

October 25th, 2021

CO₂ Emission Monitoring Service for the Shipping Industry

Full-Scale Launch of CIM (Carbon Intensity Monitoring) Service

Certified by ClassNK on the Basis of Innovative Technology that Measures CO₂ Emissions in Real Time

[Weathernews Inc.](#) announced today that we launched the upgraded version of the CIM (Carbon Intensity Monitoring) Service, the CO₂ emission monitoring service for the shipping industry that we initially began offering this April. The CIM service provides visualization of the CO₂ emissions of vessels.

In order to achieve greenhouse gas (GHG) reduction targets, the International Maritime Organization (IMO) adopted the carbon intensity indicator (CII) rating scheme as a new regulation applicable to ocean-going vessels. As a result, the environmental performance of a vessel will be evaluated on the basis of its annual energy efficiency starting in 2023, making energy efficiency measures imperative for ship owners and ship management companies.

In order to address this new regulation, Weathernews has upgraded the CIM Service to enable real time measurements of CO₂ emissions during voyages. We have also added a function where the environmental performance can be evaluated based on CO₂ emissions, fuel consumption and the distance sailed. By using CIM, ship owners and ship management companies will be able to check the volume of CO₂ emissions and environmental performance of their vessels in a timely manner.

Furthermore, ClassNK has certified the CIM Service as an innovative solution that leverages digital technology. While the reliability of the operational data and the calculation method is essential when calculating the CO₂ emitted during shipping operations, the data provided through the CIM Service can be used with confidence, for internal data management or for external release as published data, given that the Service has been certified by a third party.

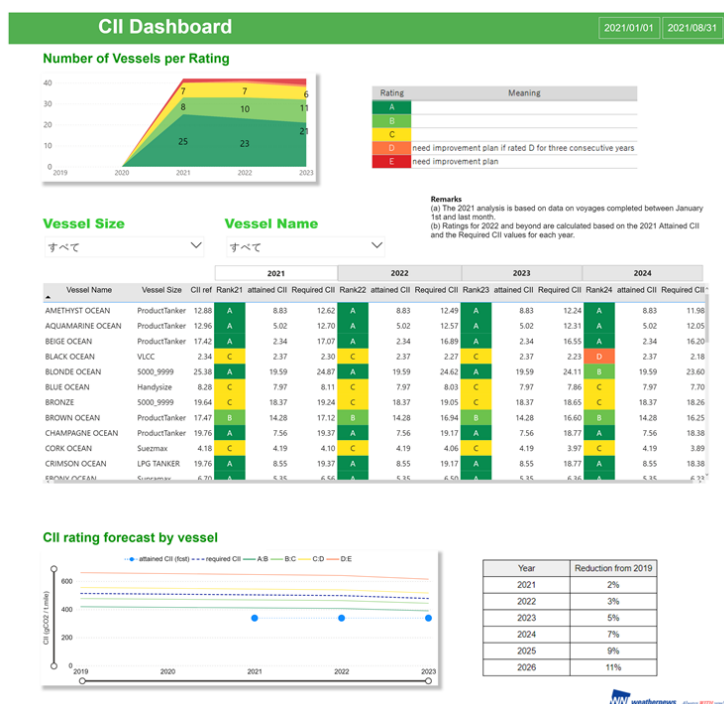
Visualization of Vessel CO₂ Emissions with CIM

Weathernews fully launched the CIM (Carbon Intensity Monitoring) Service, a CO₂ emission monitoring service that provides visualization of vessels' CO₂ emissions, in order to support the environmental measures of the shipping sector. The Service, which was already available globally, will now be offered on a full scale in Japan as well.

The purpose of this service is to support the measurement of CO₂ emissions and environmental performance of vessels through visualization. Ever since the initial launch of the service in April, Weathernews has been collecting CO₂ emissions, fuel consumption, and other data for each vessel and providing the accumulated data to ship owners and ship management companies after every voyage through API or by other means.

The latest upgrade enables the timely determination of environmental performance as stipulated in the regulations adopted by IMO in June 2021. The Service rates the environmental performance for each voyage on a five-point scale based on CO₂ emissions, fuel consumption, sailing distance, and other actual voyage data.

Since it is now possible to view data on the Web, ship owners and ship management

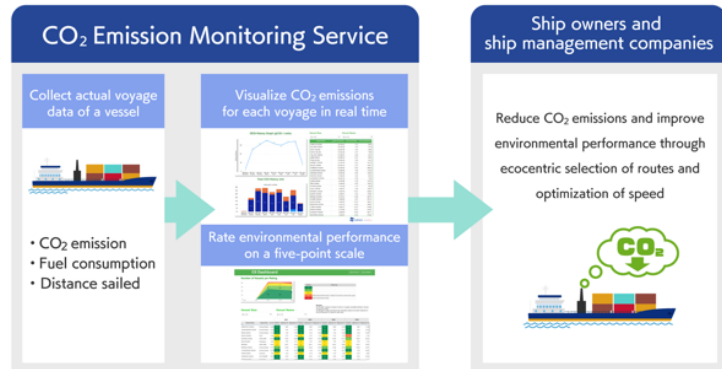


CIM Service snapshot image
 The environmental performance for each voyage is rated on a five-point scale of A to E. ("A" denotes high environmental performance, while "E" denotes low.)

companies are regularly able to monitor the CO₂ emissions and environmental performance of their vessels. The service can be linked to any existing system, including corporate navigation management systems, since the data is provided to ship owners and ship management companies through API or other means immediately after every voyage.

