From Rain Bombs to Risk Maps: Predicting Where Cities Will Flood
A data-driven approach to identify urban water accumulation zones under extreme rainfall events

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SUMMARY

As a consequence of climate change, we are increasingly confronted with so-called “rain bombs” — extreme rainfall events that release enormous amounts of water in a very short time. Traditional hydrological models used for flood prediction are not designed to handle such localized and intense phenomena.

This paper explores methods to predict, at the scale of an urban area, where rainwater is most likely to accumulate during these events. The objective is to enable timely mitigation measures such as protecting critical infrastructure and evacuating vulnerable populations (e.g., childcare facilities, schools, hospitals, etc.).

The models tested in this study focus on water accumulation patterns but do not yet account for flow velocities.