

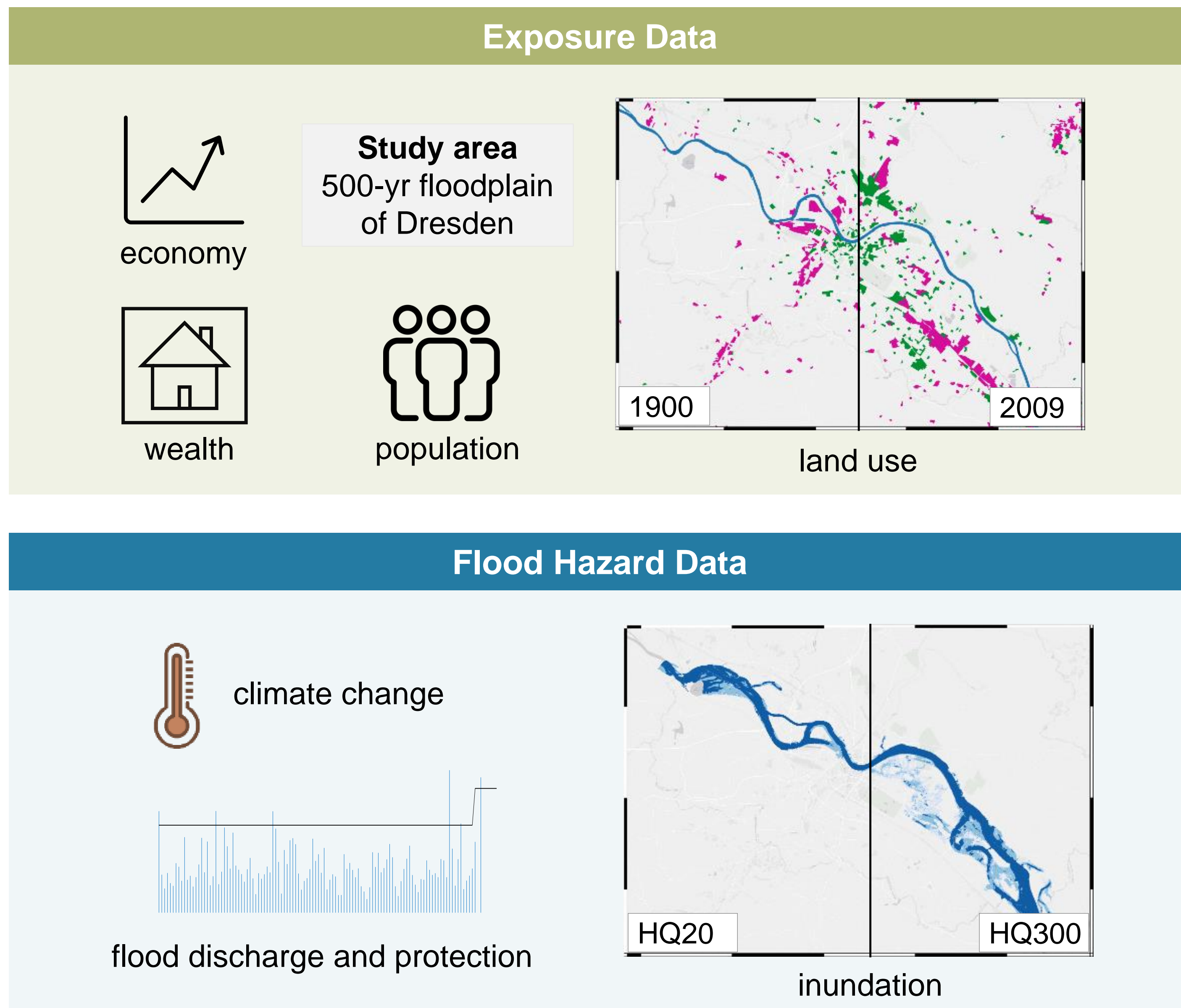
A Socio-hydrological Flood Risk Model for Companies

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Socio-hydrological Flood Risk Model



