

EXCURSION THRU GDAŃSK

With meteorology thru centuries

Mirosław Miętus
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Let starts in Gdański in the second half of 16th c.

Wilhelm Misocacus, period of publication 1577-1593



Any informations about Misocaccus as well any manuscripts with his observations did not survived. We can only assume that he was an example of a typical scholar of those times, probably an astro-meteorologist, who shared the opinion about the astronomical influences upon the weather.

The oldest among the materials discovered in Gdańsk libraries is the collection of regular publications by Wilhelm Misocacus. This collection is entitled "*Prognosticum oder practica auffs Jahr...*". They were released from 1577 to 1593. Each "*Prognosticum...*" includes the description of the weather in terms of the seasons.

First half of 17th c.

In the 17th century we can observe the development of calendars. Their authors (or owners) used to make some notes on weather phenomena related to the particular days or even weeks.

Peter Krueger, a mathematics professor, publisher of "*Neuer und alter Schreibcalendar auffs Jahr...*" in the years 1609-1639, tried to observe the weather, predict system of stars and then forecast weather.

Krueger was a profesor at the Academic Gymnasium at st. John's Church. He was the teacher of mathematics and physics of Johannes Hevelius, worldwide known astronomer.

Mid of and the second half of 17th c.

Friedrich Buethner, the mathematics professor and a passionate astronomer was also interested in the meteorological observations. Buethner's notes were included in manuscript entitled "*Observationes meteorol. singulis diebus Callendarii annotae*".

Through the years Buethner's *Callendars* were considered lost forever. However during our inquiries we discovered the publications of Buethner entitled "*Neuer und Alter Schreibscalendar / auffs Jahr nach unsers Herren Jesu Christi geburt MDCLXXIII auff den Danziger und umbliegender Behrter*".

The *Callendars* included astronomical information, but short description of weather was also enclosed. In a few volumes hand-written notes were also added, most probably as a „verification” of prepared forecasts and a way to improve their accuracy in the coming years.

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18th c.

The Enlightenment gave a new impulse to the development of the science in Gdańsk.

In the beginning of the 18th century Daniel Gabriel Fahrenheit, born in Gdańsk, was active in the field of meteorology. We have got an evidence that he participated in some initial instrumental measurements in the city.

In the paper 'Selteheiten der Natur und Ekonomie' by M. Ch. Hanov we can read:
„... Wetterglas (thermometer) famous for its precision, which was in use even in 1709 ... numerous people wanted to know how great the freeze was. This Wetterglas was owned by Wilke was described 20 years earlier by Krikart ... It seems that it was filled in 1708 by Fahrenheit with the fresh alcohol and recalibrated by him.”

In December of 1721 the botanist Gottfried Reyger started the observations of weather phenomena.

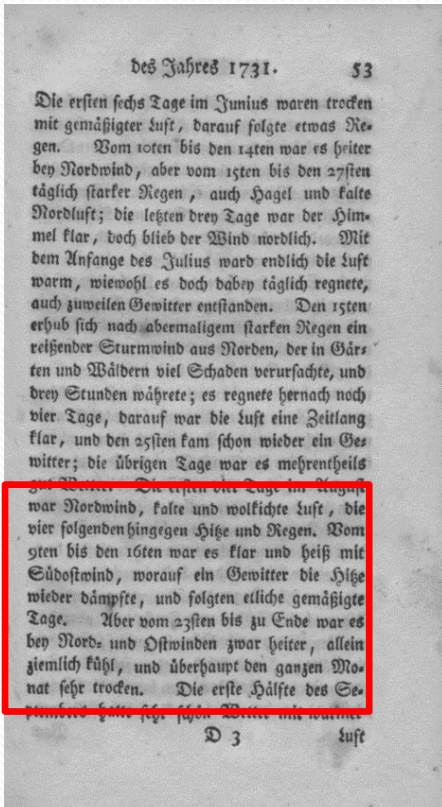
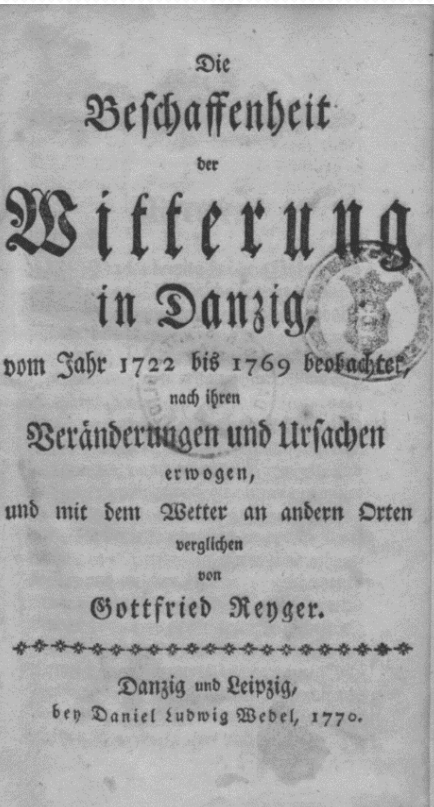
He was particularly interested in the impact of weather on the development of vegetation. Two important papers were dedicated to this issue:

