How does the HF radar do this? Not giving away the recipe in this short article, in summary: Rutgers applies a series of post-processing techniques to the SeaSonde 2-D surface current maps that filter out specific influences on the surface currents, such as the tidal constituents, eventually isolating the wind-induced component of current at each 1 km grid point in the radar field. The intensity of the wind-induced surface current is very well correlated with what the winds above are doing spatially.

Additional Uses For RU-WRF Model & SeaSonde Outputs:

Wind Farm Design and Engineering

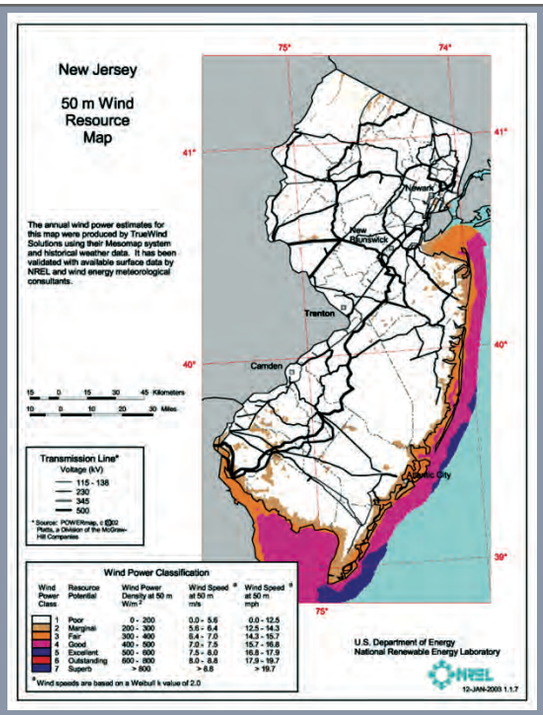
Typically the technology engineers utilize what are called "Wind Resource Maps" (WRM) to design equipment, determine its ideal placement offshore and estimate energy production. The resource maps are rather crude, in the form of annual average maps. One task of the Rutgers team is using the model outputs and SeaSonde data in creating more sophisticated WRMs-- for each month, with data averaged for 3 hour segment across the day, to better match demand periods.

Verifying Performance

The WRF model and SeaSonde data can also be used to confirm that the wind turbines are working and delivering the power they're supposed to over a range of various wind speeds and durations, and afterwards gauge the power harnessing effectiveness of that equipment.

Assisting Routine & Emergency Ocean Operations

In addition to SeaSonde data being used to validate the model outputs, this same data can also be used to assist with field operations: during installation, routine O&M and any emergency responses that may be required. For these activities it's good to know in real-time what the ocean current and wave conditions are for the area.



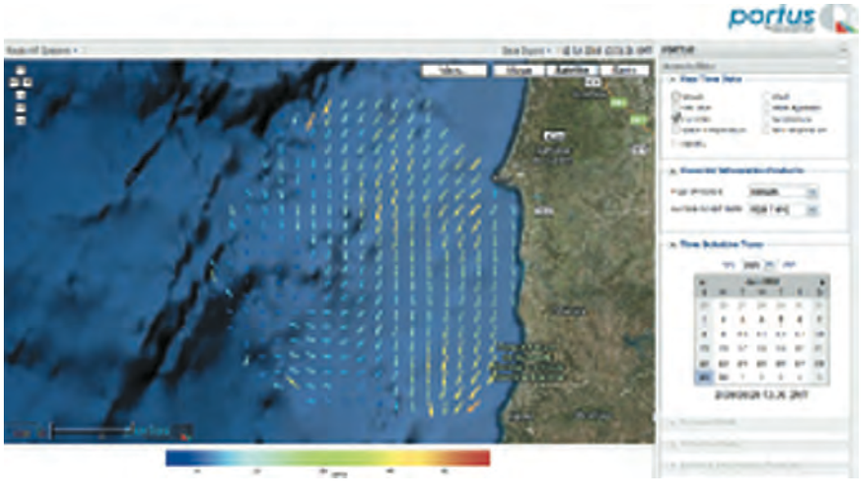
Example of annual Wind Resource Map for New Jersey area.

Portugal Starts Operational HF Radar Observing

The deployment of two SeaSonde® HF Radars in the Sines area by the INSTITUTO HIDROGRÁFICO (IH) has been awarded to the engineering company QUALITAS. This system is part of the SIMOC project (www.hidrografico.pt/simoc.php), which has also the support of Sines Harbor Administration, and will monitor surface currents and waves in the southwest coast of Portugal.

The IH (Portuguese Hydrographic Office) is a state research laboratory, part of the Portuguese Navy, and is the main operational oceanographic institution in Portugal. Amongst its responsibilities is the establishment and maintenance of the national operational ocean observing network, which gives support to all Portuguese constituents along the its EEZ such as search and rescue activities, safe navigation and harbour operation.

The Sines area, positioned halfway between Lisbon and Algarve, was chosen as the first permanent HF Radar deployment area since it is one of the most sensible locations of the Portuguese coast, having a major petrochemical harbor, and directly to the south, a natural reserve (Natural Park of the Southwest of Alentejo). Environmental monitoring by means of HF radar is understood as a preventive action to improve safety along one of the heaviest ship traffic corridors in the world. The radar network will complement the wave buoy deployed near the Sines Harbor (part of the national buoy network) as fixed monitoring systems, and allow a deeper knowledge of the circulation in this area.



SeaSonde currents showed inside display screen of PORTUS BY QUALITAS oceanographic information system.

Data retrieved by the system will be integrated into the PORTUS BY QUALITAS® oceanographic information system.

The radars will be operating from the Sines Harbor and Cape Sardão, these being the first two sites of the planned national network as foreseen in MONIZEE, the Portuguese Coast Monitoring Plan.

For more information regarding this project please contact Cte. Santos Fernandes of IH at santos.fernandes@hidrografico.pt or Pedro Agostinho of QUALITAS at pedro.agostinho@qualitasremos.com.