Contact Metamorphism at Corno Alto, Adamello, Itally

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Context

The Corno Alto is one of the oldest intrusions of the Adamello Pluton. It has a similar age to as the southernmost Adamello. In the past, several researchers have proposed that the intrusion depth increases from the south towards the north. Intrusion depth in the South have now been quite well established (0.1-0.15GPa), while not much is known about intrusion depth of the Corno Alto. Nevertheless, the described staurolite (Justin-Visentin and Zanettin, 1968) (though attributed by some to the Hercynan metamorphism; Boriani and Giobbi-Origoni, 1982) would suggest intrusion pressures closer to 0.4Gpa). The Corno Alto intruded into the South Alpine Hercynian basement, which consists mainly of pelites, an excellent rock to estimate intrusion depth (see for example Pattison, 1991. Contact metamorphism is the best way to establish intrusion emplacement depth, since the host rocks only experiences a minimal amount of vertical movement during intruion. Establishing the intrusion emplacement depth will go a long way towards understanding early Adamello intrusion dynamics.

Objectives and Methods

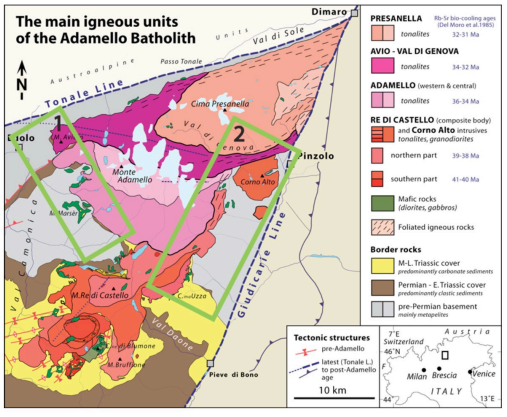
This project requires extensive field work to map the contact aureole, and extensive sampling. Field isograd will be refined by thin section petrography, SEM imaging and EMPA quantitative mineral analysis. Geochemical analysis (whole rock) for pseudosection modelling will be obtained on selected samples. Pressure and temperature estimates will be obtained using classical (e.g. gt/bt, mu/pa) thermometry, Raman analysis (C, QIG), and pseudosection modelling. Microstructural analysis will be used to distinquish between the different metamorphic events. Thermal modelling of the contact aureole possible.

Literature

Boriani-A; Giobbi-Origoni-E (1982) Heat transfer in the thermo-metamorphic aureole of the northeastern sector of Mt. Adamello (Trento; Italy). Rendiconti della Societa Italiana di Mineralogia e Petrologia. 38; 3, 1351-1360.

Justin-Visentin E., & Zanettin B. 1968. Genesi di cornubianiti a staurolite-grananto-andalusite- cordierite dell'aurora die contacto dell'Adamello. Studi Trentini di Sc.Nat., Sez.A, V.45, pp 224-245

Pattison, DRM, Tracey, R.(1991) Phase equilibria and thermobarometry of metapelites. In: Rev. Mineral. Geochem. 26 105-206



WEB sites

Choice of orientation : (supprimer les orientations qui ne conviendraient pas)

2) Geochemistry, Alpine tectonics, Ore Deposits