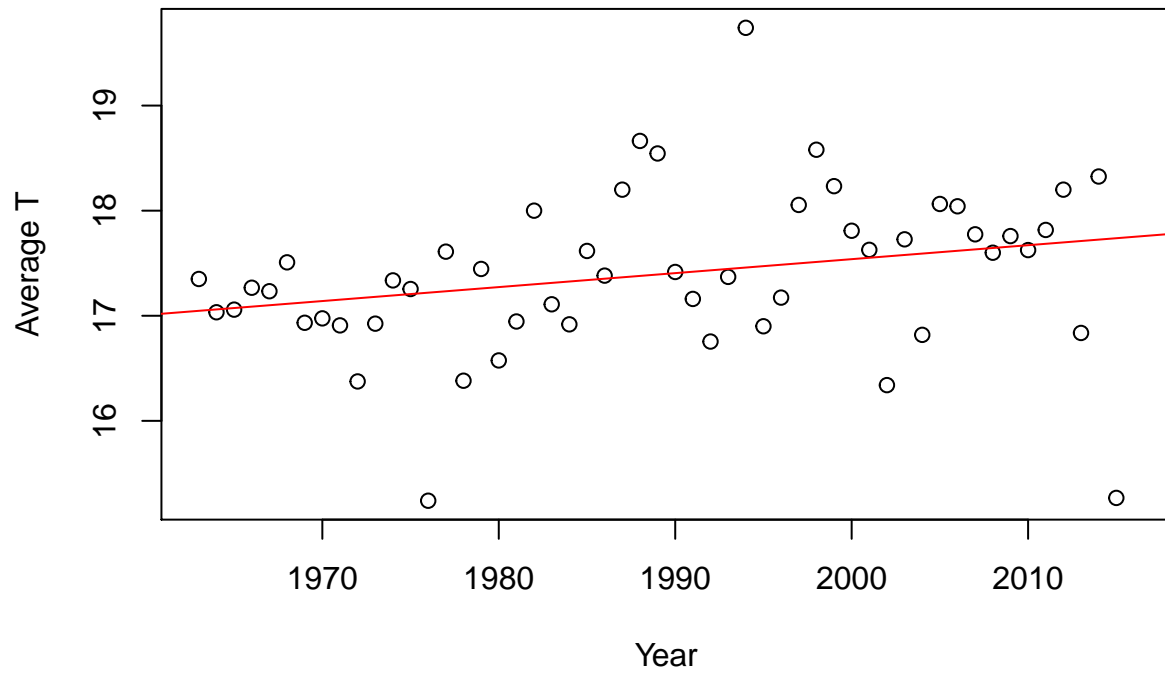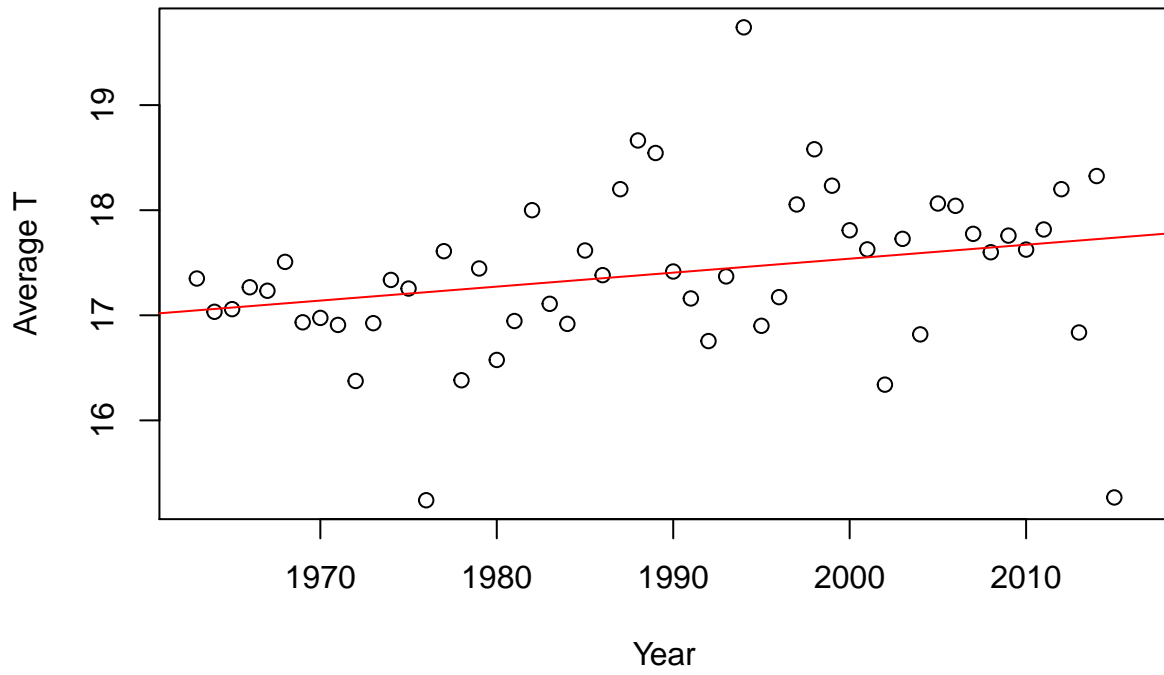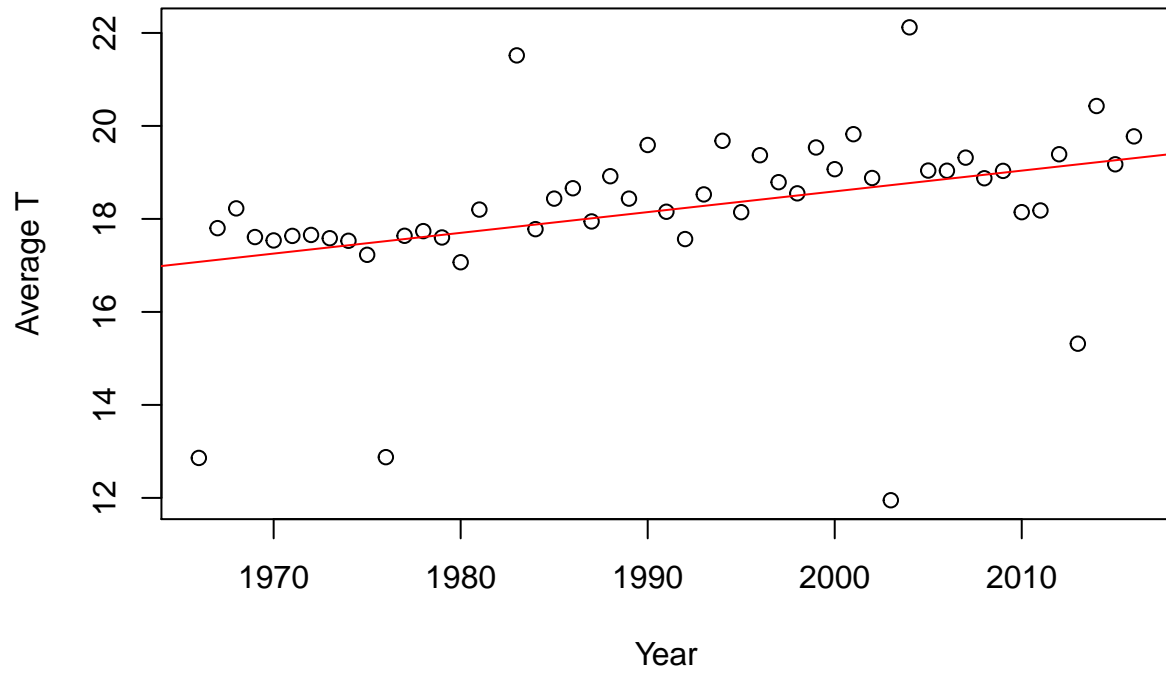
