Element of a pluri-disciplinary project on karstic reservoir characterization: groundwater modelling of the Dévoluy Massif, France.

Nathan Rispal, Bruno Arfib, Philippe Audra, Pierre Henry, Ludovic Mocochain, Benoît Viguier, Alexandre Zappelli, Helene Miche, Christine Vallet-Coulomb

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Element of a pluri-disciplinary project on karstic reservoir characterization: groundwater modelling of the Dévoluy Massif, France.

Objectives: the aim of this study is to understand the behavior of a mountainous karstic reservoir. Exploration of hydrodynamic and meteorological data coupled to simulation on KarstMod platform with a snow routine module helps to decipher if discharge variations at the springs are related whether to recharge processes or properties of storage and flow in the reservoir.

How the snow routine works in KarstMod

**Case study: the Dévoluy karstic reservoir**

**Workflow:** modelling a snow-influenced karstic aquifer

**Discussion**

*How to use the model once it is well calibrated?*

1/ Highlights the variations in flow rate in relation with the conditions of reservoir recharge. Possible causes of variation in recharge in Dévoluy: artificial snow at the ski resort, $P$ and/or $T$ variations due to climate change.

2/ Provides a better understanding of the hydrodynamic of the system in relation with groundwater management: Architecture of the system, contribution of each reservoir to the discharge at spring, water resources.

**Conclusion and way-forward**

*Importance of recharge mechanisms:* work is needed on recharge modeling to improve rainfall-discharge modeling with conceptual models (« reservoir or compartments models » like KarstMod). Good model structure is not enough.

*Snow routine module is efficient:* the degree-day method used by KarstMod is effective when applied to a karstic spring.

KarstMod is free to use and can be downloaded via [www.sackard.org](http://www.sackard.org).

**References and acknowledgments:**


