

Accepted Manuscript

Research papers

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PII: S0022-1694(18)30703-0

DOI: <https://doi.org/10.1016/j.jhydrol.2018.09.017>

Reference: HYDROL 23114



To appear in: *Journal of Hydrology*

Received Date: 27 April 2018

Revised Date: 7 September 2018

Accepted Date: 8 September 2018

Please cite this article as: Lorette, G., Lastennet, R., Peyraube, N., Denis, A., Groundwater-flow characterization in a multilayered karst aquifer on the edge of a sedimentary basin in western france, *Journal of Hydrology* (2018), doi: <https://doi.org/10.1016/j.jhydrol.2018.09.017>

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GROUNDWATER-FLOW CHARACTERIZATION IN A MULTILAYERED KARST AQUIFER ON THE EDGE OF A SEDIMENTARY BASIN IN WESTERN FRANCE

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Abstract

On the edge of sedimentary basins, burial of geological layers can involve the formation of confined karst aquifers. In some cases, relationships between confined and unconfined karst aquifers can exist and imply an increased difficulty in delineating contributive areas of karst system outlets with accuracy. This work aims to develop a multi-disciplinary approach to highlight groundwater exchanges between multilayered karst aquifers feeding a single spring.

Toulon Springs, located in western France, provides the opportunity to study relationships between two multilayered karst aquifers. Hydrograph and chemograph analysis coupled with principal component analysis (PCA) are used to evaluate groundwater-flow origins on the northern edge of a sedimentary basin. Natural hydrodynamic responses (baseflow recession analysis, auto-cross correlation function) show an important volume of water located in a saturated zone of the Toulon karst system. Significant contrasts in water

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