



## **Estimating flood damage to railway infrastructure – the case study of the March River flood in 2006 at the Austrian Northern Railway**

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Models for estimating flood losses to infrastructure are rare and their reliability is seldom investigated although infrastructure losses might contribute considerably to the overall flood losses. In this case study, a statistical modelling approach for estimating direct structural flood damage to railway infrastructure and associated financial losses was developed. Via a combination of empirical data, i.e. photo-documented damage on the Northern Railway in Lower Austria caused by the March river flood in 2006, and simulated flood characteristics, i.e. water levels, flow velocities and combinations thereof, the correlations between physical flood impact parameters and damage occurred to infrastructure were investigated and subsequently rendered into a damage model. After calibrating the loss estimation using recorded repair costs of the Austrian Federal Railways (ÖBB), the model was applied to three synthetic scenarios with return periods of 30, 100 and 300 years of March river flooding. Finally, the model results were compared to depth-damage curves for the infrastructure sector obtained from literature.

In this contribution, the methodology, results and evaluations for the developed flood damage model will be presented and initial conclusions for flood loss estimation to railway transportation will be drawn.

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