

3D Model of Rain-Wind Induced Vibration of Inclined Cable

Authors : Viet-Hung Truong, Seung-Eock Kim

Abstract : Rain-wind induced vibration of inclined cable is a special aerodynamic phenomenon because it is easily influenced by many factors, especially the distribution of rivulet and wind velocity. This paper proposes a new 3D model of inclined cable, based on single degree-of-freedom model. Aerodynamic forces are firstly established and verified with the existing results from a 2D model. The 3D model of inclined cable is developed. The 3D model is then applied to assess the effects of wind velocity distribution and the continuity of rivulets on the cable. Finally, an inclined cable model with small sag is investigated.

Keywords : 3D model, rain - wind induced vibration, rivulet, analytical model

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