

## Bridging PostDoc Digital Earth



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### Dr.-Ing. Dadiyorto Wendi

Dadiyorto is both hydrologist and data scientist with work experience and research backgrounds of flood modelling (incl. hydrodynamic), water resources management, eco-hydrology, and remote sensing. His major research interest is to enhance the mining of flood data to better understand and strategize the monitoring of flood process chain and therefore improve its prediction. The data interests are especially on those publicly accessible ones and assimilated from numerical models and used as proxies for data gaps of the flood process chain in space and time. Dadiyorto holds a PhD in Hydrology from the University of Potsdam covering the methodological development of non-linear flood data mining tool.

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### Project Summary: Enhancing Flood Data Workflows through a Coupled Model Chain

As flood disasters often involve complex cascades of space-time processes, the reliable understanding and quantification of such events require extensive datasets to represent the full chain of processes across compartments and their interactions. However, data gaps related to the observation scarcity and the lack of interdisciplinary integration have caused the picture of cross-compartments process cascades to be under-represented. This includes the understanding of the process cascade from the triggering factors of an atmospheric event, catchment preconditions, and hydraulics mechanism towards the flood wave generation and thus inundation and the subsequent damages and losses of floods.

This project intends to enhance data workflows of the process chain through the use of coupled numerical models and their integration with near real time (NRT) monitoring and weather forecasting. The resulting hazard estimates are then further linked into the development of risk compartments to cover exposure, and flood loss elements to cover an extensive chain of the flood process cascade. The outcome of this endeavor is expected to bridge existing data gaps as required to derive a reliable flood event analysis, optimize monitoring systems, and to develop a more reliable short-term flood forecasts and future change projection as part of Flood Explorer supporting modules. The proposal is linked to the Digital Earth Showcase Floods (Flood Event Explorer) and to MOSES (Hydrological Extremes).

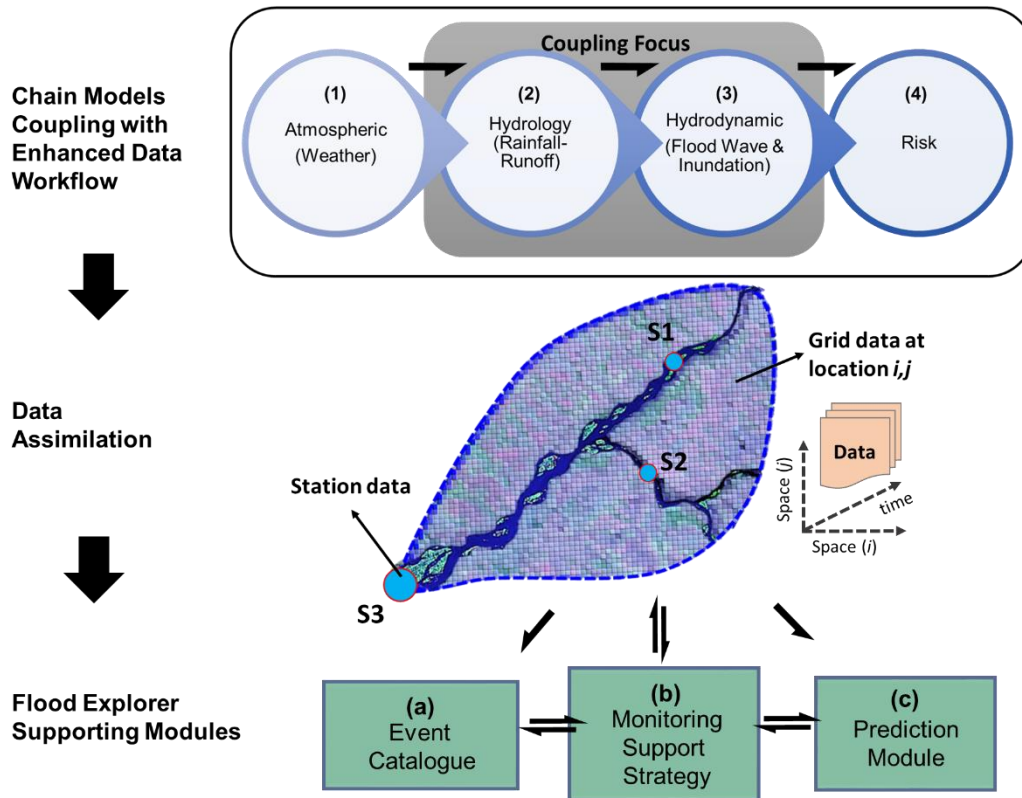


Figure 1. Illustration of the project scope of 'Enhancing Flood Data Workflows through a Coupled Model Chain'