



The Holocene depositional history of the IJzer palaeovalley (Western Belgian coastal plain) with reference to the factors controlling the formation of intercalated peat beds

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Abstract

ABSTRACT. Detailed stratigraphic and sedimentological work, together with radiocarbon datings of the Holocene coastal deposits in the IJzer palaeovalley was performed in order to document the formation of the sedimentary sequence in relation to the controlling factors, to reveal the stratigraphical significance of intercalated peat beds, and to reconstruct the depositional history. Because of the many controversies relating to these topics, the Belgian literature has been reviewed. An initial rapid sea-level rise prior to ca. 7800 cal BP resulted in a rapid shift of the facies belts across the palaeovalley and was associated with rapid filling with no formation of intercalated peat beds. A deceleration in the rate of the sea-level rise with sufficient sediment supply produced rapid facies changes registered as frequent alternations of mud, peat and gyttja in the sedimentary sequence deposited between ca. 7800 and 6000 cal BP. The facies changes are determined by a sedimentological control related to the tidal channel and creek network, and not by sea-level fluctuations. Periods of peat growth lasted longer and the lateral extension became more widespread as deceleration of the sea-level rise and filling of the plain continued. This was associated with progradation of the shoreface from ca. 6000 cal BP onwards. Tidal conditions returned to the area from ca. 4000 cal BP onwards. This return was accompanied by erosion and landward migration of the shoreface and channel network. This study demonstrates that the tripartite stratigraphy using Dunkerque and Calais as units should be abandoned in favour of lithological and sedimentological descriptions and age determinations together with environmental interpretation.

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