environmental data to two long-lived Palaeo-Lakes: Lake Pannon and Lake Pebas. Due to the focus of the project on the evolutionary patterns of the genus *Cyprideis*, special emphasis is laid on high-resolution isotopic data records. These data are urgently needed to render even subtle palaeoenvironmental changes, which could influence the morphology of this ostracod taxon. *Cyprideis* was selected because the biology of its extant species is rather well-established and it exhibits a high grade of adaptability. Moreover, *Cyprideis* species are already used for Lake Pannon's and Lake Pebas' biostratigraphy. First results are presented for the Austrian sections at Mataschen (Styrian Basin; Early Pannonian) and Hennersdorf (Vienna Basin; Middle Pannonian).

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## Mineral chemistry and petrology of monazite and xenotime in a prograde metamorphic sequence in the Kinzigite Formation of the Ivrea Zone, northern Italy

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The Ivrea Zone (IVZ) is interpreted as one of the most spectacular cross sections through an attenuated continental lower crust [1]. The regional lithology has been subdivided into three major units: (1) supracrustal rocks of the Kinzigite Formation; (2) mantle peridotites and (3) an underplated igneous mafic complex. The assembly of the rocks in their relative stacking order close to what can be seen today dates from Carbo-Permian time [2]. The amphibolite facies rocks of the Kinzigite Formation consist of metapelites and metapsammites and subordinate metacarbonates and metabasites [2]. Metapelites and metapsammites, also known as kinzigites, form a uniform 3-4 km wide tract. They are interpreted as an upper Palaeozoic accretionary complex. The lowest grade rocks, in upper amphibolite facies, appear along the southeastern margin of the IVZ. The metamorphic grade increases towards the NW to granulite facies.

Along a ca. 8 km long profile of metapelitic rocks that range from amphibolite to lower granulite facies 15 sample have been collected approximately every 500 m. SEM and EMP work has been performed in order to obtain major element + REE + Y + Th + U composition of the phosphates and the paragenetic rock forming minerals. We intend to test the applicability of xenotime-monazite thermometry in combination with U-Pb in-situ dating using petrologic forward modeling techniques (such as Theriak-Domino). Paragenesis of kinzigites is represented by quartz + white mica + biotite + Kfspar + Na-plagioclase ± cordierite ± fibrolite ± garnet. Accessory minerals are ilmenite, apatite, graphite, zircon, monazite and xenotime. Neither monazite nor xenotime was observed in amphibolites.

Monazites are most commonly found as inclusions in biotite and/or fibrolite. They appear as inclusions in quartz and plagioclase, showing straight grain-boundaries, and also in the triple points of these phases. They vary in size from 10 µm to 200 µm. This is interpreted as represeting an equilibrium texture. On the contrary monazite is quite often also found together with decomposing apatite. Monazites are then typically xenomorph, often being decomposed. Monazites often show chemical zoning, mostly entirely irregular and patchy. Relative abundance of the main monazite components, La, Ce and Nd, show no variations at all throughout the entire sequence but clearly dominates LREE composition of the bulk rock chemistry. According to the element - mapping, the chemical zonation is mostly caused by U and Th, whereas Y remains invariant in all zoned grains. Xenotime is mostly observed together with zircon or as an inclusion within biotite and/or fibrolite. In the only garnet bearing sample, xenotime appears as an inclusion within garnet. Crystals are very small, typically <30 µm, but several larger 100-150 µm specimens were also observed. Many of these minerals show chemical zoning, which appears to be more regular compared to monazite. Element - mapping shows that Yb and Er are the most responsible for chemical zoning, whereas Y is evenly distributed in the zoned xenotimes.

In the case of the Val Strona Kinzigites Y and Ce cannot be used as a geothermometer as they show no variation in concentration among samples. Dy and Gd show slight zoning in monazites and could be used to calculate temperature of the equilibrium paragenesis.

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## Jurassic to Early Cretaceous sediments of the Transdanubian Range, Hungary - a unique tectonic unit within the Alpine-Carpathian system and its palaeogeographic provenance

