



## **Turbulence control of floc size in suspended particulate matter (SPM) in the river estuary transition zone (RETZ)**

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Quantifying floc properties in relation to physical forcings are key in determining the transfer flux of SPM from the catchment to the coastal ocean. Observations of floc development require high resolution data; in situ optical and acoustic instruments were deployed in the RETZ to obtain SPM and hydrodynamic properties. Results suggest that turbulent kinetic energy dissipation (TKE) can be correlated to median particle size ( $D_{50}$ ) and concentration on tidal and lunar time scales. Analysis on a tidal scale indicates terrestrially derived SPM and SPM of a marine origin display different relationships with the local turbulence regime, suggesting the  $D_{50}$  of terrestrially derived SPM is not limited to the eddy length scales of the Kolmogorov microscale. It is essential to improve methods to quantify the role of hydrodynamic processes in controlling SPM properties and thus the fate of the transfer of terrestrially derived organic matter to the coastal ocean.