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Causes and Consequences of Major Eighteenth-Century Danube Floods at Pest-Buda (today's Budapest area)

In the eighteenth century, among all weather-related natural hazards, floods caused the most damages in the Pest-Buda area. Mainly due to its hydrological and hydromorphological conditions, during hard winters, the Pest-Buda area was especially prone to ice floods. Almost all the great, particularly destructive flood events of the century (e.g. in 1709, 1712, 1732, 1775, 1789, 1799) were ice floods. Beyond material damages, impacts of the great flood events—with consideration to the short- and long-term social response and defence strategies of society—are discussed.

Due to town development and documentation issues, much less damages (and related information) were documented in the first and then in the second half of the century, with special emphasis on the great 1775 and 1799 events. Detailed documentation makes it possible to provide an exact numerical analysis of material damages in the eighteenth-century towns of the present-day Budapest area. Despite great loss in properties, a surprisingly low number of casualties can be detected. The great 1775 flood, as a turning point, is highlighted in the investigations: flood protection and prevention became somewhat more effective after this flood, the greatest event of the century. Nevertheless, in some key areas of development, such as in urban planning flood risk or flood prevention issues were hardly taken into consideration.

The investigations are concentrated in three main subject areas:

1. The first subject area is focused on the natural-scientific, hydrology based analysis: apart from detecting main causes (weather conditions, hydromorphology, social factors) and understanding the course of events, the frequency, seasonality, magnitude/intensity, and maximum discharge of the eighteenth-century flood events are discussed.

2. The second main group of investigations is concentrated on impacts, with special emphasis on damages and the short- and long-term social response of local society as well as the administration, on a local, regional, or supra-regional (country) level.

3. As a third subject area, in the form of a case study, a complex (natural scientific and historical) investigation is presented on the ice flood of 1775—the greatest eighteenth-century flood event that occurred in the Pest-Buda area—studying separately its causes, history, and consequences.