Comparing Sources of Damping of Cross-Wind Motion

Cross-wind vibrations due to wave loading misaligned with the wind cause fatigue known to be design driving for support structures of large turbines offshore increasing fatigue loads notably compared to the along-wind fatigue. The small amount of damping assumed for cross-wind motion in current practice plays a key role in this. The questions are: does more damping exist and is one of the sources of damping the main contributor allowing for site-independent guidelines. The aim of this paper is to address these issues. It is demonstrated that tower dampers are important in order to tackle the excessive cross-wind vibrations.

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