

# IGCP 437: COASTAL ENVIRONMENTAL CHANGE DURING SEA-LEVEL HIGHSTANDS - FIELD MEETING REPORT

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Between 8<sup>th</sup>-10<sup>th</sup> May 2002 the Quaternary Research Unit, Bath Spa University College, hosted a field meeting of the International Geological Correlation Programme (IGCP) Project 437 UK working group. The meeting was devoted to sites within the Severn Estuary and Somerset Level areas. SELRC members organised and hosted the meeting and led many of the field sessions. This note summarises the meeting and provides a field commentary complementary to the detailed site information published by the field leaders within the *Field Guide* (Haslett 2002).

## 8<sup>th</sup> MAY - INTRODUCTION AND LECTURES

The meeting opened with a short welcome and introduction by Dr Simon Haslett, Bath Spa University College, convener of the meeting. Following this there were three lectures outlining recent research.

The first lecture, given by Dr Antony Long, University of Durham, described recent data acquired on relative sea-level changes in western Greenland. With the help of some stunning slides of the Greenland coast, Antony outlined how his group were using isolation basin and offshore seismic and stratigraphic data to constrain the dynamics of the ice sheet since the last glacial maximum.

The second lecture, given by Dr Paul Davies, Bath Spa University College, gave an overview of the archaeological implications of recent work on relative sea-level in the Axe Valley, Somerset, and how the work would develop to integrate lowland and upland data sets. The lecture then considered how the coast and

coastal fringe were generally perceived in recent archaeological studies, concentrating on how recent phenomenological perspectives in archaeology could serve to either further integrate archaeological and geographical data, or to further distance the two disciplines.

Dr Simon Haslett finished off the lecture session by describing recent research on the Holocene environmental history of the New South Wales portion of the Australian coastline. The lecture particularly focused on the emerging evidence for major tsunami events affecting the coastal area.

## 9<sup>th</sup> MAY - SEVERN ESTUARY

Following a short drive along the M4, and across the River Severn, the conference participants met up with their guides for the day, Professors John Allen and Martin Bell, University of Reading, assembling on the sea-bank near Goldcliff Island on the Gwent Levels. John Allen led the group onto the foreshore and gave an outline of the geology of Goldcliff Island. The Island itself comprises a Triassic-Jurassic outcrop, the flanks of which are surrounded by an extensive covering of Holocene estuarine deposits, themselves covering earlier Ipswichian (raised beach) and Devensian (head) deposits. With the help of available sections and exposures Martin Bell and John Allen then gave a detailed description of the Holocene sequences with, for example, clear examples of palaeosols dating to the Mesolithic cultural period and sequences of mid-Holocene peats and silts with associated cultural material and structures dating largely from the Bronze and Iron Ages. While examining the sections several flint artefacts (probably Mesolithic) were discovered *in-situ*. Martin Bell then further



Figure 1: John Allen leading the search for ice-wedge casts on Oldbury Flats (Photo S. Haslett).

described the archaeology associated with Goldcliff Island and its immediate surroundings, paying particular attention to the Mesolithic occupation scatters, the Bronze Age 'skull platform' and Iron Age buildings.

Martin Bell then led the group in a south-easterly direction along the foreshore away from Goldcliff Island, toward an extensive exposure of early Holocene land surfaces and *in-situ* trees (part of the area reported on in Bell *et al* this volume). As the group further examined the exposures, Martin gave a detailed account of the fieldwork and excavation thus far undertaken within the area, and outlined future plans for survey and excavation in the area.

After lunch the group travelled to Oldbury Flats on the edge of the Berkeley Levels on the English side of the Estuary. Within minutes of examining some recently scoured areas at the base of the prominent salt-marsh cliffs several members of the group had found worked flint, including a fine (probably Neolithic) scraper and Roman and Medieval pottery, all eroded from nearby sections and deposited by the receding tide. Following this, John Allen led the group

onto the flats with the hope of viewing an exposure of (presumed) Devensian polygonal ice-wedge casts (Figure 1). Unfortunately the recent calm weather had left a reasonably thick mantle of estuarine silt over the flats, obscuring the ice-wedge features. A brief 'excavation' by John Allen located one side of an ice-wedge cast, however, and convinced all of their reality! The group were then led along a substantial palaeochannel for some distance, before traversing a deep section of unconsolidated estuarine silts (at times achieving a greater-than-welly depth!), finally reaching the reasonably solid ground at the base of the saltmarsh cliffs, so prominent at this location (Figure 2, opposite).

