



Liberty
Specialty Markets

PREVISICO



Flood Alerts

Brought to you by Liberty Risk Reduce

Liberty Specialty Markets understands the impact a flood event can have on businesses. That's why we provide clients with free access to Previsico's FloodMap Live flood forecasting and alerts system through our Liberty Risk Reduce Portal. FloodMap Live is a 2D flood simulation software package that models flooding in real-time using high-quality topographic and hydrological data to deliver flood warnings.

The Previsico visualisation tool in Risk Reduce displays surface water and small watercourse forecasts alongside existing government warnings for main river and coastal flooding, allowing users to take action. The real time flood-forecasting platform provides our customers with the tools they need to help prepare for and respond to a flood event.

The growing flood problem

- Around 15% of commercial properties in Britain have a significant flood risk [click here for reference](#)
- 25% of businesses do not reopen after disaster [click here for reference](#)
- Flooding currently causes approximately £740m of damage annually in the UK [click here for reference](#)
- Long-term mental health problems up to nine times more likely for flood victims [click here for reference](#)

What are the benefits?

- Receive real-time flood warnings across your portfolio showing the worst affected areas and most vulnerable properties
- Receive actionable warnings by e-mail and SMS up to 48 hrs before a flood event
- View real-time flood forecasts from multiple flood sources overlaid on your assets
- Pluvial warnings help predict the time and depth of flood water at each location
- Review your portfolio's flood risk with our in-house Risk Engineers to help improve your overall flood resilience
- Optional availability of bespoke site-based sensor installation to monitor physical environments in real-time to ensure mitigation measures are deployed in time to help minimize damage and disruption

How to sign up?

To sign up for the flood forecasting and alerts service, contact your Client Relationship Manager or Risk Engineer. You can also reach the team at riskcontrol@libertyglobalgroup.com

For more risk control guidance and resources, visit www.libertyriskreduce.com

Our risk control services are advisory only. We assume no responsibility for management or control of customer safety activities nor implementation of recommended corrective measures. This document provides a general description of this program and/or service.

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Reducing flood risk in construction

Solutions to drive resilience and mitigate flood risk

Challenge

As storms increase in frequency, severity and unpredictability, there is a growing need for construction companies to understand and mitigate the risk of all flood perils, including ordinary watercourses and surface water.

Flooding can affect the construction sector in several ways. Catastrophic events can disrupt national and global supply chains – potentially delaying projects and impacting materials, pricing and availability. Whilst at site level, localised flooding can overwhelm drainage systems, impact electrical systems and generate risk to assets, property, health and potentially, life. Even with insurance, contractors can still incur out-of-pocket expenses for deductibles, project creep and business interruption.

From a compliance and liability perspective, health and safety regulations state that site operatives should not be unduly exposed to flood-related hazards with the mitigation of associated risks typically the responsibility of the principal contractor. DEFRA is now recommending mandatory steps for the construction industry to mitigate flood risk and reduce storm overflow discharge on all new developments. See DEFRA's press release.



Solutions for the construction industry

Previsico provides real-time, property-level surface water flood forecasts using its proprietary live hydrodynamic modelling software and sensor technologies to help mitigate flood-related impacts and losses.

- **Flood notifications:** Automated email warnings when districts and properties are at risk of surface water and ordinary watercourse flooding, and when sensors detect flooding or threshold level exceedance.
- **Flood dashboard:** Displays predicted time and depth of flooding up to 48 hours in advance and visualises data from sensors.
- **Water depth and flow sensors:** Located on and around critical infrastructures, above ground (e.g. retention pools, discharge points, culverts) or below ground (e.g. waste and surface water drainage).
- **API feeds:** Automated real-time forecast data and warnings that integrate with existing systems.

Benefits for the construction industry

- Can mitigate flood impacts from surface water and ordinary watercourses – perils not covered by other forecasting systems.
- Risk mitigation measures support Health & Safety compliance.
- Forecasts, notifications and data enable contractors to take preventative action to minimise loss.
- On-site sensors enable monitoring of critical infrastructures, above and below ground.
- Sensor outputs can feed into critical control systems e.g. SCADA, automating otherwise manual processes.
- Improves insight into pollution pathways to mitigate contamination from discharges.
- Reduces unexpected repair costs, excess fees, replacement and ESG commitments.
- Prevents delays and demonstrates good practice.

