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**Effects of waves and currents on sediment erosion: A case study in China by in-situ observation**

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The dynamics of sediment erosion and deposition have been investigated at a site in the Baisha Bay, China featured by a poorly-graded sand bed. The wave elements, tide level, velocity and direction of the currents, and seabed height variation were measured by a submarine anti-subsidence in-situ tripod system in December. During the observations, both waves and currents lead to erosion and deposition, but deposition was the main process. The principal sediment erosion and deposition mechanism in the study site is wave, with a mean bottom shear stress up to 76% of the total bottom shear stress. During large winds, wave bottom shear stress is ~10 times as much as the current bottom shear stress. After the course of large winds, current bottom shear stress is slightly more than wave bottom shear stress. Under the action of large waves, the sediments are eroded firstly and deposited finally by some 0.7 to 2.3 cm. Under current action, the sediments are eroded during flood tides and deposited during ebb tides by 1 mm.

