These data support a quasi-continuous crust kinematics east of the LOFZ, controlled by the fault itself. Conversely, data west of the fault show that the LOFZ actually does not drive the CCW rotations that are likely the consequence of the kinematics of (or within) the Chiloé Block.

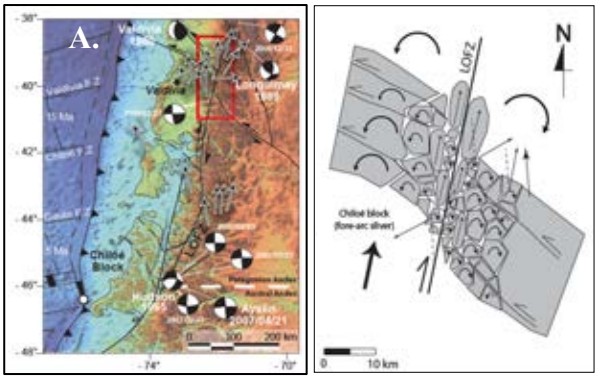

Figure 1. A) Southern Chile tectonic setting. Red box indicates the study area. White stroke arrows represent paleomagnetic rotations. B) Quasi-continuous block rotation model of the crust around the LOFZ based on paleomagnetically observed rotations. LOFZ Liquiñe-Ofqui fault zone.

References

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Depositional environments created by the disruption of the Steinalm carbonate platform in the Middle Triassic (Aggtelek–Rudabánya Hills, NE Hungary) – Lithofacies and microfacies associations

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In the Middle Anisian (Pelsonian) the onset of the Neotethyan rifting caused the drowning and dissection of the Steinalm carbonate ramp along the northern shelf of the Neotethys Ocean. As a result of the extensional tectonic processes the basement became differentiated and sedimentation occurred on half-graben morphology.
Recent mapping, drilling core and thin section analysis of the drowning-related succession revealed several specific types of lithofacies and microfacies in the Aggtelek–Rudabánya Hills, NE Hungary. These depositions can be divided into four lithofacies associations. L1: red, purplish red, greenish grey and black argillaceous limestone; L2: light grey lithoclasts of Steinalm limestone in red, purplish red argillaceous limestone; L3 pink, beige crinoid-brachiopod limestone and L4: beige, light grey coquina beds. The microfacies types of lithofacies L1 and L2 are mudstone, bioclastic wackestone and radiolarian packstone which represent pelagic, deep-water sedimentation. Lithofacies L1 developed inside the newly formed basins whereas L2 is related to the toe of structural highs with escarpments. Lithofacies L3 is built by crinoid-brachiopod wackestone which indicates deposition on slopes of structural highs occupied by brachiopod and crinoid gardens. Lithofacies L4 comprises bivalve packstone-grainstone and brachiopod-crinoid-bivalve grainstone which were likely deposited via short-term depositional events, e.g. storms, turbidites and mass flows. During the Illyrian these lithofacies types were gradually replaced by clotted micrite boundstone (Horváth and Hips, 2015) which marks the build-up of the microbial boundstone dominated carbonate slope systems.

Reference

Horváth, B., Hips, K., 2015. Microfacies associations of Middle and Upper Triassic slope and basin carbonates deposited along the Neo-Tethyan margin, NE Hungary. Aust. J. of Earth Sciences, 108/1, 34–49.

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Mechanics of Alpine uplift

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The Alps are uplifting at a fast rate, although crustal tectonics is moderate, if any. Because this observation rules out the most serious contributor to vertical ground motion, many authors recently invoked alternative mechanisms, "deep processes" in particular. Here we review the observations and possible mechanisms, with a particular emphasis on dynamic topography. It is unlikely that a single process may explain the current vertical kinematics in the Alps.

