

[Home](#)

[Online Library](#)

- [Recent Papers](#)
- [Volumes and Issues](#)
- [Special Issues](#)
- [Library Search](#)
- [Title and Author Search](#)

[Alerts & RSS Feeds](#)

[General Information](#)

[Submission](#)

[Review](#)

[Production](#)

[Subscription](#)

[Book Reviews](#)

Journal Metrics



IF 1.357



5-year IF 1.781

SCOPUS[®] SNIP 0.616

SCOPUS[®] SJR 0.067

[Definitions](#)

ARCHIVED IN



PORTICO

[Volumes and Issues](#) [Contents of](#)

Nat. Hazards Earth Syst. Sci., 10, 1815-1827, 2010

www.nat-hazards-earth-syst-sci.net/10/1815/2010/

doi: 10.5194/nhess-10-1815-2010

© Author(s) 2010. This work is distributed

under the Creative Commons Attribution 3.0 License.

Multidisciplinary characterisation of sedimentary processes in a recent maar lake (Lake Pavin, French Massif Central) and implication for natural hazards

E. Chapron¹, P. Albéric¹, D. Jézéquel², W. Versteeg³, J.-L. Bourcand and J. Sitbon⁴

¹Université d'Orléans, CNRS/INSU, Institut des Sciences de la Terre d'Orléans (ISTO)-UMR 6113, 1A rue de la Férollerie, 45071 Orléans cedex 2, France

²Institut de Physique du Globe de Paris-Université Paris Diderot-Paris 7, 175 rue de la Chevalerie, 75205 Paris cedex 13, France

³Renard Centre of Marine Geology, Krijgslaan 88, Ghent University, Ghent, Belgium

⁴Radiologie & Echographie Spécialisées, 45100 Orléans, France

Abstract. Sedimentation processes occurring in the most recent maar lakes of the French Massif Central (Lake Pavin) are documented for the first time based on high resolution seismic reflection and multibeam bathymetric surveys and by piston coring and radiocarbon dating on a sediment core developed on a narrow sub-aquatic plateau. This new study confirms the mid-Holocene age of maar lake Pavin formation at 6970 ± 100 yrs cal BP and highlights a wide range of gravity reworking phenomena affecting the basin. In particular, a slump deposit dated between 6400 and 6400 remoulded both mid-Holocene lacustrine sediments, terrestrial debris and some volcanic material from the northern crater inner wall. Between AD 1200 and AD 1300, a large slide scar mapped at 50 m depth also affected the southern edge of the sub-aquatic plateau, suggesting that these gas-rich biogenic sediments (laminated diatomite) are not stable. Although several triggering mechanisms can be proposed for prehistoric sub-aquatic mass wasting deposits in Lake Pavin, we suggest that such large remobilisation of gas-rich sediments may affect the stability in deep waters of meromictic maar lakes. This study highlights the need to further document mass wasting processes in maar lakes and their impacts on the generation of waves, favouring the development of dangerous (and potentially deadly) limnic eruptions.

[Full Article](#) (PDF, 10475 KB)

Citation: Chapron, E., Albéric, P., Jézéquel, D., Versteeg, W., Bourcand and Sitbon, J.: Multidisciplinary characterisation of sedimentary processes in a recent maar lake (Lake Pavin, French Massif Central) and implications for natural hazards, Nat. Hazards Earth Syst. Sci., 10, 1815-1827, 2010. doi: 10.5194/nhess-10-1815-2010,

[Bibtex](#) [EndNote](#) [Reference Manager](#) [XML](#)