Socio-economic forcing

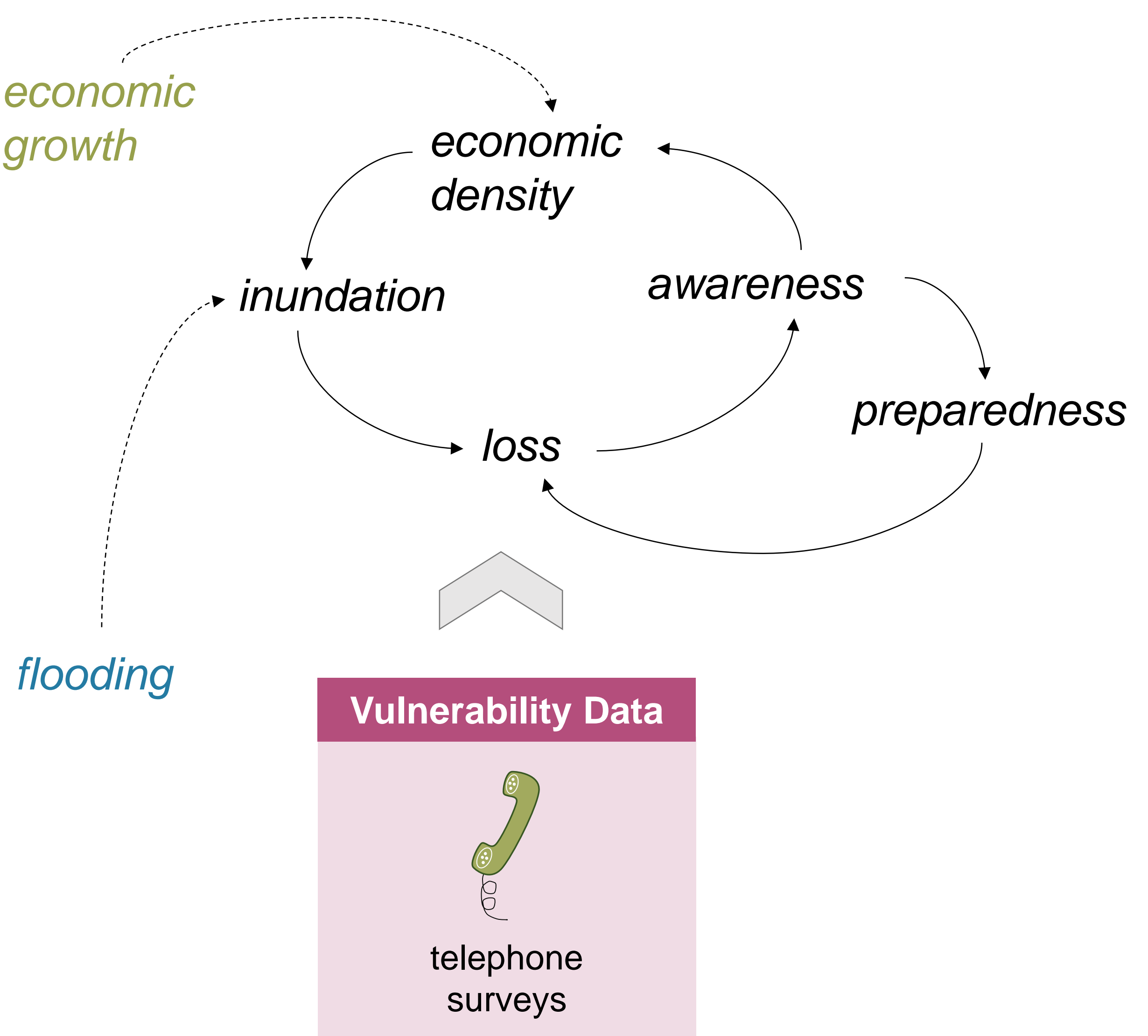
economic growth

Hydro-climatic forcing

flooding

Details

- Simulates co-evolution of coupled human-flood system
- Bayesian system dynamics model