- „Über den Einfluss der Witterung auf die einheimischen Pflanzen” (Danzig 1767) and
- „Die Beschaffenheit der Witterung in Danzig vom Jahre 1722-1786 beobachtet, nach ihren Veränderungen und Ursachen erwogen, und mit dem Wetter anderer Orten verglichen” (*The nature of the weather in Gdańsk observed and being considered by their changes and causes and compared with the weather in other places*), in two volumes 1722-1769 and 1770-1786

He finished his work in 1786 (!) which means that we have got 65-year-long series of observations made by one man (the longest series in Europe?).

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Gottfried Reyger described months in a summary manner, paying attention to particularly important meteorological phenomena in specific days (heavy rain, changes of wind direction, air temperature). On the occasion of recording wind direction he defined its effect on cloudiness and weather changes. Sometimes he compared the weather between selected periods (eg. *"More snow than in the previous month"*).



The example of Reyger's notes August 1731, original text and interpretation

The first four days in August was the north wind, cold and cloudy air, while the next four heat and rain. From 9th to 16th was bright and hot the wind south-east, and then storm the heat again suppressed, and there has been some moderate days. But from the 23rd to the end [of the month] by the northern and eastern winds although again it was a little bit warmer, but [still] quite cool, and in general the whole month very dry.

Daniel Gralath, physician and mayor of Gdansk, established the first scientific society in Gdańsk: Societas Physicae Experimentalis, better known as Naturforschende Gesellschaft in Danzig (1742/1743).

The aim of the Society was to practice and popularize science, among others through weekly public demonstrations of the most interesting experiments in physics.

Emblem of the society – orange trees and the motto: “with time and care”

