Review of: "Exploring the Impact of Future Land Uses on Flood Risks and Ecosystem Services, With Limited Data: Coupling a Cellular Automata Markov (CAM) Model, With Hydraulic and Spatial Valuation Models"

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Potential competing interests: No potential competing interests to declare.

The manuscript "Exploring the Impact of Future Land Uses on Flood Risks and Ecosystem Services, With Limited Data: Coupling a Cellular Automata Markov (CAM) Model, With Hydraulic and Spatial Valuation Models" by Angelos Alamanos presents a comprehensive study of the impact of future land use changes on flood risks and ecosystem service valuation (ESV), particularly in the context of northeastern Indiana, USA. The study takes an innovative approach by integrating a Cellular Automata Markov (CAM) model with Geographic Information Systems (GIS) and Python for land use prediction, a Hydraulic Engineering Centre's River Analysis System (HEC-RAS) model for flood risk assessment, and a spatial ESV model for economic quantification of land use change.

Limitations and opportunities for improvement:

The study recognizes the inherent limitations of using a limited data set and simplified assumptions in the CAM model and hydraulic simulations, which could affect the granularity and specificity of the results.

Future research could benefit from the inclusion of more detailed land use classifications, refined transition probability matrices, and consideration of additional factors such as proximity to urban centers or climate change projections in the CAM model.

Further investigation of the distribution of ESVs by specific ecosystem services (e.g., regulating, supporting, cultural) could provide deeper insights into the nuanced impacts of land-use change.