Verifying and Validating Impact Models

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Impact models are a growing area of research and development. These models are designed to answer the question 'what does this mean?' when it comes to weather and natural hazards resulting in more meaningful forecasts and warnings for users. However, like any model, impact models require verification and/or validation. Traditional verification methodologies cannot be used as they require an extensive, climatological dataset, which often is not available for impacts. Instead, reports and observations of actual impact events have to be collated and compared to impact forecasts. To date subjective approaches have been used to evaluate impact-based products and services, however for impact models more robust and objective methodologies need to be developed. In this study, a methodology for verification and validation of impact models has been developed, using the Natural Hazards Partnership's Vehicle OverTurning hazard impact model as an example. Verification of the model and its components increases confidence in the model itself. Validation ensures model output is suitable for users and increases trust in the outputs. The validation step takes into account impact reports. Using a contingency table approach and associated verification measures it is possible to analyse how well impact model output compares to reported impacts. This presentation will discuss the challenges in collecting impact data in order to verify impact based models and present the methodology which has been developed to verify and validate impact based models.