



Cave development in the Swabian Alb, South-West Germany: A numerical perspective

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The formation of phreatic cave conduits in the carbonate aquifer of the Swabian Alb (South-West Germany) is discussed by means of numerical simulations. Three active cave conduit systems, the Blautopf Cave, the Aachtopf Cave, and the Wimenser Cave, have been partially explored by divers and exhibit a continuous conduit flow path with phreatic loops down to -50 meter below the average water table. These three systems drain catchments between 50 and 280 km², and largely follow the dip of the Jurassic limestone beds.

We use the numerical model KARST (**K**arst **A**quife**R** Simulation **T**ool) to explore the possibility of structural control of the conduit evolution. We show that both the dip of the bedding and the frequency of major bedding partings is likely to result in numerical drainage pathes, which are similar to the observed cave systems.