

**GOLDSCHMIDT2008**  
**FIELD TRIP #2**

**EFFUSIVE TO EXPLOSIVE VOLCANISM IN THE CANADIAN CASCADES:  
INSIGHTS INTO LANDSCAPE-CONTROLLED VOLCANIC PROCESSES**

**LEADERS:**

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Kelly Russell, University of BC

**WHERE:** Vancouver→Whistler→Pemberton→Mount Meager→Vancouver

**WHEN:** July 12-13, 2008. Two-day trip; pre-conference.

**COST:** \$230 CAD per person (based on double occupancy)  
\$310 CAD per person (based on single occupancy)

- Includes transportation, lunches, and accommodations. \*\*Participants are required to oversee their own dinner and breakfast in Pemberton.

**MINIMUM PARTICIPANTS:** 16

**MAXIMUM PARTICIPANTS:** 24

**GEAR:** Strong shoes or hiking boots recommended and light-weight waterproof jacket essential.

- This trip will involve several short, easy-going hikes from the vehicles, and occasional descents down moderate slopes to examine sections in river terraces. The BC Coast Mountains are usually very pleasant in summer; however, rain showers are possible.

**SUMMARY:**

This two-day (one night) field trip will examine Quaternary volcanism in the Canadian portion of the Cascade arc; the Garibaldi Volcanic Belt (GVB). The volcanic centres of the GVB have developed on top of the southern margin of the Coast Plutonic Complex, and significant rates of tectonic and isostatic uplift have created a visually stunning landscape dominated by deep fjords and rugged peaks. Many of the traits of the deposits seen on this two day trip are a reflection of, both, the style of eruption and the nature of the surrounding landscape (e.g., rugged topography, ice-filled valleys). In this regard, the trip provides a spectacular and uniquely easily-accessible window into the nature and hazards of effusive and explosive volcanism occurring in mountainous terrains and crucial the role of surface water and ice.

Day 1 of the trip proceeds along the Sea-to-Sky Highway from Vancouver to Pemberton via Whistler (site of the 2010 Winter Olympics) and focuses on Quaternary glaciovolcanic lavas and associated deposits. Interactions between volcanoes and ice in the GVB have been common during the past two million years and this has resulted in a diverse array of landforms including: subglacial domes, tuyas, impounded lava masses, and sinuous lavas that exploited within-ice drainage systems. Following a night in Pemberton, the trip heads northwest along logging roads to see deposits from the 2360 BP eruption of the Mount Meager volcanic complex (Pebble Creek Formation). This eruption began Plinian-style, generating pyroclastic fall deposits and a pumiceous ignimbrite. The eruption intensity waned gradually, producing a series of block and ash flow deposits, one of which is unusually strongly-welded; and a small lava. As well as primary volcanic deposits and lavas, we will examine lahar deposits that record the rapid erosion and removal of volcanic rocks from the flanks of the edifice.

## **DETAILED ITINERARY:**

### **Saturday, 12<sup>th</sup> July 2008**

- Breakfast on own
- Depart UBC at 8.00AM for Porteau Cove Provincial Park – introduction and geological overview
- Depart Porteau Cove Prov. Park at 9.30AM for Watts Point – examine syn-glacial dacitic lava and breccias.
- Depart Watts Point at 11.00AM for Chance Creek – examine syn-glacial lavas from the Mount Cailey volcanic field
- Depart Chance Creek at 1.00PM for Rubble Creek Provincial Park – examine and discuss the implications of damming of lavas by ice
- Lunch at Rubble Creek Prov. Park (pack lunches provided)
- Depart Rubble Creek Prov. Park at 2.00PM for Brandywine Falls Provincial Park – examine pre- and syn-glacial basalt lavas of the Cheakamus Formation
- Depart Brandywine Falls Prov. Park at 3.30PM for un-named locality - to examine and discuss the cooling dynamics of lavas erupted under ice
- Depart at 5.00PM for Nairn Falls Provincial Park (optional) – examine contentious Mesozoic migmatites – magma mingling or plastic deformation
- Depart Nairn Falls Prov. Park at 7.00PM for Pemberton
- Arrive in Pemberton at 7.30PM
- Hotel accommodations provided by Pemberton Hotel (and others if required)\*\*
- Dinner as group (not included) in Pemberton

### **Sunday, 13<sup>th</sup> July 2008**

- Breakfast on own (available in hotel or McDonalds)
- Depart Pemberton at 7.30AM for Mount Meager – up to 8 stops along the Meager Creek track to examine the range of deposit formed during explosive and effusive phases of the 2360 BP dacite eruption.
- Lunch provided en route (pack lunch provided)
- Depart Mount Meager at 5.30PM for Vancouver
- Arrive in Vancouver at 8.30PM

\*\* Accommodation in Pemberton is not bookable until we have numbers of participants confirmed or at least when we have a better idea. There is not a lot of accommodation space and it is likely that participants will have to stay in more than one place.