“ Construction sites are often rapidly evolving environments and the need for risk management services will vary as project phases start and finish and the risk profiles change. This means the right technology – delivered in the right locations and at the right times – is required to help mitigate impacts and losses. ”

Dr Andrew Pledger
IoT Systems Manager, Previsico

Delivering shared success

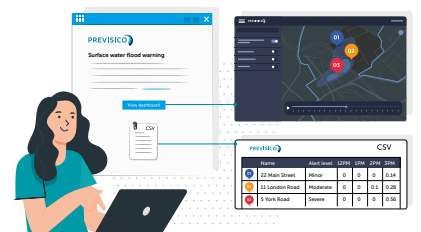
Liberty Specialty Markets is a mutual company, they focus not on shareholders and stock markets, but on their policyholders and partners. They take time to get to know your business and what you need from your insurance solution.

Their underwriting involves a thorough analysis of your risks, backed by a deep understanding of your industry, while their integrated underwriting, claims and risk management offers you a creative risk-transfer solution.

The growing flood problem...

- Water damage is the second most frequent cause of loss during building projects.*
- Properties affected by surface water flood risk have increased to 1 in 5 in the UK.*
- Flood losses are expected to increase five-fold by 2050.*

* References



Connect with us

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Reducing flood risk for energy companies

Helping energy companies to monitor environmental risks and reduce downtime across networks

The specific challenge for energy companies

Energy assets such as towers and substations are integral in supplying consumers with power. Although they have been designed to withstand a variety of environmental conditions, the increasing number of extreme weather events is exposing them to increased risk. There is a need for energy companies to monitor the ever-growing complexity of environmental risks, in order to provide an uninterrupted service to their customers.

Surface water flooding represents a pervasive peril, occurring when drainage systems are overwhelmed – typically due to intense rainfall in urban areas. It can have detrimental implications for critical energy infrastructures, such as primary and secondary substations. Solutions are urgently needed to predict the timing, persistence and magnitude of surface water flooding, in order to inform management and understand the effects on energy network performance.



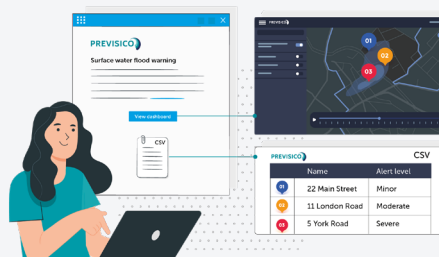
Solutions for energy companies

Previsico provides real-time, property-level surface water and ordinary watercourse flood forecasts using proprietary live hydrodynamic modelling software and sensor technologies to help mitigate flood-related impacts and losses.

- **Flood notifications:** Automated notifications from forecasting and sensor technologies when districts or assets are at risk of flood.
- **Flood dashboard:** Displays predicted time and depth of flooding up to 48 hours in advance and visualises data from sensors.
- **Water depth and flow sensors:** Located on and around critical infrastructures – above and below ground. Either stand alone or complementary to forecasting solutions.
- **API feed:** Automated forecast/sensor data and warnings that integrate with existing systems.

Benefits for energy companies

- Provides timely information on surface water flood risk to inform event response, mitigating impacts and losses.
- Insights can support actioning of requests for help from customers during and/or after events (front-end triage).
- Sensors support accurate and effective monitoring of water levels and conveyance (above and below ground) across significant geographical scales in near-real-time to inform understanding of risks to networks and infrastructure.



“ The expected increase in flooding means that energy companies need to assess their exposure and develop strategies to mitigate risks. Early warnings can help them to prepare for flood events and potentially prevent network outages.



Dr Andrew Pledger
IoT Systems Manager, Previsico

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The growing flood problem

If climate change brings significant sea-level rise (as many models predict), that raises new vulnerabilities for power plants in the U.S.

- Nine nuclear-power plants are located within two miles of the ocean.*
- 8,625 power plants are sited near shorelines to have access to water.*
- According to the Department of Energy, 44 power plants were in flooded areas during Hurricane Irene and 69 during Hurricane Sandy. *
- During these hurricanes, eight nuclear power plants had to shut down or reduce service.*
- When Hurricane Harvey hit Houston in 2017, wind and catastrophic flooding knocked down or damaged more than 6,200 distribution poles and 850 transmission structures. 21.4 gigawatts of generation were affected.*

* References: [Mckinsey.com/why-and-how-utilities-should-start-to-manage-climate-change-risk](https://www.mckinsey.com/why-and-how-utilities-should-start-to-manage-climate-change-risk)

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Reducing flood risk for water companies

Helping water companies to predict surface water flood events and respond efficiently and effectively.



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The specific challenge for water companies

Changes in climate and land use are escalating flood impacts – particularly in areas previously unaffected by flooding. Although warnings are available for river and coastal flooding, they rarely – if at all – exist for surface water flooding, which is catching people off guard.

