Post conference field excursion

20 – 26 May 2016

Preliminary notice

Glencoul Thrust in its type location, NW Highlands Geopark

Field excursion leaders: Rob Butler & Randell Stephenson

This excursion involves five full days in the field (six nights away), taking in outcrops and landscapes through the NW Highlands Geopark and the coast of NW Scotland together with Harris and Lewis on the Outer Hebrides. Sites include classic localities in structural geology and continental deformation as well as analogues for features imaged on crustal seismic reflection profiles. We combine large-scale views with hands-on examples of deformation structures formed at a variety of crustal levels. The itinerary provides a sweep through key aspects of NW European geology and tectonics, from crustal formation and deformation (in the late Archaean and early Proterozoic), mountain building (during the Palaeozoic "Caledonian" orogeny), tectonic reactivation, basin formation and rifting.

Logistics: The excursion will depart from the Seismix 2016 conference venue (Macdonald Aviemore Resort) and return to Inverness. We have bookings in small hotels on an en-suite, Dinner, Bed & Breakfast basis, chiefly involving room-shares. There may be a few single rooms available at a surcharge (or lottery). Details of this will be managed after confirmation of participation. Given the small size of hotels, we are limiting participation on the field excursion to 28 individuals.

Equipment: Basic levels of mobility/fitness are required – although there are no especially long hikes, most localities involve moving over rough terrain. On one day we plan to be away from vehicles for several hours, covering c 5 km.

Strong, water-resistant footwear are advised. The weather in May can be beautiful so normal sun protection is advised, but if it is poor you should have full waterproofs, fleeces and warm head-gear. A small rucksack is advisable as is a water bottle.

Cost: The estimated cost for the excursion is 800 GBP. It covers all transport (start Aviemore, end Inverness, including ferry crossings), a field guidebook, six nights accommodation including dinner (except one). Lunches are additional – we will provide opportunities to buy food/lunch stops at cafes and on ferries as appropriate. .
Participants are strongly encouraged to purchase their own travel insurance.

Sango Bay, Durness. – just one of the coastal outcrops in the NW Highlands Geopark and a natural laboratory for the study of fault rocks..

Provisional Programme

Below is the planned itinerary. We are awaiting the ferry timetables for 2016 and any changes may require minor scheduling alterations to the visit to the Outer Hebrides. However, the basic themes will remain as outlined here.

Friday 20th May
Depart Aviemore at lunchtime.
Drive to Tongue, Sutherland.
Brief stop at sub-Devonian unconformity on Moine rocks at Portskerra
Unroofing of Caledonian mountain chain and nature of end-orogenic landscape. Fracture patterns in sedimentary cover and basement, as an analogue for the Clair oil field and others west of Shetland. A stroll on a rocky foreshore.
Overnight in Tongue.

Sub-Devonian unconformity at Portskerra

Saturday 21st May
Day excursion from Tongue.
Introduction to Moine Thrust Belt at Loch Eriboll. Arnaboll Thrust, basement thrust sheets and Lapworth's type mylonites; imbricate thrust systems. Durness and the Moine Thrust. Basin-forming faults and their cataclastic fault rocks. We can compare the different characteristics of fault zones formed at different crustal levels. Involves c 2 km walking on rough moorland together with a stroll on a beach.
Overnight in Tongue.

Arnaboll Thrust and Lapworth's type mylonites derived from gneisses.

Sunday 22nd May
Day excursion from Tongue.
Thrust shear zones and associated rocks in the Moine – as analogues for mid crustal deformation and its seismic imaging. These outcrops are direct analogues for features on BIRPS' MOIST profile, acquired just offshore.
Portvasgo and Melness areas; Torrisdale. Synkinematic pegmatites. Involves a combination of rocky foreshore, beaches and a c 1 km walk to outcrops, all along Sutherland's north coast.
Overnight in Tongue.

Exploring analogues for mid-crustal reflections Portvasgo.

Monday 23rd May
Transfer day to Ullapool.
This drive takes in classic scenery through the heart of the NW Highlands Geopark. We will stop to examine exhumed deep to middle crust deformation in the Lewisian complex near Rispond, Laxford, Scourie and Achmelvich There will also be stops to view the Glencoul Thrust and an extended examination of the Moine Thrust at Knockan.
There will be about 2 km walking but otherwise roadside and near road-side outcrops. Overnight in Ullapool (free evening).

Lewisian complex at ScourieMore: early Proterozoic crustal growth..

Tuesday 24th May.
We will catch the mid-morning ferry from Ullapool to Stornoway (Isle of Lewis), crossing the Minches Basin. In the afternoon we will examine a structural transect across the Outer Isles Fault Zone on the island of Scalpay. The section contains an array of different fault rocks including highly-foliated phyllonites together with pseudotachylytes. Short stroll across moorland and rocky foreshore. We will stay overnight in Tarbet.

Leaving Ullapool with views of the Wester Ross hills.

Wednesday 25th May
Day trip from Tarbet.
This day is devoted to looking at outcrops in the Lewisian complex on Harris, including the early Proterozoic South Harris Igneous Complex and supracrustals. The outcrops include spectacular shear zones and other ductile deformation. A rough walk over the Roineabhal gabbro-anorthosite followed by coastal sections at Na Buigh (sheared and banded metabasics and metasediments of the "Langavat Belt").
Overnight in Tarbet.

Folded granitic pegmatite at Scarista, South Harris

Thursday 26th May

We will drive back to Stornoway, taking in the Calanais standing stones (2900 BC), then catch the afternoon ferry to Ullapool. From here an hour's drive gets us to Inverness in time for trains south to Glasgow/Edinburgh and the sleeper to London. The exact timing of this depends on the 2016 ferry timetable and will be confirmed later in 2015.

Calanais standing stones