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**NEW SEDIMENT MAGNETIC DATA FROM ANGLIAN (MIDDLE PLEISTOCENE)
GLACIAL DEPOSITS IN THE PETERBOROUGH AREA: A COMPARISON WITH
DATA FROM NORFOLK AND SUFFOLK**

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ABSTRACT

Sediment magnetic properties of Lowestoft Till (Anglian/Elsterian/marine oxygen isotope stage 12) outcrops in Norfolk and Suffolk were compared with those from the Peterborough area, eastern England. Lowestoft Till does not crop out contiguously in East Anglia, and in the past separate outcrops have been correlated by their lithological properties. Sediment magnetic properties of separate Lowestoft Till outcrops might therefore be expected to be similar. In this instance the 63-250 μm non-carbonate fraction was used for the determination of magnetic properties because previous research had suggested that the lithological properties of part of this component might be characteristic of Lowestoft Till, with a source area in the North Sea. It is shown here that the analysed fraction of Lowestoft Till outcrops in Norfolk and Suffolk have high concentrations of magnetic minerals with a characteristic component of 'soft' magnetic grains, whereas the samples from the Peterborough area, excluding Ketton, have high concentrations of magnetic minerals with a characteristic component of 'hard' magnetic grains. The Lowestoft Till at Ketton has low concentrations of magnetic minerals with a characteristic component of 'hard' magnetic grains. The magnetic-grain assemblages from the two areas being compared thus represent not two but three different populations. This finding has implications for the rather simplified notions about Lowestoftian ice flowpaths and thus the perceived Anglian ice limits.

A THRUST-STACKED ORIGIN FOR INTER-STRATIFIED TILL SEQUENCES: AN EXAMPLE FROM WEYBOURNE TOWN PIT, NORTH NORFOLK, UK.

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ABSTRACT

Subglacial processes, and their temporal and spatial variations, play a significant role in controlling the behaviour of ice masses. The processes leading to the formation and emplacement of inter-stratified sequences of subglacial tills are, however, particularly poorly understood. Such sequences are relatively widespread, having been found in, for example, the UK, Canada and Germany. Those of the Weybourne area of north Norfolk, UK, are especially interesting in that the majority of the sediment pile is composed of repeated, inter-laminated subglacial till units with very few non-till units present. Many contrasting mechanisms for this highly contorted sequence have been suggested throughout a long history of investigation at the site and even the direction of ice advance that produced the deformation has proved difficult to resolve. In order to address this, the current study combines lithological, structural and palynological techniques to investigate the exposure at Weybourne Town Pit. A re-interpretation of the sequence is presented in which the tills are seen to have been derived initially as subglacial tills from advances of the Middle Pleistocene British Ice Sheet flowing southwards along the east coast of England. A stage of brittle deformation linked to oscillation of the ice margin is identified as occurring after the primary deposition phase. This secondary deformation phase was responsible for localised thrust-stacking of the till blocks and resulted in the inter-stratified sequence seen today.

