The POW'WOW project: a coordination action on wave, wakes and offshore wind

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The POW'WOW project (Prediction of Waves, Wakes and Offshore Wind, a EU Coordination Action) focuses on improving both wind and wave predictions from short-to-resource timescales by integrating modelling approaches currently used by the communities separately. The project will coordinate results from existing and previous projects and disseminate information about state of the art in the different fields. The major issue is to try to bridge the gaps in spatial and temporal scales, which currently divide wind and wave resource and short-term forecasting modellers.

While wind energy resource predictions are typically made at the site level with linearised models or statistical methods, wave energy predictions are more likely to be large scale based on numerical models (physical methods). Clearly the physical links between wind and waves (heat and momentum transfer) exist and we will complete a review of the methods used. The major benefits will better integration of modelling approaches for resource prediction together with consideration of the uncertainties and a more harmonised approach.

The core of the short-term prediction work package is to support research by furnishing a Virtual Laboratory for model evaluation. Additionally the outreach of the short-term forecasting community is being enhanced through the establishment of an Expert Group for short-term forecasting, working closely together with the Commission and other European and world-wide stakeholders. Best-practice guidelines will be devised in close conjunction with current users of predictions, and then will be distributed to a larger audience through training courses, a separate workshop, and through dissemination activities.

A major issue in the wakes work package is not just the long-term forecasting of average wakes which is used for initial estimates of power output from wind farms

(mainly for planning and financing) but also the online prediction of wakes that links with short-term forecasts of power output from wind farms. Scientists and engineers will work together to consider how short-term forecasting and wake modelling can be operationalised. The work will take the form of wake case studies via a Virtual Laboratory, an open workshop for scientists and engineers and finally a set of guidelines for best practise in including wake models in short-term forecasts.