



A Vehicle OverTurning Model: Forecasting Risk of Disruption on the UK Road Network during Winter Storms

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The Vehicle OverTurning (VOT) Model is an innovative tool which aims to forecast the impact of high winds on the UK road network. Although still being developed, The VOT model has already been used by operational meteorologists at the Met Office to improve the understanding of risk on the road network during wind storms and aid decision making in the issuing of the National Severe Weather Warning Service (NSWWS) wind warnings to the public. The model uses the high resolution MOGREPS-UK ensemble to generate a probabilistic risk value for likely disruption to the road network. Forecasts of wind gust speed and direction from MOGREPS-UK provide a probabilistic hazard value which is then combined with vulnerability and exposure values to give an overall risk value termed 'Risk of Disruption' which indicates the severity of road disruption expected should a vehicle overturn. The model has been developed as part of a Hazard Impact Model (HIM) under the auspices of the Natural Hazards Partnership, which is a collaboration between 17 UK governmental agencies. The aim of the HIM is to produce early warnings for a range of natural hazard events by generating an overall picture of the risk to society, based on probability and impact. This presentation will use case studies from winter windstorms in 2013/2014 and 2014/2015 to illustrate how the VOT model can inform the NSWWS about the impacts predicted during a high impact weather event and allows meteorologists to make a more informed decision about the extent and level of the warning to be issued. It will also show how the Highways Agency has helped the model development and how it can be used to reduce risk of disruption on the UK road network during high wind events in the future.