Going forward, Weathernews will add a function to the OSR (Optimum Ship Routing) Service, which supports the selection of optimum routes, to enable the ecocentric selection of routes and speeds to reduce CO₂, by the end of 2022. OSR is a routing service that addresses diversifying needs, including vessel safety and economic efficiency (reduced fuel consumption). Based on the analysis of fuel consumption, speed, and other performance characteristics of individual vessels, the optimum route and engine speed, as well as other information necessary for target achievement, will be shared with the captain of the relevant vessel and the shore-side operator.

The addition of the new need of “going green” to the OSR service will enable voyages with reduced CO₂ emissions. Customers will also be able to determine the actual reduction in CO₂ emission after any voyage by using the CIM Service to calculate the amount of decrease by the baseline method. By combining the OSR and the CIM Services it will be possible for customers to realize ecocentric voyages and visualize the actual reduction in emissions.



Conceptual images of CIM Service usage

In addition to supporting compliance with the IMO regulations, the CIM Service also addresses the needs of cargo owner companies relating to maritime supply chains. In 2020, major grain companies, European traders, petroleum companies and other large charterers established the Sea Cargo Charter (SCC), an international framework for measuring and assessing GHG emissions attributable to marine transport. The CIM Service can also accommodate private sector needs, such as the Charter's objective of “enabling the incorporation of climate change considerations into chartering decisions” by having shipping companies submit fuel consumption and GHG emission reports after voyages.

Fuel Efficiency Measures Imperative in Shipping Industry; Submission of Improvement Plan Mandatory for Lowest Rating

IMO's target is to achieve a 50% reduction in total CO₂ emissions by 2050 as compared to the 2008 level. The Carbon Intensity Indicator (CII) rating scheme, which is applicable to ocean-going vessels and involves the annual assessment of fuel efficiency, was adopted at the 76th session of the IMO Marine Environment Protection Committee (MEPC 76) as a short-term measure directed at ship owners.

The Carbon Intensity Indicator (CII) rating scheme is a system wherein each vessel is rated on a five-point rating system ranging from A to E, on the basis of the annual fuel efficiency measured (Carbon Intensity Indicator: CII). A vessel that is rated E, or rated D for three consecutive years, is required to submit an improvement plan and obtain the approval of a competent authority the following year. Further, the target CII reduction rate will be increased by 2% each year. As revisions to IMO's Strategy are scheduled to go into effect in 2023, preparation for the implementation of the CII rating scheme is imperative for the shipping industry. Given this situation, Weathernews has upgraded our CIM Service to address the new environmental regulations.

CIM Certified by ClassNK

The CIM Service received the fifth certification for Products and Solutions under Innovation Endorsement, ClassNK's new certification service covering innovative technologies. Following detailed testing of various structures and functions, ClassNK endorsed that the underlying technologies for the CIM Service qualify as innovative solutions that utilize the latest digital technologies.

The Service was tested in light of the fact that the new environmental regulations adopted by IMO require more stringent monitoring of voyage data quality. Furthermore, the demand to track CO₂ emissions attributable to the marine transport of cargo is also increasing among cargo owner companies due to the introduction of the concept of a carbon footprint. It is against this background that the shipping industry is seeking highly accurate CO₂

emissions data that is collected efficiently during voyages. The functions of the CIM Service relating to the calculation of highly accurate CO₂ emission data were verified by a third party in the course of this certification process.

The base system for the CIM Service is a part of the ESM (Emission Status Monitoring) Service, which has already been released in order to address needs related to the EU-MRV and the IMO-DCS regulations, and has been used by a total of 950 vessels belonging to 45 companies, both overseas and domestic. The system is used for analyses by various internal applications and professionals and has been useful in the monitoring of operational data quality and the preparation of environmental reports.

* Innovation Endorsement: This is a third-party certification service covering innovative technologies, which was started by ClassNK in 2020. The intent is to certify to stakeholders the feasibility and value of innovative technologies, which leverage digital transformation, for problem solving, such as improving safety and conserving the environment, and sustainable development.

A digital technology-driven environmental operation support service for the shipping industry

Recently, the number of instances of extreme weather has increased due to the influence of climate change. As a result, demands for global environmental conservation, such as the prevention of global warming, as exemplified in the establishment of the Paris Accord and the adoption of the SDGs (Sustainable Development Goals) of the United Nations, have increased, and various initiatives have begun across various industries and countries. The shipping industry is no exception, and the IMO (International Maritime Organization) has set a goal of reducing CO₂ emissions by 50% by 2050 (as compared to 2008).

Accordingly, Weathernews will be offering, in stages, four environmental operations support services using digital technologies. Thus far, we have begun offering the CIM (Carbon Intensity Monitoring) Service that supports the visualization of GHG, including CO₂; and the NAR (Navigation Assessment and Routeing) Service that contributes to the protection of the maritime environment by preventing grounding accidents. Moving forward to next year and beyond, Weathernews plans to begin offering the VPP (Voyage Planning Protection) Service that provides compensation for economic losses as the third environmental operations support service, and the MCB (Marine Carbon Blocking) Service that objectively assesses CO₂ emissions as the fourth service. The MCB Service will utilize block chain technology to provide an objective assessment of the reduction in CO₂ emitted by the shipping industry in order to support the industry's efforts regarding climate change.