



Wave and Offshore Wind Resource Characterization

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Ocean waves are the result of the (partial) transfer of the energy of winds blowing over the sea surface. The origin of these two renewable resources is so closely related but their variability in time and space is quite different. The wind variability is much larger than that of the ocean waves because these are the result of the integration of the action of the wind for long periods of time (days) and large areas (fetch).

The mathematical models that compute wind and waves are closely related: the wind fields over the ocean are produced by atmospheric models whose results are the input to wind-wave models that produce wave conditions over a grid covering the ocean. On what concerns remote sensed data, although radar sensors such as altimeter and Synthetic Aperture Radar measure both wind and waves, the most used sensor for wind velocity measurements is the scatterometer.

In this presentation the methods to assess the offshore wind and wave energy resources are briefly summarized and a tentative for harmonizing the approaches to the assessment and characterization of these two renewable energy resources is discussed. This will include the identification of the relevant parameters for marine offshore energy (wind and wave) resource modeling and the relevant timescales for wind and wave resource data and how these can be integrated.