

**New Stratigraphic data in and Around the Adula Nappe and Consequences for the Tectonics and the Paleogeography of the Central Alps**

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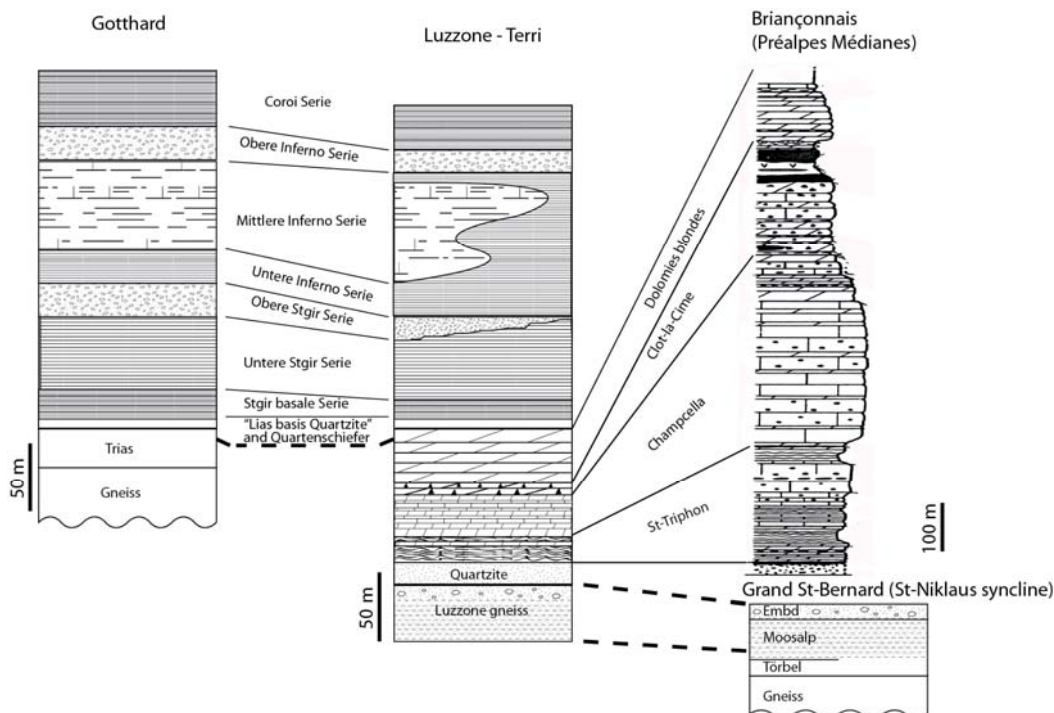
New data from the Penninic nappes at the northeastern edge of the Lepontine dome (Adula and surroundings) modify considerably our ideas on their tectonic relationships and on the paleogeographic evolution of the Central Alps (Cavargna-Sani et al. 2010; Galster et al. 2010).

The newly defined Luzzzone-Terri (L-T) nappe, which extends along the front of the Adula nappe, is formed by a Jurassic series of Helvetic type (similar to the sedimentary cover of the nearby Gotthard massif), superposed on a Permo-Triassic substratum which displays typical characteristics of the Briançonnais domain (see Figure). The gneissic core of the L-T nappe shows definite analogies with the Permian of the "Zone Houillère" (external Briançonnais) in Valais. The Triassic part of the L-T nappe contains all the stratigraphic units that characterize the Briançonnais Triassic platform (e.g. Mégard-Galli & Baud 1977), however in a more reduced and confined form, a fact that suggests that during the Triassic the L-T nappe was located on the external border of the Briançonnais basin. On the contrary, the Liassic part of the L-T nappe has no Briançonnais or Subbriançonnais affinity, but mimics the well known Gotthard trilogy (Stgir, Inferno and Coroi Formations).

This stratigraphic superposition of a Jurassic series of Helvetic type on a typically Briançonnais Permo-Triassic substratum is unique in the Alps. It establishes a link between the Briançonnais and Helvetic domains and demonstrates their paleogeographic proximity during late Paleozoic and early Mesozoic times. This proximity is in line with paleogeographic reconstitutions recently proposed by several authors in the Western and Central Alps (e.g. Masson et al. 2008; Mohn et al. 2010; Bussien et al. in press).

In the Adula nappe, the presence of bands of Mesozoic metasediments that look intermingled with the Paleozoic basement and the heterogeneous composition of this basement suggested to some authors that it could be a tectonic "mélange". Our work reveals no "mélange" character; it rather shows the coherent internal structure of this nappe. The sediments are in stratigraphic contact with their basement. We propose that the "internes Mesozoikum" can be explained by the reactivation and inversion of Jurassic normal faults during the late Cretaceous and Tertiary convergence. The existence of synsedimentary normal faults in the Adula is supported by the discovery of post-Triassic breccias (Cavargna-Sani et al. 2010). The heterogeneity of the basement results from a long and complex Paleozoic history, notably from the intrusion of late Variscan granitoids (e.g. the Zevreila orthogneiss: ~294 Ma) into various early Variscan and older rock bodies.

The Adula Triassic sequence has no affinity with the Briançonnais Triassic. This demonstrates the ultra-Adula origin of the Luzzzone-Terri nappe. This nappe must have been translated over the Adula during the subduction of the latter. The Adula Triassic displays analogies with the Triassic of several other Lower Penninic nappes and we suggest that it could represent a transition from the Briançonnais to the Helvetic Triassic domains.



Stratigraphic column of the Luzzzone-Terri nappe, compared with those of the Gotthard sedimentary cover and of the Briançonnais Permo-Triassic domain (after Galster et al. 2010).