Thesis Title   Development of the Ocean Model for Search and Rescue Using

Support Vector Machine

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ABSTRACT

Marine transportation has become more significant nowadays. The Royal Thai Navy is one of the organizations responsible in search and rescue in oceanic disasters. Search and rescue is a difficult task and takes time because the casualty's position is time-varying due to the tide. This research proposes a technique to enhance the search and rescue task by developing an ocean model to estimate the tidal force and its direction effecting by the wind in the Gulf of Thailand. We use Support Vector Machine for regression analysis (Support Vector Regression: SVR) as the model. The SVR-based model, namely the "Chiang Mai Ocean Model: CMOM", is trained by using the Princeton Ocean Model (POM) as the prototype model. The ocean model predicted the trace of the casualty to achieve the location of the casualty at any given time instants. The closer the predicted location to the actual location would shorten the searching time. The CMOM was tested using the actual data collected by the Hydrographic Department of the Royal Thai Navy. The results from the CMOM and POM are compared to the actual data to evaluate the model performance. The results show that the CMOM provides a good prediction and can be used as an auxiliary tool in the search and rescue unit of any related organizations.