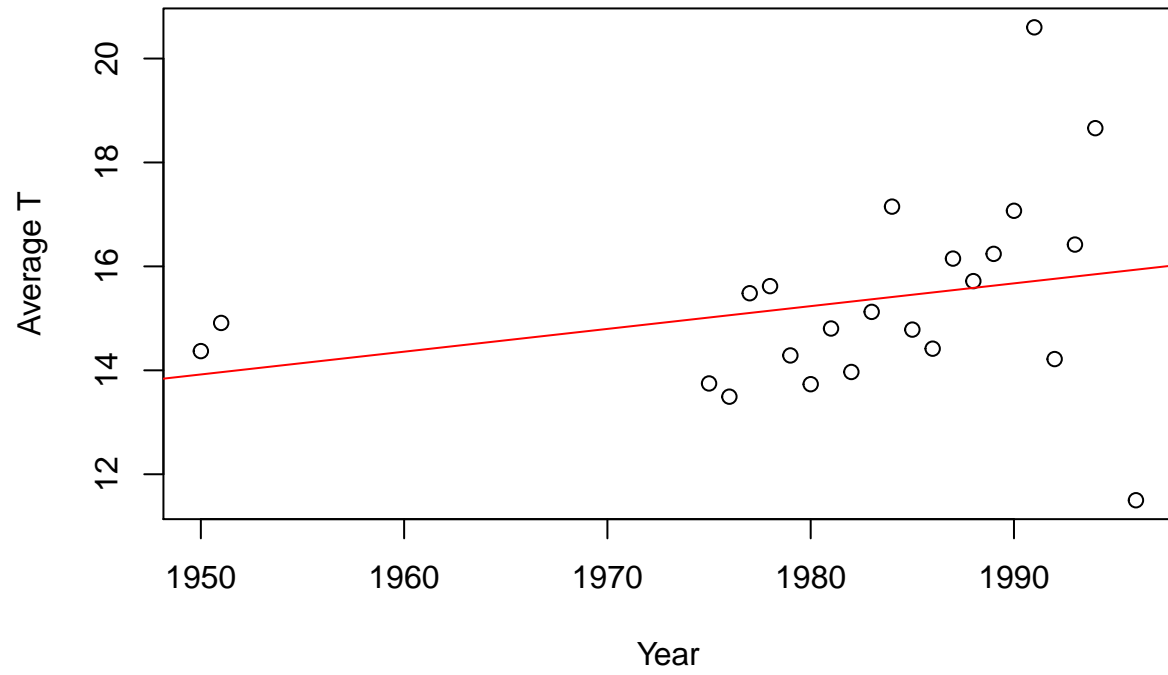10160355000: SKIKDA
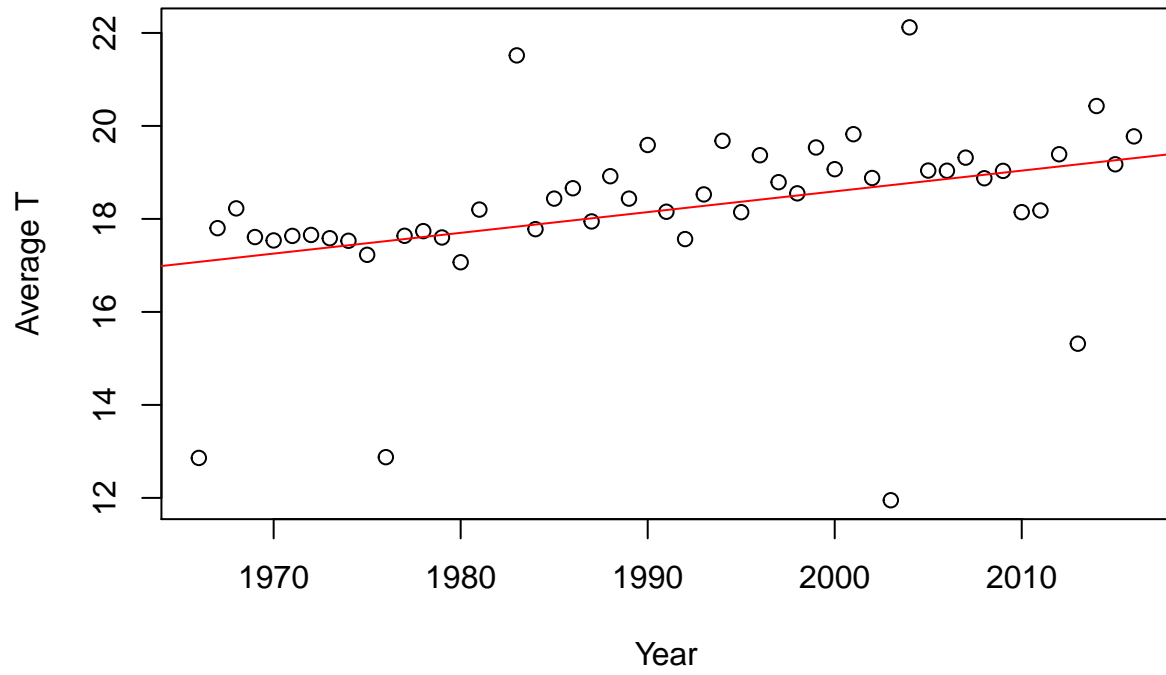
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