



Does cave type distribution reveal differential uplift in the eastern Northern Calcareous Alps (Austria)?

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The presented study was conducted between the Gesäuseberge in the west and the Schneeberg Alps in the east. The mountain ranges are part of the Northern Calcareous Alps and consist of pre- to high alpine karst settings with elevations reaching up to 2370 m a.s.l. Most massifs exhibit plateau character or at least show small remnants of palaeo surfaces. Larger plateaus are in the order of few 10^{th} of km^2 whilst the largest plateau system, the Hochschwab has some $120 km^2$. The carbonates of mainly Middle and Upper Triassic age are well karstified. A major tectonic element of this area is the WSW-ENE trending so called SEMP Fault System (Salzachtal-Ennstal-Mariazell-Puchberg). It has been active from Miocene onward and a cumulative sinistral offset of some 60 km has been determined.

For the presented investigation, only mountain ranges with more than 1600 m elevation on both sides of the SEMP were considered. Within these, more than 2600 caves are known up to date, whereas the state of exploration is quite advanced in most areas. Roughly, 450 caves with each having more than 50 m length were classified according to their genesis. The investigations were focused on caves with phreatic or epiphreatic parts which are related to a palaeo fore flood and are not controlled by geologic structures like aquiclude layers.

While mainly vertical caves of vadose origin are found in all areas and are distributed rather homogenous, the occurrence of fore flood related phreatic caves is not homogenous. Obviously, the SEMP-Fault divides the northern area, where these caves are frequent, and the south in which they are missing. As several other reasons like cli-

mate or lithologic differences can be ruled out a divergent uplift history or palaeo geographic conditions of the tectonic units divided by the SEMP line seem to be very likely. An alternative hypothesis is that the caves did exist, but were filled with sediments. Some outcrops of such filled cave profiles can be found south of the SEMP today. This would indicate diverging hydrologic and/or sedimentologic conditions on both sides of the fault.