

## ***Interactive comment on “On the value of water quality data and informative flow states in karst modelling” by Andreas Hartmann et al.***

**n. mazzilli (Referee)**

naomi.mazzilli@univ-avignon.fr

Received and published: 24 June 2017

This study examines the information content of water quality data for a karst simulation model. The Varkarst model is applied to a Spanish watershed. An initial 500,000 random parameters set is confined using discharge and water quality data which are either taken separately or together, using the whole time series of focusing on specific flow stages. The reduction in the 25th to 75th percentiles range is used to estimate the information content of the data.

The methodology is clear, the results are commented with adequate references to related works, the illustrations are sufficient and informative. In my opinion, the manuscript deserves to be published after minor revisions.

C1

### General comments

- The model equations are detailed in annex but for more clarity some information about the solute model should appear in Section 3. The lack of NO<sub>3</sub>-specific parameter is surprising and should be commented.
- Parameter  $kE$  seems insensitive. Is this related to some specificity of the flow processes on the test site ?
- The KGE is nicely defined as a combination of linear correlation and the ratios of the mean and standard deviations of the simulations and observations. Have you had a look at whether the parameters have more influence on  $r$ ,  $\alpha$  or  $\beta$  ?

### Technical comments

- p 5 | 14 "wtaer"
- p 7 | 16 "the fore" instead of "therefore"
- p 10 | 14 "the unsaturated state ( $VE - Kc$ )" should be corrected in "the saturated state ( $VE - Kc$ )"
- p 12 | 10 "is provide"
- p 12 caption of Figure 6: "the he 25th"
- p 15 | 26 something is missing in the sentence "discharge thresholds from which different compartments (...) of the behaviour"