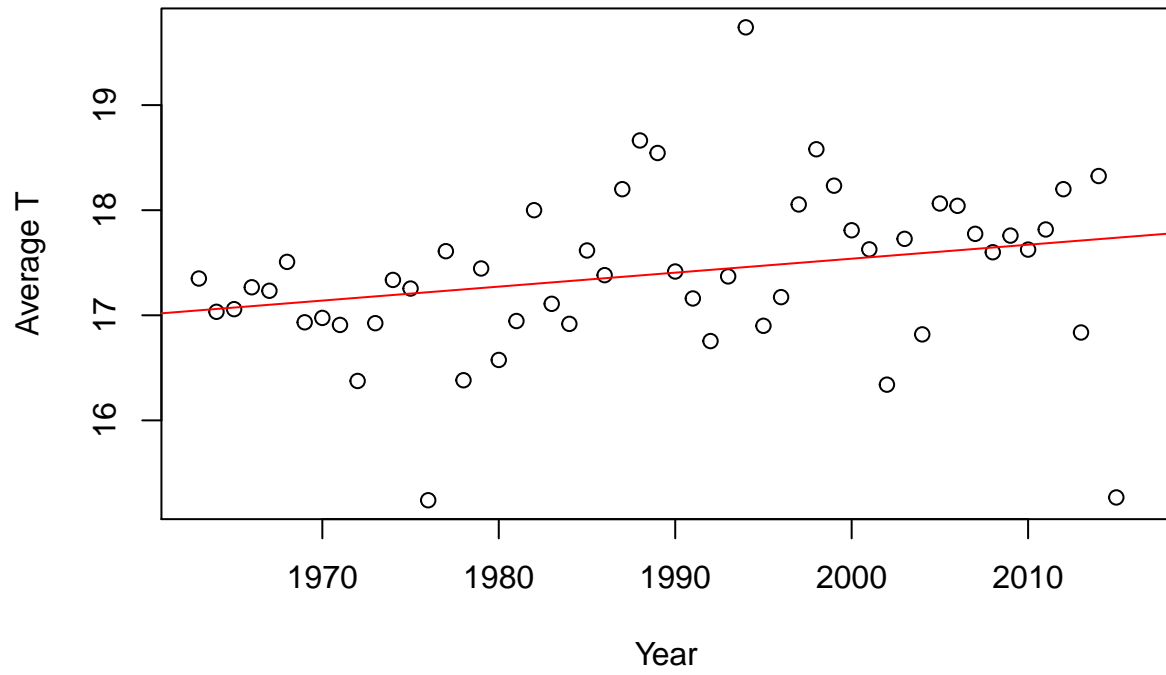
10160461000: ORAN
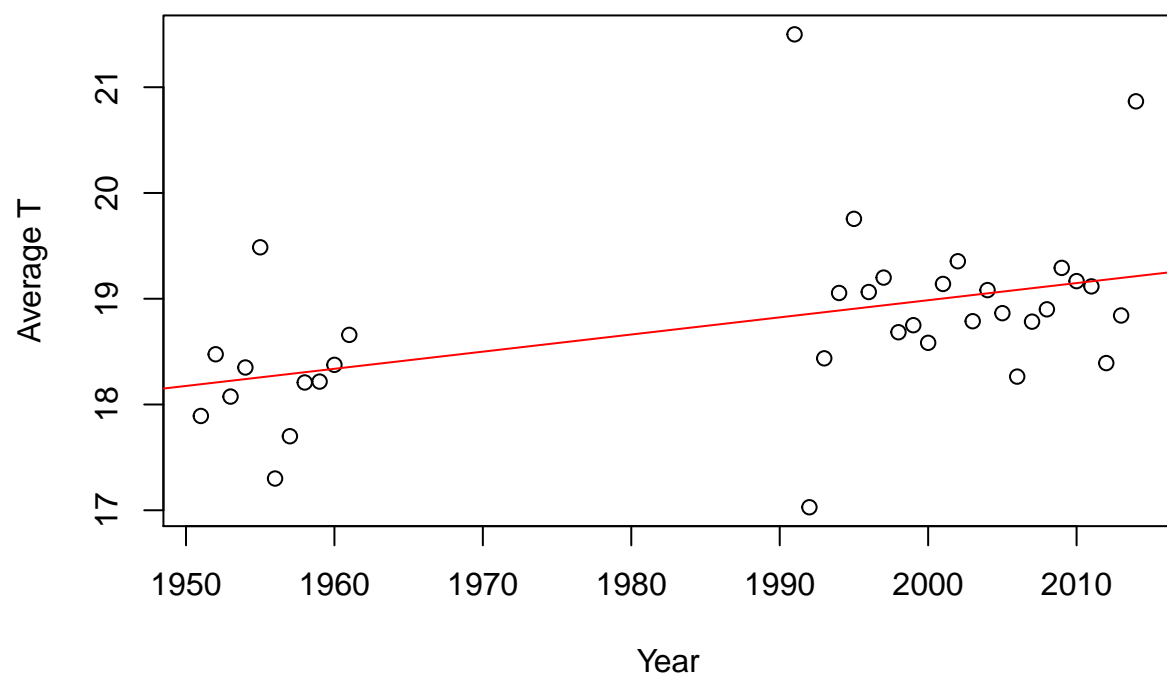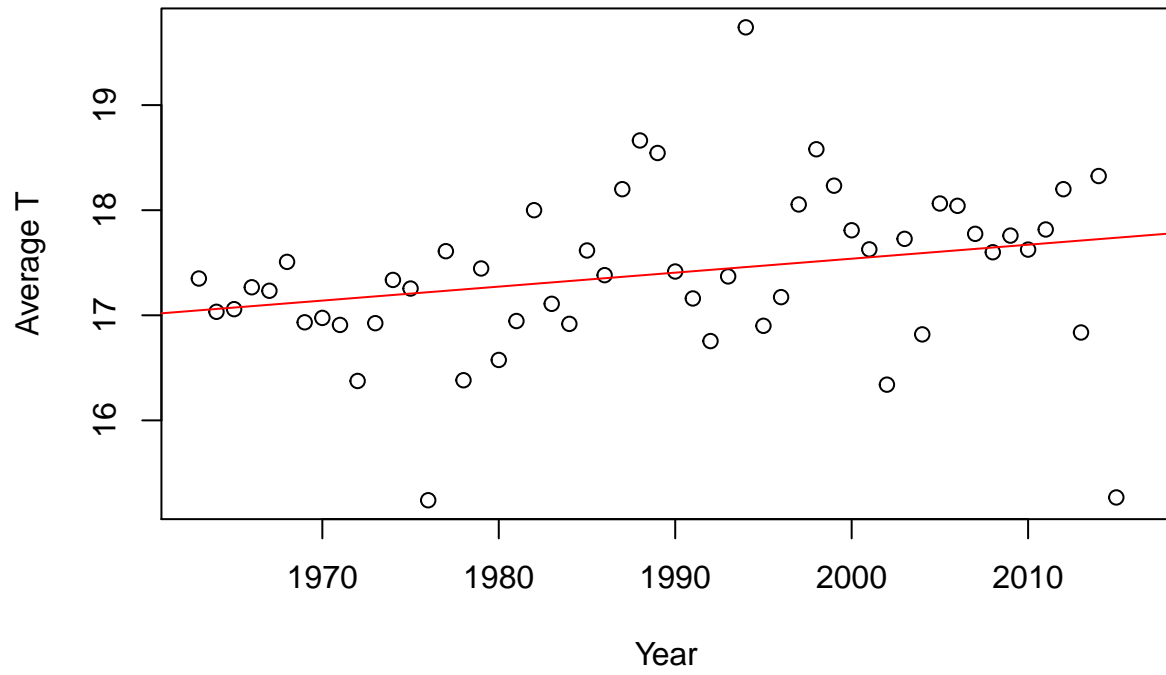
