

**METAMORPHIC EVOLUTION OF THE KORALPE-WÖLZ HIGH-P/T NAPPE
PILE EAST OF THE TAUERN WINDOW (EASTERN ALPS): RECORD FROM
SILICEOUS DOLOMITIC MARBLES AND SCAPOLITE-BEARING
CALCSILICATE ROCKS**

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Siliceous dolomitic marbles and calcsilicate rocks of the Korralpe-Wölz nappe pile east of the Tauern Window were investigated regarding their petrological and mineralchemical characteristics in order to reconstruct the metamorphic evolution of this rock type during pre-Alpine and eo-Alpine events. An increasing metamorphic gradient along a cross-section from north to south is reflected within the siliceous dolomitic system CM(A)SCH by a change of the eo-Alpine diagnostic mineral assemblages:

(I) Dol+Qz+Cal, (IIa) Tr+Dol+Cal+Qz, (IIb) Tr+Qz+Cal, (IIIa) Tr+Cal+Di+Dol, (IIIb) Di+Dol+Cal and (IV) Di+Fo+Dol+Cal±Chu±Chl. Cal-Dol-solvus-temperatures yield 437 - 480 °C corresponding to X_{MgCO_3} -values between 0.03 and 0.039 in the northernmost part of the nappe pile (Wölz Complex). To the south the first occurrence of Tr within the Greim Complex is characterized by 540 - 562 °C (X_{MgCO_3} of around 0.05). Di was formed further south in the Rappold (660 - 691 °C), Korralpe-Saualpe (680 - 740 °C), Millstatt and Pohorje Complexes. These temperatures reflect X_{MgCO_3} -values scattering from 0.09 to 0.13. Fo of type (IV) as well as rare Di-coronas around Tr are explained by high X_{H_2O} -contents.

Type (V) assemblage Fo+Spl+Dol+Cal can be found in the Siegggraben area. There, Fo may be produced at high temperatures (Permian?) of up to 850 °C (X_{MgCO_3} around 0.2), which result from reintegration of thick Dol-lamellae in Cal. Di-Dol-coronas around Fo were formed at about 750 °C (corresponding X_{MgCO_3} -values of 0.15). These temperatures are yielded from the reintegration of smaller bleb-like or patchy Dol-exsolutions, which represent exsolution at a later stage.

The different generations of Dol-exsolutions, Fo of type (V) and Di-relics in eo-Alpine Tr indicate a pre-Alpine (Permian?) evolution.

In calcsilicate rocks of the CASCH-system from the Korralpe mountain range meionitic Scp is a rare constituent and is accompanied by Cpx, Czo, Cal, Qz, Amp, Pl and Afs. Activity-corrected T- X_{CO_2} -calculations ($a_{Mei} = 0.06-0.08$, $a_{Grs} = 0.08-0.13$, $a_{An} = 0.44-0.69$, $a_{Czo} \approx 0.86$) point to high minimum temperatures for the formation of the Scp-bearing assemblage between about 670 °C in the north and 800 °C in the south of the Korralpe. As these temperatures do not fit to the eo-Alpine metamorphic gradient, they may indicate Scp-formation during the Permian metamorphic event.

The formation of complex An-Czo-Grs-coronas around Scp needs significantly higher X_{H_2O} -contents at lower temperatures of about 650 °C at maximum and is ascribed to the eo-Alpine overprint.