Region based cooperative routing in underwater wireless sensor networks

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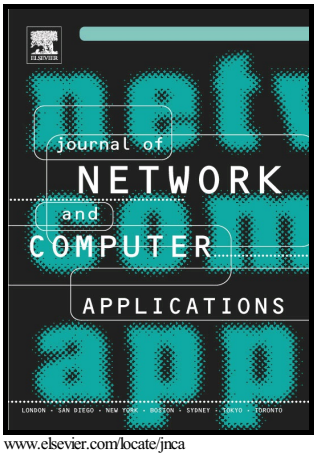

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Region based cooperative routing in underwater wireless sensor networks

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Abstract

Cooperative routing is an appealing challenge in underwater wireless sensor networks (UWSNs). In this paper, we propose a region based cooperative routing protocol (RBCRP) for amplify and forward (AF) technique over Rayleigh faded channels in UWSNs. The source node sends the sensed signal to the destination and available relay nodes. At the destination node, bit error rate (BER) is checked on the basis of which, either positive or negative acknowledgement (ACK or NACK) is sent to the source and relay nodes. We also use mobile sinks (MSs) and energy harvesting techniques to further prolong the network lifetime and maximize the throughput. Our derived mathematical equations for the SNR gain and outage probability are verified by simulations. Results show that RBCRP performs better than the existing incremental best relay technique (IBRT) in terms of throughput, network lifetime and outage probability.Cooperative routing is an appealing challenge in underwater wireless sensor networks (UWSNs). In this paper, we propose a region based cooperative routing protocol (RBCRP) for amplify and forward (AF) technique over Rayleigh faded channels in UWSNs. The source node sends the sensed signal to the destination and available relay nodes. At the destination node, bit error rate (BER) is checked on the basis of which, either positive or negative acknowledgement (ACK or NACK) is sent to the source and relay nodes. We also use mobile sinks (MSs) and energy harvesting techniques to further prolong the network lifetime and maximize the throughput. Our derived mathematical equations for the SNR gain and outage probability are verified by simulations. Results show that RBCRP performs