



Tracing the geochemical evolution of alkaline Lake Van, Turkey

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Terminal Lake Van, the world's largest soda basin, is characterised by Na-CO₃-Cl water chemistry (Reimer et al., 2008), salinity of ~22 ‰ and high pH of ~9.7. The sedimentary record of the lake goes ca. 600 ka back and documents major climatic events over that period (Stockhecke et al., 2014). Alas, the longevity of the basin does not mean that it persisted unchanged over such a long time. Information collected within the ICDP PALEOVAN project clearly suggests that upon its birth the chemistry of early Lake Van was very different from its modern alkaline equivalent.

Here we document, by means of proxy data, the changes in water chemistry in a transforming basin. Results of lithological (Stockhecke et al., 2014) and micropaleontological (ostracod, gastropod and diatom assemblages) analysis, combined with geochemical data ($\delta^{18}\text{O}$, $\delta^{13}\text{C}$, Mg/Ca, Sr/Ca) obtained from the biogenic and authigenic carbonate fraction imply, that early Lake Van was a relatively shallow, fresh-to-brackish and, most probably, open basin. Sedimentological information points to tectonic factors rather than climatic changes responsible for closing the lake ca. 430 ka ago.

Reimer, A., Landmann, G., Kempe, S., 2008. Lake Van, Eastern Anatolia, Hydrochemistry and History. *Aquat. Geochemistry* 15, 195–222.

Stockhecke, M., Sturm, M., Brunner, I., Schmincke, H.-U., Sumita, M., Kipfer, R., Cukur, D., Kwiecien, O., Anselmetti, F.S., 2014. Sedimentary evolution and environmental history of Lake Van (Turkey) over the past 600 000 years. *Sedimentology*.