Surface water flooding occurs when local drainage systems are overwhelmed, typically due to intense rainfall in urban areas. Surface water flooding can in turn have detrimental implications for wastewater networks where for example, infiltration occurs or where flooding impacts critical infrastructure e.g. pumping stations. Greater understanding of the likely timing, persistence and magnitude of surface water flooding ahead of events is urgently needed to support better understanding of risks to drainage networks and infrastructure and inform management.



The growing flood problem

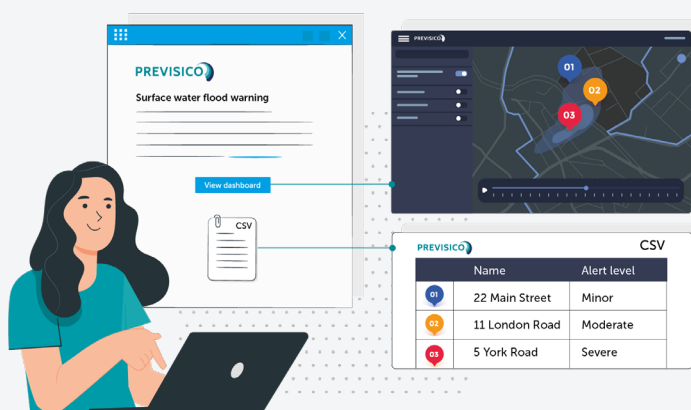
- 1 in 5 properties affected by surface water flood risk.*
- 33% UK commercial properties at risk from flood.*
- 75% of businesses don't include climate risks in their business continuity plans.*
- Flood losses expected to increase five-fold by 2050.*

Solutions for water companies

Previsico provides real-time, property-level surface water and ordinary watercourse flood forecasts using proprietary live hydrodynamic modelling software and sensor technologies to help mitigate flood-related impacts and losses.

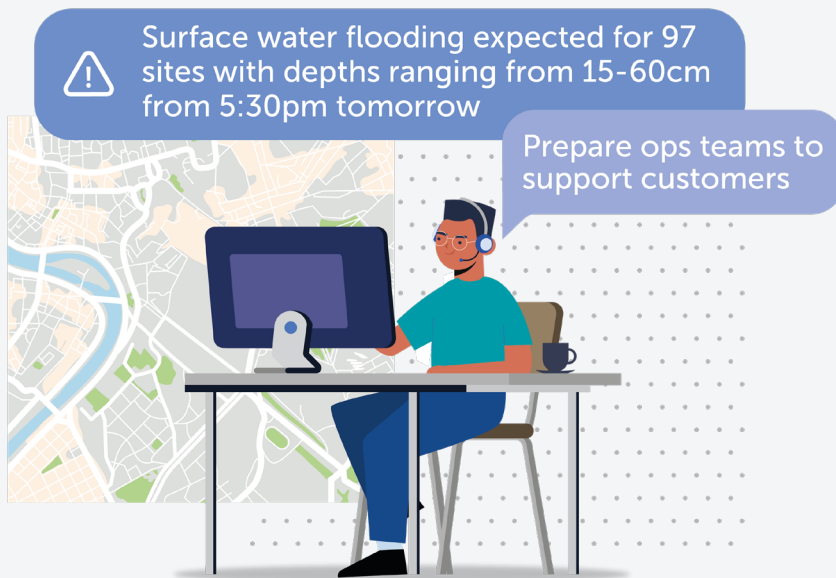
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“ Due to the nature of their assets, infrastructure and responsibilities, water companies are unique and face unique challenges, that we look to help address. ”

DR ANDREW PLEDGER
IoT Systems Manager
Previsico



Benefits for water companies

- Provides timely information on surface water flood risk to inform event response, mitigating impacts and losses.
- Supports understanding of wastewater drainage infiltration that may contribute to network inundation and/or sewer flooding.
- Insights can support actioning of requests for help from customers during and/or after events (front-end triage).
- Sensors support accurate and effective monitoring of drainage water conveyance (above and below ground) across significant geographical scales in near-real-time to inform understanding of network performance and management requirements.
- A robust catchment-scale flow routing and forecasting technology that can be delivered live and continuously across whole catchments.
- Understanding of overland flow pathways, their possible implications for the entrainment and therefore mobilisation of microbes and other pollutants, and interactions with water courses at the catchment scale, can be used to help reduce diffuse river pollution and improve bathing water standards.



About Previsico

- Previsico is a specialist provider of flood resilience solutions.
- Our technology is underpinned by over two decades of published research in partnership with the Cabinet Office and emergency services.
- Our algorithmic technology draws on several leading data sources, including best available weather nowcasts and forecasts, satellite imagery, ground sensors, LiDAR elevation data, land cover, drainage and geology.
- Our solutions predict surface water and ordinary water course flooding – perils not covered by existing warning systems.



Previsico solutions are now available through Everbridge

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