

Estimations of settling speed using remotely sensed suspended material concentrations

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Suspended material variation is driven by both seasonal changes in the magnitude of wind/waves and particle flocculation, with the addition of semi-diurnal and spring-neap variation due to the tides. We report satellite observations of spring-neap cycles of suspended material, which show a seasonal modulation in their amplitude. In January, when wind/wave activity is high and flocculation is low, the spring-neap variation in suspended load is lower than that observed in June, when wind/wave activity is lower and flocculation is higher. The phenomenon is reproduced using a simple numerical model including the effects of tides, waves and a seasonally varying settling speed. Through comparing the model output with the remotely sensed observations of suspended material, it is possible to estimate the seasonal and spatial variation of the energy efficiency of sediment re-suspension. From this efficiency, it is then possible to infer an estimate of the settling speed of particles.