Lake Urmia Salt lake's sedimentation and water dynamics impacts on past environmental reconstruction

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université PARIS-SACLAY | FACULTÉ DES SCIENCES D'ORSAY

cnrs IPSL DIRECTION DE LA RECHERCHE FONDAMENTALE CENTRALE GEOPS GEOSCIENCES PARIS SACLAY LSCE

Volume des résumés

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Elisabeth GIBERT-BRUNET [1, *], Alina TUDRYN [1], Ting KONG [1], Piotr TUCHOLKA [1,2], Seyed-Hani MOTAVALLI-ANBARAN [3], Christelle MARLIN [1], Mohammad LANKARANI [4], Hesam AHMADY-BIRGANI [5]

[1] *University Paris-Saclay, UMR CNRS 8148-GEOPS, Bâtiment 504, 91405, Orsay, France (elisabeth.gibert@universite-paris-saclay.fr)*
[2] *Université de Varsovie, Département de Géographie, Zwirki i Wigury 93, 02-089 Warszawa, Poland*
[3] *Institute of Geophysics, University of Tehran, Tehran, Iran*
[4] *Faculty of Natural Resources, Urmia University, Urmia, Iran*
[5] *School of Geology, University-College of Science, University of Tehran, Tehran, Iran*

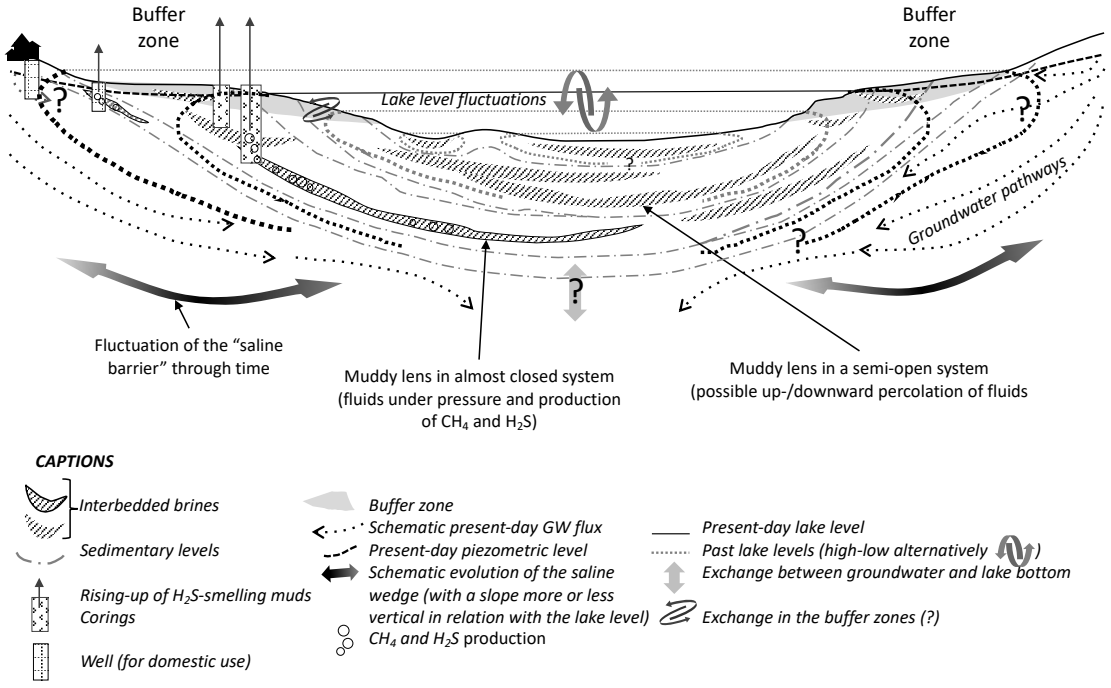
In recent decades, an overall decrease in surface water resources, even saline, especially in semi-arid and arid regions of the world, can be both a precursor to a decrease in groundwater recharge. This decrease comes either from the impact of climate change moving towards a different distribution of precipitation and evapotranspiration indices, and/or from the increasing footprint of anthropogenic activities both through inappropriate water use, extensive pumping, or even population increases in areas already under pressure for freshwater resources (e.g., Wurtsbaugh et al., 2017; Wang et al., 2018).

This is particularly pregnant in salt lake basins for which water resources are vital to hydro-ecosystems and the population. But these basins are not easy to study other than by modeling, due to their very complicated structures as well as the processes they undergo (saltwater intrusion, pollution, etc.), and considering the lacustrine sedimentary deposits (degradation) to which they may or may not be connected.

Here we present ongoing research on the Urmia Lake Basin (northern Iran) which is facing a drastic decrease of more than 8 m in its water level over the last 20 years, leading to soil salinization, increase in dust storms, decline in ecosystem services with the effect of losses in agricultural production and massive emigration of rural communities.

In order to understand the hydrogeological behavior of the lake under anthropogenic pressures (excessive pumping) and climate change, sedimentary sequences were recovered from the recently drained western part of Urmia Salt Lake, as well as surface and groundwater samples and geological samples from the entire Shahr Chay River Basin.

Using isotope geochemistry ($\delta^{18}O$, $\delta^{2}H$, $\delta^{13}C$ et $A^{14}C$), we propose a conceptual model of the lake functioning.



Session 1: Session blanche / white session