

## **EFFECTS OF CONSOLIDATION ON SEDIMENTATION RATES OF HOLOCENE DEPOSITS**

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High resolution analysis of the dated sedimentary record is being used increasingly in paleo-environmental reconstruction but, rarely is a correction made for self-weight consolidation. The absence of such corrections can lead to errors in estimates of sedimentation by 50% or more. Using key geotechnical parameters (e.g the compression index, the void ratio at unity stress, the Atterberg Limits and the coefficient of consolidation) and an iterative finite difference method, these effects can be simulated and compared with real data. The Hong Kong Continental Shelf provides an excellent place on which to examine these effects as much geotechnical testing has been done associated with extensive reclamation. Results from consolidation tests show noticeable differences in the key parameters between the sequences representing high and low sea-level stands. Though a newly deposited top layer dissipates pore pressure almost immediately, pore pressures are likely to develop lower in the sequence with each successive increment, and analysis shows that when the thickness exceeds about 1 - 2m, dissipation after an annual increment is far from complete. This, together with simple static estimates of moisture content with depth, show that actual sequences have higher moisture contents than expected calling in question the traditional ideas that there is a quasi over-consolidation present in Holocene sequences. Additional data, available from the EPSRC Bothkennar research site in Scotland shows a unique trend with data from three separate geological episodes from Hong Kong. If this trend were to be universal it would greatly simplify correction procedures for self-weight consolidation.