

NEW BIOSTRATIGRAPHIC RESULTS FROM THE BÜNDNERSCHIEFER – IMPLICATIONS ON PALEOGEOGRAPHY

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New biostratigraphic data from the Bündnerschiefer (schistes lustrés) of the Lower Engadine Window (LEW) are presented from the two major tectonic units of the LEW, the tectonically highest Fimber-unit (OBERHAUSER 1983) and the tectonically deepest Zone of Pfunds (BERTLE 1999). The whole sedimentary sequence has undergone HP-LT metamorphism during Tertiary times as indicated by the occurrence of index minerals like carpolithe and blue amphibols (BOUSQUET 1998) or phengites (STÖCKHERT et al. 1990). Therefore it was only possible to establish a lithostratigraphic sequence missing biostratigraphic data (UCIK 1993). Despite of the HP-LT metamorphism and high grade of deformation of the rocks microfossils can be found with success as demonstrated by CADISCH et al. (1941), RUDOLPH (1982) and OBERHAUSER (1983) for the western Fimber-unit.

Until now biostratigraphic data from the core of the window (Zone of Pfunds) and the eastern part of the Fimber-unit (E of the Fimber valley south of Ischgl) were missing. Based on micropaleontological investigations combined with investigation of lithofacies a first detailed stratigraphic sequence for the schistes lustrés could be established. The oldest sediments of the blueschist-facies metasedimentary rocks of the Zone of Pfunds are of uppermost Jurassic (?) to lower Cretaceous age. This pure calcschists are succeeded by the mid-Cretaceous Tristel formation with e.g. *Orbitolina* (SCHWIZER 1983), which is overlain by the Gault-formation (age indication by reworked *Calpionella*) (HESSE 1972). At the top of the sequence a turbiditic sequence ("Bunte Bündnerschiefer") of upper Cretaceous

to lower Tertiary (?) age is exposed. Based on micropaleontological investigations two nappes within the Zone of Pfunds can be distinguished, both showing HP-LT metamorphism (BOUSQUET 1998 and references therein) of Tertiary age (THÖNI 1981, BERTLE 2000).

In the Zone of Pfunds *Orbitolina* and stratigraphically useful dasycladales indicating the mid-Cretaceous period and an *Orbitoides-Globotruncana* assemblage were found. Rocks of South Penninic position revealed Globotruncanids, orbitolinids, algae and cf. *Nummulites*.

Reconstruction of the pre-Tertiary paleogeographic situation leads to a similar picture as it was first discussed in detail by OBERHAUSER (1983):

- 1) Ending of the Briançonnais swell in the region of the LEW as indicated by ending of crystalline basement with its characteristic upper Cretaceous sedimentary rocks (couches rouges),
- 2) sediment transport of Tristel Formation and Gault Formation in southern, eastern and northern direction as indicated by regional distribution of the formations mentioned above.

Basic lithoclasts found in the middle Cretaceous Tristel Formation are interpreted as intraformational clast whereas basics found as clasts in uppermost Cretaceous (?) to lower Tertiary rocks (Bunte Bündnerschiefer of the Fimber unit) are interpreted as derived from the accretionary wedge of the South-Penninic-Austroalpine boundary.

The new biostratigraphic data from the Engadine window enable intrabasinal correlation of highly metamorphosed metasedimentary sequences of the Western and Central Alps with the schistes lustrés of the Tauern Window where Cretaceous age constraints are still scarce.

Based on the new biostratigraphic data, in combination with sedimentological, geochemical, petrological data from the literature a new correlation of the Penninic units of the Engadine Window with those of the Tauern Window is presented.

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