

## **ABSTRACT**

A ship operation management system includes an LNG carrier which uses a natural gas generated by vaporization of LNG, as propulsive fuel, the LNG carrier including a cargo tank, a spray apparatus, and a carrier communication device; and land-based equipment including a land-based communication device and a processing device, the processing device including: a first vapor quantity estimating section which estimates a total quantity of a natural vapor generated from the LNG remaining in the cargo tank in a case where the LNG carrier is traveling on a planned ballast course, based on sea weather data; a second vapor quantity estimating section which estimates a total quantity of a spray vapor generated by performing spraying operations in a case where the LNG carrier is traveling on the planned ballast course, based on the sea weather data; and a heel quantity calculating section which calculates a required heel quantity, by adding up the total quantity of the natural vapor and the total quantity of the spray vapor, and the land-based communication device transmits the required heel quantity to the carrier communication device, while the LNG carrier is on a laden voyage.