

**CMRE-FR-2014-019 - Decision support for counter-piracy operations: analysis of correlations between attacks and METOC conditions using machine learning techniques.**

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Abstract	Correlation between Meteorological and Oceanographic (METOC) data and sea piracy attacks in the Horn of Africa/Indian Ocean area is assessed and optimally exploited by using a machine learning approach based on the concept of a one-class classifier. The trained algorithms and METOC forecast models are used as inputs to forecast the piracy risk related to environmental conditions over the region of interest. Performance evaluation strategies are provided to assess the goodness of piracy risk maps used in daily counter piracy operation support. The research, through a rigorous analytical/statistical approach, confirms the existence of the correlation between METOC and sea piracy attacks and the algorithm evaluation procedure shows that the machine learning approach to the piracy risk prediction outperforms the classical threshold based method of modeling piracy group operational limits.

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