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## Suspended Particle Characteristics from Glider Observations in a Region of Freshwater Influence

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The Rhone River is one of the largest rivers in the North-West Mediterranean Sea. Freshwater and particle (sediments, nutrients and contaminants) inputs make the adjacent coastal area as a remarkable ROFI known as a hotspot of biodiversity in the Gulf of Lions. The dynamics and behavior of riverine particles is often observed from classical moorings, buoys as well as remote sensing. These observing systems only permit limited measurements in 1D for single-point observations in the water column and at the water surface during cloud-free days from remote sensing data. But there is a lack of spatio-temporal observations especially during extreme events when sea campaign investigations are difficult. An autonomous underwater vehicle, also named glider, equipped with a Laser In-Situ Scattering and Transmissometry (LISST) sensor was deployed in front of the Rhone River in February 2019 in order to investigate the small-scale characteristics of particles in the coastal area. In-situ particle size measurements and volume concentrations of suspended particles were related to mass concentrations in order to estimate the density and settling velocity. Results revealed the presence of highly dynamic surface, intermediate and bottom nepheloid layers composed of particles with distinct characteristics. Those results give useful informations to understand the behavior of particles in the coastal area and for amelioration of regional hydro-sedimentary models.