ammonoid beds is either autochthonous or allochthonous (transported). Expected 3D modelling results will be essential to reach geodynamic, palaeooceanographic and palaeobiological conclusions. This further leads to the question of the original water depths during the formation of ammonoid mass occurrences. As a multitasking project, one aim is to underline a crucial fact in working within different sciences as the Structural Processes Group at the Departments of Geodynamic and Sedimentology (University of Vienna) and the Geometric Modelling and Industrial Geometry group (3D technology at the Vienna University of Technology). Interdisciplinary collaboration with other scientists is essential in modern times. Statistical analysis of the orientation and relative position (e.g., imbrication) of the ammonoid shells can hint to current or transport directions. 3D modelling of calcite-cement distribution (representing geopedal structures) and post-diagenetic calcite-veins displacing several ammonoids will complete the geometrical reconstruction and shed light on the biostratinomic and additional diagentic processes. The combination in analysing different fossil groups with additional analysis of istotopic, magnetostratigraphic, cyclostratigraphic and geochemical features will help to extract details of the Upper Triassic history around one of the most severe crisis in the Mesozoic time, the Carnian Crisis. Investigations, undertaken at sections (e.g., Asagiyaylabel) possessing this time interval, can work as proxy for the major Upper Triassic Tethyan crisis. Environmental changes as displayed by the sea level and climate can become more obvious and the 'motor' behind the demise better understood.

Niobium-tantalum-tin-bearing minerals in pegmatites of the Eastern Alps: case studies

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Niobium-tantalum-tin mineralisations are not particularly abundant in the Alps. Spodumene-bearing pegmatites, however, are known from several areas within the Austroalpine basement nappes (NIEDERMAYR et al. 1988). Here, we report on results of a study on tantalum-niobium and tin oxide phases associated with pegmatites in three areas of the Eastern Alps.

- Hohe Kreuzspitze area, Passeier Valley, South Tyrol: a vein-like pegmatite hosted by metapelites of the polymetamorphic Ötztal-Stubai crystalline basement immediately to the south of the Schneeberg Complex. The weakly zoned pegmatite forms boudins of meter thickness, and is composed of quartz, albite, muscovite, with accessory beryl, garnet, zircon, phosphates, Sn- and Ta-oxide phases (ixiolite, tantalite-(Fe), columbite-(Fe), ferrotapiolite, Ta-rich rutile, cassiterite). U-Pb (LA-ICP-MS) analysis of one large and complexly zoned ixiolite crystal revealed two populations at 300 and 200 Ma.
- Pusterwald-Bretstein-Lachtal area, Styria: zoned spodumene-bearing pegmatites hosted by mica schist, marble, amphibolite and quartzite of the Rappold Complex (MALI 2004). Pegmatites of probable Permian age carry accessory graphite, garnet, tourmaline, apatite, beryl, pollucite, cassiterite, Nb-Ta oxides (columbite-(Mn), tantalite-(Mn), pyrochlore, microlite, fersmite, aeschynite, wodginite, ixiolite, tapiolite), zircon, and uraninite.
- Weinebene/Brandrücken, Koralpe, Carinthia: extensive unzoned, dikelike spodumene-bearing pegmatites hosted by eclogitic amphibolites and kyanite-bearing micaschists (GÖD 1989). The pegmatites carry accessory apatite, beryl, cassiterite, columbite-(Fe) and zircon; titaniferous columbite with exsolved niobian rutile was investigated by CERNY et al. (1989). Rb-Sr whole rock dating yielded an „approximate age" of 280 Ma (GÖD 1989).

The Nb-Ta-Sn-bearing oxides reveal large variations in the XMn versus XTa diagram, following different fractionation trends as indicated by arrows (Fig. 1A). REE concentrations vary by orders of magnitude, and reveal variably fractionated patterns (Fig. 1B).

Mineralogy and Ta-oxide chemistry allow classifying them as rare-element pegmatites of the LCT (Li-Cs-Ta) family; Hohe Kreuzspitze is representative of the beryl-type; Pusterwald of the complex spodumene-type; and Weinebene of the albite-spodumene-type. Trace element concentrations mimic local conditions of melting, differentiation, fractionation and wall-rock interaction. Due to their polymetamorphic histories, intrusion ages are not yet fully explored, but assumed to reflect the Permian high-temperature, low-pressure metamorphic event known throughout the Austroalpine basement units.

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Rb-Sr Isotopendatierung an Sphalerit sowie Sr- und Sm-Nd-Isotopendaten von Karbonat und Fluorit der Zn-Pb Lagerstätte Bleiberg (Kärnten)

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