**Improving the Accuracy of Mission Planning Algorithm for Search and Rescue of Air-sea Integrated System**

Yu Yixiong, Liu Hu

**Abstract** Helicopters play an important role in search and rescue (SAR) missions at sea because of their strong maneuverability and hovering capabilities. How to plan missions for SAR forces such as helicopters and formulate a decision plan that can deal with emergency situations quickly and easily is the most concerned issue of the marine SAR department. This research analyzed the task requirements of maritime SAR and built a model according to the requirements, which abstracted the actual problem into a single-objective optimization problem with the limited time. Based on this model, the task planning algorithm was studied. On the one hand, the improved Dinkel-bach algorithm was used to solve the continuous planning problem. On the other hand, the discrete task planning algorithm was innovatively proposed. Finally, an air-sea integrated marine SAR mission planning and decision-making system was developed based on the algorithm results, which can provide reference planning support for the marine SAR department to improve the mission efficiency of the helicopters.

**Key words**：Air-sea Integrated search and rescue; Maritime search and rescue(SAR) Mission Model; Mission Planning Algorithm; System Development; Helicopter