

3.1.1. Route

Coming from Graz along motorway A9 and Road B145, we will reach our first stop at the pass between Bad Aussee and Bad Goisern (Pötschen pass, **Locality 1**: Pötschenhöhe Quarry) (Figs. 1 and 7). Then in St. Agatha, 3 km ahead of Bad Goisern, we will follow a small mountain road to the east. We will stop along the road leading to Leislingalm to look at the Zlambach Formation (**Locality 2**). We will then drive through Hallstatt and depart to the west along another mountain road to an old salt mine for the Norian/Rhaetian boundary outcrop (**Locality 3**). From Hallstatt we will drive to the Gosausee (Gosau Lake) where one can get a good look at both the Gosaukamm Mountain and the Gosausee margin of the Dachstein Mountains (**Locality 4**). From here, we will drive up a forest road taking us from the lake up the northern plateau. We will stop at the base of the Gosausee reef (Fig. 17), a relatively intact barrier reef (when compared to other Dachstein reefs), with an almost continuous fore reef to lagoon transect preserved. From Gosau, we will drive westerly through the Pass Gschütt to the small village of Abtenau where we will stay overnight.

3.1.2. Locality 1 – Pötschenhöhe Quarry

The Pötschenhöhe-quarry (Fig. 7), located along the road between Bad Goisern and Bad Aussee, exposes sediments that are probably the bathymetrically deepest Norian sediments of the Salzkammergut (Fig. 8). It is the type locality of the Pötschen Formation. It is a sequence of about 120 m in thickness, comprising a uniform series of grey, well bedded micritic 'deeper water' limestones alternating with argillaceous-marly layers. The average thickness of the limestone beds is around 15 cm; the clayey interlayers are a few centimetres thick. The limestone beds often show nodular upper bedding surfaces caused by pressure solution. Chert occasionally occurs, whilst biogenic burrowing is commonly observed; the microfacies show radiolarian, sponge spicules and subordinate filament-bearing wackestones.

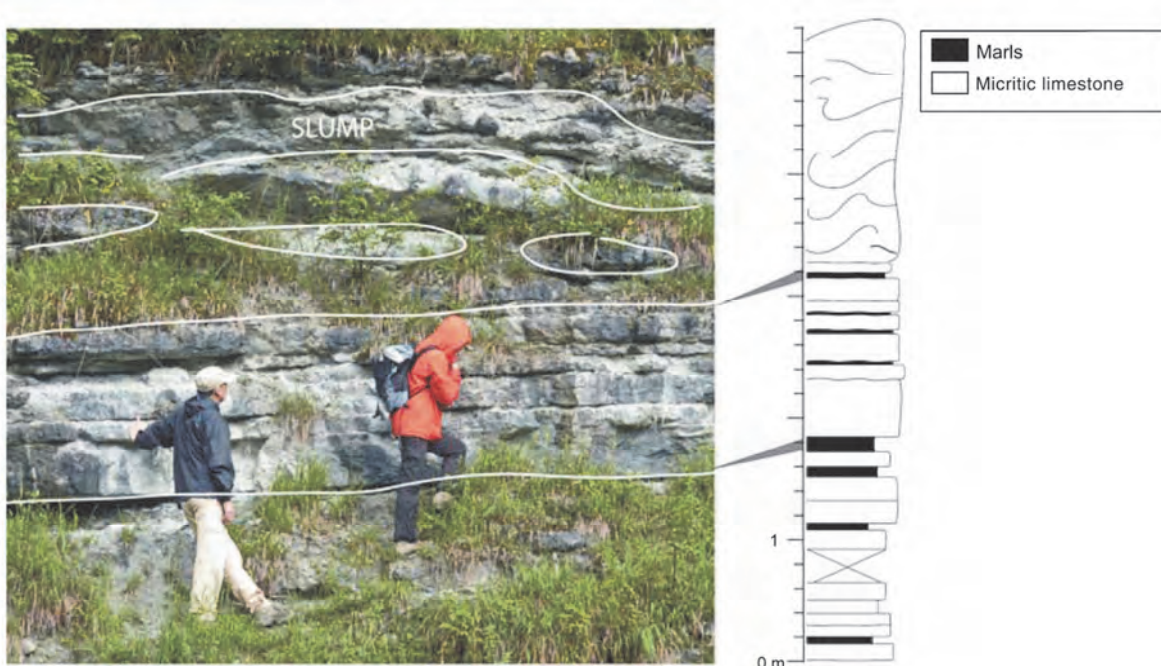


Fig. 8. Pötschenhöhe outcrop with schematic lithology (modified from GARDIN et al., 2012).

