



## Operational forecasting system for maritime search and rescue in China

With the increasing economy and shipping, inevitably leads to a higher incidence of sudden accidents at sea. Hence, the safety issue of maritime activities is becoming more and more prominent. In order to shortening responding time to reduce human and economic losses, decision support for maritime SAR (search and rescue) based on operational forecasting systems is becoming increasingly important. The National Marine Environmental Forecasting Center (NMEFC), affiliated to Ministry of Natural Resources of China, has been making great efforts in constructing operational forecasting system for maritime SAR, which integrating meteo-oceanographic model, SAR models, decision making scheme. There are three SAR models in this system, including Leeway model, semi-analytical model, and self-developed semi-empirical model, from which we can get assembling forecasting drift trajectory of floating items for short-term and long-term covering waters from regional to global. The systems were applied to the supporting service for emergency response operations in search and rescue of “Fujing001” in South of China Sea, “Lupeng Yuanyu 028” in the central Indian Ocean, collision of the oil tanker Sanchi in the East of China Sea, volcanic eruptions which formed floating pumice rafts, and etc. How to improve the precision of forecasting drift trajectory is a crucial problem in SAR, especially in terrible weather condition. A rapid method to revise general deviation of current field by floating buoys are undergoing, which have been proven preliminarily is suitable for short-term drifting forecasting. Maybe this method can provide some thinking in enhancing the precision during terrible weather condition. Parameterization scheme is another factor that affects the simulation accuracy of marine objects. The parameters of various marine objects in SAR model obtained by parameters calibration based on search and rescue sea trial. How to choice the parameters of a unknown floating item when we know some drifting positions. A module is applied in recent SAR, which can select the parameter with the least error in the parameter library automatically.

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