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Mladotice Lake, Czechia: The unique genesis and evolution of the lake basin

Bohumír Janský, Miroslav Šobr, Zdeněk Kliment, and Dagmar Chalupová
Charles University in Prague, Faculty of Science, Physical Geography, Prague, Czech Republic (dada@natur.cuni.cz)

The Mladotice Lake is a lake of unique genetic type in Czechia. In May 1872 a landslide as a result an extreme rainfall event occurred in western Czechia, blocking the Mladoticky stream valley and creating the Mladotice Lake. The 1952 and 1975 air images document that collective farming had a great impact on the lake basin evolution when balks and field terraces were removed and fields were made much larger.
Because of this change in land use we expected higher soil erosion and a related increase in the sedimentation rate. First bathymetric measurements of the newly created lake were carried out in 1972 and were repeated in 1999, in 2003 and in 2014. Our analysis of the sedimentary record aims to identify the sediment stratigraphy, its basic physical and chemical properties, isotope content and thin sections yield a detailed temporal resolution of the sedimentation chronology. In some areas a sediment thickness of 4 m was detected. Hence, the average sedimentation rate is from 2.2 to 2.7 cm per year.
KEY WORDS: Mladotice Lake – extreme rainfall event – landslide – land use changes – flood events – bathymetric measurements – sedimentation dynamics – stratigraphy and geochemistry of lake sediments – analyses of isotopes – sedimentation rates.