Continuous Flood Risk Assessment

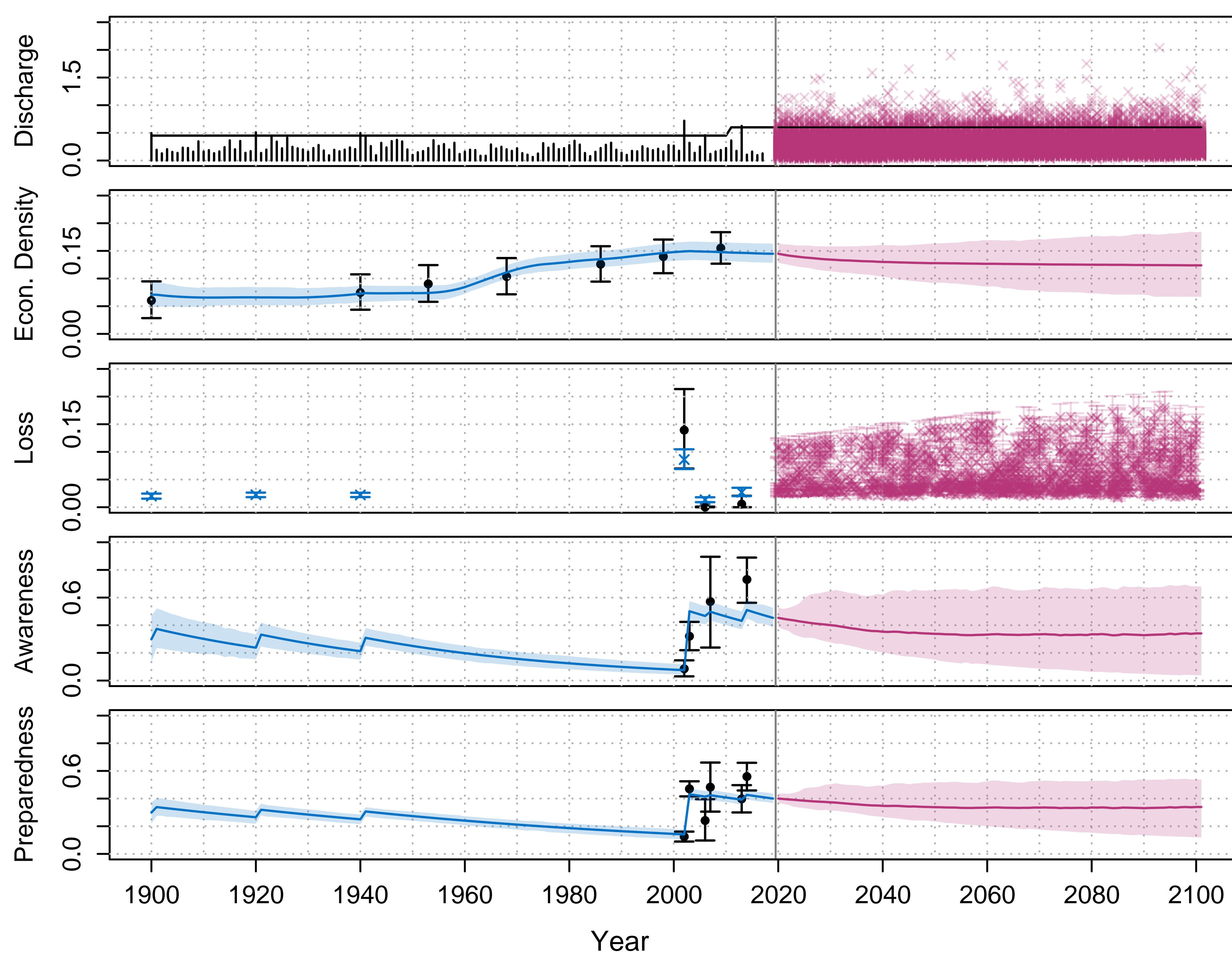


Fig. 1: Observed (black) and simulated co-evolution of the flood risk system for companies in Dresden under RCP4.5 hydro-climatic forcing. The calibration (1900-2019) and projection period (2020-2100) are shown in blue and pink, respectively. Lines indicate the simulated mean, while shaded areas and whiskers represent 95% credible intervals. The projection is based on 500 simulated pathways of the flood risk system.

