基于潜艇深度的水下传感器网络部署

作　者：李世伟, 王文敬, 张聚伟

单　位：河南科技大学

摘　要：

针对三维水下无线传感器网络在反潜方面的应用，利用潜艇出现深度信息的先验概率模型，提出一种基于潜艇深度的部署算法。节点采用均匀部署，依据潜艇可能出现的深度信息，对潜艇出现概率较大的区域，休眠较少的节点，增大活跃节点的密度，提高覆盖率；对其它区域，增加休眠节点的数目，以减小活跃节点的密度，降低覆盖率。仿真结果表明，本算法可以在保证较高覆盖质量的前提下，降低网络的整体能耗，延长网络生存时间。

关键词：水下传感器网络；潜艇深度；部署；覆盖

An Underwater Sensor Network Deployment Algorithm Based on Submarine Depth

Author's Name:

Institution:

Abstract:

For three-dimensional underwater wireless sensor networks in anti-submarine, a kind of deployment method based on the prior probability model of submarine depth information is proposed. According to the depth information of the submarine, fewer nodes will go to sleep in order to increase the density of active nodes for the area with larger submarine emergence probability. For the other regions, more nodes will be sleep, to decrease the active node density and reduce coverage ratio. The simulation results show that the algorithm can ensure higher coverage quality, reduce the overall energy consumption of the network, and extend the lifetime of underwater wireless sensor networks.

Keywords: underwater sensor network; depth of submarine; deployment; coverage

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