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According to the extrusion or escape model the Pelso tectonic unit should be palaeogeographically situated before Palaeogene and Early Neogene tectonic processes between the Eastern and Southern Alps (SA). In this long known palaeogeographic reconstruction the Early Cretaceous sequence of the south-western part of the Transdanubian Range (TR) (South Bakony and Zala Basin) should resemble the Maiolica/Biancone facies successions of the SA; in contrast the Early Cretaceous of the Gerecse Mts. should correspond to the Rossfeld sequence in the Salzburg Northern Calcareous Alps (NCA). It is not so well known that there are also significant facies differences between the south-western and the north-eastern segments of the TR and that these differences also correspond to those of the SA and the NCA. The basal Jurassic of the SA developed in huge areas on top of shallow-water carbonates, which were deposited in direct continuation of the Late Triassic platform in varied tectonic subunits: Friuli Limestone (Calcari grigi del Friuli), Misone Limestone (Calcari grigi), or San Vigilio Limestone (Calcare oolitico di San Vigilio).These formations correspond to the Kardosret Lst. in the Bakony; in contrast this facies is missing in the NCA and also in the Gerecse Mts. One of the most typical facies of the Jurassic is the ammonite-bearing, red, nodular, clayey limestone („ammonitico rosso") both in the SA and the Bakony. It is called Tuzkövesarok Fm. in the Early Jurassic, Tölgyhat Fm. in the Middle Jurassic and Palihalas Fm. in the Late Jurassic in Hungary. A more deep-water formation is the radiolaritic Selcifero Fm. in the Lombardy and the Lokut Radiolarite (Bakony Mts.) in the late Middle Jurassic to Oxfordian. The larger part of the Late Jurassic and the Early Cretaceous in the Lombardian Basin is represented by the Maiolica facies, while it is developed only in the Tithonian to Hauterivian and pinches out eastward in the Southern Bakony. Jurassic successions of the Gerecse Mts. show similarities to those known from the Tirolic units of the NCA. The base of the Jurassic in the Gerecse is represented by the Pisznice Lst., equivalent to the condensed red limestones of the Adnet Group of the NCA. Both of them cover the surface of the Dachstein Fm. with gentle angular unconformities. Sedimentation on submarine highs is characterized by condensed red limestones; in contrast in the basinal areas grey cherty limestones were deposited. On the Middle Jurassic highs, the red, nodular limestone is called Klaus Fm. in the NCA and Tölgyhat Lst. in the Gerecse. It is followed by the Ruhpolding Radiolarite in the NCA and Lokut Radiolarite in the Gerecse. In the Tirolic units of the NCA the radiolarite succession contain several olistromatic breccias, partly of exotic and partly of local provenance (Hallstatt and Tauglboden Mélanges). The Lokut radiolarite of the TR is followed by or include a breccia bed called „Oxfordian breccia", which may correlate with the Tauglboden Breccias. The Agatha Fm. of the NCA mirrors the Palihalas Limestone of Kimmeridgean - Early Tithonian age in the Gerecse, while the Oberalm Fm. matches the Szentivanhegy Lst. of the Tithonian - Berriasian. In the Early Cretaceous carbonate succession is slightly diachronously replaced by siliciclastics (Bersek Marl Fm.) with slow shift of the basin axis in the Gerecse. In the Late Berriasian sedimentation changes from carbonatic to more siliciclastic in both regions the Gerecse and the NCA. This is marked by a characteristic breccia level (Felsövadacs Breccia Mb. in the Gerecse) and the lowermost coarse-grained turbidites of the lowermost Rossfeld evolution. Upsection follow the Bersek Marl in the Gerecse and the equivalent Schrambach Fm. in the NCA. The Rossfeld Fm. and the Labatlan Sst. in the Gerecse are equivalents and follow upsection. In both regions the Rossfeld coarsening-upward cycle was interpreted as expression of nappe thrusting, whereas for the NCA nowadays for the Rossfeld Basin fill a foreland-basin character (Molasse sediments) is favoured.

Conclusion: The TR is a special tectonic unit showing in parts homogeneity to the SA (Bakony) but more to different units of the NCA. So its original palaeogeographic must be between the NCA and the SA.

## Bestimmung des Grades an seismischer Aktivität sehr langsamer Störungen im Wiener Becken

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Die Einbeziehung von Störungssystemen in Erdbebengefährdungsanalysen hängt stark von deren Erdbebentätigkeit ab. In Gegenden mit hoher Seismizität wird diese normalerweise durch die Anzahl der in historischer Zeit auftretenden Erdbeben. Im Gegensatz dazu sind Intraplattenregionen durch geringe Seismizität charakterisiert, wodurch die Auswertung der existierenden Erdbebenkataloge nicht unbedingt alle Störungen, die während des Quartärs aktiv waren, aufzeigt. Die Frage, die sich nun stellt, ist, ob diese Störungen noch Erdbeben generieren oder ob sie in Erdbebengefährdungsanalysen unbeachtet bleiben können.

Genau eine solche Situation ist im Wiener Becken gegeben. Die Seismizität hier ist entlang der NE-SW streichende sinistralen Wiener-Becken Transfer-Störung (WBTF) fokussiert, die das Wiener Becken nach Osten hin begrenzt. Aus kummulativen skalaren seismischen Momenten abgeleitete Erdbebenverschiebungsraten zeigen jedoch keine einheitliche Verteilung entlang der einzelnen Segmente. Die ermittelten Werte schwanken zwischen 0.5-1.1 mm/a an den nördlichen und südlichen Enden und einem scheinbar seismisch inaktiven Segment in der Mitte des Beckens, des sogenannten Lassee-Segments in der Nähe der Stadt Wien. Kartierungen basierend auf Daten der 2D/3D Reflektionsseismik, Schweremessung und Geomorphologie zeigen, dass diese seismo-tektonisch definierten Segmente durch bedeutende Änderungen im Streichen der Störung hervorgerufen werden. Diese führen zu einem „restraining bend" (Dobra Voda Segment) und drei „releasing bends". Die „releasing bands" sind durch reine Blattverschiebungssegmente miteinander verbunden. Darüber hinaus scheint die Übertragung der Verschiebung von der Blattverschiebung hin zu mehreren Abschiebungen eine wichtige Rolle in der Störungssegmentierung darzustellen. Auch wenn an diesen Abschiebungen weder historische noch instrumentelle Seismizität dokumentiert ist, weisen jedoch geologische und morphologische Daten