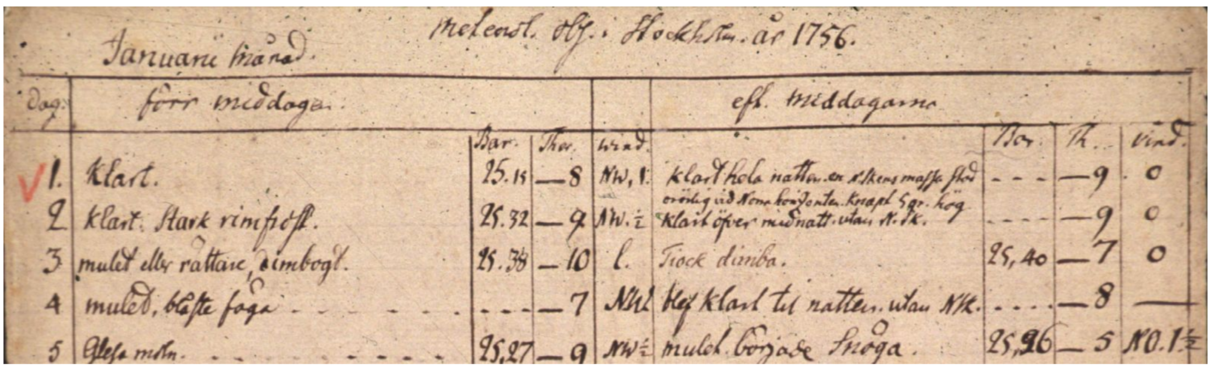
Warmest winter in Stockholm on record

This year’s winter in Stockholm is the warmest one on record since daily weather observations began in 1756.

The Bolin Centre for Climate Research database presents live temperature data through new interactive graphics. Explore data and read about the history behind Stockholm Historical Weather Observations.

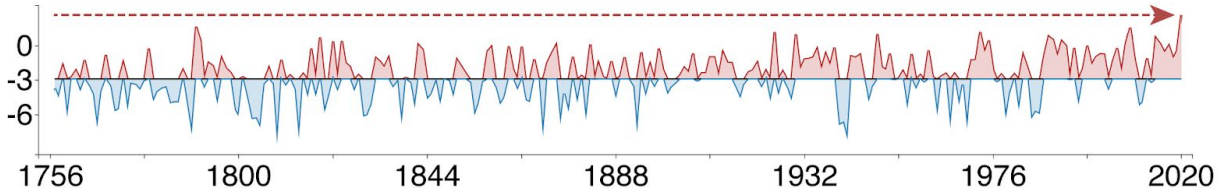


A cut-out of Pehr Wargentin’s weather observation diary from Stockholms old observatory, January 1st to 5th 1756. Wargentin was an astronomer and secretary of the Royal Swedish Academy of Sciences.

It was commonplace that astronomers conducted weather observations during the 1700s, and when an astronomical observatory was constructed in Stockholm in the fall of 1753, one started carrying out daily weather observations there. Stockholm most likely holds the world's longest continuous record of air temperature, and although there are places like Uppsala where one started earlier, the locations of the observations have been changing. In Stockholm however, the observations have always been carried out from the same geographical location, and that is unique. Nowadays, the weather station by Stockholms old observatory is included in the SMHI’s national station network.

“Thanks to the extensive record, we know that the annual average temperature in Stockholm and its surrounding area during the 2000s have been, on average, 1.5 to 1.7 degrees warmer than the climate that prevailed here from the 1750s to the early 1900s. This change is mainly due to human caused global warming” explains Anders Moberg, climate scientist and coordinator of the Bolin Centre for Climate Research Database at Stockholm University.

This year’s winter, ranging from December to February, had an average temperature of +2.6°C. That is 5.6 degrees warmer than the average for the 250-year period between 1756-2005, and 1.0 degrees warmer than the two second warmest winters: 1790 and 2008.



Winter mean temperatures (December to February) in Stockholm, with adjustment for the urban heat island effect after 1870.

When the observatory was constructed, Stockholm was significantly smaller in comparison to its size today. The building was raised at a location that was considered, at that point of the time, outside the central part of the city. The expanding city, with more houses and streets on the expense of less vegetational surfaces, has experienced somewhat higher temperatures than surrounding rural areas throughout the years. This is a well known phenomenon referred to as the urban heat island effect; Stockholm's urban heat island has resulted in that temperatures recorded at the observatory are on average 0.8 degrees warmer than it would be if the city looked like it did 150 years ago.

In order to utilize Stockholm's extensive temperature record when studying how the regional climate in southern Sweden has changed, one has to adjust the temperature values downwards a few tenths to eliminate the urban heat island effects from the observations.

Moberg has studied how this can be done, and he continues: "we can observe variations of several degrees in average temperatures in Stockholm from one winter to another. These relatively substantial variations depend on how different the weather is from year to year, and that in turn depends a lot on the characteristics of the airflow over southern Sweden. Global warming happens much slower, with only about one hundredth of a degree annually thus far. The weather variations from year to year make it harder to see the long-term trend of large-scale heating in data from one location only. However, it is still apparent that Stockholm has become warmer and warmer even when you exclude the urban heat island effect. And this most recent winter broke the record by one degree."

The research on Stockholm's temperature record was carried out more than 20 years ago in collaboration with the SMHI and Uppsala University. However, it wasn't until recently that Anders Moberg together with Rezwan Mohammad at the Bolin Centre database developed a new interactive live graphic where new temperature values are added from SMHI every day, and after corrections, they are added to the historical temperature values. This makes it possible for you to follow the temperature day by day, and compare it with old temperature values of Stockholm from more than 260 years ago, where the data always represent the

climate in Stockholm approximately corresponding to what the city looked like about 150 years ago.

Will 2020 be the warmest year on record?

What was the temperature on the day you were born?

How cold was it during the Swedish famine 1867, when the emigration from Sweden to the U.S. had its momentum?

Check yourself — keep track of the temperature changes from day to day and see how monthly, seasonal, and annual temperature averages have varied throughout time. You are also welcome to download the data and explore on your own.