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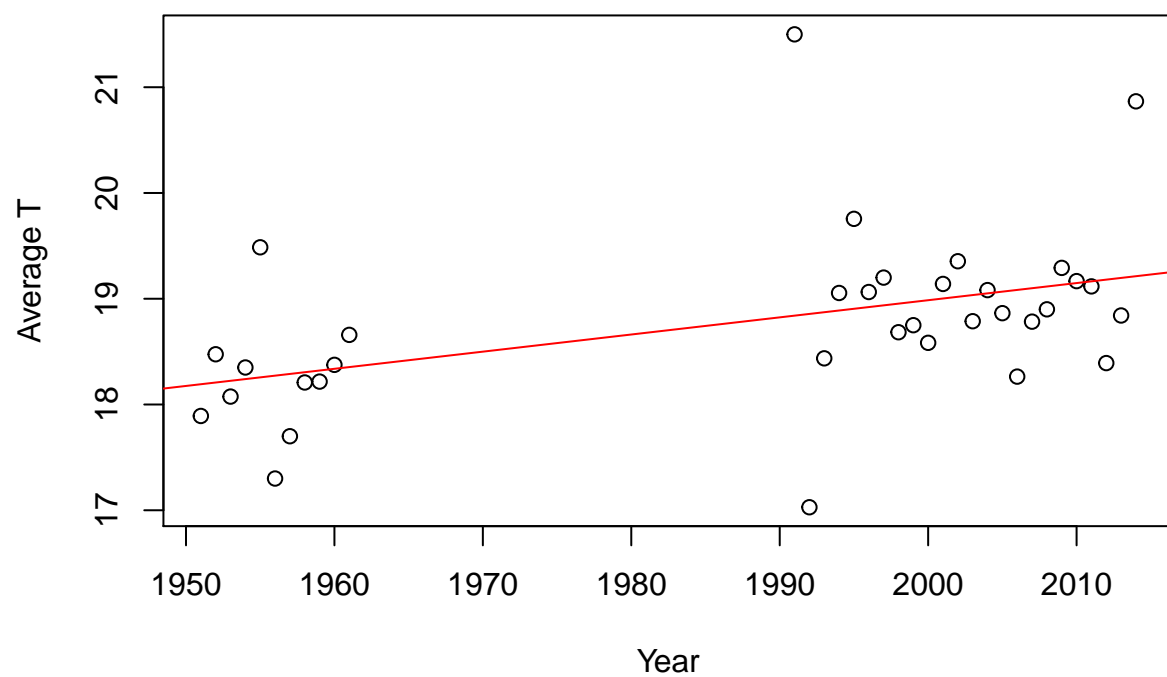**10160360000: ANNABA**

