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## Comparison of submerged and floating wireless sensor networks for monitoring underwater sediment transport

**Archie Watt**

University of Wales Trinity Saint David, UK

Wireless sensor networks (WSNs) are an enabling technology in terms of monitoring the environment as they can be deployed in locations which cannot easily be reached manually, such as underwater, making it possible to gather data that was previously unavailable. Underwater sensor networks (UWSNs) are submerged in the body of water in which they are operating and use acoustic waves as a transmission medium, which is the most reliable and robust medium for underwater transmissions, despite suffering from such issues as extremely low bandwidth, and vulnerability to adverse effects caused by conditions such as turbidity, ambient noise, salinity, and pressure gradients. Radio frequencies (RF) and optical communications are two alternative mediums, and although both have been proven to work in underwater deployments, they both suffer from limited range, and, in the case of the former, electromagnetic interference (EMI). Optical communications, despite far greater bandwidth capacities, it is only a realistic approach in very clear water, being a light based medium. Regardless of the communication medium that is used, there are further problems relating to deployment, maintenance, and cost associated with UWSNs. As such, it is worthwhile to evaluate the merits of different types of WSN deployment. To this end, a comparative assessment is presented of submerged pressure sensors and echo sounding floating WSN deployments for the purpose of monitoring sediment transport on the seabed.

### Biography

Archie Watt is a PhD researcher with the Computer Networks and Communications Research Group at the University of Wales Trinity Saint David (UWTSD). He received his BSc degree in Computer Networks with first class honours from UWTSD, and is an active researcher in the area of Wireless Sensor Networks (WSNs). He is currently working on a project to design and evaluate a WSN to monitor coastal sediment transport processes relating to coastal erosion. He is a member of the Institute of Engineering and Technology (IET), the Institute of Electrical and Electronic Engineers (IEEE), and the British Computer Society (BCS).

[archie.watt@uwttd.ac.uk](mailto:archie.watt@uwttd.ac.uk)**Notes:**