

Ingeborg Auer¹⁾, Barbara Chimani¹⁾, P. Amand Kraml²⁾, Silke Adler¹⁾

1 Zentralanstalt für Meteorologie und Geodynamik, Wien
2 Sternwarte Kremsmünster

Instrumental data of the 18th century are very rare worldwide and even in Europe. In Austria, there are three places where measurements started in the second half of the 18th century or even earlier: Kremsmünster, Wien and Innsbruck

KREMSMÜNSTER, 14°08' N, 48°03 E, 383 m

observing site without any changes in location since 1762.



Father Placidus Fixlmiller performed the first barometer readings (one observation per day) and some short weather descriptions. The first observations are rather unclear but from 1776 onwards until now the station provides high quality data.

Cloudiness and lightning observations started in 1767. Other parameters like precipitation, extreme temperature, air humidity and sunshine duration date back into the 19th century.



Temperature measurements started in June 1763 6 m above the ground in front of a northeast oriented window.

Challenge: Kremsmünster is one of the very few uninterrupted Austrian series on daily time scale. Daily data from 1767 until 1891 still have to be digitized and homogenized until present.

→ A climate time series in daily resolution of nearly 250 years.

The monthly measurements from 1767 onwards have been homogenized and made available through the HISTALP website. The early biases caused by the unsheltered thermometer has been corrected by using parallel measurements with today's standard installations.



WIEN ALTE UNIVERSITÄTSSTERNWARTE, 16 21 E, 48 14 N, 198.5 m

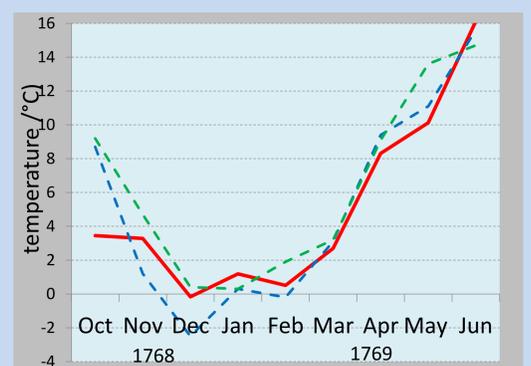
The earliest Viennese measurements from the Jesuit college Vienna (1734 – 1773) have gone lost, likewise the first observations of the Astronomical observatory of the University of Vienna (1762 – 1774). With the help of the present day astronomical observatory we found the Viennese data of October 1768 to June 1769 in the Ephemerides Astronomicae anni 1793. Although there are some gaps in the tables the data seem to be realistic.



site of temperature measurements in 1775

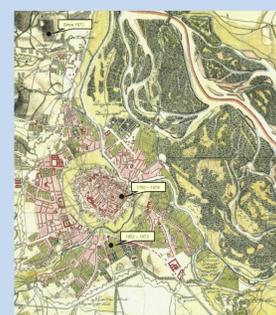
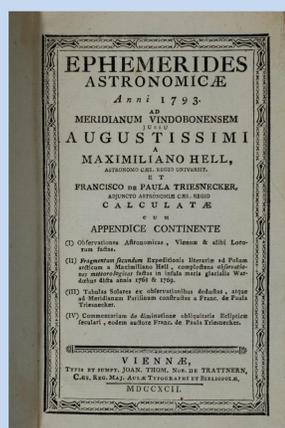


data after 1775 have been published in a series of „Meteorologische Beobachtungen an der Wiener Sternwarte. They have been quality checked and homogenized. The early instrumental bias has been removed in an second step. The Vienna series since 1775 is part of the HISTALP dataset, <http://www.zamg.ac.at/histalp>.



Annual course of temperature in Vienna (red solid line) in comparison to Kremsmünster (dashed blue line) and Basel (dashed green line)

astronomical observatory of the university, 1775 to 1878. Site in the historic centre of Vienna, now the Academy of Sciences



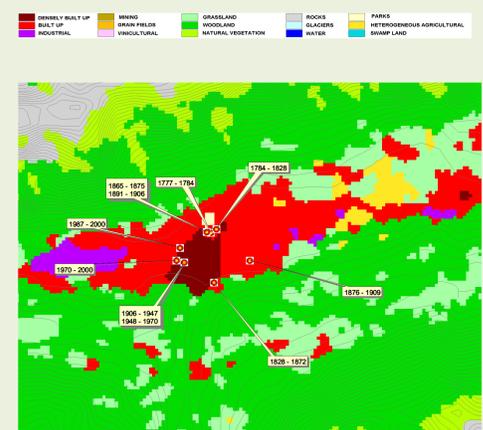
Vienna station site locations (1762 – 1872)

INNSBRUCK SILLGASSE, 11 24 E, 47 16 N, 577 m,

station in the town-centre, however barometer readings without temperature.

The thermometer was situated in a shaded position outside a window in 2nd floor on the NW-wall of the monastery building. Homogenization was performed on monthly basis and the early bias corrected. Innsbruck is part of the HISTALP database since 1777.

Tage	1780. Jänner			Februar			Bar.	v. d.
	Bar.	Therm.	Witterung	Bar.	Therm.	Witterung		
	v. M. n. M.	v. M. n. M.		v. M. n. M.	v. M. n. M.			
1	7,3	-16,0	- 6,0 trocken	-1,0	-12,0	3,0 trocken	5,3	- 2
2	6,0	-14,0	- 3,0 >	-3,2	- 9,0	2,0 tr. Wind	4,2	- 5
3	3,2	-13,0	- 5,0 >	-2,0	- 6,0	0,0 naß	4,0	- 3
4	3,0	- 5,0	- 2,0 naß	3,1	- 5,0	5,0 trocken	5,0	- 1
5	4,0	-13,0	- 1,0 trocken	0,3	-14,0	2,0 tr. Wind	9,0	0
6	5,0	- 8,0	- 3,0 naß	0,2	- 4,0	6,0 trocken	10,1	- 1
7	6,0	- 6,0	- 2,0 trocken	1,2	- 3,0	7,0 >	8,2	- 3
8	6,0	-18,0	- 8,2 >	5,0	- 1,0	3,0 naß	9,0	0
9	4,1	-17,0	- 6,2 >	8,2	- 2,0	5,0 trocken	7,2	1
10	3,0	-17,0	- 7,2 >	8,1	-11,0	5,0 >	7,2	- 1
11	1,0	-13,0	- 3,0 >	6,3	-12,0	4,0 >	8,0	4
12	0,2	-12,0	- 4,2 >	6,3	- 2,0	6,0 naß	6,0	0
13	3,2	- 8,0	3,0 tr. Wind	7,0	- 5,2	5,0 trocken	6,0	3
14	3,2	-14,0	- 4,0 trocken	6,1	- 6,0	4,0 >	7,2	3
15	2,0	-11,0	1,0 >	5,1	- 6,0	3,0 naß	3,0	1
16	3,3	- 4,0	3,0 tr. Wind	1,0	- 6,0	3,0 n. Wind	5,0	3



site map of observing stations in Innsbruck