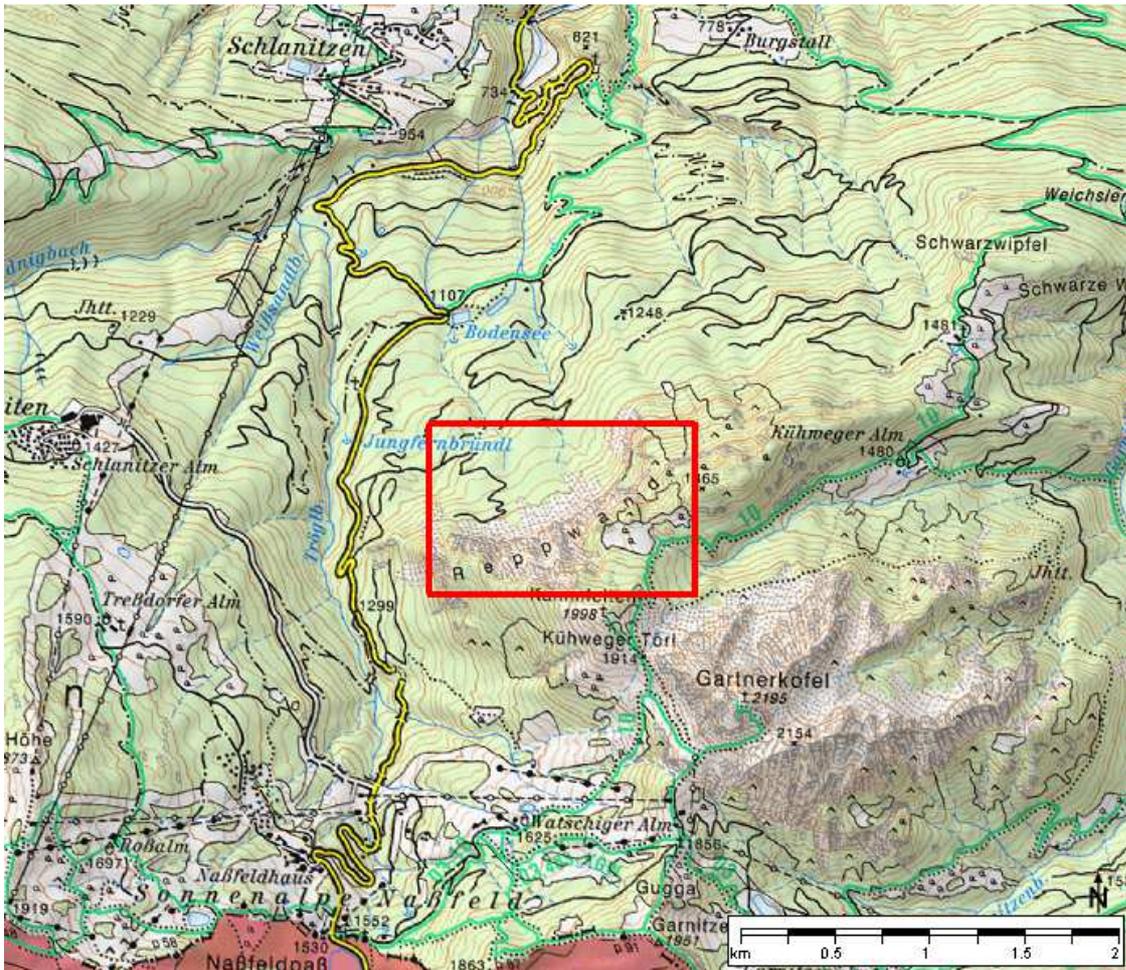


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## Geotope 55: Reppwand – The Fragile Cliff



Red square: location of the geotope; green tracks: hiking trails; ©BEV: Federal Office for Calibration and Measurement, 2005.

### Access:

The base of Reppwand can be reached by forest tracks which branch off from the main road to Naßfeld. The upper end of the cliff is accessible either from the summit of Kammleiten or from “Sauboden” east of Kammleiten. Special care is recommended to access the fragile cliff.

## Description of the Geotope



View of Reppwand and Gartnerkofel. The 330 m long drill core was recovered from the summit of Kammlaiten in the foreground.

