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Flood Forecasting at Google - Flood Warning System and Research

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Floods cause between thousands and tens of thousands fatalities, affect hundreds of millions of people, and cost tens of billions of dollars every year. Google's Flood Forecasting Initiative aims to provide actionable flood warnings to local agencies, NGOs, and the public, especially in those regions where little to no other warning systems are available. Starting 4 years ago with a small pilot area in India, our models now cover large parts of India and Bangladesh and with a population of over 220 million people. The system consists of machine learning based models for water level prediction and inundation modeling. The outputs of these models are coupled with an alert dissemination system to reach end users through different channels such as Google Search and Google Maps.

In this talk, we will provide an overview of our current system. Additionally, we will present new research results from our efforts to scale our system to many more locations globally. These include (a) changes in the model architecture, (b) a shift of focus from localized models, towards more generic models that can potentially be applied everywhere globally, and (c) the use of different forcing products, including ERA5 and ECMWF forecasts.

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