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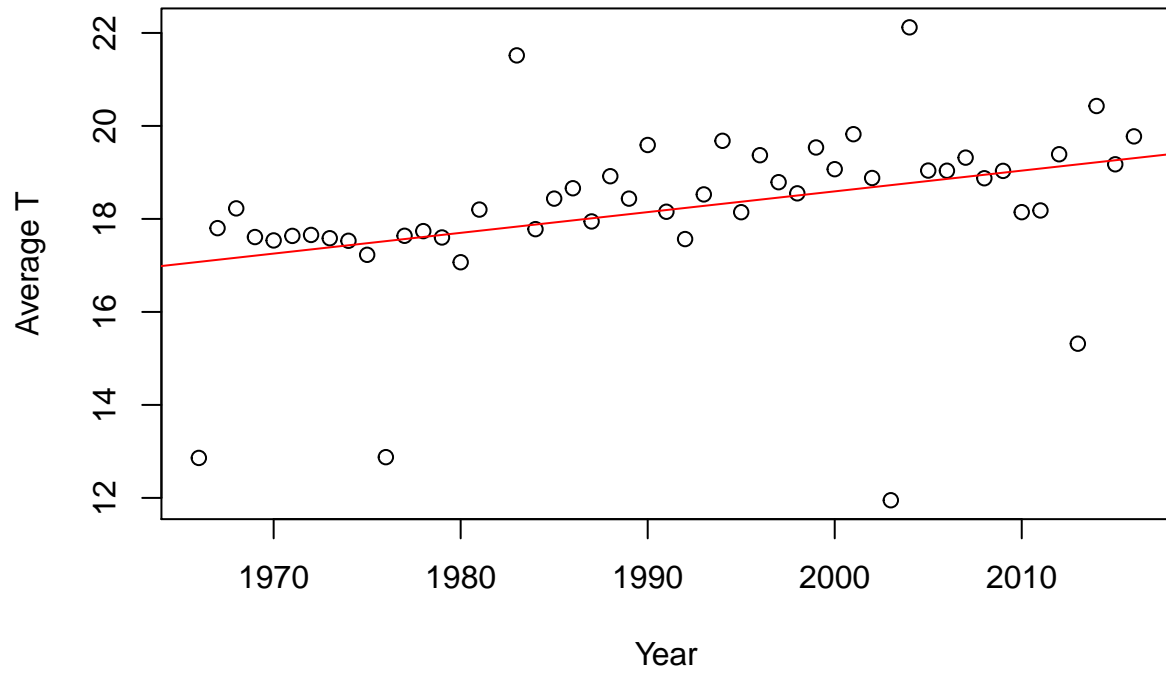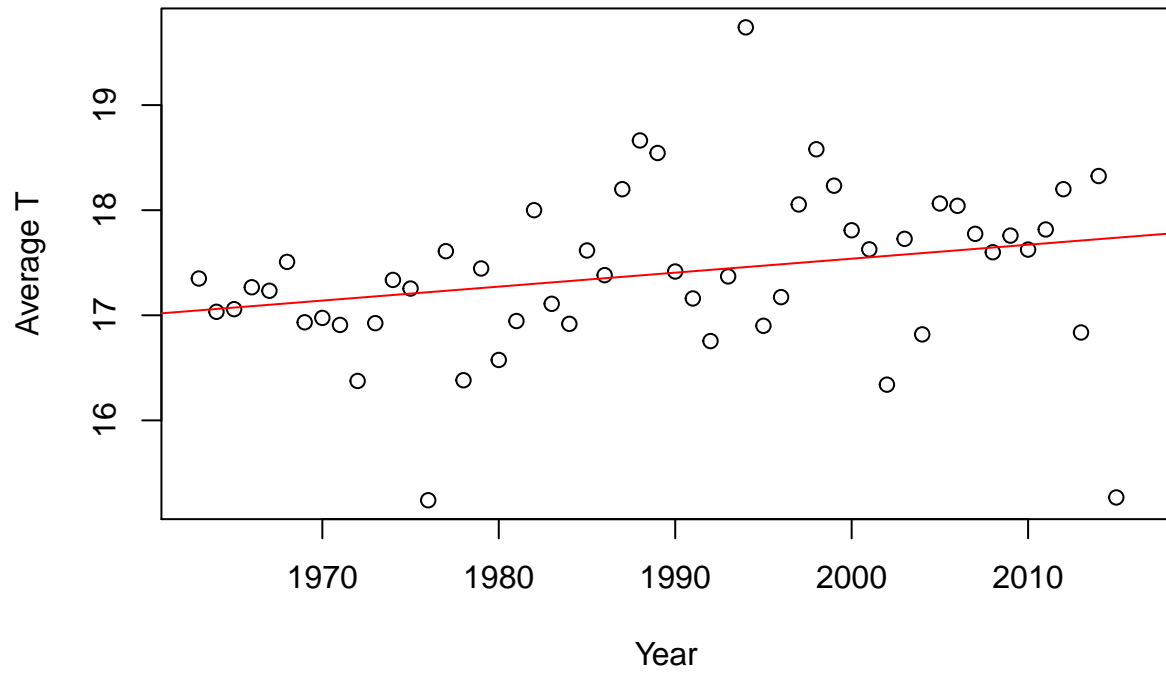
