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Abstract

The compilation of historical floods at the Viennese Danube River and its major tributaries has been produced within the framework of several research projects from 1998 onwards: Machland-Danube 1715-1991 (FWF No. P14959-B06), ENVIEDAN 1500-1890 (FWF No. P22265-G18), URBWATER (FWF No. P25796-G18) and in several smaller projects. It includes information on approximately 500 floods starting in 1012 that were identified based on historical sources and literature as well as current studies. For each flood event the following information was collected and listed in table format: date and duration, cause of flood (ice jam, rainfall, thaw flood), location of the inundation and of damages, intensity of flood, type of reported damages and other relevant information.

Over the past 500 years, three phases with increased flood activity are particularly noticeable. The first increase coincides with the so-called "Grindelwald fluctuation" at the beginning of the "Little Ice Age", when the Viennese Danube river landscape was reshaped over a large area. The second, much more intense flood phase can be identified for the entire 18th century, in particular for the period 1768 – 1789. For this period, towards the end of the "Little Ice Age", 36 floods were documented, seven of these very severe. The third phase has lasted from the end of the 20th century to the present time.

As far as the historical sources allow a reconstruction of flood causes, in the 18th and in the 19th century between 45 and 50 % of the floods were caused by ice jams (when floods of unknown type are not included). By regulating the Danube, the risk of ice jam floods decreased significantly. Moreover, impoundments, climatic change and influx of warmer waste and cooling waters in the 20th century led to a gradual warming of the Danube water by about two degrees Celsius.