



Towards the Decarbonization of the Ocean Economy

Excellencies, ladies and gentlemen, esteemed colleagues, and distinguished guests,

It is an honor to address you today on the vital role of ocean observations and weather forecasts in supporting a safe and resilient ocean economy.

The ocean covers 71% of our planet's surface. We rely on it to support human wellbeing. The ocean economy is far more than shipping. It is the life blood of our modern society and a major source of food, jobs, and energy.

By 2030, the value of the ocean economy is expected to reach USD 3 trillion, providing employment for 40 million people.

It is essential that this growth be guided by a commitment to sustainability and decarbonization.

Reliable meteorological services are indispensable to this vision, enabling safe navigation and reducing operational costs and environmental impact. Let me share with you some concrete examples to support this statement.

The Role of Ocean Observations

The International Meteorological Organization was founded more than 150 years ago precisely because of the need for reliable forecasts for the shipping industry.

IMO was the predecessor of the World Meteorological Organization. And as WMO celebrates its 75th anniversary this year, we remain committed to providing weather and climate information and services as a public good.

The Global Ocean Observing System is an important driver of the ocean economy. It observes our ocean through the "eyes" of thousands of observing platforms that feed weather forecasts, early warnings and climate prediction.

A major contributor to observations is the Argo program, with its nearly 4,000 robotic floats. This is a showcase for international collaboration in monitoring ocean heat, sea-level rise, and circulation patterns.

More than 1,000 Voluntary Observing Ships provide real-time meteorological data, improving weather forecasts and advancing our understanding of climate dynamics.

However, participation is in decline. We need to reverse this decline and close the gaps in the global ocean observing system. IF WE UNDERSTAND THAT BETTER FORECASTS AND BETTER DECISION MAKING DEPEND ON ROBUST DATA, THIS IS A MUST.



Let me continue with the next contribution within this value cycle: Weather forecasts

Marine Forecasting and Services

Approximately 30% of maritime incidents are linked to adverse weather, reinforcing the need for forecasts and early warnings to enable ships to optimize routes, avoid extreme weather, **and reduce fuel consumption**.

The International Convention for Safety of Life at Sea (SOLAS) underscores the need for reliable maritime safety information. WMO therefore works closely with the International Maritime Organization in the provision of Worldwide Met-Ocean Information and Warning Services. PROVISION AND IMPROVEMENT, using scientific research devoted to improve forecast quality and effectiveness.

In addition, the United Nations Early Warnings for All (EW4All) initiative has an important marine services component.

One key aspect here is the effective use of this information by ship operators. We know that it is essential to demonstrate how marine weather-based solutions can bring tangible benefits for both environmental sustainability and operational efficiency. An excellent example of this is Norway, which has successfully integrated the use of advanced weather forecast information into its maritime operations, to optimize routes, reduce fuel consumption and minimize risks. Through these forecasts, vessels can avoid adverse weather events, which not only increases crew safety, but also reduces travel time and thus fuel consumption. In some cases, vessels have been able to reduce their fuel consumption by up to 10%, resulting in significant reductions in greenhouse gas (GHG) emissions and considerable operational savings.

Climate Insights

Climate change is exacerbating extreme weather events, leading to more rapidly intensifying tropical cyclones, and increased coastal flooding.

The severe drought which impacted key shipping routes like the Panama Canal in 2023-2024 highlighted the vulnerability of global supply chains and trade routes.

The decline of Arctic sea ice opens up potential new shipping routes in the future. But we must be warned that less ice does not mean less danger in hazardous polar waters.



The ocean absorbs more than 90 % of the excess heat from human activities. From 2023 to 2024, the global upper 2000 m ocean heat content increased by 16 zettajoules, about 140 times the world's total electricity generation.

The ocean is being hit by increasing numbers of marine heatwaves and coral bleaching episodes – resulting in billions of dollars of damage to the blue economy.

Decarbonization of the Ocean Economy is therefore essential.

Weather and climate science and services must inform and guide decarbonization.

Rising ocean temperatures, acidification, and biodiversity loss highlight the urgency of this transition. Ship routing services, traditionally aimed at reducing passage time and operational costs, must now prioritize climate impact reduction.

The WMO's Global Greenhouse Gas Watch (G3W) and the Ocean Carbon Plan, developed in collaboration with the Global Ocean Observing System (GOOS), play a crucial role in operationalizing ocean carbon data collection.

These initiatives support climate action, helping nations comply with international agreements and mitigate climate change impacts.

Conclusion

As we navigate the future of the ocean economy, collaboration between meteorological institutions, maritime industries, and policymakers is essential.

Strengthening ocean observations, advancing meteorological services, and prioritizing decarbonization will ensure a safer, more sustainable, and prosperous future for all.

Thank you.