

Swell Wave Event, 9th February, 2009 Don Moxom

In the evening of 9th February, heavy swell waves impacted Chesil Beach. The waves themselves, as recorded by the Channel Coast Observatory Buoys located off the beach were by no means special in terms of height and frequency, and though they coincided with a spring tide, it was not a particularly big one. During the event however the wind changed direction to blow strongly firstly from N/NE and then E/SE. It was this action that caused waves to over wash the ridge of the beach and huge cusps were formed. A significant amount of peat was washed up between Langton Herring and West Bexington, and to the west of Abbotsbury the pebbles were pushed so far up the beach that a sand and clay base with protruding rocks was widely exposed. A second and third series of lower and smaller cusps were created by succeeding tides, and whilst the lower series of cusps have subsequently been altered by weather and tides, the outline of the higher series still exists, and is likely to be recognisable for some time to come. The event was an exciting one, and allowed, if only for a short time, some data to be gathered.



The horns of the cusps were clearly visible from high ground as shown in the photograph taken above Cogden Beach. The vertical extent of the wave over-wash can be seen in the photo above, depicted by the smooth area of pale pebbles lying over and against brown ones. The rim of the over-wash is further marked by a line of flotsam, and just as in the cusps, a veneer of larger pebbles.

The most dramatic scenes occurred to the west of Abbotsbury. The nature of the beach here is very different from that fronting the Fleet. The significantly lower quantity of shingle is easily shifted over an almost flat surface. Nevertheless the extent to which to which the pebbles were swept up was exceptional.



Views of the beach between Abbotsbury and East Bexington looking west on the left and east on the right.

On the bare base, it was interesting to note scars formed by retreating wave water (below left). Another feature was the undercut exposed by the eroding waves. The middle and right hand photos below clearly show alternate layering of pebbles and compact sandy grit. The embedded pebbles have turned black from time spent in a buried environment deprived of oxygen.



Increasingly, peat is being thrown up in swell wave events between Abbotsbury and Bexington. This material, a bed of which lies under the beach, must be eroded from the sea bed when it is not protected by the shingle. Around Abbotsbury the peat is black and woody. At Bexington it appears more clay-like and grey.



Peat at Abbotsbury and Bexington. Fresh deposits are heavy from seawater saturation, and smoothed and rounded by wave action. On drying out the lumps crack and fall apart revealing their plant and animal contents trapped and preserved around 5,000-7,000 years ago



Almost inevitably, some interesting long buried items were observed. The photo on the left is of a heavy piece of metal considered to be some anchoring device. The photo in the middle shows a fragment of concrete belonging to a pill-box that was constructed near the crest of the beach around 1942, and which being fragmented by subsequent storm damage was exploded in the mid 1970's as a safety precaution. The photo on the right taken in 1974, shows the pill-box, the third on the right intact.