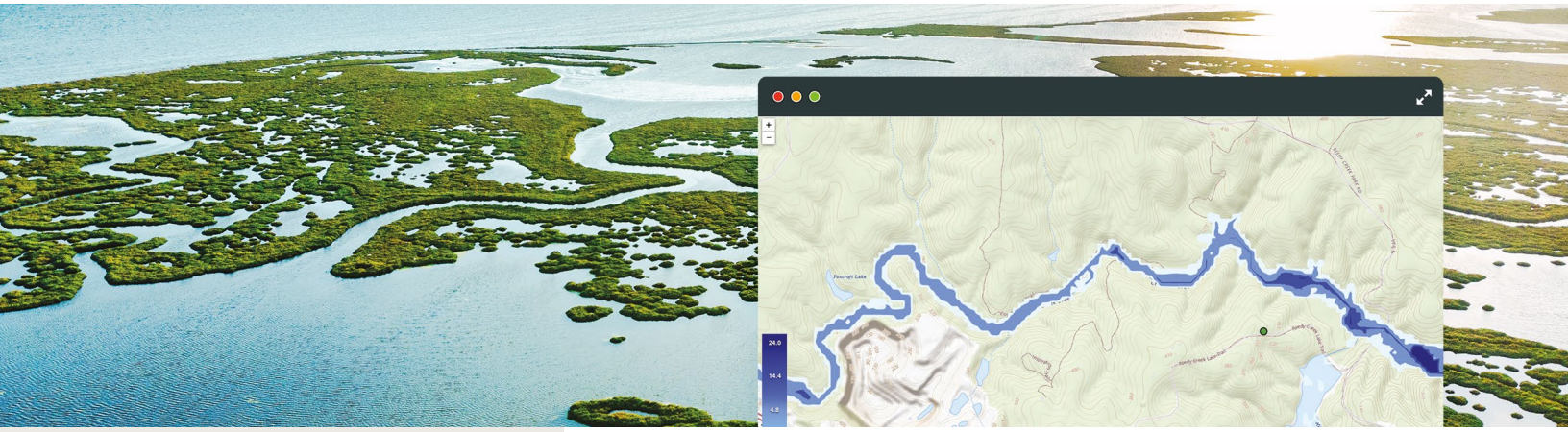
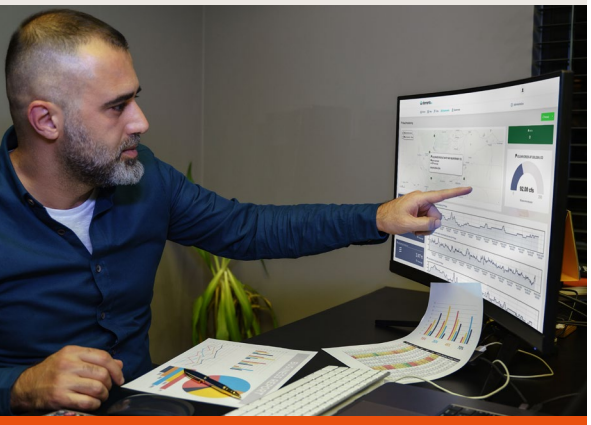
PRODUCT OVERVIEW

Vflo® Flood Forecast Model



Key Applications

- **Flood early warning systems**
- **Emergency response planning**
- **Infrastructure protection**
- **Stormwater system design and management**
- **Dam and reservoir management**
- **Floodplain mapping**



ASK ABOUT: AEM ELEMENTS™ 360

Take command of flood risk management with AEM Elements 360. Convert data into actionable insights for a more efficient and effective response to natural hazards.

High-resolution flood prediction

The rising frequency and intensity of floods, combined with the complex dynamics of watersheds and growing urban and suburban development, make predicting floods increasingly difficult. AEM's Vflo Flood Forecast Model offers a cutting-edge, physics-based, distributed approach to flood early warning and system design. It delivers a powerful, cost-effective solution by simulating both surface and subsurface runoff, producing vital data on stage, discharge, and inundation at a high resolution. These insights enhance flood early warning systems and watershed planning, leading to more informed decisions and better preparation before the next rainfall event.

