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## **An Onboard Experiment of a Navigation Support System for Coastal Shipping and Its Evaluation**

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**Summary:** Environmental issues have been very much concerned recently. In addition, there has been a growing awareness that rising cost of fuel is inevitable. For reducing fuel consumption of a ship, an intelligent navigation system is one of possible approaches. In the previous paper, the authors have proposed a new navigation system for coastal shipping to decrease fuel consumption and CO<sub>2</sub> emission from a ship. The navigation system, called WAN-CS, optimizes engine revolutions with constraint of the voyage schedule. Combined the WAN-CS with a weather information system and a navigation information system, an onboard experiment has been carried out. The ship used for the experiment was a domestic cement carrier "Shin-ei Maru". The route was selected the Ube- Nagoya route, which was one of the main routes of the ship. The experiment result showed that the system saved 10% fuel and arrived on schedule, though it was depend upon the weather condition and scheduled time. Consequently the system was validated by the onboard experiment. From an economic viewpoint the system also retained its superior performance in cost.

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