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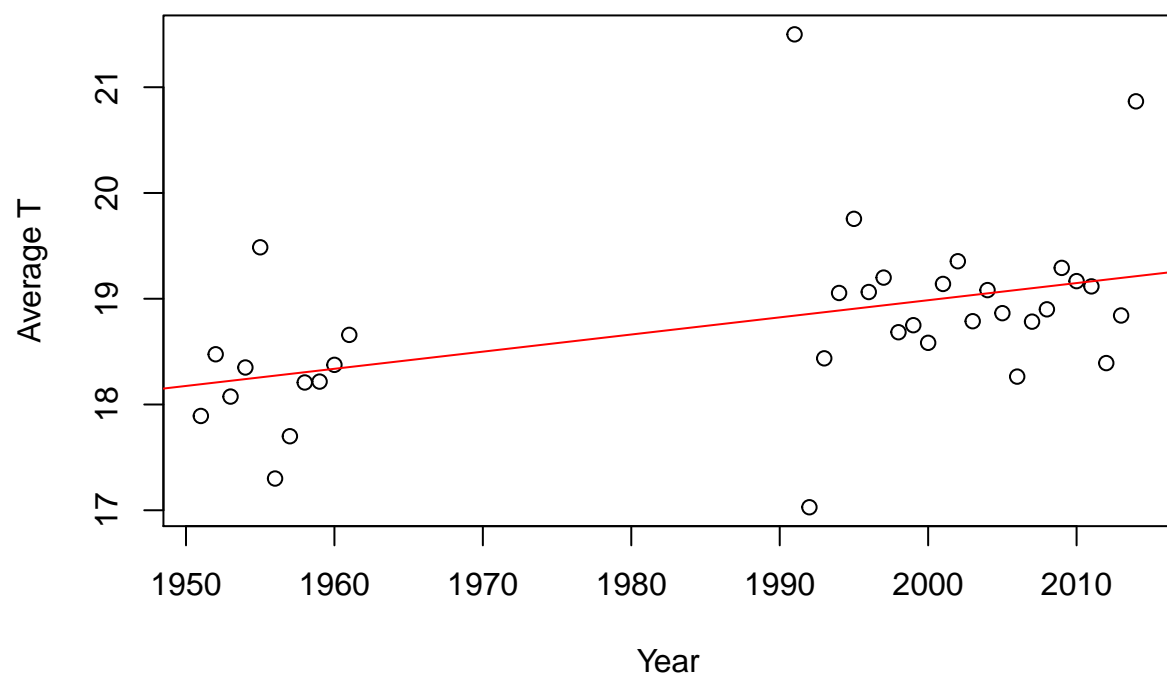**10160360000: ANNABA**

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