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Post-tsunami beach recovery in Thailand: A case for punctuated equilibrium in coastal dynamics

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A morpho-geophysical investigation of two beaches in Thailand over the last decade shows that they have completely recovered from the 2004 Indian Ocean tsunami (IOT) without any human intervention. Although the beach systems show contrasting styles of recovery in both cases natural processes have reconstructed the beaches to comparable pre-tsunami morphologies in under a decade, demonstrating the existence of punctuated equilibrium in coastal systems and the resilience of natural systems to catastrophic events. Through a combination of remote sensing, field surveys and shallow geophysics we reconstruct the post-event recovery of beaches at Phra Thong Island, a remote, near pristine site that was severely impacted by the IOT. We identify periods of aggradation, progradation and washover sedimentation that match with local events including a storm in November 2007. The rapid recovery of these systems implies that majority of sediment scoured by the tsunami was not transported far offshore but remained in the littoral zone within reach of fair-weather waves that returned it (the sediment) to the beach naturally.