

**Countermeasures to Prevent Dewirement Incident of Conventional Railway Pantographs
Based on Lift Force Characteristics Under Crosswind**

Takeshi MITSUMOJI Yuki AMANO Takumi ABE

Shigeyuki KOBAYASHI Koji NAKADE Yuhei NOGUCHI

Wind-induced pantograph dewirement, which occurs only occasionally, causes transport disruption. It has been considered that the increase in pantograph lift force due to crosswinds results in the dewirement, but the mechanism by which the dewirement occurs is not completely understood. In this study, we focused on the increase in pantograph lift force due to crosswinds, and analytically identified the causal relationship between the dewirement incident and the lift force increase. We then experimentally confirmed the amount of the lift force increase when pantographs are exposed to crosswinds. In addition, we used numerical simulations to identify the fluid-dynamic causes of the lift force increase and proposed countermeasures to prevent the lift force increase.