

Penrose Conference on Arc Crustal Genesis and Evolution Valdez, Alaska, July 9-15

Conveners: Peter Kelemen & Brad Hacker

The Penrose Conference on arc crustal genesis and evolution will be held in Valdez, in south-central Alaska, from July 9–15. The Conference will be limited to about 80 participants, and **participants must apply to attend**.

Presentations will integrate recent results on well-exposed arc crustal sections – in the Jurassic Talkeetna arc in south central Alaska, and in the Cretaceous Ladakh–Kohistan arc in northern Pakistan and India – with important new developments in active-arc geochemistry, petrology and geophysics. The Talkeetna and Ladakh–Kohistan arcs provide exposures of relatively complete sections from Moho depth (30 to 40 km in both cases), to volcanic rocks and volcanoclastic sediments. Both have been the subject of large, multi-disciplinary projects over the past decade, and provide depth sections and temporal progressions that are not accessible in active oceanic arcs.

Intensive, recent investigations of arc plutonic suites elsewhere complement these projects. New data from the US MARGINS Initiative, Sierra Nevada Continental Dynamics Projects, Aleutian studies, and similar international initiatives provide constraints on crustal thickness and volcanic fluxes in active arcs. Advances in the study of melt inclusions have dramatically improved understanding of volatiles in primitive arc magmas. Studies of ultra-high pressure metamorphic rocks and new experimental methods have yielded insights into mantle wedge melt generation, and subduction zone dehydration and anatexis. This conference will provide an opportunity to synthesize these results, with a focus on using direct observations of arc crustal sections, from the uppermost mantle to the volcanics, to constrain arc processes and their role in the genesis and evolution of continental crust.

The enthusiastic response of keynote speakers – only one out of twenty-four declined the request for letters of commitment – indicates to us that the time is right for this conference, and that it will attract an excellent group of well informed participants with much to discuss.

To complement research presentations, the Conference will include at least two field trips, to accessible outcrops of volcanic and the Moho sections of the Talkeetna arc. Depending on the level of interest, there may also be another (expensive, helicopter supported, multi-day) field trip to the Klanelneechina field trip, open to participants with experience in backcountry travel in alpine terrain.

Tentative Conference Schedule

Sun July 9: Bus trip from Anchorage, Sheep Mountain Field trip along the way

Mon July 10: Setting the stage: Alaska tectonics, geochronology, arc tectonics

Tue July 11: Crustal bulk composition, conditions & processes of crystallization

Wed July 12: Bernard Mtn Field Trip and informal discussions, all day

Thu July 13: Metamorphic petrology, deformation, & arc geophysics

Fri July 14: Crustal dynamics, mantle dynamics, melt production

Sat July 15: Bus trip back to Anchorage

Beginning of possible multi-day field trip to Klanelneechina klippe

Logistical information

To apply: please contact the conveners by email at peterk@ldeo.columbia.edu and hacker@geol.ucsb.edu with a letter of intent that includes a brief statement of interests the relevance of the applicants recent work to the themes of the Conference, the subject of a proposed presentation, and contact information. Interested graduate students are strongly encouraged to apply; partial support is available for student attendees from GSA. Once you have been selected to participate, we will forward your contact information to the GSA Penrose organization, and they will send you detailed registration information.

Application deadline is Friday, March 31, 2006

Travel and costs: Buses will meet participants at the Anchorage International Airport, and one or two downtown locations to be announced, on the morning of July 9, and buses will return participants to these locations on the afternoon or early evening of July 15. We will stay in the Best Western Valdez Harbor Inn, and the conference, together with lunch and dinner, will take place at the Civic Center in Valdez, one block from the Inn. The cost will be \$1125 per person, from Anchorage, round trip, based on double occupancy. Those requesting a single room (limited availability) will pay an additional \$350 for the week.

The relatively easy air access to Anchorage, and somewhat modest hotel, make this a normal cost for Penrose Conference participants despite the rather remote location. We are still in the process of applying for and allocating additional funding to help defray travel costs for some participants, so the cost could go down. If cost is a major problem, and makes the difference between attending and not being able to come, please let the Conference conveners know via email.

Some participants may wish to make their own plans for travel back from Valdez to Anchorage, for example via the Alaska State Ferry system from Valdez to Whittier,

(ferry info at <http://www.dot.state.ak.us/amhs/schedres/scheds/S06.htm>)

and then by bus or train from Whittier through the new tunnel to Anchorage

(info at <http://www.themagicbus.com/> and <http://www.alaskarailroad.com/>)

HOWEVER, if you decide to choose this option (1) you may wish to make bookings on the train or bus soon, because the "public" transportation can fill up with cruise ship groups, and (2) PLEASE let the conference organizers know as soon as possible via email so that we can potentially save some money on the bus from Valdez to Anchorage.

Field trips: Weather permitting, there will be a field trip to look at outcrops of the volcanic section of the Jurassic Talkeetna arc, accessible via a short bushwack from the

highway about halfway from Anchorage to Valdez on July 9. There will also be an all day, mid-week field trip to look at some Moho depth exposures of gabbro, mafic garnet granulite, pyroxenite and residual harzburgite in the Talkeetna arc section, starting at a trailhead about two hours drive from Valdez on July 12 (with a possible rain date for one or the other field trip on July 15). Both field trips will involve some moderate, off-trail hiking (brush on July 9, talus on July 12) and are, of course, optional.

Depending on the level of interest, we may also offer an optional (expensive, helicopter supported, overnight) field trip to the lower crustal rocks of the Klanelneechina klippe for participants experienced in alpine back-country travel. Lithologies record equilibration at about 700°C and 7 kb, and include garnet two-pyroxene quartz diorites (AKA granulites) and garnet tonalite veins. Garnet is igneous in both of these lithologies, as revealed by heavy rare earth element enrichment. There are also variably retrogressed granulite-facies mylonites in the klippe. Let the Conference conveners know if you are interested.