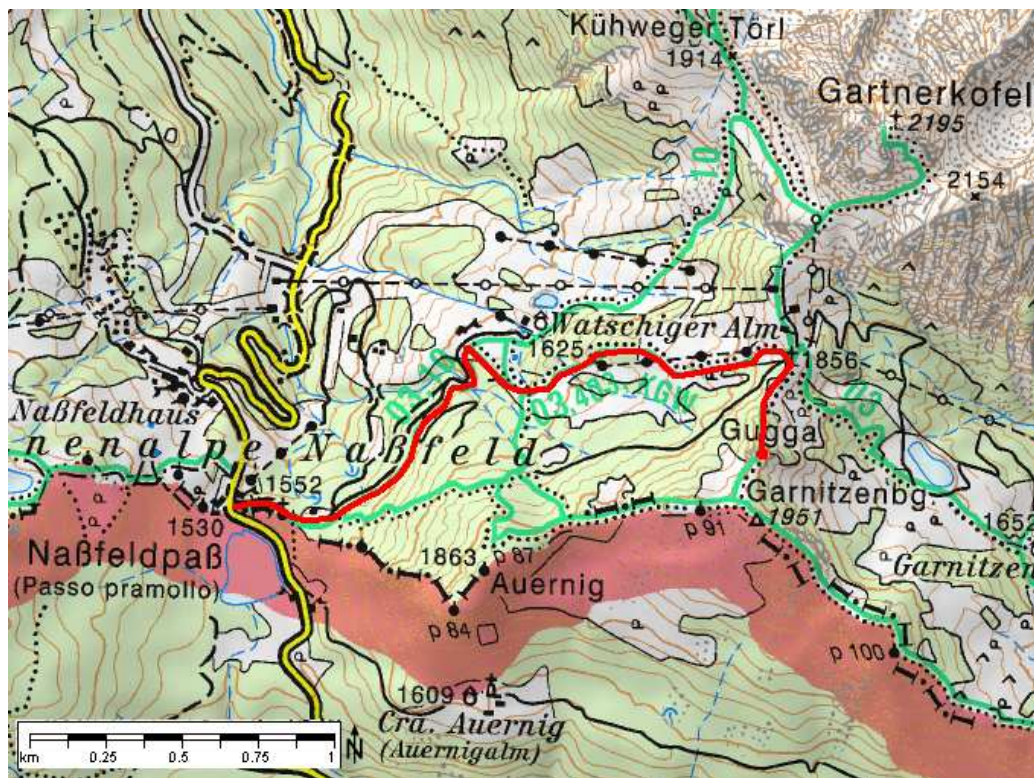


Geotope 25: Gugga –Limestone of Protozoa and Algae

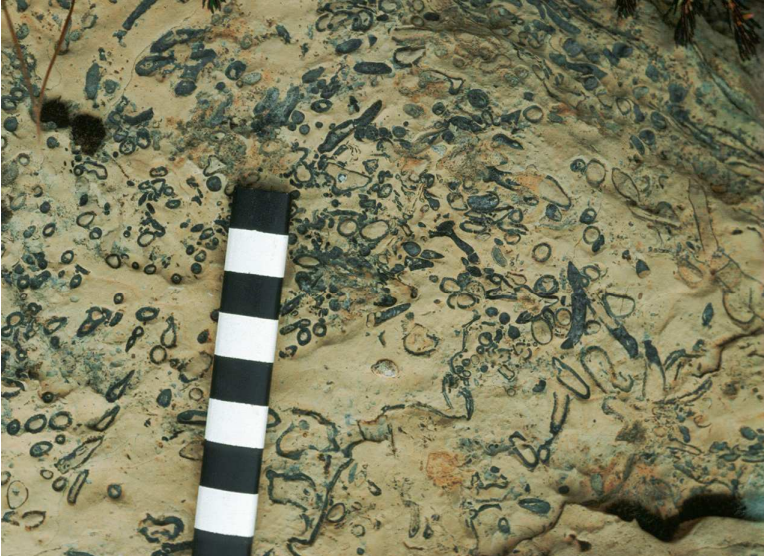


Red marking: Hiking route according to advance description; green tracks: hiking trails; ©BEV: Federal Office for Calibration and Measurement, 2005.

Access:

From Tröpolach ascent to Naßfeld and along the road to Watschig Alm. Further on along a trail via Kühweg Sattel. Gugga is located on a south-north directed ridge between the chairlift station and Garnitzenhöhe.

Description of the Geotope



Surface of the limestone with calcareous algae (cross-sections)

The distinct limestone ridge is mainly composed of calcareous algae and fusulinids, the latter resemble a rice grain. Fusulinids, although long being extinct, belong systematically to the Protozoa and more precisely to the Foraminifera. They display a very complicated internal shell architecture which render them as excellent guide fossils

for the Carboniferous and Permian Periods (350 to 250 m.y. BP). In addition to representatives from this group the limestone ridge contains shell remains of brachiopods, sea-lilies and corals. Small caves are filled by fine limestone mud. Different from the surrounding sandstones and conglomerates the Gugga limestone was deposited in shallow water under more calm conditions.

For those who want to know more details:

For age assignments of sedimentary rocks fossils are used. However, not all fossils are good time-markers. They have to occur worldwide and, in geological terms, must evolve rather quickly. Fossils which fulfil these requirements are named guide fossils. If one finds such a fossil on a certain place, it can be concluded, that similar occurrences in other areas have the same age. On the contrary, conservative organisms without rapid changes of their skeletal parts are not suitable for age determinations.

Based on fossils, however, the absolute age of a rock cannot be determined. Thus fossils only provide a relative age dating.

The application of geochronological methods, based on the decay of radionuclides permits an absolute age assignment. Radioisotopes with suitable half-lives play an important role in a number of technologies including dating of minerals, fossils and rocks. Well known, for example, is the radiocarbon-method of C^{14} dating which is based on the radioactive decay of the C-isotope C^{14} .