

**Numerical Simulation of Flow Around a Railway Vehicle  
in a Turbulent Boundary Layer Over Flat Terrain**

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In order to investigate running effects on aerodynamic characteristics of a railway vehicle under strong cross winds, the author performed Large-Eddy Simulation of flow around a simple running train model. To simulate the cross winds which affect the running train, the author used inflow turbulence generation technique based on an unsteady flow simulation method in the frame of the train moving coordinate system. Pressure coefficient distribution on the surface of running train, in the case where the train speeds are 10m/s, 5.8m/s, 1.8m/s and 0m/s and the wind speed is 10m/s in the direction perpendicular to the train running direction, was obtained by the numerical simulation and compared with those from experimental studies. The detailed flow fields around the running train were also presented. Based on the comparison between the running train simulation and the stationary train one with the same relative wind angles to the train, the running effects on aerodynamic characteristics in the case of the simple train model were discussed.