



A potential groundwater aquifer for palaeoclimate reconstruction: Turonian Aquifer, Tadla Basin, Morocco

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The study is an environmental isotope investigation of groundwater samples from the Turonian Aquifer of Tadla Basin in Morocco for the purpose to confirm that this aquifer could be a potential site for palaeoclimate reconstruction. The collected groundwater samples were examined for $\delta^{18}\text{O}$, $\delta^2\text{H}$, $\delta^{13}\text{C}$, noble gas concentrations, radiocarbon and tritium. Radiocarbon ages obtained from different isotope geochemical models indicates that the recharge of all these water samples occurred during the Holocene, we obtained a palaeotemperature record for the last 10 kyr.

The calculated noble gas solubility temperatures of the confined part of the aquifer are varying around the recent mean annual soil temperature of 19 °C. However the noble gas temperatures of the unconfined part of the aquifer are a few degree C higher than expected.

The obtained noble gas and tritium values might be stated this hypothesis as well. Based on these data, we conclude that the Turonian aquifer might be a potential place for Late-Pleistocene palaeoclimate reconstruction if the research area would be extended in the direct of flow-path towards the western part of the basin and towards the foothill of the Phosphates Plateau.