

The tectonics of the Simano, Cima-Lunga, Adula and Maggia nappes in the southern Lepontine dome

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New structural data, geological maps and cross sections (1:10'000) collected and elaborated in the framework of the Bellinzona, Osogna and Grono sheets of the Geological Atlas of Switzerland 1:25'000 (sheets no. 1313,1293 and 1294) are used to discuss the still controversial tectono-stratigraphy of the southern margin of the Lepontine Dome that includes the Simano, Cima-Lunga, Adula and Maggia nappes.

Particular interest is given to the position of the disrupted calcsilicate-paragneiss-amphibolite-peridotite sequence of the Cima-Lunga. To the north, it is folded and pinched between Simano gneisses, in the central part, it is overthrust by the Maggia nappe and in the southeastern part, it lays at the base of the Adula nappe. This geometry and the structural data do not fit with the classical nappe stack architecture and question the lateral continuation of the Cima-Lunga into the Adula nappe. Different tectonic scenarios will be discussed: 1) a post-nappe emplacement folding of the Cima-Lunga nappe, 2) an Alpine intra-Simano channel flow of the Cima Lunga series and 3) a pre-Alpine Cima-Lunga mélange, metamorphosed at high pressure and reworked during the Eocene.

More to the south, the Oligocene-Miocene migmatites and the synchronous normal and oblique ductile faults obliterated the cylindrical continuation of the units into the Southern Steep Belt. There, part of the exhumation and disruption of the HP mafic and ultramafic rocks occurred during doming of the migmatites.