

Measuring Climate Trends using ROOT

MNXB01

Philip J. Fredholm

Lee Chun Hin

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Introduction

In order to be able to draw conclusions about some physical phenomena, such as the climate of Earth, it is sometimes necessary to be able to process large amounts of data. In order to save a considerable amount of time doing so, it is often the case that such processing may be done with the help of a computer programming language. The purpose of the subject of this report has been to try to use the programming language C++ in order to process data from the SMHI OpenData initiative and draw conclusion about climate and weather trends from this data. In particular, attempts have been made in order to analyse the data and find the distribution of coldest and hottest day of each year, the first day of summer as well as to analyse the temperature of a given day of the year (August 23rd) over many years.

Theory

Method

Results

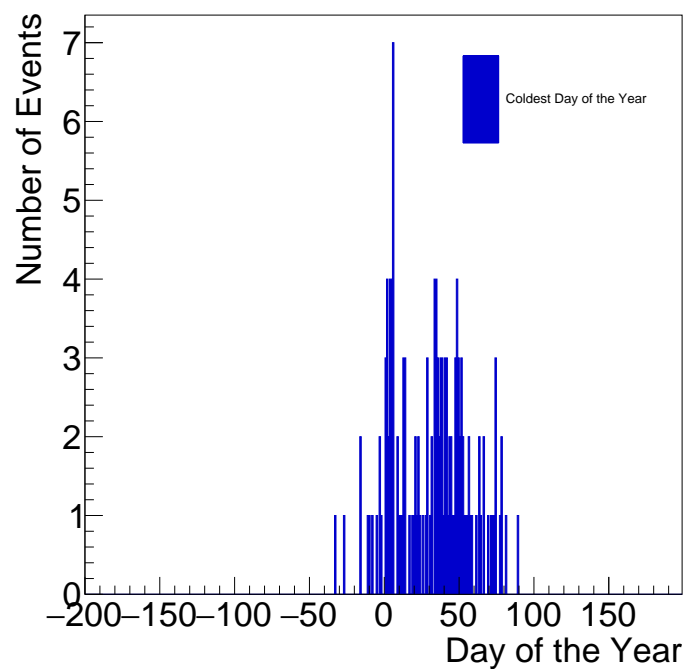


Figure 1: Shows the number of occurrences of a specific day being the coldest day of that year in Borås. Negative days indicate that the day was in the end of the previous year.

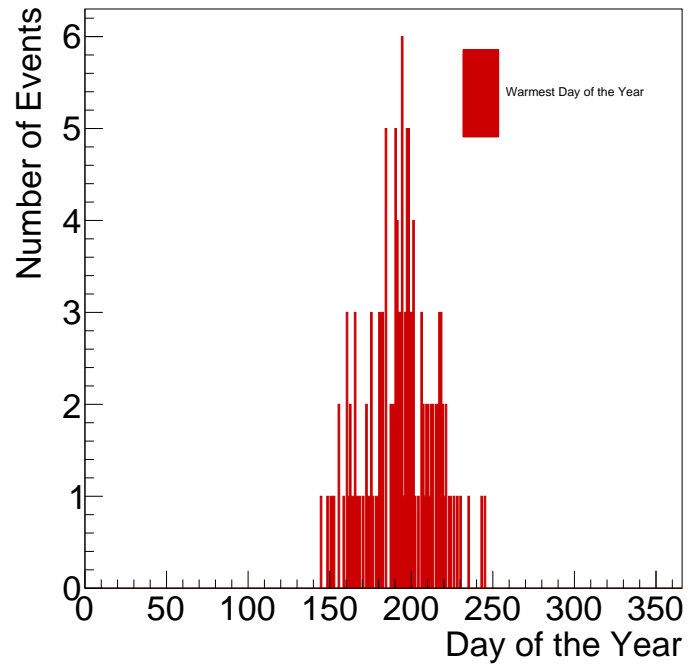


Figure 2: Shows the number of occurrences of a specific day being the warmest day of that year in Borås.

