

GOLDSCHMIDT2008
FIELD TRIP #1

**WRANGELLIA FLOOD BASALTS ON VANCOUVER ISLAND:
AN ACCRETED LATE TRIASSIC OCEANIC PLATEAU**

LEADERS:

Andrew Greene, University of BC (agreene@eos.ubc.ca)
Graham Nixon, BC Geological Survey
James Scoates, University of BC
Nick Massey, BC Geological Survey

WHERE: Vancouver → Vancouver Island → Vancouver

WHEN: July 19-22, 2008. Four day trip, post-conference.

- Leaving at ~10 am on July 19th (Saturday; the day after the conference) and returning by ~6 pm on July 22nd (Tuesday). The trip will leave from the Department of Earth and Ocean Sciences at UBC.

COST: \$625 CAD per person (based on double occupancy)

- Includes transportation, meals and accommodations

MINIMUM PARTICIPANTS: 15

MAXIMUM PARTICIPANTS: 25

GEAR AND WEATHER: Sneakers or light hiking boots are recommended.

- There will be a few short hikes (<10 minutes) from the road. July is typically sunny, but it can also rain. Daytime temperatures in July are typically 57° to 66°F (14° to 19°C), with cool ocean breezes and evenings. We will mostly be at low elevation.

SUMMARY:

The Wrangellia flood basalts on Vancouver Island (Karmutsen Formation) are part of one of the best exposed accreted oceanic plateaus on Earth. The Karmutsen Formation (~20,000 km²) covers over half of Vancouver Island (460 x 130 km) and was constructed as an emergent oceanic plateau at ca. 230 Ma. The entire volcanic stratigraphy (~6 km thick) is exposed on Vancouver Island, and is bounded by marine sediments and overlies Paleozoic oceanic arc volcanic sequences 2-5 km thick. These units belong to the allochthonous Wrangellia terrane that extends northwards through the Queen Charlotte Islands into southern Alaska. The Karmutsen Formation is comprised of basal sediment-sill complexes, a lower member of pillowed and unpillowed submarine flows, a middle member of mostly pillow breccia and hyaloclastite, and an upper member of subaerial flows. Recent mapping, field work, and geochemistry are beginning to paint a clearer picture of the growth history and source and origin of magmas that constructed this enormous volcanic edifice.

The goal of this field trip is to observe volcanological features and obtain a perspective of the volcanic stratigraphy and flood basalt emplacement in this oceanic plateau. The Paleozoic basement rocks will also be visited. Our hope is for participants to gain a perspective about the construction and composition of this oceanic plateau and the geology of the Wrangellia terrane on northern and central Vancouver Island.

DETAILED ITINERARY:

Saturday, July 19th

- Leave UBC at ~10 am; drive to Horseshoe Bay; 1 pm ferry to Departure Bay, southern Vancouver Island; drive from Departure Bay to Port McNeill, northern Vancouver Island (345 km, ~4 hr drive; dinner along the way); lodging in Port McNeill (Haida Way Inn).

Sunday, July 20th

- Tripartite stratigraphy of the Karmutsen Formation and picritic pillow lavas on the west side of the Karmutsen Range on northern Vancouver Island.
- Salmon bake at the Killer Whale Café in Telegraph Cove.
- Lodging in Port McNeill (Haida Way Inn).

Monday, July 21th

- Sediments and sills at the base of the Karmutsen Formation in Schoen Lake Provincial Park (short hike).
- Volcanic stratigraphy along Buttle Lake in Strathcona Provincial Park.
- Dinner and lodging at Strathcona Park Lodge.

Tuesday, July 22nd

- Paleozoic basement of the Wrangellia terrane (short hike) and perspective of the flood basalt stratigraphy.
- Leave for Departure Bay by about noon to meet the ferry back to Vancouver; should arrive back at UBC by ~6 pm.



