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Intersections between hydrological research and hydrological practice – a Natural Catastrophe modeller perspective

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This presentation is going to address some of the main commonalities between hydrological research and hydrological practice, from the perspective of the Natural Catastrophe (Nat Cat) model developer. For example, hydrological research on the one hand, has a strong focus on the advancement of understanding hydrological processes. The hazard component of Nat Cat flood models, on the other hand, tends to be focused more on model suitability, accuracy and precision. However, it does rely heavily on a thorough understanding of the main hydro-meteorological drivers to describe catchment processes across the relevant spatial and temporal scales, and these are incorporated to achieve model realism and robustness, in particular when extrapolating outside the range of observed regimes. The latter is of importance when modelling extremes, which by definition are scarce.

The presentation will also go into detail on the feedbacks between hydrological research and hydrological practice. For example, how the latest generation of Natural Catastrophe models benefit from the advances in hydrological research, e.g. research on large scale hydroclimatic patterns like ENSO, or climate change research. Incorporating the latest research in hydrological hazard modeling into Catastrophe Models ultimately improves the risk assessment for a set of assets. Also, large-scale flood risk models using coupled model chains that are relatively new in the hydrological research literature, have been part of the standard methodology for the Nat Cat models for a couple of decades, and might be seen as an indicator for the societal demand to perform novel research in these fields.