3.7. Stop 6b – Gallmannsegg

Topic: Basal sequence of the Kainach Gosau (upper part).
Locality: Road junction Gallmannsegg Hauptstraße/Gschmurgraben, Gallmannsegg, 47°09'28"N/15°05'47"E.
Lithostratigraphy: Geistthal Formation.
Biostratigraphy: –
Chronostratigraphic age: Upper Santonian to lower Campanian.
Description: Polymict conglomerates with various limestone pebbles and black lydites alternating with dark grey sandstones. In the upper part of the outcrop thick-walled snail shells of *Trochactaeon* (Ø up to 10 cm) occur indicating an aquatic (brackish) depositional environment. Sandstones show symmetrical ripple marks (Fig. 16, 3–6).
References: SCHIRNIK (1995).

3.8. Stop 7 – Gratkorn Clay Pit

Topic: Late middle Miocene vertebrate site; palaeosol; limnic sedimentation.
Locality: Gratkorn Clay Pit, ~0.7 km E Gratkorn (~10 km NNW Graz), 47°08’14”N/15°20’56”E.
Lithostratigraphy: Gratkorn Formation and Gleisdorf Formation (Peterstal Member).
Biostratigraphy: Mammal Neogene zones MN 7+8; indirectly *Elphidium hauerinum–Porosononion granosum* foraminifera Zone.
Chronostratigraphic age: Upper Serravallian (upper Sarmatian *sensu* regional Central Paratethyan stages).
Description: The Gratkorn pit is situated in the eastern part of the Gratkorn Basin, which belongs to a series of embayments along the northern margin of the Styrian Basin (Fig. 17). Sedimentation in the Styrian Basin as well as in its satellite basins was – beside tectonics – strongly affected by short-term sea level changes of the Central Paratethys. This enabled the development of a detailed sequence stratigraphic concept in addition to a comprehensive aquatic biota-based biostratigraphy (e.g., KOLLMANN, 1965; HARZHAUSER & PILLER, 2004; SCHREILECHNER & SACHSENHOFER, 2007). However, in marginal basin areas, where alluvial to lacustrine deposition predominates, stratigraphic tie points are scarce. Especially, at the northern and north-eastern fringe of the Styrian Basin (including the Gratkorn Basin) these hardly exposed sediments are (index)fossil-poor and radiometrically datable volcanoclastic intercalations are unknown. Nevertheless, a correlation with the high-resolution stratigraphic framework of the open Styrian Basin could be established during the last years (GROSS et al., 2007b; HARZHAUSER et al., 2008; GROSS, 2015; Figs. 6, 18).

3.8.1. Litho-, bio- and chronostratigraphy

In the eastern Gratkorn Basin, more than 20–30 m thick, polymict coarse gravels/conglomerates with sandy or pelitic matrix form the lowermost part of the exposed basin fill. Occasionally, horizontally or cross-bedded fine–medium grained gravels and sands are intercalated; locally, palaeosol formation is observed (e.g., Gratkorn pit). These strata are termed Gratkorn Formation and are interpreted as deposits of a braided river system, partly influenced by distal alluvial fans.