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Abstract: Scour around a marine structure is the removal of sediment such as silt and sand, which can result in the formation of scour holes and may compromise the integrity of the structure. A great amount of research has been undertaken in laboratory facilities to measure scour development at vertical piles, in unidirectional flow conditions. This has given scientists and engineers a broad understanding of the mechanisms for the development of scour at a marine structure. Conditions in the laboratory can never fully mimic the conditions present in the real-world leading to uncertainties about the scouring process. Considerable research has also been carried out, outside of the laboratory and this has helped to fill in some of the gaps however the field data analysed tends to be snapshots of what is going, which again leads to uncertainties. A powerful tool in scour analysis, monitoring and prevention is an online system which provides continuous measurements over an area around a marine structure. This type of system, will provide a continuous picture of what is going on at the seabed and consequently act as an early warning system for the integrity of the marine structure.

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