FLOODCAST

GEOSPATIAL INSIGHT

FloodCast

Flood Monitoring. Predict. Prepare. Respond.

TECHNICAL PRODUCT SHEET

In 2024, global flooding accounted for 78% of the $18.2 billion in insured catastrophe losses, highlighting its growing dominance among natural disasters. As climate change fuels more frequent and severe flooding, fast, accurate insights are critical.

Introducing FloodCast, Geospatial Insight's rapid flood modelling engine, delivering near real-time predictions through dynamic simulations and customisable inputs. Designed for insurers, responders, and policymakers, it supports better decisions to reduce risk and protect lives, assets, and infrastructure.

Overview

FloodCast is an advanced, API-accessible flood simulation engine designed for high-speed, high-resolution flood modelling at all scales. Using a multi-directional flow routing algorithm based on the fast-sweeping method to estimate discharge pathways across a digital elevation model (DEM), the model separates surface flow routing from floodplain inundation, enabling rapid calculation of peak water levels without requiring full dynamic time-stepping.

Features

FloodCast provides:

- **Forecasting:** Near-real time alert integration and parametric triggers
- **Monitoring:** Near-real time tracking, which can be augmented using satellite and ground data
- **Impact Analysis:** Depth, velocity and extent analytics
- **Historical Trends:** Access to past data for trend and model insights
- **Scenario Modeling:** Adjustable inputs to customise scenario testing and risk forecasting

Technology & Data Sources

FloodCast integrates multiple data sources into its hydrological model including:

- Accurate digital elevation model data
- Ground sensor networks and river gauges
- Forecast data (e.g. ECMWF, national weather models)
- Historical flood databases
- Outputs are refreshed continuously and processed via a cloud-based architecture, enabling near real-time access and scalability

Accuracy & Performance

FloodCast's forecast outputs have been independently validated against observed flood events.

In trials, the system delivered usable visualisations up to 1,500 times faster than conventional modelling approaches, with accuracy rates exceeding 95% in key use cases.

FloodCast seamlessly integrates into enterprise systems, operational dashboards, digital twins and climate risk platforms.

Integration & Access

Use Cases

- **Insurance:** Forecast and respond to claims surges; improve underwriting models, alert policyholders
- **Engineering:** Assess flood risk to infrastructure during planning and operations
- **Supply Chain:** Identify at-risk routes, hubs and assets before disruption occurs
- **Utilities:** Plan maintenance, prioritise response, and ensure service continuity

Benefits

- **Near-real time alerts:** Automated triggers for mitigation action
- **Live flood monitoring:** Track events in real time as they unfold
- **Impact analysis:** Depth, velocity and extent predictions for precise damage calculation
- **Scenario modelling:** Generate flood impacts instantly to support improved decisions

Technical Specifications

Feature:	Detail:
Spatial resolution	Elevation data resolution up to 50cm
Model performance	Near real-time (under 1 minute)
Delivery formats	App, API, Web Dashboard, GeoTIFF/ COG, CSV
Integration options	REST API, webhooks, custom pipelines

Support & Customisation

Full onboarding, training and technical documentation included. Custom integration and configuration support available for enterprise clients.

Fast Hazard

FloodCast integrates the FastFlood App, developed by our partners at FastHazard.

Fast, reliable intelligence for flood resilience:

Contact us now to explore how FloodCast can enhance your flood management and mitigation efforts.

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