

## 해상용 부유식 풍력 발전기의 파고와 파주기에 따른 비정상 공력 특성 연구

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### Unsteady Aerodynamic Characteristics of Floating Offshore Wind Turbine According to Wave Height and Wave Angular Frequency

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Floating wind turbines have been suggested as a feasible solution for going further offshore into deeper waters. However, floating platforms cause additional unsteady motions induced by wind and wave conditions, so that it is difficult to predict annual energy output of wind turbines by using conventional power prediction method. That is because sectional inflow condition on a rotor plane is varied by unsteady motion of floating platforms. Therefore, aerodynamic simulation using Vortex Lattice Method(VLM) were used to investigate the influence of motion on the aerodynamic performance of a floating offshore wind turbine. Simulation with individual motion of offshore platform were compared to the case of onshore platform and carried out according to the wave height and the wave angular frequency.

**Key words** : Floating wind turbine(부유식 풍력 발전기), offshore(해상), Aerodynamics(공력), Performance(성능)

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## 해상풍력 하부구조물 하중영향평가 및 해석기술연구

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### A study on load evaluation and analysis for foundation of the offshore wind turbine system

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With growing of wind turbine industry, offshore wind turbine system is getting more attention in recent years. Foundation of the offshore wind turbine plays a key role in stability of whole system. In this work, 5MW NREL reference wind turbine with rated speed of 11.4m/s is used for load calculation. Wind loads and wave loads are evaluated using GH-Bladed (Garard Hassan) and FAST (NREL). Additionally, FE simulation is carried out to investigate the wave effect on the support structure. Meanwhile, this work is trying to systematize and optimize load cases simulation for foundation of wind turbine system.

**Key words** : Offshore Wind Turbine(해상풍력발전시스템), Foundation(기초 구조물), Monopile(모노파일), Wave Load(파도하중)

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