The Pötschen Formation is of Late Carnian (Tuvalian) to Early Rhaetian age, as demonstrated by the presence of conodonts (MOSTLER, 1978). The Pötschenhöhe 'quarry' exposes beds of Early Middle Norian age (= Alauian 2, *Himavatites hogarti* Zone) dated by ammonoids (TATZREITER, 1985), redeposited as big gliding block in a late Norian matrix with *Monotis salinaria* (LK, unpublished).

3.1.3. Locality 2 – Großer Zlambach

The Großer and Kleiner Zlambach are tributaries of the Traun River and name-giving for the Rhaetian Zlambach Formation. Though the formation displays an at least 150 m thick deep-marine succession, continuous sections are rare, due to common weathering of the soft sediments and a strong tectonic overprint with faults of unclear displacements making difficult a bed-by-bed correlation. The Kleiner Zlambach located north of the visited outcrop is the best exposed and less tectonised section but is unfortunately difficult to access (Fig. 9). Three closely neighbouring outcrops of the Großer Zlambach (Fig. 7; 47°37'47,5"N / 13°40'02,7"E) represent a partly folded and – though against each other fault bounded – lithologically complete Rhaetian sequence in far-reef basinal facies. The autochthonous background sedimentation of alternating marls and marly micritic limestone (Figs. 9 and 10) dominates here clearly the allochthonous carbonate sedimentation. An upward increasing thickness of the marls is characteristic for younger Rhaetian parts (Fig. 9). The allochthonous carbonate sedimentation consists of distal fine-grained turbidite, even if most of the beds do not show any characteristic turbiditic features. Except for the top black marls they contain only rarely a diverse biota derived from platform or reef environments (corals, dasycladacea, solenoporacea, sponges, bryozoans, hydrozoans, bivalves, brachiopods, ammonoids, gastropods, ostracods, foraminifers, echinoderms, radiolarian and Problematica). The autochthonous limestones show a rare fauna (some foraminifers, ostracods, conodonts, ammonoids, radiolarians). The first outcrop 2.1 displays the lower, limestone dominated part of the formation with the early to middle Rhaetian transition, whereas the boundary between the middle and late Rhaetian is visible at outcrop 2.2 where marls become more prominent. Black laminated marls with very rare allodapic coral-bearing layers of late Rhaetian age will be visible at outcrop 2.3 (Fig. 10).

3.1.4. Locality 3 – Steinbergkogel: Proposed Norian/Rhaetian GSSP section

The Steinbergkogel is a small, unnamed summit (1245 m above sea level, Fig. 7) situated in the south-western corner of sheet 96 (Bad Ischl), official topographical map of Austria 1:50,000. It is located just south of the western-most salt mine gallery symbol (crossed hammers in Fig. 12), corresponding to the entrance of the Ferdinandstollen (Stollen = gallery in English) at an altitude of 1140 m. Access to Steinbergkogel is possible by a forest road that starts in the Echerntal and after 7 km reaches the Salzberg and the Ferdinandstollen from where the quarry Steinbergkogel with the Norian-Rhaetian GSSP candidate section can be seen, approximately 25 m away (Figs. 11 and 12). Alternatively one can reach the Steinbergkogel directly from Hallstatt (Fig. 7) by taking the cable car to Rudolfsturm (855 m), following a marked footpath along the prehistoric burial ground of the Hallstatt (Celtic) period, past some Salt mine buildings in the north-westerly direction towards the Plassen peak, and finally arriving at Ferdinandstollen (about a one hour walk). The proposed Norian-Rhaetian GSSP candidate (coordinates 47°33'50"N / 13°37'34"E) is exposed in a long abandoned quarry where blocks have been extracted to mantle the galleries of the salt mine (Fig. 11). Most of the classical Steinbergkogel ammonoid fauna (MOJISOVICS, 1873–1902) may have