

This article raises the problem of how to improve the knowledge of the functioning of karst aquifers by combining field data and a numerical model that wants to consider all flows reflecting different modes of transfer.

This study relies on numerous oxygen-18 isotopic data to better constrain the different volumes of water present in karst systems.

This study thus proposes an interesting approach but remains very local and does not propose interesting perspectives to other contexts.

The figures are not of good quality and are often too small for the information to be used quickly.

The bibliography lacks recent references and sometimes is not appropriate to support an argument. The introduction really needs to be improved by referring to more recent and relevant work.

For example, citing the 2003 paper by Batiot et al. to refer to the fact that oxygen isotopes can provide information on water residence times is a misuse of this work since in this paper Batiot et al. use TOC and Mg as a tracer of fast transit times versus long residence times. There are no references to isotopes in this paper. Again, the citations should be reviewed as there is recent work on the use of isotopes to improve knowledge of karst systems.

In line 62, the authors refer to work from 2010 and 2013 as the state of the art of models at different scales of study that have been developed to describe flows in karst. There is recent work on tracing-modelling coupling by the Montpellier team that could have been used to support the authors' argument.

Finally, to end these comments on bibliographic references, the work of Rodriguez et al. (2017) is cited on line 127 but the reference does not appear in the bibliographic list.

On the background of the article

Introduction

In my opinion, the introduction is a bit confusing and would benefit from being reworked and clarified especially in the justification section of the study. The authors go directly from the general idea to the application on their site without explaining why their site will allow them to answer their problem if only because there are isotopic and hydrological data (which ones).

Page 88; can the authors clarify this concept "Hence, the storage...." How do they account for the seasonality of water isotopic levels and their notion of storage?

On the study site part

This paragraph should also be reworked, especially figure 1 which is unclear.

It is difficult to distinguish the sources on the figure.

I would have liked to have a more complete description of their karstic system. Where are located the two epikarst springs mentioned in line 168? Are they the two pink triangles?

Where is the main outlet of this system located, are there any isotopic and hydrological data? I asked myself this question while reading the description of the hydrological response of epikarst springs to

precipitation. It is difficult to say that the behaviour of epikarst springs reflects the behaviour of the karst system itself.

This raises the question of what the authors want to identify in their article, is it to work on flows in the epikarst or in the karst? In which case the problematic of the introduction must be reoriented and the bibliography better targeted.

In the "Observational dataset" section, it would have been nice to structure this paragraph better between data collection and isotopes analysis

The first part of this paragraph concerns data acquisition

Were the samples collected in the automatic samplers analysed quickly to avoid evaporation problems?

Can you provide details on how the groundwater was collected?

Is it possible to have a little more detail on the dates of sampling? Which samples were taken at the same time, what is the time lag between rainwater and groundwater?

The second part of this paragraph concerns the analysis of isotopic data.

Figure 2 really needs to be taken back because it is unreadable. I can't follow their reasoning based on this figure.

What is the significance of some correlations that have coefficients at 0.21?

Where are the sources of the hillslope?

Line 216 "this phenomenon....recharge" is this really surprising? do we need so much isotopic analysis to reach this conclusion? What do the authors want to demonstrate? Or rather, what do they bring that is new?

I think that this paragraph really needs to be reworked by providing information on the geometry of their system, to make figure 2 readable, and to explain the variability of the results of each analysis point. This figure brings more confusion than help in the argumentation.

It would also be necessary to specify the precautions of the mode of sampling especially for the analysis of isotopes. Finally, it would be necessary to have a temporal idea of the samples at each sampling site. This could help in the analysis of the results.

Finally, how can we consider a flow model, a tracer that is not conservative? Doesn't this call into question their initial hypothesis concerning the fact of using a tracer to identify stored water volumes

## Model development part

I am well aware that one has to start from hypothesis to build a conceptual model that helps to lay the foundations of a numerical model, but I am not sure that considering the epikarst as an analog of a karst system is really relevant. A better justification than the one given is really needed. The calibration of the model with a tracer which is supposed to be conservative, and which is not, given the evaporation curves. Even if the results between calibration and validation are satisfactory, it is the very design of the model that is problematic.

Where do the hydrographs in figure 5 come from? This was not mentioned in the data section. Or how was it measured?

Is taking into account a certain number of passive storages until arriving at a satisfactory modelling result representative of reality?

The conclusion also needs to be reviewed and above all, what prospects are there for extending this study to other cases?

It would have been nice to analyze the relevance of the conceptual model (epikarst as an analog of a karst) to give some weight to their study and try to bring some opening elements.

It remains a very local study, with results that seem coherent, but on what assumptions?