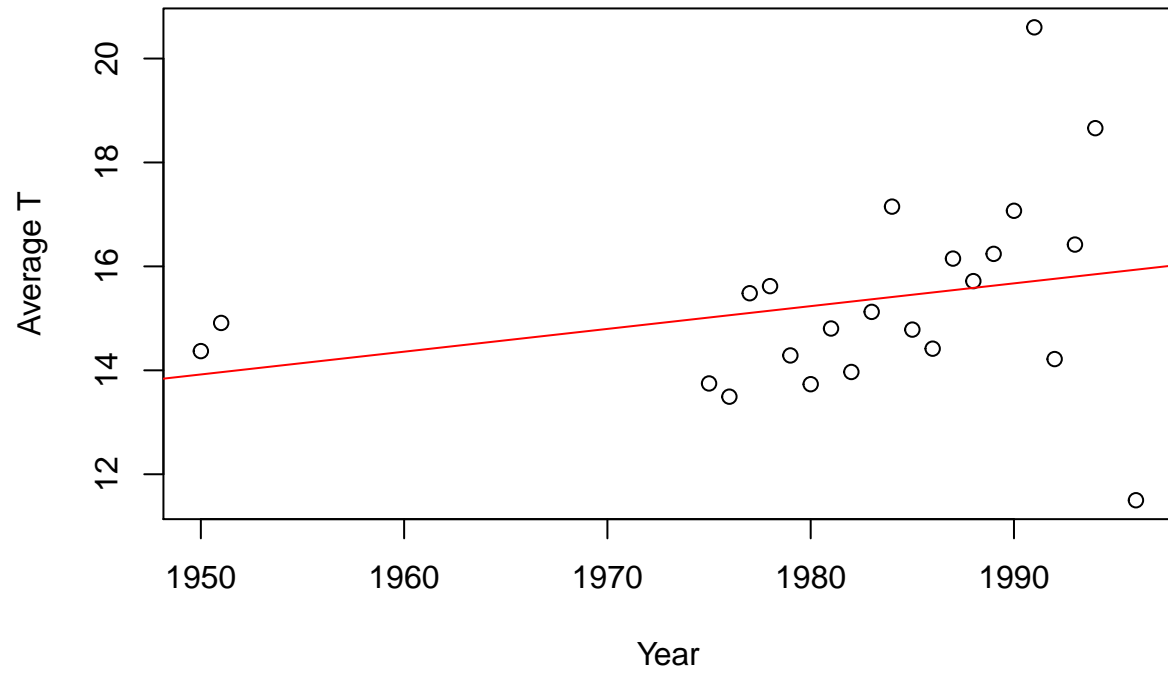
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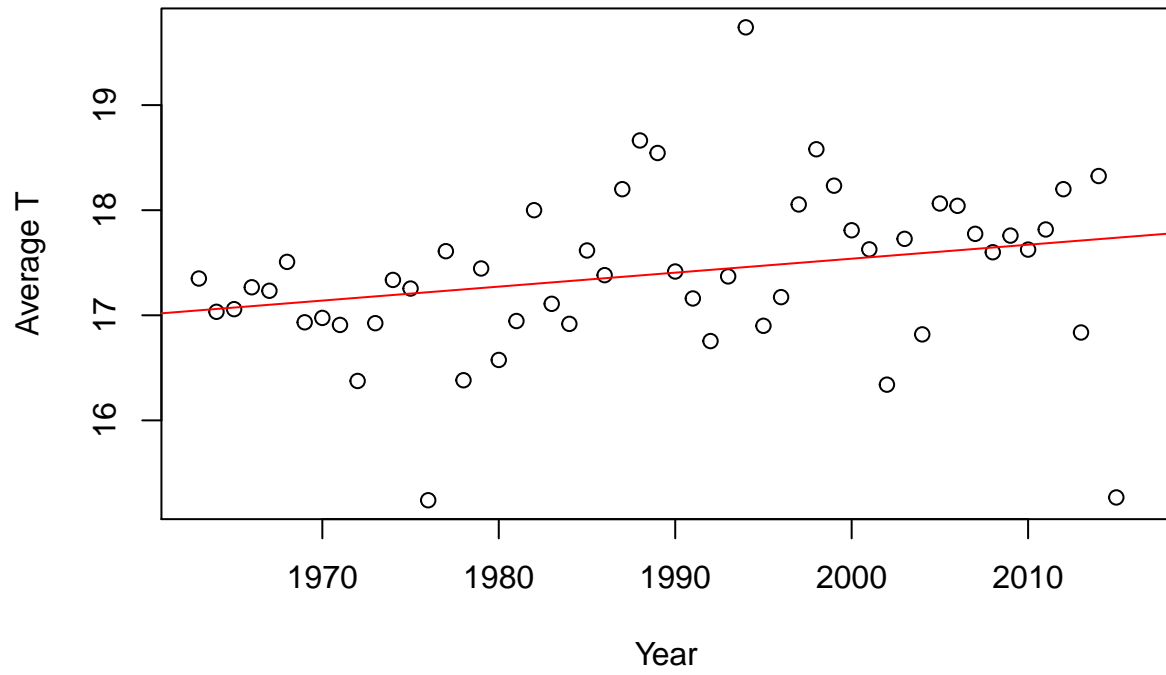