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Emergency Response Oil Spill Modelling in the Caribbean

On the 7th of February 2024, a vessel in proximity to Tobago's southern coastline was found to be capsized and leaking oil into the Caribbean Sea. Rijkswaterstaat (RWS), in collaboration with partners such as the Harbour Master of Bonaire, the Dutch Caribbean Coast Guard, and the European Maritime Safety Agency (EMSA) monitored the oil spill from the start, combining satellite images, OILMAP oil spill model drift predictions, drifting buoys and aircraft patrols to track and predict the trajectory of the spill. Despite initial observations suggesting Bonaire and other Dutch Caribbean islands might be spared, oil ended-up onshore on 26 February 2024.

To analyse the spill and improve preparedness, RWS contracted RPS Ocean Science, a Tetra Tech company, to perform a metocean and spill hindcast analysis. This analysis is aiming to identify the most accurate metocean dataset for oil spill modelling in the proximity of the Dutch Caribbean islands. Comprehensive observational data, response information, and other relevant datasets are being compiled and mapped to develop and calibrate the oil spill model using remote sensing imagery and field observations.

Based on the comparisons of oil spill observations (in-situ and remotely sensed) and model output, the best metocean dataset will be determined for forcing the spill model. This study will not only help understanding the spill of 7 February, 2024, but also facilitate a better response planning in case of a future spill in the region of interest.