BOAT–GENERATED ACOUSTIC TARGET SIGNAL DETECTION BY USE OF AN ADAPTIVE MEDIAN CFAR AND MULTI–FRAME INTEGRATION ALGORITHM (MonPmOR10)

✱ Author(s) :

Eric Dahai Cheng — (University of Technology, Sydney, Australia)
Massimo Piccardi — (University of Technology, Sydney, Australia)
Tony Jan — (University of Technology, Sydney, Australia)

✱ Abstract :

In this paper, an Adaptive Median Constant False Alarm Rate (AMCFAR) and multi–frame post detection integration algorithm is proposed for effective real time automatic target detection of boat–generated acoustic signals, in which, an observation space is created by sampling and dividing input analog acoustic signal into multiple frames and each frame is transformed into the frequency domain. In the created observation space, a Median Constant False Alarm Rate (MCFAR) and post detection integration algorithms have been proposed for an effective automatic target detection of boat generated acoustic signals, in which a low constant false alarm rate is kept with relative high detection rate. The proposed algorithm has been tested on several real acoustic signals from hydrophone sensors, and statistical analysis and experimental results showed it able to provide a very low false alarm rate and a relatively high detection rate in all cases.

Menu