According to the operation procedure in 6.3, we can mark the position of the wrecked submersible in each search cycle in the spatial coordinate system and draw an approximate search trajectory diagram. In order to more intuitively and accurately reflect the effectiveness and fault tolerance of this search and rescue method, we substituted the model into the original conditions that were not constrained by the uncertainty of the position prediction model for analysis. On the trajectory diagram, four fitting curves of the submersible motion trajectory generated by Monte Carlo method in Section 4.4 were respectively drawn. The results are shown in the figure below.

Through the analysis of the above two figures, it can be concluded that the AUV search and rescue route and the possible fall trajectory of the submersible are basically consistent in shape. In addition to the inevitable inconsistencies caused by the distance difference between the initial deployment point and the initial search and rescue position, in the near-seabed space below 3000m, that is, the latter half of the search and rescue process of the underwater vehicle, the search and rescue route and the movement path of the submersible have a very high overlap, which means that the underwater vehicle search for the crashed submersible is also very likely. It shows a high success rate and efficiency.

Note that the possible path 1 of the submersible in the figure represents a relatively rare situation, that is, the submersible stays at a neutral buoyancy point in the middle of the ocean, so it can be seen that the trajectory curve deviates greatly from the AUV search and rescue route, making the search difficult. In response to this situation, we used echo sounders and side-scan sonar on the main and rescue vessels to assist the search and supplement the model.