Dynamics of Continental Collision and High-Grade Metamorphism Across the Western and Central Alps

Dates: June 17-21 (4.5 days, pre-conference)

Minimum number of participants: 12

Maximum number of participants: 25

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Description

This field trip offers a geological traverse from the Italian Western Alps to the Swiss Central Alps. Current research and the newest results will be presented and discussed *en route* to Davos, in spectacular Alpine settings. At the focus are the dynamics of continental collision, as seen in high-grade metamorphic rocks. We will visit a series of classic Alpine localities, where recent research has brought new insight into the deep subduction and rapid tectonic extrusion of continental crust. Progress has come from quantifying the conditions and timing of mineral growth, fluid-rock interaction, partial melting, and exhumation. In the internal Western Alps we will examine and discuss the conditions and timing of such processes in UHP- and HP-domains (Dora Maira, Sesia Zone); in the Central Alps (Lepontine, Ticino), the high-grade Barrovian overprint, with partial melting in a tectonic mélange channel, will be the principal theme. Along the entire field trip, the interpretation of mineral ages obtained from a variety of high-grade samples will be critically evaluated, in order to quantify the duration and rates of pre-, syn- and post-collisional processes.

Organization

- Starting point is Milano, with mini-vans leaving from *Malpensa airport* and from the main train station (*Milano Centrale*) on Wednesday, June 17 (at about noon, depending on the arrival of flights and trains).
-> Participants: please *communicate your travel plans* (arrival) to M. Engi by May 15.

- Mini vans will take us from Milano via Torino to Revello (dinner, overnight at small hotel).

- UHP rocks will be visited on Thursday. This involves ca. 2 hours hiking on roads and trails. In the afternoon vans will depart for Biella, a drive of 3-4 hours along the southern margin of the Piemontese Alps); dinner and overnight at the unique Oropa sanctuary.

- On Friday morning, a cable car will take us up into the polymetamorphic complex of Monte Mucrone. Outcrops of granulite facies Permian intrusives and their country rocks, overprinted by eclogite facies in the Tertiary, will be studied during 4-5 hours; this involves

a moderate amount of hiking in high-Alpine terrain. Vans will depart mid-afternoon in direction of the Ticino, and will take us up from Bellinzona to a cabin in the Swiss Central Alps. Dinner and overnight will be at Capanna Gesero, a simple Alpine cabin situated at timberline above Lago Maggiore.

- Saturday will be devoted to studying the Southern Steep Belt of the Lepontine Alps, with emphasis on a highly diverse tectonic mélange unit, including late-orogenic migmatites and intrusives. The entire day will be spent outdoors, encompassing some 8 hours of hiking in spectacular Alpine scenery. Dinner and overnight will again be at Capanna Gesero.

- Sunday morning we will study migmatites on the way from Gesero to Alpe Arami, where the famous lens of garnet peridotite rimmed by eclogite is studied. After lunch the vans will depart for Davos (via San Bernardino pass), so as to arrive in time for registration at your hotel, the conference and the Goldschmidt ice-breaker party.

Special conditions

- Hikes on high mountain trails can be strenuous and require reasonable physical fitness. We may encounter snow at high altitudes, and Alpine weather is notoriously unpredictable, even in June. Warm protective clothing and good equipment, notably solid hiking boots are mandatory; no sneakers!

- Overnight lodging will vary from comfortable to simple, with the final two nights being in a rustic Alpine cabin (cozy dormitories, no shower). A light sleeping liner is recommended.

- Passport and visa requirements for Italy and Switzerland are the participants responsibility.

Cost

€390 including all travel by mini-van and cable car, four overnight, breakfasts and dinners, field trip guides and maps (to be sent to participants upon registration, prior to field trip). Lunches can be bought *en route* (not included).

Registration

To ensure participation please register and prepay via the Goldschmidt2009 website (http://www.goldschmidt2009.org) by April 15, 2009. The registration will be open from 1st January 2009.