Safety Evaluation of Railway Vehicle Against Crosswind
Applying a Full-Vehicle Model

Yu HIBINO Hiroyuki KANEMOTO Takayuki SHIMOMURA

In order to analyze the behavior of a railway vehicle that is subjected to crosswind in more detail, we constructed a simulation program applying a full vehicle model as developed based on a half vehicle model. Using the full vehicle simulation program, we examined the effects those not considered in the half vehicle model on overturning or wheel unloading ratio. As a result, it has been revealed that the wheel unloading ratio takes a maximum value when the yawing moment is zero. It has also been apparent that when we consider the relationship between the wind speed and the wheel unloading ratio or overturning, it is imperative to evaluate the wheel unloading ratio as averaged through the vehicle nevertheless the static wheel load imbalance of each axle.