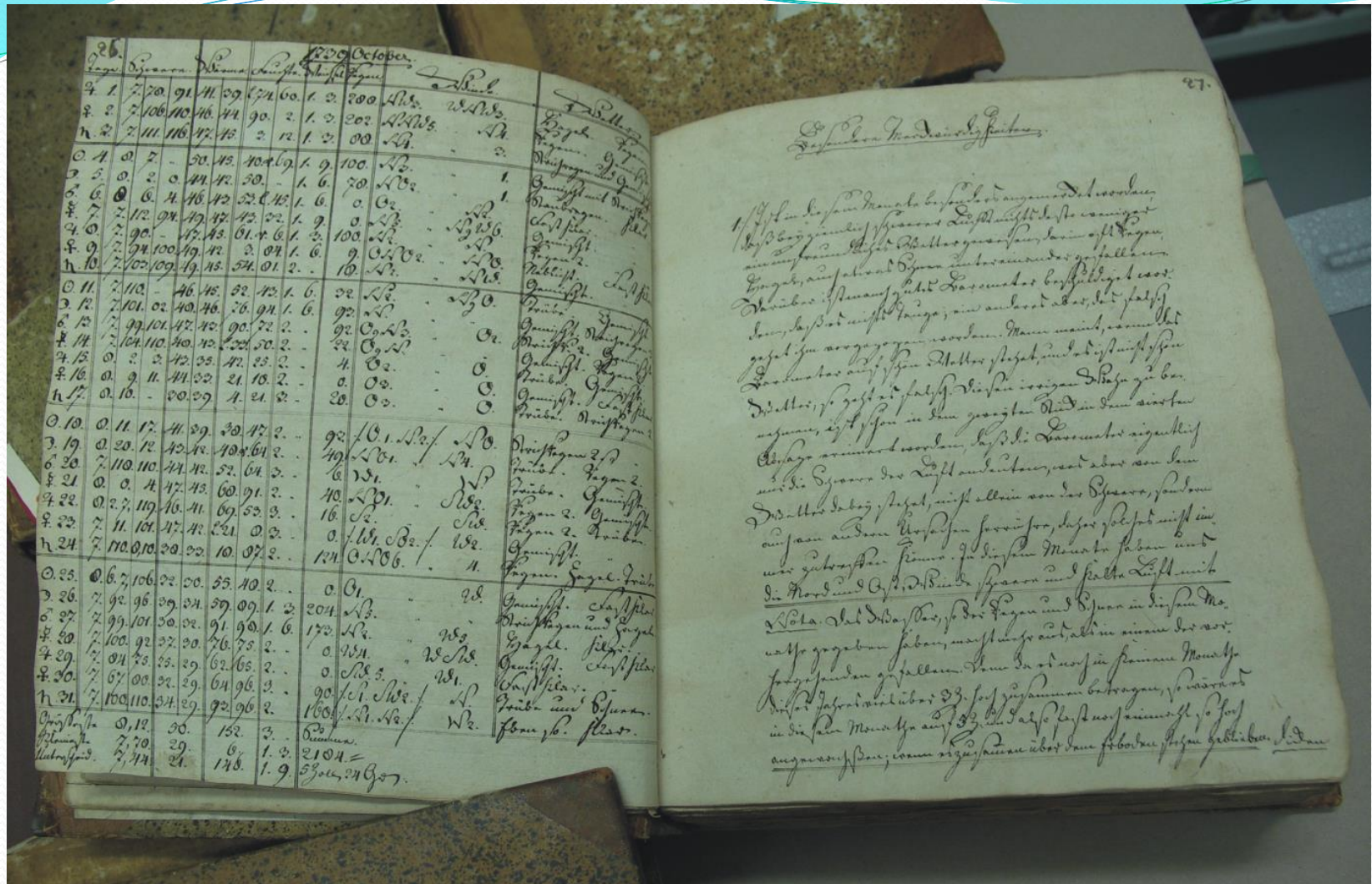


One of the most brilliant scientists was co-founder of Naturforschende Gessellschaft – Michael Christoph Hanow (1695-1773). In the years 1727-1771 he was the professor of mathematics and philosophy at the Academic Gymnasium in Gdańsk, he spoke eight languages. He published over 100 dissertations about meteorology and others. Since 1739 he has been publishing scientific magazines Danziger Erfahrungen and since 1747 – Prussian Collection, devoted to the part of the Pomerania.

Hanow started regular, systematical meteorological measurements and observations.



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Data were published in Danziger Erfahrungen (part of them). All volume of data was also presented in his manuscript.

Hanov initiated the period of meteorological instrumental measurements in Gdansk, lasting up to now.

Till the end of the 18th century we can distinguish a few other persons involved in that field of science.

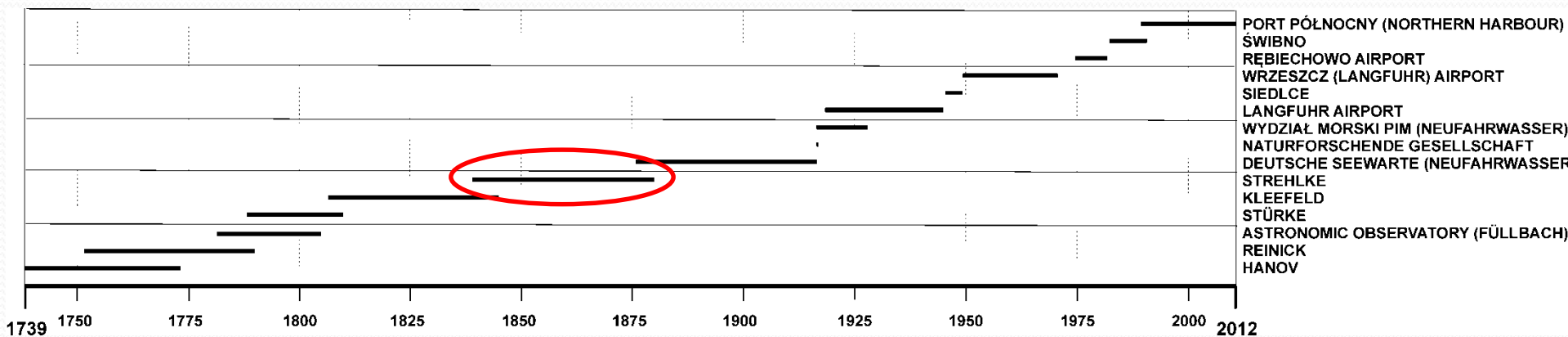
Observer	Period	Gaps	Elements
Carl Gottfried Minior	1744-1784	-	Air temperature, pressure, wind, weather phenomena
Johann Eilhard Reinick	1752-1789	-	Air temperature, pressure, wind, weather phenomena
Laurentius Eichhorn	1764-1790	-	Pressure
Füllbach	1783-1806	1783-84, 1795	Air temperature, pressure, wind
Johann Skurke	1788-1812	1788-89, 1811	Air temperature, pressure, wind

