Historic severe weather events in Austria (1815-1830): Impacts on society and magnitude assessments

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Introduction

Research aims:
- to investigate recently rediscovered data on severe historic weather events
- to investigate how these natural events impacted on early 19th century societies
- contrast folk explanations with early scientific explanations (in terms of electricity / wind)
- estimation of wind speed and storm impact analyses

Source material:
- focus on weather reports presented in Austrian print media
- time period: 1815 to 1830

Floods

1815, July 22, 21:00h onwards: flash flood in the north of Nitra (Slovakia). 51 casualties. Probable cause: severe storm over the Strážovské mountains. (Der Wanderer, Sonntag den 8. September 1816, Nr. 252, p. 1018.)


1830, April 1: flooding of the Lake Neusiedl. Houses situated on lower levels were affected. (Wiener Zeitung, Donnerstag, den 1. April 1830, Nr. 74, p. 3.)

Severe storms in combination with hail

1816, July 24, 17:00h–18:00h: severe hailstorm, chicken egg sized hailstones (5–6 cm diameter) in the region of Schärding (Upper Austria). (Klagenfurter Zeitung, Mittwoch den 7. August 1816, Nr. 63, p. 4.)

1820, July 20, 17:00h: a severe storm with hailstones about 4 cm in diameter raged over the region around Friesach (Carinthia, Austria). It blew tiles off farmhouses and barns and caused remarkable damage in the wood (uprooted trees). Windspeed estimate: F1 or 41 ±12 m/s. Again in the region Friesach: hailstorm (hailstones 4 cm diameter, pigeon egg sized) on July 25, 1820. Reference to a comparable severe storm is attributed to the year 1801. (Klagenfurter Zeitung, Nr. 71, Sonntag den 3. September 1820, p. 1.)

1816, July 29: devastating hailstorm in the region of Krems (Lower Austria), hailstone layer reached at least 10 cm height. (Der Wanderer, Sonntag den 11. August 1816, Nr. 224, p. 212.)

1820, August 15, between 20:00h and 21:00h: hailstones up to 6cm diameter. Shattered windows, tiles and shingles were smitten down. “The fruitful Mürzzelt [Styria, Austria] was deeply buried in hail” indicates probably a hailstone layer of more than 10cm of depth. Evidence of killed birds and other animals indicates hailstones, which were at least 5 cm in diameter. A relatively big region was affected. (Österreichischer Beobachter, Dienstag, den 15. August 1820, Nr. 228, p. 1092.)

1824, August 18, 22:00h: a severe storm involving hail—which not only tore apart shingles but also shattered windows and bars—raged over Kitzbühel (Tyrol, Austria). This event can be classified as F2 (60 ±18 m/s). This source also mentioned severe hailstorms which caused remarkable damages in the same region on August 5 and 14 in the year 1824. (Der Wanderer, Montag 30. August 1824, Nr. 243, p. 3.)

Tornadoes

1816, July 24, 17:00h–18:00h: tornado in Bohemia close to Tabor. Main impact at Jistebsnice. Houses were unroofed, fruit trees uprooted, some also broke. Moreover, the long damage trail and the fact that stones, wooden parts, and wooden shakes fell down indicates wind speeds of 60 ±18 m/s and a magnitude of F2. This report also mentions a tornado in Palmanova (Italy) and an (obsolete) tornado explanation in terms of electricity. (Österreichisch-kaiserliche privilegierte Wiener-Zeitung, Freitag, den 12. Junius 1818, Nr. 132, p. 525.). In 1823, however, speculations that winds play a key role in the formation of hail (and not just electricity) were reported in the Wiener Zeitschrift für Kunst, Literatur, Theater und Mode (Donnerstag, den 30. Oktober 1823, Nr. 130, p. 1065-1066).

Severe storms involving mud avalanches

August 14, 1823, 19:00h: a heavy mudslide and flooding event damaged 40 houses. Even two days after the storm around 50cm deep hailstone layers were to be found on the mountains. Streets in Toblach (South Tyrol, Italy) were buried more than 2.5cm deep in hailstones. A bridge at Gratsch (South Tyrol, Italy), where the mudslide originated was destroyed. Fortunately, no casualties since most people were staying high up in the mountains in Alpine huts during this period of time. This report includes a reference to a devastating hailstorm in Taisten (north-east of Toblach) and Außer-Villgratten (north-east of Toblach) in 1822. (Der Wanderer, Mittwoch, den 27. August 1823, Nr. 239, p. 2.)

Extreme cold weather


Sources

- Der Wanderer
- Kaiserl. Königl. privilegirte Linzer-Zeitung
- Klagenfurter Zeitung
- Österreichisch-Kaiserliche privilegirte Wiener-Zeitung
- Österreichischer Beobachter
- Wiener Zeitung