



Understanding wind energy variability over Korean peninsula using Climate Change Scenario

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The reduction of greenhouse gas (GHG) emissions to mitigate climate change implications has been a crucial topic in recent years, and a large number of wind farms are currently under construction all over the world. In this study, in order to provide scientific information for the future strategic planning for the energy supply in Korea, we attempt to quantify the changes and variability in wind speed, wind energy density (WED) and potential electronic production (PEP) in Korea using the RCP 2.6 and 8.5 scenario data. These are from the HadGEM3-RA regional climate model (RCM) simulation results, which has been downscaled dynamically with the HadGEM2-AO Global Circulation Model (GCM). Analysis has been done for 2006-2040. Compared with the ERA-interim reanalysis data for the reference period (1981-2005), it is shown that RPC scenario based mean wind speed is lower over the land, but the opposite result is found over the sea. In future (2006-2040), scenario based wind speeds are projected to increase over land and decrease over the sea. WED and PEP increase mainly northern of east coast, west coast and Jeju island in South Korea. In contrast, it decreases inland area of northern and Southern coastal region. Especially, Wind energy increases sharply over the high land and coastal region