



Hindawi

International Journal of Distributed Sensor Networks

Special Issue on
Underwater Acoustic Sensor Networks

CALL FOR PAPERS

The Earth is a water planet, two-thirds of which is covered by water. With the rapid developments in technology, Underwater Acoustic Sensor Network (UASN) has become an important data transmission technology, which was widely applied in commercial and military water areas. The need for UASN exists in applications such as remote control in off-shore oil industry, pollution monitoring in environmental systems, collection of scientific data recorded at ocean-bottom stations, disaster detection and early warning, and national security and defense (intrusion detection and underwater surveillance), as well as for the discovery of new resources. Thus, researching the UASN techniques has played the most important role for further exploring oceans and other aquatic environments.

However, due to the high attenuation of radio waves in water, acoustic communication is emerging as the most suitable media. Several characteristics specific to UASN introduce additional design complexity into almost every layer of the network protocol stack. For example, low communication bandwidth, long propagation delays, higher error probability, and sensor node mobility are concerns that must be confronted. It is intended that this special issue will show the state-of-the-art in underwater acoustic communications, networks, sensing, and modeling. Original research contributions, tutorials, and review papers are sought in the areas related to UASN.

Potential topics include, but are not limited to:

- ▶ New underwater sensors/devices/vehicles
- ▶ Cross-layer design and optimization for UASNs
- ▶ Ocean currents model and sensor nodes' mobility model for UASNs
- ▶ Energy-efficient data collection, storage, dissemination, and retrieval by UASNs
- ▶ Network coverage and node placement in UASNs
- ▶ Security, fault tolerance, and diagnostics of UASNs
- ▶ Renewable energies in UASNs for marine monitoring
- ▶ New materials and packaging for harsh environmental sensing
- ▶ Environmental monitoring in coastal areas or underwater environment
- ▶ Autonomous ocean sampling and disaster prevention
- ▶ Targets tracking and assisted navigation
- ▶ Underwater hardware/software platforms for acoustic communication and test beds for UASNs
- ▶ Undersea and offshore exploration
- ▶ Study cases, implementations, and real deployments of UASNs

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