The base of the 640 m high rockwall starts on an altitude of 1360 m and ends at the summit of mountain Kammlaiten at 1998 m. The wall can be subdivided into several distinct formations. The base consists of greyish bedded limestones assigned to the Lower Permian Schulterkofel Formation (270 to 250

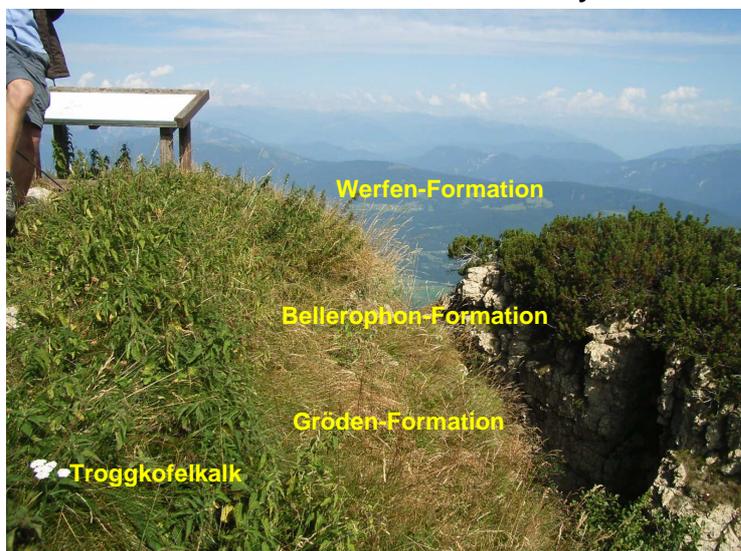
m.y. BP). The following almost vertical cliff is composed of the massive light-grey and light-red Trogkofel Limestone which also belongs to the Lower Permian. This limestone is overlain by the 60 m thick reddish and pinkish Gröden Formation which comprises reddish silt- and mudstones with intercalations of dolomite nodules. The uppermost part of the high cliff is composed by 170 m well-bedded limestones and dolomites assigned to the Bellerophon Formation of uppermost Permian age. (approx. 250 m.y. BP).

The following 170 m ranging almost to the summit of Kammlaiten are represented by the Werfen Formation consisting of limestones, dolomites and mud- and siltstones. This formation can be subdivided into several members which closely resemble the subdivision in South Tyrol. Finally, the summit of Kammlaiten is composed of a 30 to 40 m thick limestone conglomerate and breccia named Muschelkalk-Conglomerate (see Geotope no. 24).

According to geologists originally the Reppwand belonged to an up to 500 m thick carbonate plate which culminated in the Triassic peak of Gartnerkofel. This plate was slightly inclined towards south and was split into several blocks. The infiltration of rainwater and other precipitation was dammed by the water-impermeable horizon of the underlying Gröden and Grenzland Formations. As a result several springs and wet horizons occur at this level. Even worse is an ex-

tensive mass movement affecting the slopes north of Reppwand and Gartnerkofel. However, the phenomenon of gravitational deformation extending deep into the Reppwand cliff can also be observed on the summit of Kammleiten where several meters wide extension cracks occur. Thus, the Reppwand is in fact a very fragile cliff from with frequently occurring rockfalls.

During autumn 1986 at Reppwand a scientific drilling campaign was performed with the main focus on the Permian/Triassic boundary being exposed on the surface and subsurface. For this purpose a 330 m long core was recovered. A team of international experts applied for funds to analyse the well-known event documented in the core and at the surface which led to a global mass extinction at this boundary. Several proposals were put forward for explanation, e.g. a meteorite impact, volcanism and others. At the end a scenario was suggested in which internal Earth-bound telluric environmental drivers were the most plausible explanation for the global perturbation. In recent years even the apparent triggering mechanism was addressed. Accordingly, the global catastrophe was caused by intense flood basalt volcanism in eastern and partly western Siberia covering an area as large as seven times the territory of Germany. The eruption coincides in age exactly with the geochronologically dated Permian/Triassic boundary.



Summit of Kammleiten (1998 m) showing tension cracks of rocks on top.