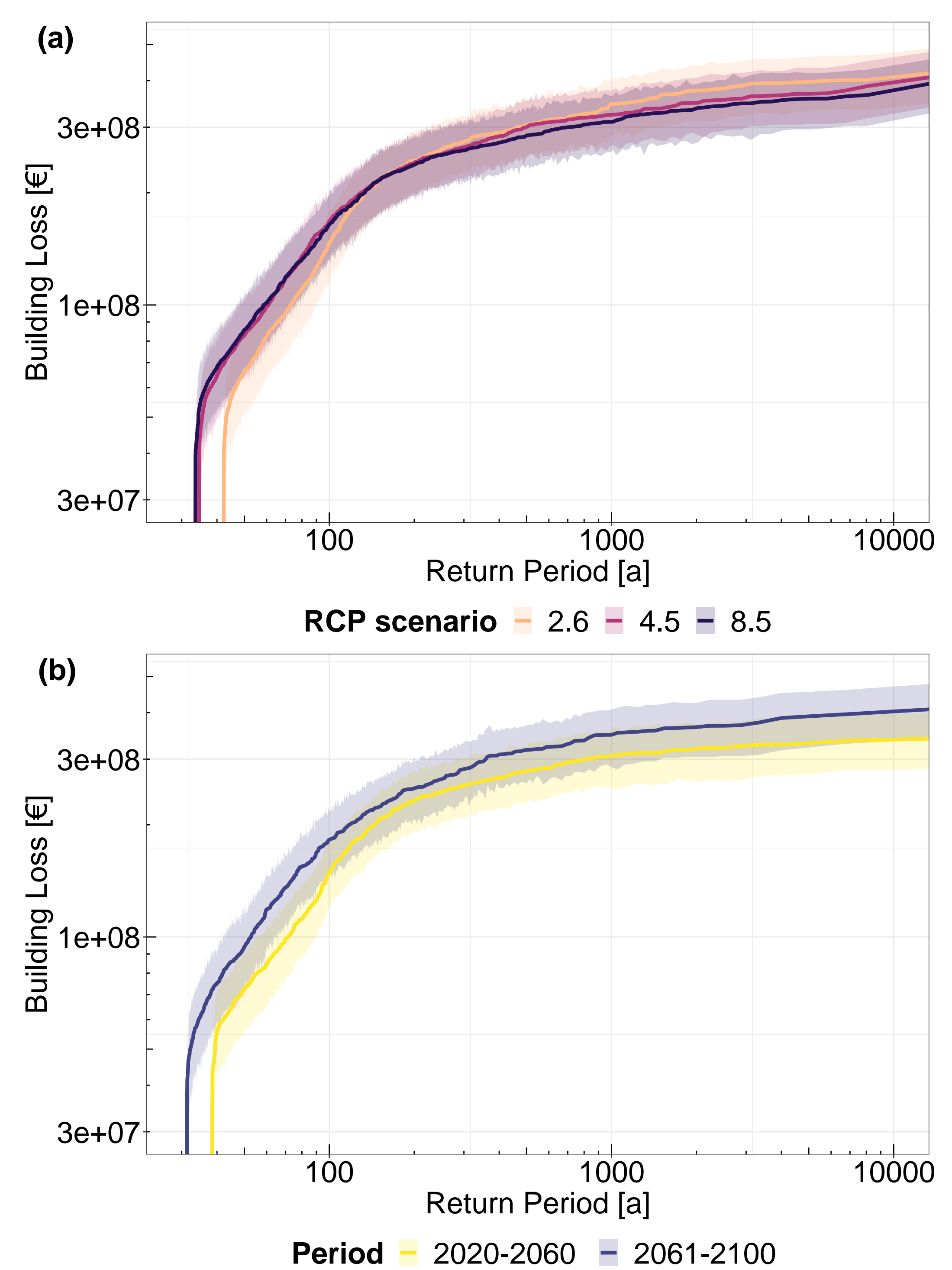


Fig. 2: Risk curves for (a) the entire projection horizon (2020-2100) and different RCP scenarios and (b) the RCP4.5 scenario for the near (2020-2060) and far (2061-2100) future. Lines show the mean, while shaded areas display 95% credible intervals.

Research Objectives

- Explore 'possibility space' of future flood risk in Dresden, Germany
- What causes disastrous flood events?
- Which measures reduce flood risk most effectively on the long run?

Deciphering Dynamics of
Company Flood Vulnerability