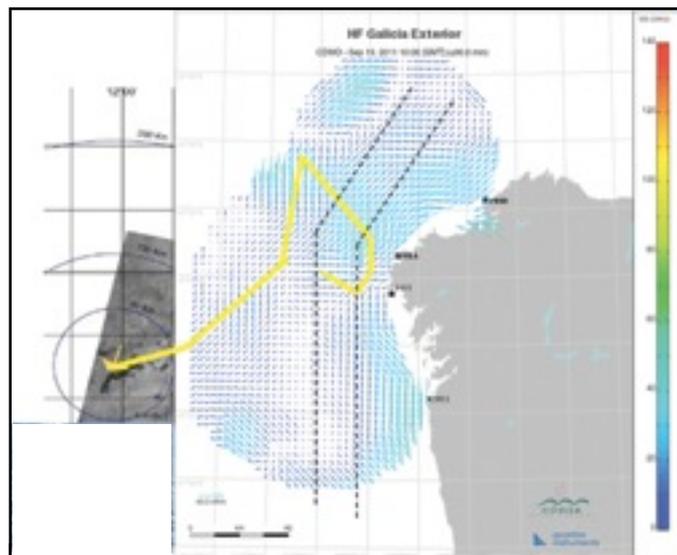


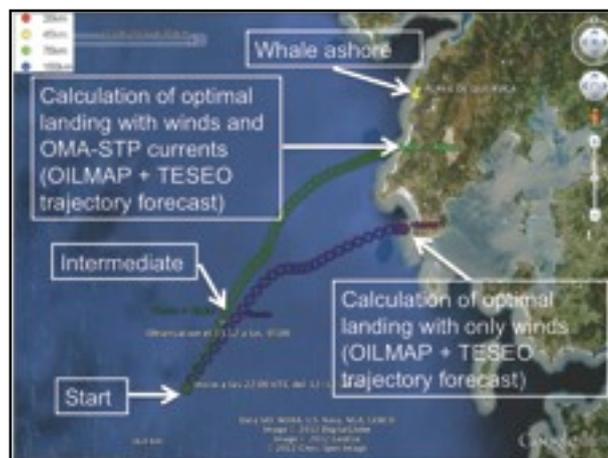
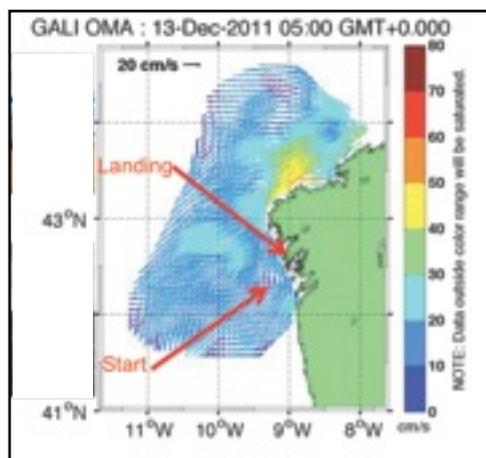
Drift Trajectory Analysis of a ... Whale Carcass?!

In 2002, the Prestige oil spill disaster off the northwestern coast of Spain acted as a wake up call highlighting the importance of preparing for such a crisis. It led to Spanish institutions prioritizing the improvement of activities such as maritime protection, operational oceanography and oil spill preparedness and response. As part of this, ten years after the Prestige, a Galician SeaSonde HF radar network provides real time surface currents, wave data and currents forecast information covering 280 km or 75% of Galicia coast and with a range of up to 200 km offshore. Its operation and exploitation is the responsibility of Puertos del Estado www.puertos.es, INTECMAR www.intecmar.org and MeteoGalicia www.meteogalicia.es.

The present use of the data is wide; an exemplary case on how the data are being used is a drifting object trajectory forecast analysis done in December 2011 for the Directorate of the Spanish Merchant Marine. A drifting whale was identified the 12th of December by the Spanish Coast Guard at 22 00 h UTC in position 42°22'N 09°23'W. Intermediate positions of the whale were monitored at that time; landing happened the 14th of December at 21 39 h UTC, as notified by the Vigo Rescue Coordination Center of the Spanish Coast Guard.



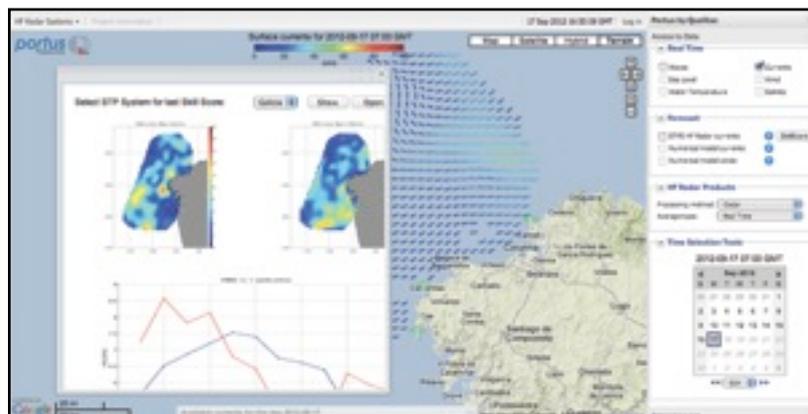
Trajectory followed by the Prestige ship in November 2002, most of it inside the present SeaSonde coverage area (Images courtesy of Puertos del Estado and INTECMAR).



Trajectory of a whale along Galician waters (Data courtesy of the Spanish Merchant Marine Administration) and trajectory forecast model done by IH using the "Lagrangian Model TESEO".

Data input into the trajectory forecast model	Intermediate sighting		Landing at the coast	
	Distance in km	Search area in km ²	Distance in km	Search area in km ²
Only winds	1.6	2.56	17.66	311.88
Winds and OMA-STP currents	0.7	0.49	7.63	58.22
Improvement in %	56.2	80.8	56.8	81.3

An analysis to assess the qualitative improvement by using SeaSonde currents and OMA-STP forecast system together with a trajectory model was performed against results provided by a standard trajectory forecast based only on wind data. The analysis of the whale trajectory as presented was done by IH Cantabria www.ihcantabria.com in collaboration with QUALITAS www.qualitasremos.com based on the OMA-STP currents which are delivered in an operational mode as part of the PORTUS by QUALITAS® Marine Information System along the Galician coast and the trajectory forecast models that are currently being used by the Spanish Coast Guard (ASA OILMAP™ and TESEO Lagrangian Model). The results contained in the adjacent table make clear that the use of OMA-STP currents can greatly improve trajectory forecast models (around 80% for this experiment) in areas which are close to the coast and where HF Radar systems are able to provide high quality surface currents information.



Value analysis of the Galician operative OMA STP currents prediction system in a trajectory forecast with regards to a situation with only wind data.