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The instrumental series of Gdańsk can be divided into three sub-periods:

- Early Observers period, 1739(?) - 1812, the measurements conducted with the instruments mostly invented by the observers themselves, often in their flats.
- First Meteorological Networks, covering the years from 1807 to 1880, the instruments produced by the renown manufacturers, professionally calibrated the procedures of measurement established. Still no regular stations existed.
- Modern Measurements – since 1876 when the first regular meteorological station in (Neufahrwasser) was established. Since then the measurements were done only in the meteorological stations according to the obligatory standards and regulations.

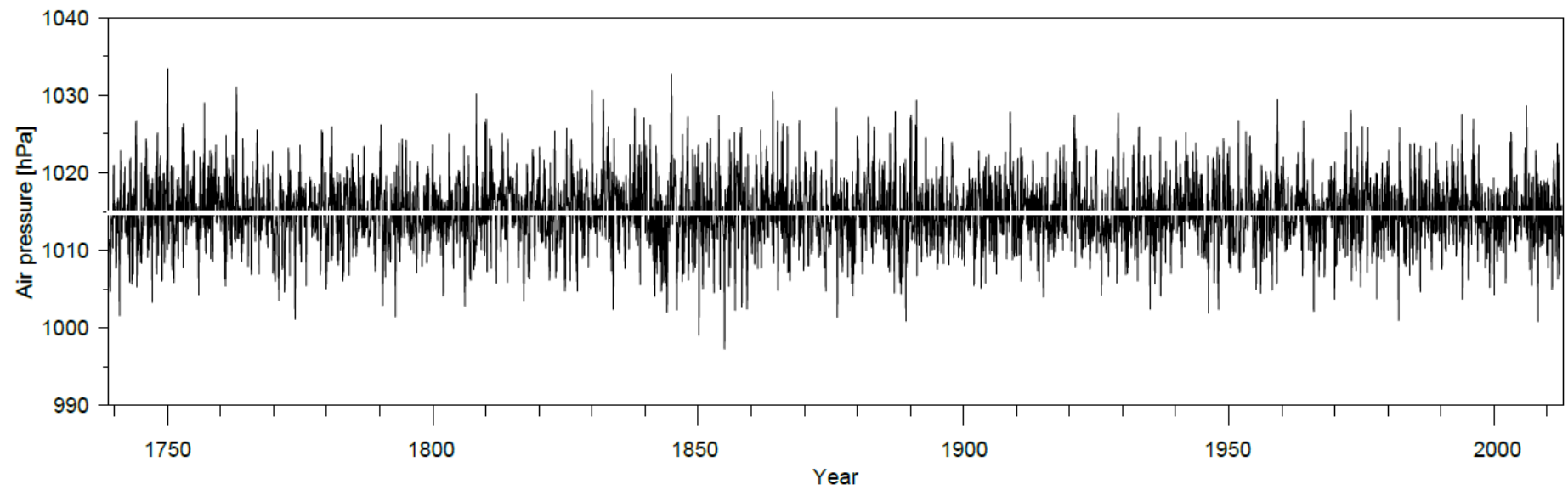


The periods covered by the various Gdańsk sources. The bars indicate the span of each series.

