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Values assigned to parameters of the Fast-Marching Algorithm (FMA) in SKS and short description.

Introduction

In the table below we provide the values assigned to parameters of the Fast-Marching Algorithm (FMA). The given parameters are assigned to each medium in the model (Aquifers, Aquitards, Faults & Fractures), so that the FMA in SKS can compute how fast the propagation front can travel through each medium. The result is a time or speed map. SKS then assumes that the karst conduits follow the quickest propagation path in the model. The greater the contrast between the mediums, e.g., Aquifers > Aquitards or Fractures > Aquifers, the more strongly that medium will attract the conduits. They have no physical units, and the values are varied during the first simulations to get a feel of the model before they are fixed for all subsequent simulations. For more information see chapter 5 in Borghi (2013).

Table: Values assigned to parameters of the Fast-Marching Algorithm (FMA).

| Parameter | Description | Value |
|-----------------------|--|-------|
| codeAquifere | FMA value of the aquifer layer (karstifiable formations) | 10 |
| codeAquiclude | FMA value of the aquiclude layer (non-karstifiable formations) | 1 |
| FMvalFrac | FMA value of fractures | 60 |
| FMvalFaults | FMA value of faults | 30 |
| multiplicatorConduits | FMA value of the conduits, computed as a multiplication of the FMvalFrac value with this multiplicator | 1.3 |

Reference

Borghi, A. (2013). 3D Stochastic Modeling of Karst Aquifers using a pseudo-genetic methodology. Université de Neuchâtel. RERO DOC. urn:nbn:ch:rero-004-111673.