Precision flood forecast

Dynamic, real-time updates

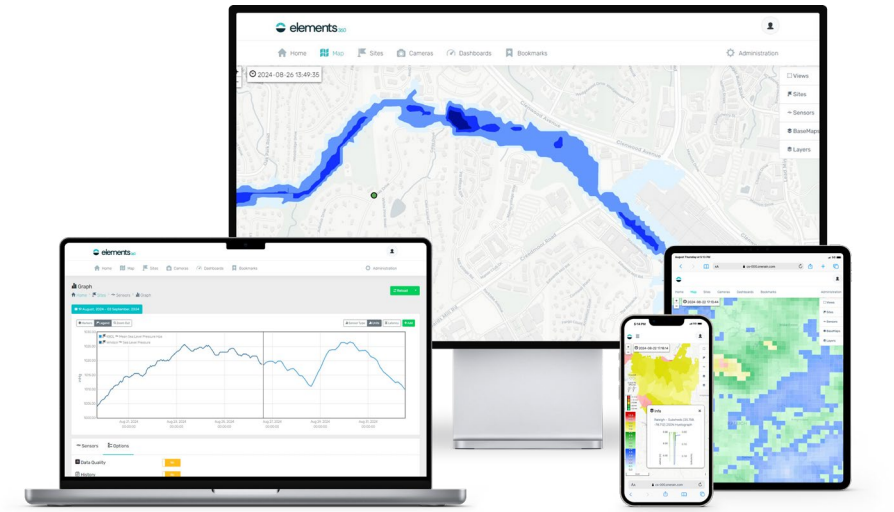
72-hour forecast outlook

BENEFITS

- Increase lead times to effectively plan, prepare, and deploy resources ahead of severe flood events.
- Share real-time forecast data with emergency responders, community stakeholders, and the public for a more coordinated and efficient response
- Cross-check forecasts with multiple data sources to help decision makers confidently respond to evolving conditions and potential flood threats.
- Reduce costs by mitigating damage to infrastructure and natural resources and enhancing resource allocation strategies during natural disasters.

Accelerated flood forecasts with exceptional accuracy

Vflo is a physics-based, distributed, gridded hydrologic model that can deliver real-time and predictive high-resolution model outputs in a fast and efficient manner.

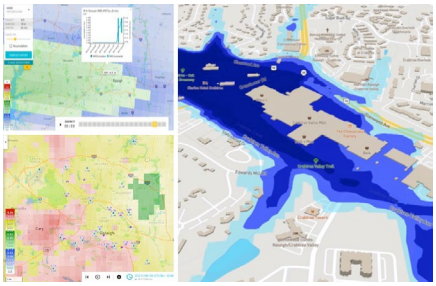


- Integrates watershed hydrology and hydraulics to generate discharge, stage, and mapped inundation within a single application.
- Designed for use with gridded rainfall inputs, including GARR, for a more complete understanding of complex watershed processes.
- Provides gridded and rate-driven runoff from both groundwater and surface water for increased accuracy.
- Solves multiple hydrologic water balance components for each grid cell, including infiltration rate excess, saturation excess, subsurface runoff, evapotranspiration, and soil moisture.

City of Raleigh: Enhancing flood preparedness with Vflo

Raleigh, North Carolina, faced increasing challenges from severe and unpredictable flash floods due to rising rainfall intensity. Despite having extensive field instruments, the city struggled with slow data updates and inadequate predictive capabilities, leaving them unprepared for sudden flood events.

Raleigh partnered with AEM to implement GARR and Vflo hydrologic modeling to reliably anticipate how actual and forecast rainfall will impact flooding up to 72 hours in advance. This proactive approach has significantly improved Raleigh's flood response, enabling better resource allocation and risk mitigation.



Why choose Vflo

- Our model uses cutting-edge AI and machine learning techniques, including genetic algorithms, to continuously enhance model accuracy and performance.
- Vflo employs continuous modules and real-time sensitivity analysis to refine predictions, ensuring unmatched reliability and precision.
- Easily integrate all forecast, sensor, and third-party data together in AEM Elements 360 to create a single, collaborative flood early warning and decision support command center.

READY TO BOOST YOUR FLOOD EARLY WARNING SYSTEM?

Reach out to us today at **info@aem.eco** to explore how Vflo Flood Flood Model can help you make confident decisions, streamline response, and safeguard lives and property.