



Holocene floods in the Central Transylvania Basin, Romania

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Climatic models suggest that the inner Carpathian region (i.e. Transylvanian basin) will become wetter throughout the years and warmer in the winter, both possibly resulting in an increase of flooding frequency. This could lead to increase risks for human settlements and activities, most of them being located in large floodplains crossing the region. In this context, it is essential to know and understand the frequency, magnitude and triggers of past floods in order to be able to prepare for the future.

In this context, we present here a record of Holocene flooding events in the Northern and Central Transylvanian basin, based on morphological, sedimentological and chronological information obtained from the analyses of fluvial and lake sediments. The palaeoenvironmental background for the fluvial dynamics is given by decadal scale stable isotope records from Scărişoara Ice Cave (summer temperature) and pollen data (vegetation dynamics) from peat bogs in the region.

Phases of high lake level are evident between 5800-2400, 2200-2000, 1500-1100 cal BP and over the last 700 years, and they correlate well with increased fluvial activity and flooding events at 10200, 4700, 2800, 1300 and 500 cal BP. Climatic and vegetation data suggests that these flooding events occurred during periods of warmer winter conditions and increased transport of moisture from the Mediterranean basin, conditions likely to occur in the future.