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En dynamisk modell for dannelse av kalksteingrotter

A dynamic model for the development of limestone caves

This is a compilation in Norwegian about the current speleogenetic models as proposed by Ford and Ewers. Caves are formed from microscopically thin guiding fractures within the rock. These fractures must form an integrated network before the water transport and subsequent speleogenesis may occur. The detailed pathways of anastomoses and dip-tubes are stochastically determined within areas of high hydraulic gradients. These micro-tubes, which are still in the pre-cave stage, may be further linked up (integrated) to extensive water conduit pathways. Such pathways often possess a looping appearance (phreatic loops). Through further enlargement of the cave conduit, its flow capacity may eventually exceed the given water input, when the knees between phreatic loops changes to a vadose development. Canyon entrenchment and paragenesis modifies a looping cave system towards a completely graded, water-table cave. This dynamic cycle may experience re-juvenation, provided a corresponding shift in the external base-level of erosion, as might happen through a glacial period. The paper is written for Norwegian conditions (metamorphic marbles) and some amendments are done with respect to this.