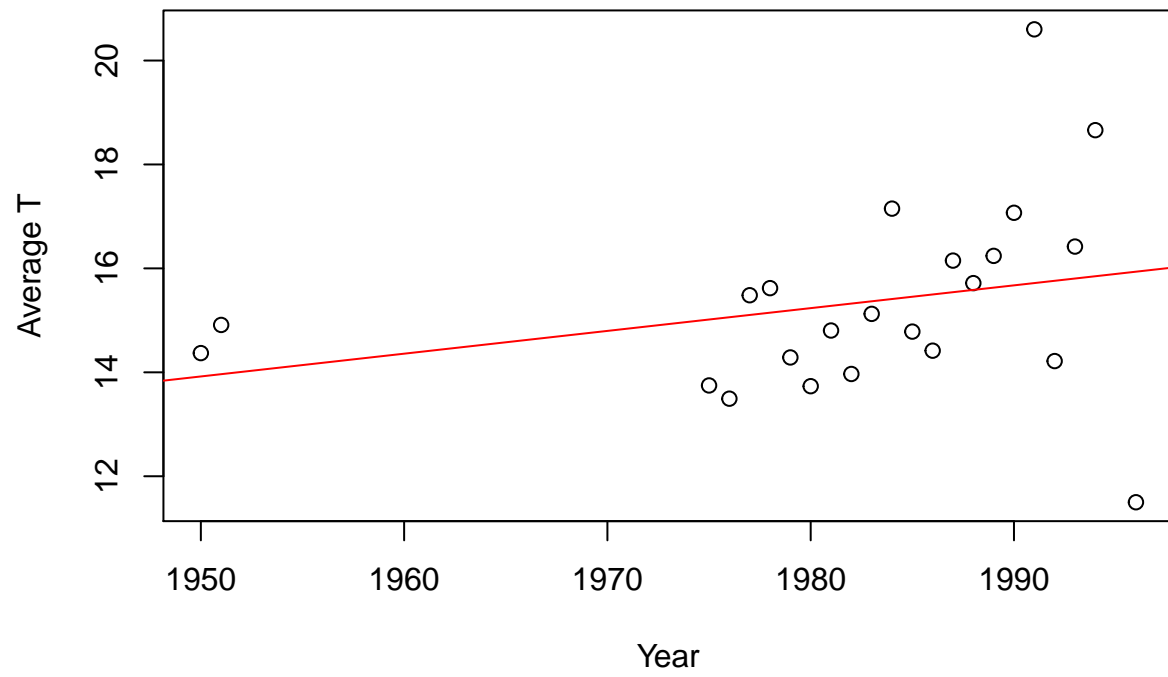**10160360000: ANNABA**

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