

## ***Interactive comment on “Model of Groundwater Flow Using Boltzmann Lattice-Gas Automation Method In Maros Karst Region, Indonesia” by Muhammad Arsyad et al.***

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We choose Maros because it is one of karst region in Indonesia.

The problems of Lattice Gas Cellular Automata were mostly resolved if we using the Lattice Boltzmann Models.

In Lattice Boltzmann Models, the velocities  $c_i$  of the fluid particles are discrete, but we average over an ensemble of systems to obtain a probabilistic distribution  $n_i$  of velocities.

The advantage of Lattice Boltzmann Models: the fluid density and velocity in Lattice Boltzmann Models are both continuous, which makes it possible to satisfy the invari-

C1

ance of Galilean and moreover to avoid other problems with the Lattice Gas Model.

You can others advantage of these models in: <http://www.leb.eei.uni-erlangen.de/winterakademie/2011/report/content/course02/pdf/0208.pdf> and you can read the book with the title "Lattice Gas Methods: Theory, Applications, and Hardware" by Gary D. Doolen.

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Interactive comment on Drink. Water Eng. Sci. Discuss., doi:10.5194/dwes-2016-9, 2017.