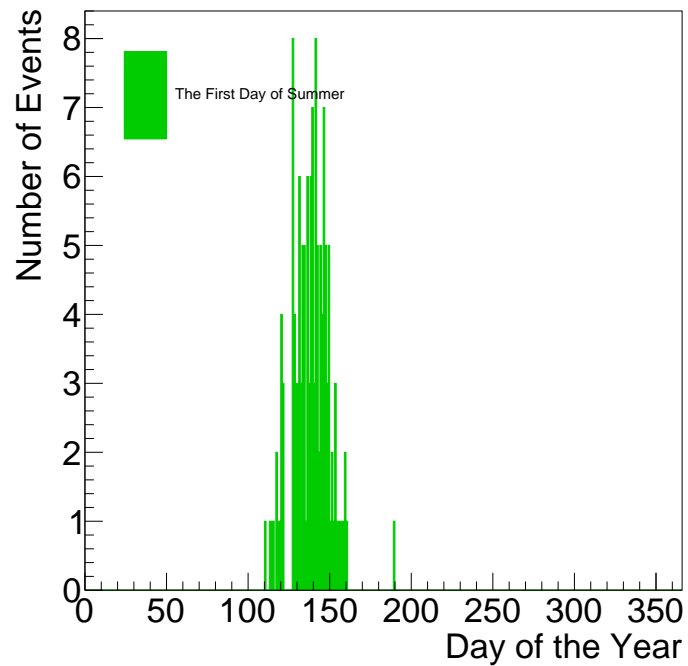


Figure 3: Shows the number of occurrences of a specific day being the first day of summer that year in Borås.

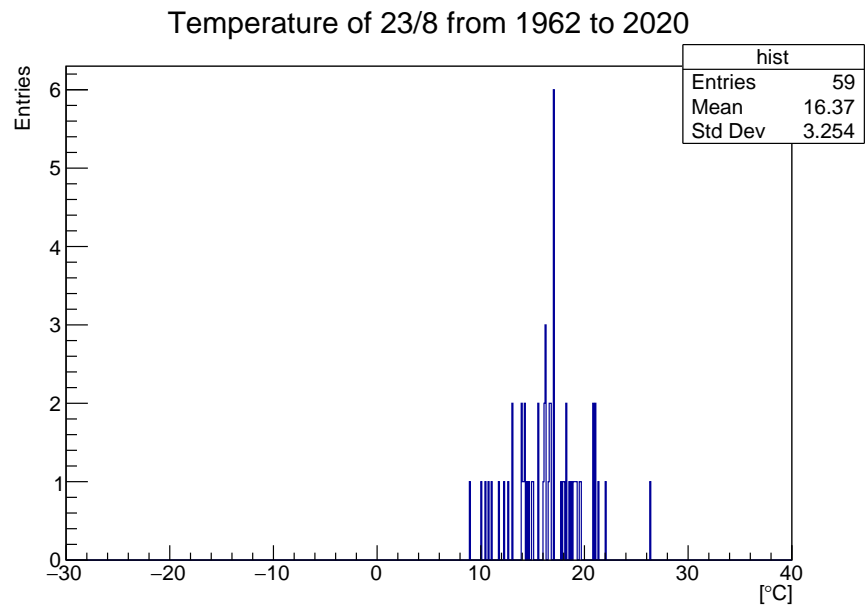


Figure 4: Temperature of Umeå Airport in 23/8 from 1962 to 2020.

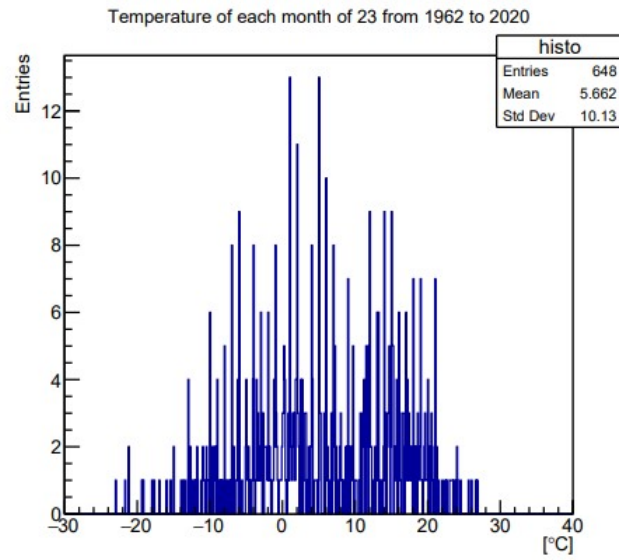


Figure 5: Temperature of Umeå Airport in each of the date of 23 since 1962 to 2020.

Discussion

References

- [1] The code in the folder "PhilipCode" available on a remote Git repository on GitHub at <https://github.com/fredholmP/MNXB01-FinalProject> .
- [2] The code in the folders INSERT CHRIS'S FOLDERS LOCATION HERE available on a remote Git repository on GitHub at <https://github.com/fredholmP/MNXB01-FinalProject> .
- [3] The data available from January 1st 1884 at 07.00 up until June 1st 2021 at 06.00 for the city Borås, provided by Lund Univeristy in association with the course MNXB01 during the autumn semester of 2022. At the time of writing, this data may be downloaded from the website <https://www.smhi.se/data/meteorologi/ladda-ner-meteorologiska-observationer> .
- [4] The data available from DAY TIME up until DAY TIME for the "Umeå Flygplats" measuring station, provided by Lund Univeristy in association with the course MNXB01 during the autumn semester of 2022. At the time of writing, this data may be downloaded from the website <https://www.smhi.se/data/meteorologi/ladda-ner-meteorologiska-observationer> .