



## Morphodynamic response of a meso- to macro-tidal intermediate beach based on a long-term data set

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### Résumé en anglais

Four years of bi-monthly topographic surveys have been conducted on a 350 m stretch of the meso- to macro-tidal Truc Vert beach, France. Here we study the dynamics of both the inner bar and the upper part of the beach where a berm can develop in the presence of fair weather conditions. For the inner bar, the occurrences of the different states within the intermediate classification, following that of Wright and Short (Wright, L.D., Short, A.D. 1984. Morphodynamic variability of surf zones and beaches: a synthesis. *Marine Geology* 56, 93-118), are presented and compared to other sites in both micro- and meso-tidal environments. The results show a similar frequency of occurrence of the Transverse Bar and Rip (TBR) state, while the more dissipative states, Rhythmic Bar and Beach (RBB) and Longshore Bar and Trough (LBT), are less regularly observed despite the high wave energy levels. The LBT and RBB states are also observed in the presence of fair weather conditions and the TBR state can persist during very energetic events. Similar results are also observed with the upper beach dynamics. Very energetic events are not necessarily associated with erosion while and low-energy events are not necessarily accompanied by accretion. The conditions given here indicate, that berm development occurs preferentially when the beach morphology exhibits a TBR or a LTT state. Apart from the control exerted by offshore wave conditions, the beach state and berm development patterns exhibited by Truc Vert beach are also discussed within the framework of possible morphological (morphodynamic) feedback and of the influence of the meso- to macrotidal range which modulates the type, intensity and duration of the wave processes operating on the cross-shore profile.

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