



Anthropogenic disturbance on sediment transport processes in the tidal power plant

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A series of in-situ mooring observations have been conducted to investigate the anthropogenic disturbance of sediment transport processes in the Sihwa tidal power plant (TPP). The mooring data show that the profiles of velocity and suspended sediment concentration (SSC) were significantly disturbed over the various time scales. On the short-term (flood-ebb) time scale, resuspension of bottom sediment is mainly controlled by the strong jet-flow (>2 m/s) and anticlockwise rotating vortex associated with the artificial discharge. During ebb phase, the strong flow resulted in suspension of high-concentration near-bed sediment and seaward transport of the suspended sediment. After turning to flood phase, the vortex produced secondary SSC peaks, transporting the suspended sediment toward the TPP. The most active suspension of bottom sediment predominantly occurred during 1–2 hr immediately after the start of artificial discharge. On the fortnightly (spring-neap) time scale, SSC during spring tide was approximately 2–5 times higher than that during neap tide. During the presentation, it will be discussed how the periodic artificial discharge can disturb the responses of SSC in the TPP.