

QRA Field Meeting: Solway Lowlands, September 29th-October 2nd 2010

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Background

The overall aim of this field meeting is to present the field evidence used in recent palaeoglaciological reconstructions of the former central sector of the British and Irish Ice Sheet, focusing on the location of palaeo-ice divides, dispersal centres, flow trajectories and flow phasing, as well as styles of deglaciation in the region. This sector of the BIIS was a complex multi-sourced region of competing ice flows draining the Southern Uplands, Pennines, Lake District and the Irish Sea, resulting in the production of a complex geomorphic signature of flow dynamics. Drumlins, ice-marginal landforms and till stratigraphies record four major flow phases in the region: Phase I flow was from a dominant Scottish dispersal centre, which transported Criffel granite erratics to the Eden Valley and forced Lake District ice eastwards over the Pennines at Stainmore; Phase II involved easterly flow of Lake District and Scottish ice through the Tyne Gap and Stainmore Gap with an ice divide located over the Solway Lowlands; Phase III (Blackhall Wood Readvance) was a dominant westerly flow from upland dispersal centres into the Solway lowlands and along the Solway Lowlands due to draw down of ice into the Irish Sea basin; Phase IV was characterised by unconstrained advance of Scottish ice across the Solway Firth. Patterns of deglaciation have been mapped using prominent ice-marginal glacifluvial deposits and landforms, such as the Brampton kame belt and the Melmerby meltwater channels, which in combination with evidence of glacial lake development over the Solway lowlands, record significant ice flow oscillations during recession of glacier margins into highland dispersal centres. The earliest deglaciation date in the region has been recovered from a raised marine sequence on the Cumbria coast at Holme Bridge near Drigg. This also records a Lateglacial sea-level highstand that can be used to test geophysical models of crustal rebound.

DAY 1

Glacifluvial sediments and landforms: Meltwater channel development along the Pennine Escarpment and grading northward into the Brampton Kame Belt; ice-marginal, sub-marginal and subglacial channel development and potential influence of landsliding. The evolution and significance of the Brampton Kame Belt, concentrating on the morphology and sedimentology of ice-walled lake plains, kettle holes, eskers and supraglacial trough fills.

DAY 2

Stratigraphic evidence of glacial advances and ice-dammed lake development: The stratigraphy of the Blackhall Wood re-advance, concentrating on the Solway Lowlands tripartite sequences of till-varves-till. Evidence of the Scottish Re-advance, including deltaic sequence capped by till in hummocky terrain to the SE of Carlisle. Additional complex glacial sequences relating to multiple ice advance phases and/or readvances include

Plumpe, Hoghill (north of Langholm) and the Bigholms Burn SSSI. Nearby is Powfoot, where peat occurs within the raised carse clay.

DAY 3

Lateglacial and early Holocene relative sea-level trends: A series of sites in the Drigg/Ravenglass area of west Cumbria provide evidence for early deglaciation and a Lateglacial relative sea-level highstand followed by a subsequent mid-Holocene highstand. This data can be used to test geophysical models of crustal rebound.

The Scottish re-advance along the Solway/Cumbrian coast: Including the Holme St. Cuthbert ice-contact deltaic sequence, drumlin formation and the Blackhall Wood re-advance based on the Swarthy Hill and Maryport drumlin sections, and the glacial sediment sequences at Annaside.

Accommodation

There are very few hotels large enough to accommodate the whole group so we have booked 26 places in Cockermouth Youth Hostel for dormitory self-catering accommodation. The cost of this will be £41.85 for the three nights. Alternatively you can personally arrange for accommodation in nearby hotels, the websites for which are detailed below:

Six castlegate: £40 per night for single <http://www.sixcastlegate.co.uk/>

The Old Homestead: £35-50 per person per night <http://www.byresteads.co.uk/>

Travel lodge Cockermouth budget hotel: from £19 http://www.travelodge.co.uk/search_and_book/hotel_overview.php?hotel_id=350

Shepherds hotel from £60 per person per night. <http://www.shepherdshotel.co.uk/>

Globe hotel from £28.50 per person per night <http://www.globe-hotel.co.uk/>

Travel

We have arranged for three minibuses to transport us around the field meeting area and the cost of this has been factored in to the registration fee. For this reason our maximum number of participants will be 47.