Effects of bridge cable surface roughness and cross-sectional distortion on aerodynamic force coefficients - DTU Orbit (23/12/2018)

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Theoretical and experimental investigations to date have assumed that bridge cables can be modeled as ideal circular cylinders and the associated aerodynamic coefficients are invariant with the wind angle-of-attack. On the other hand, bridge cables are normally characterized by local alterations of their inherent surface roughness and shape, which might present a significant disturbance for the surrounding wind flow. The present study focuses on the experimental determination, based on static wind tunnel tests, of the aerodynamic coefficients of full-scale bridge cable section models both perpendicular and inclined to the flow, for varying wind angles-of-attack. The wind tunnel test results demonstrate that the aerodynamic coefficients of bridge cables can be significantly affected by the wind angle-of-attack.

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