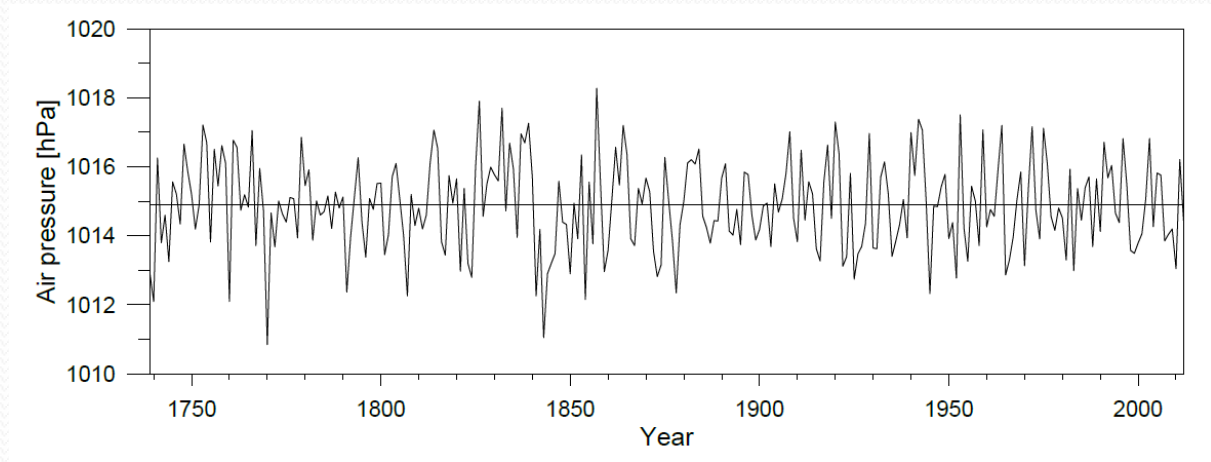
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The homogenized series of Gdańsk monthly mean pressure values.



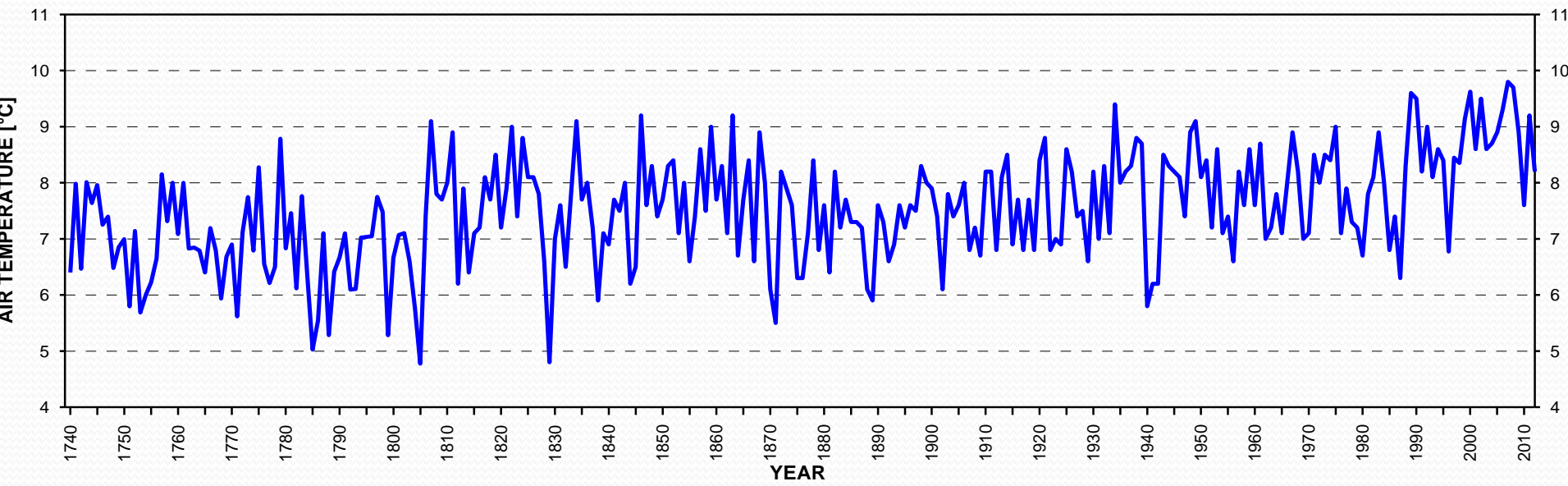
Annual mean time series calculated from the Gdańsk monthly mean pressure series.



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Annual mean time series for air temperature



Period	Trend
1740-2012	0.06°C / 10 lat
1851-2012	0.07°C / 10 lat
1901-2012	0.12°C / 10 lat
1951-2012	0.23°C / 10 lat



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