

## **Block removal and step back-wearing as erosion processes on rock shore platforms: A case study of the chalk shore platforms of south east England**

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The upper surface of many shore platforms developed in meso- and macro-tidal environments, particularly in jointed and well bedded rocks, comprise of low angled rock surfaces interrupted at intervals by vertical or near vertical steps of variable height. Steps frequently face seaward, but where beds dip at an angle to the platform surface may run obliquely across the platform or face landward. Past studies of shore platform erosion have focussed on measuring the rates of downwearing of platform surfaces, and the contribution of step back-wearing and block removal to the erosion and evolution of shore platforms has been largely ignored. However, the use of digital photogrammetry in recent shore platform studies has shown that the role of block removal and step retreat has been underestimated.

Extensive, low-angled, inter-tidal rock platforms backed by near vertical cliffs are characteristic of much of the chalk coast of south east England. The platforms extend for up to 200 m or more seawards from the cliff foot and vary from 1° - 4° in slope. In places the platforms slope smoothly but elsewhere they descend by a series of steps and are dissected by runnels that deepen seawards. Some steps are associated with discontinuities in the chalk, but most reflect different layers and bedding planes.

Though the faces of steps are locally smoothed by abrasion and biological processes, the major process, evidenced by angular erosion scars and debris, is block removal.

Examples for step retreat over periods of ~30 years will be illustrated using photogrammetry and block removal in action will be demonstrated from time series photography. Measurements of erosion by block removal and step retreat will be compared to estimates of platform surface erosion obtained by MEM measurements and laser scanning, and their implications for ideas and models of platform development discussed.

Oral presentation