Harnessing Satellites & AI for ship routing, plastic cleanup and operational oceanography

Harnessing, in real-time, multiple satellite observations of the global ocean becomes today possible due to the advances in Artificial Intelligence and Computer Vision. These expert AI models, focusing on specific parts of the oceanic system can outperform traditional numerical modeling methods, offering maritime stakeholders and end-users highly reliable ocean data for their operations at sea. Amphitrite, a young spin-off from the French École Polytechnique and CNRS, has pushed forward such innovative solutions for multiple applications with environmental impact. We will showcase how reliable MetOcean data and in particular ocean currents, produced through these methods can allow vessels to improve their optimal trajectory, with significant fuel and CO2 savings. Our study is based on pilots performed together with shipowners and captains in the Mediterranean Sea. Furthermore, we will present a new project using satellite observation of the ocean currents to improve the detection plastic hotspots and enhance clean-up in the Pacific Ocean. Finally, we will demonstrate how the fusion of satellite observation and the advances in Artificial Intelligence can enable multiple applications for maritime stakeholder or provide tools for scientists in the domain of operational oceanography.

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