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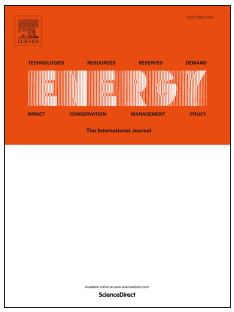

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Discerning the spatial variations in offshore wind resources along the coast of China via dynamic downscaling

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Abstract

An improved dynamic downscaling method is introduced in the present study to discern the spatial variations in offshore wind resources over the China coastal waters. In the improved method, the authors develop a novel pre-processing technique to provide the lateral boundary and initial conditions for the main dynamic downscaling process. In detail, the multivariate orthogonal decomposition is employed, at first, to extract the time-independent componential wind fields from the 30-year regional ECMWF meteorology data, which are then used to run the Weather Research and Forecast (WRF) model to produce the offshore wind field with high spatial resolutions from dynamical downscaling. Given the contribution of each

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