After a brief rest from the exertions of mud-hopping John Allen outlined the stratigraphy of the saltmarsh terraces and how their formation related to sea-level change. The group then took advantage of a leisurely stroll along the base of the cliffs closely examining the exposures for artefactual material (Figure 3, opposite). A range of Roman to medieval pottery sherds were recovered, with one of the participants being lucky enough to find an entire, though fragmented, pottery vessel.



*Figure 2: Saltmarsh cliffs at Oldbury-On-Severn (Photo S.Haslett).*



*Figure 3: Examining the saltmarsh stratigraphy at Oldbury-On-Severn (Photo S. Haslett).*



Figure 4: Martin Bell outlining the stratigraphy and archaeology at Brean Down (Photo S. Haslett).

### 10<sup>th</sup> MAY - SOMERSET COAST AND LEVELS

Participants convened for a morning session devoted to sites on the Somerset coast. First Martin Bell gave a detailed account of the Quaternary sequence and associated archaeology at Brean Down, where Devensian slope and aeolian deposits are overlain by an extensive covering of Holocene palaeosols, blown sand and colluvium. Martin gave an overview of the extensive archaeological excavations undertaken at Brean Down and the associated environmental sequences (Figure 4). Martin also outlined the findings of recent work on the peat shelves found within the intertidal areas adjacent to Brean Down. Following this the group climbed to the top of the promontory where an overview of the relict landscape was given.

Bob Kirby, Technical Adviser to the North Devon and Somerset Shoreline Management Group, then focused the groups attention upon the problematic issue of coastal management. Bob outlined the need for an historical perspective on coastal management and described the role of the sand dunes and saltmarshes in protecting the coastline of north Somerset. The implications of a

strategy of 'managed retreat' for the area were discussed.

Maintaining the coastal management theme the participants then made the short trip along the coast to Berrow, where Antony Long gave a short presentation on the recent shoreline dynamics and changes to this part of the Bridgwater Bay coastline as discovered by a recent research project. Antony detailed the transects used to map changing sedimentation patterns, outlining how sediment appeared to be accumulating offshore and at the coastal barriers (dunes), but being lost between -2 m to +4 m OD. Participants then spent some time discussing the implications of this for the future of this stretch of coastline.

Following lunch the group moved inland to the Peat Moors Visitor Centre in the Brue Valley. Here, Vanessa Straker (English Heritage and University of Bristol), Heather Tinsley, Julie Jones (both University of Bristol) and Richard Brunning (Somerset Levels and Moors Archaeologist, Somerset County Council) led the group onto Shapwick Heath to view the reconstruction of The Sweet Track. Following this they introduced the group to the Holocene stratigraphy and landscape development of the



Somerset Levels and Moors, and gave a brief overview of the world famous wet-preserved archaeology of the area. Participants were able to see a variety of wetland habitats ranging from open reedswamp to fen and carr. Richard Brunning then outlined how water-levels are managed to protect the portion of the Sweet Track preserved *in-situ* as a Scheduled Ancient Monument, particularly emphasising the problems of controlling water chemistry. Participants then returned to the visitor centre where there was time to look around, with many being particularly keen to try out the reconstruction of a prehistoric logboat (Figure 5).



Figure 5: Testing the logboat at The Peat Moors Visitor Centre (Photo S. Haslett)

Finally, following a short drive to Nyland Hill in the Axe Valley, Simon Haslett briefly outlined recent research on relative sea-level and Holocene environmental history within the Axe Valley area, undertaken at Bath Spa University College. The group cored through the upper portion of the sedimentary sequence and viewed a substantial palaeochannel feature. Discussion centred on the effect of sediment compaction on sea-level curves and on the use of chemostratigraphic dating within the sequence using the onset of Roman lead mining on Mendip as a chronological marker.

### AND FINALLY

On behalf of all of the participants I would like to thank all those that made this meeting a success both behind the scenes in organising (particularly Simon Haslett) and 'upfront' in leading the field visits. All participants are also to be thanked for their enthusiasm and input throughout the meeting. Further details on many of the sites visited, and reference lists of the literature of the sites/areas, can be found in the Field Guide of the meeting (see below).

### REFERENCES

Haslett, S.K. (ed.) (2002) IGCP 437 *Coastal Environmental Change During Sea-Level Highstands: A Field guide to the Severn Estuary and Somerset Levels*. Occasional papers in Geography, No. 2. Dept. of Geography, Bath Spa University College, Bath. 41pp.

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