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Evidence for Eoalpine top to the WNW thrusting and top to the ESE normal faulting in the Gurktal nappes (Drauzug-Gurktal nappe system, Upper Austro-Alpine, Austria)

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The Eoalpine kinematics in the Austro-Alpine is still purely constrained and still a matter of debate. In this communication we present new structural data from the Gurktal nappes, indicating top to the WNW thrusting followed by top to the ESE normal faulting in the uppermost part of the Eoalpine orogenic wedge.
The Gurktal nappes extend over the geographic region of the Gurktal Alps, located in the southern part of Austria (Styria, Carinthia). The Gurktal nappes are part of the Drauzug-Gurktal nappe system and represent the uppermost tectonic unit of the Upper Austro-Alpine nappes. They are underlain by nappes of the Ötztal-Bundschuh nappe system to the W and by the Koralpe-Wölz nappe system to the N, E and SW. The investigated area is located in the region between Turrach and Ebene Reichenau (UTM-map sheet Radenthein NL-33-04-06). Lithostratigraphically from the footwall to the hanging wall Devonian impure marbles and phyllonitic micaschists of the Murau nappe are overlain by metaconglomerates, metasandstones and anthracite bearing phyllites of the upper Carboniferous Stangnock formation (STF) belonging to the Königstuhl subnappe. The top unit (Stolzalpe nappe) is represented by interbedded metasandstones, metasiltstones, phyllites and graphitic schists of the Spielriegel complex, metavolcanic rocks of the Kaser-Eisenhut complex covered by postvariscan sediments (STF).
At Mitterturrach along the state road B95 (UTM N5199548; E415228) a shear zone between the Königstuhl subnappe and the overlying Stolzalpe nappe is exposed. Ductile as well as brittle features document a long lasting story which is also constrained by deformation within the Stolzalpe nappe. Early structures related to Variscan times are documented in the hanging wall with fold axes striking (W)NW-(E)SE and axial planes that are superimposed by later folding. The later asymmetric folds with NNE-SSW fold axis and axial planes dipping to (E)SE indicate NNE-SSW shortening. It is correlated with brittle-ductile top to the WNW thrusting in the nappe contact indicated by SC-fabrics, C′-type shear planes (with striation and fibrous quartz) and clast-geometries. This event is post Carboniferous and therefore attributed to Eoalpine deformation. The thrust is likely to have localised in carbon-rich lithologies (graphitic schists, anthracitic phyllites) observed in both units. Reactivation of former structures as normal faults, neoformation of normal faults and C′-type shear planes crosscutting the older structures, indicate a change in tectonic regime with WNW-ESE extension, dominated by top to the ESE shearing. This extensional tectonic event is also found in impure calcite marbles mylonites of the Murau nappe.
We integrate these new data together with previously published data (Ratschbacher & Neubauer, 1989), maximum temperature data (Rantitsch & Russegger, 2000) and Ar-Ar cooling ages for developing a model evolution of the upper part of the Eoalpine orogene during upper Cretaceous.

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Evidence of hydrothermal fluid flow in distal rifted margins: the case study of Err nappe.

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In the last decades the increasing availability of high resolution seismic data and deep drill hole data have allowed to understand with greater detail the architecture of present-day passive rifted margins and to propose new models about their tectono-stratigraphic evolution. These models show how a multiphase evolution of rift systems led to a complex architecture: a proximal 30 km-thick crust separated, by a necking zone, from a thinned continental crust (<10km), followed by a wide transition zone between the continental and oceanic crusts where mantle exhumation occurs. The thermal evolution of distal margins is, however, very poorly constrained, although the presence of hydrothermal systems seems to play a key role in determining the heat fluxes. A deeper and more detailed study of such systems is thus fundamental to reconstruct the thermal and diagenetic evolution of the sedimentary successions lying above these margins. Therefore, the main aim of this study is the characterization of the hydrothermal systems in the Adriatic paleomargin and their evolution relatively to continental extension in order to figure out the relations among the hydrothermal products due to fluid flow, the stratigraphy and the main tectonic structures. The studied area is located in the southeastern part of Switzerland, where basement rocks and overlying sedimentary successions are spectacularly exposed. Since this domain escaped strong Alpine metamorphic overprint, sedimentary and structural features related to the Jurassic evolution of the margin are very well preserved. A detailed sampling was carried out on carbonate rocks cropping out along the entire margin, from the most distal to the proximal part, in order to get a complete dataset in different tectono-stratigraphic settings. Two sites in the Err nappe have been studied more in detail: Piz Val Lunga and Fuorcla Cotschna. We are focusing, in particular, on the interaction between fluids and pre- and syn-rift sediments that are, respectively, Triassic dolostones preserved as extensional allochthons, and basin-filling sedimentary breccias that reworked both the