

# **Hydrothermal speleogenesis in the Koněprusy area (Bohemian Karst, Czech Republic)**

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The speleogenesis in Lower Devonian limestones resulted from deep groundwater circulation during increased heat flow associated with the main phase of neovolcanic activity in the Bohemian Massif (35-17 Ma). Caves were formed within confined aquifer under phreatic and bathyphreatic conditions. Confinement was caused by less permeable overlying limestone formations and siliciclastic platform cover. Thermal waters invaded a net of original cold water caves changing partly their morphology. Two-dimensional mazes originates with rests of original phreatic tubes along the boundary of permeable and less permeable formations, and phreatic morphologies in the depth. The maximum temperatures were stated to 60-80 °C from large calcite crystals. Outer zones of calcite crystals (precipitation temperatures of about 40 °C) indicate gradual cooling when meteoric water invaded the system through eroded and more permeable basal parts of the platform cover. Popcorn-like silicified speleothems making irregular horizon in caves resulted from the drop of thermal water level and mixing with infiltrating meteoric waters. The piezometric level during speleogenesis was situated within slightly eroded Upper Cretaceous platform siliciclastics overlying limestones. Karstification perforated limestone/siliciclastic boundary and numerous subvertical phreatic pipes originated. They are filled with Upper Cretaceous and Tertiary sediments. Multi-phase collapse features of the fill indicate movement down after the loss of buoyancy support of water from the decrease of piezometric level.