designed for SNS. Event location is done interactively whereby simulation results are immediately updated after every single parameter change. This enables to optimal use of prior information, such as geological knowledge, when determining hypocenter location in the multiple probable solutions (JOSWIG, 2008). Both the densification of the seismic sensors around the FL and the increased detection power of sonogram analysis permits lowering the detection threshold of the Earthquake Catalog of Switzerland (ECOS) by about one order of magnitude in the FL area. Our comprehensive catalog of earthquakes detected within the FL after 2010 comprises more than 200 events.

A set of seismic lines interpreted by InterOil was used to build a 3D structural model of the WMB. Fault planes have been extrapolated to the surface across five horizons from top basement to base of the Tertiary cover. An initial analysis of our seismic catalog shows that most of the local micro-seismicity is located in the sedimentary cover. Some events are collocated with interpreted structures; however, an important part of the seismicity is located in areas without known substructures (due to the lack of seismic lines). Since many earthquakes have similar origins over time, signal cross-correlation is used for collocation purposes and in order to identify possible fault zones.

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## Provenance analysis and paleogeography of the Gosau Group (Upper Cretaceous - Paleogene) in eastern Austria and western Slovakia

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The Upper Cretaceous to Paleogene sediments of the Gosau Group of the Northern Calcareous Alps (NCA) are unconformably and diachronously overlying folded and faulted Permian to Cretaceous units. Various Gosau Group deposits representing different basins are exposed at the eastern part of the Eastern Alps (Austria) at the south-western margin of the Vienna Basin, and at the western part of the Western Carpathians (Slovakia). In between, NE-SW-striking Gosau sediments are drilled in several wells below the Neogene fill of the Vienna Basin. The Gosau deposits were folded during the Alpine orogeny, and today form structurally complex synclines. From north to south several synclines on different tectonic units of the NCA and on Carpathian units are present: the northernmost Gießhübl Syncline, the Prottes Gosau Group, its Slovakian equivalents of Studienka and Brezová, the Glinzendorf Syncline and the southernmost Grünbach Syncline.

About 250 fine-clastic samples from outcrops, drill cores and cuttings of various Gosau locations and formations have been geochemically analyzed (bulk rock). Additionally, heavy mineral contents of coarse-clastic sediments (523 samples) have been evaluated and more than 600 grains of garnet, chromian spinel and tourmaline have been analyzed by electron micro probe with the aim to reconstruct the hinterland of the Gosau sediments and to distinguish different Gosau basins and to decipher the paleogeographic evolution in this area.

A general trend from chromian spinel dominated heavy mineral spectra of the Coniacian to the Campanian/Maastrichtian to a garnet dominated up to the Paleogene (plus relatively high amounts of tourmaline within the Slovakian Studienka area) can be observed for all Gosau deposits. Almandine is generally the dominant garnet component. Only Coniacian to

Campanian samples from the paleogeographically more southern Glinzendorf and Grünbach basins have significantly lower almandine and higher pyrope and grossular contents. These garnets are partly derived from a metamorphic sole remnant of Neotethys ophiolites to the south and this hinterland supplied only southern Gosau basins until Campanian age in contrast to the ordinary granitic to metasedimentary hinterland which is present for both northern and southern basins. In addition, these structurally high ophiolitic nappes, later on completely eroded, supplied mainly the paleogeographically southern Grünbach and Glinzendorf Gosau basins with ultramafic detritus represented by chrome spinels of a mixed harzburgite/lherzolite composition and high Cr and Ni as well as high Cr/V ratios in relation to low Y/Ni in associated shales. No direct indications for a northern ophiolitic source, the Penninic or Alpine Tethys accretionary wedge to the north of the Gosau basins, could be found. In the younger part of the Gosau basins fill, from the Maastrichtian to the Eocene, only almandine-rich garnets could be observed suggesting a southern provenance from low-grade metamorphic metapelites of exhuming Austroalpine metamorphic complexes. Ophiolite detritus is reduced in the Maastrichtian and disappears in the Paleogene. Major and trace elements generally indicate a mixture of different hinterland compositions and tectonic settings as source of the Gosau basins.

## The St. Veit Klippenzone in Vienna - missing piece in the Alpine-Carpathian klippen puzzle

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The St. Veit Klippenzone (SVK) comprises a succession of mainly Mesozoic rocks in western Vienna and the Wienerwald area. Outcrop situation is generally extremely bad in this area, and thus a modern analysis of these disputed klippen strata was completely missing. In recent years unique exposures of the SVK and adjacent flysch formations were available due to a large railroad tunnel (Lainz Tunnel). This contributes significantly to the correlation of the SVK to other klippen zones and it's geotectonic position (Helvetic vs. Penninic vs. Austroalpine).

Geochemistry, heavy mineral data, isotope geochemistry and microfacies studies were used to describe and interpret the strata. Biostratigraphic results include data by macrofossils (rare ammonites) radiolaria, calpionellids and nannofossils.

The SVK and its overlying flysch units build a major tectonic unit within the nappe pile of the Eastern Alps in the Wienerwald area west of Vienna. Coming from the Vienna valley (Auhof), going SE, the tunnel hit first rocks of the Kahlenberg Nappe, up to 2165.5 m, then followed by rocks of the SVK. The SVK was found in a 1097 m long section within the Lainz tunnel. It comprises largely a block in matrix structure, partly tectonically mixed with flysch units (Hütteldorf Formation, Kahlenberg Formation). Tectonic blocks of hard klippencore rocks show sizes from cm to several tens of meters. The matrix consists of strongly deformed fine-grained rocks such as Jurassic and Lower Cretaceous shales and marls. No primary sedimentary contact of the flysch formations onto the SVK could be detected which precludes the interpretation that the SVK constitutes a primary basement for the Rhenodanubian Flysch.

The composite Klippenzone succession recorded within the tunnel and reported from additional outcrops in the area of the Lainzer Tiergarten (Vienna) includes the following stratigraphy: (1) coarse quartz sandstones (Norian/Keuper), (2) fossiliferous grey limestones (Rhaetian), (3) sandy-silty grey marls and limestones with crinoids (Lower/Middle Jurassic), (4) red chert and red shale (Bajocian-Oxfordian), (5) grey marl to argillaceous limestone (Tithonian-Valanginian), (6) aptychus limestones (Neocomian), (7) white silicified limestone (Berriasian), (8) green chert (Valanginian).