



Rezatec

# DAM MONITORING

POWERED BY REZATEC, THE #1 GEOSPATIAL AI PLATFORM FOR  
DAM OWNERS, OPERATORS AND REGULATORS

Boost safety, manage risk and direct ground resources - at scale.

[rezatec.com](https://rezatec.com)



# Dam Monitoring remotely provides a detailed view of failure modes and their consequences across your entire dam, for all your dams, wherever they are.

The solution tracks unusual changes in movement, seepage, vegetation and downstream hazards. Featuring the most advanced AI and visualisation engine on the market, it combines unique historical analysis, frequently refreshed geospatial data and your own survey and instrumentation data. The result? Powerful insights to make risk-informed decisions and keep your dams safe.

As a dam owner, operator or regulator, Dam Monitoring enables you to leverage the most robust data and mapped visualisations to determine exact risk areas on and around your dam – even those you have not previously considered. Which means you can boost risk management, safety and compliance, while deploying investigation and repair resources to the right place at the right time.

To assess risk and enable reporting across key failure modes, Dam Monitoring includes the following:

- Ground motion and seepage
- Downstream hazards
- Dam compliance

**Site Potential Failure Modes**

**PFM Status**

Actions Outstanding	Due Date
Inspection of Peizometers	10/30/2023
Geological survey	11/03/2023

Actions Completed	Date Delivered
Inspection of Spillway Gates	09/27/2023
Inspection of Embankment	09/27/2023
Inspection of Vegetation	09/27/2023

**Flood - Inundation Extent**

Next report due - DSSMR for 12/04/2023

**Ground Motion Anomalies**

Dam Section	Hexagon ID	Anomalies	GM Velocity (mm/year)	Veg Moisture Trend Direction 4	Sensor Name
Sub_9	8cbe1d308c341ff	2	0.06	Ascending	LE_PZ2
Other_1	8cbe1d308c341fq	0	0.1	Descending	LE_PZ3
Main_2	8cbe1d30sjh565ff	3	0.2	Ascending	LE_PZ4
Sub_9	8cbe1d308c341bn	4	0.67	Ascending	LE_PZ2
Sub_9	8cbe1d30sjh565ff	2	0.5	Ascending	LE_PZ1
Other_1	8cbe1d308c341gh	3	0.12	Descending	LE_PZ6
Main_2	8cbe1d308c341ff	1	0.01	Descending	LE_PZ2
Other_1	8cb1gh6799dv5ffh	0	0.87	Ascending	LE_PZ4
Main_2	8cbe1d30sjh565ff	0	0.3	Descending	LE_PZ4
Sub_9	8cbe1d308c341ff	3	0.5	Ascending	LE_PZ1

Showing 1 of 678 results

**Statistical Anomalies**

**No of location per movement direction**



## GROUND MOTION & SEEPAGE

### Early warning. Early fix.

Dam Monitoring historically tracks ground movement, vegetation and seepage, deciphers normal and abnormal, and gives you a current view of unusual changes mapped onto visuals of your structure.

Use Dam Monitoring to super charge your own survey and instrumentation info with our powerful geospatial data, and access visualised trends and insights that you've never had before. See millimetric changes between surveys, risk assess failure modes with a greater level of certainty and target exact deformation areas with the right resources at the right time.

#### Build a full risk profile

- Unique historic & current view
- Tracks anomalous changes
- Data provided across the whole dam
- Ideal for remote locations

#### Track issues between surveys

- Frequent, accurate insights
- Correlates trend data
- Alerts of unusual changes
- Millimeter accuracy

#### Deploy to the right place

- Define exact risk areas
- Direct investigation & maintenance teams
- Focus on maximum impact

## DAM COMPLIANCE

### Your reports. Made simple.

Dam Monitoring applies powerful analytics to all your dam data, like measurement, piezometer, water levels, rainfall measurements, level surveys and geo technical. By aggregating your data into one place it enables you to easily generate reporting, ensure regulatory compliance and keep your dams safe. Rezatec's advanced algorithms and analytics supercharge your understanding of key trends and points of failure, power your ability to identify procedural gaps, and enable you to focus your resources on what they do best.

#### All data, powerful insights

- Collate your dam information in one place
- Apply Rezatec's unique analytics
- Track key trends and points of failure

#### Simple reporting

- Easily report all dam data
- Incorporate visuals, graphs & charts
- Identify procedural or data gaps

#### Ensure safety

- Focus your resources
- Address issues & feedback field data
- Embed operationally







DOWNSTREAM HAZARDS

# One view. All dams.

Dam Monitoring identifies the building changes that matter in your dam inundation zones, across your whole portfolio and your whole state to highlight exact risk areas. It gives you accurate insights on developments between inspections for high hazard dams, and keeps tabs on urban change around low hazard dams. Deploy your resources to their optimum efficiency and better manage and act on risk.

Ground Motion

The screenshot shows a web application interface for monitoring ground motion. On the left, a map displays a reservoir with a series of colored dots (yellow, orange, white) along its perimeter, representing ground motion sensors. A tooltip with the ID '8bbe1d30cb43fff' is visible. On the right, a 'Feature Analytics' window shows a scatter plot of ground motion data in millimeters (mm) over time from December 2018 to March 2023. The plot includes a black trend line and several red dots indicating significant events. A legend on the far right lists various data layers: Ground Motion, Vegetation Moisture, Vegetation Vigour, Vegetation Moisture Strength, Vegetation Vigour Strength, Flood Zone, Piezometer Sensors, Water Level, and Buildings. The interface also includes navigation icons and a 'Tools' menu.

Date	Ground Motion (mm)
29 Dec 2018	-2
17 Jan 2020	-1
04 Feb 2021	4
23 Feb 2022	3
26 Mar 2023	-1



**DAM OPERATORS – REDUCE THE EFFORT NEEDED TO TRACK BUILDING CHANGES ACROSS INUNDATION ZONES**

### Mitigate risk

- Identify all buildings within each inundation zone
- Easily see addresses for each building
- Focus resources

### Track issues across all dams

- Monitor all inundation zones for all dams
- Identify changes quickly and easily
- Plan and action the right remediation

### Drive resource efficiencies

- Target emergency planning
- Optimise when and where you deploy experts to site
- Focus inspection time

**REGULATORS – ASSESS STATE-WIDE URBAN CHANGES THAT IMPACT HAZARD RATINGS**

### Assess hazard rating risk

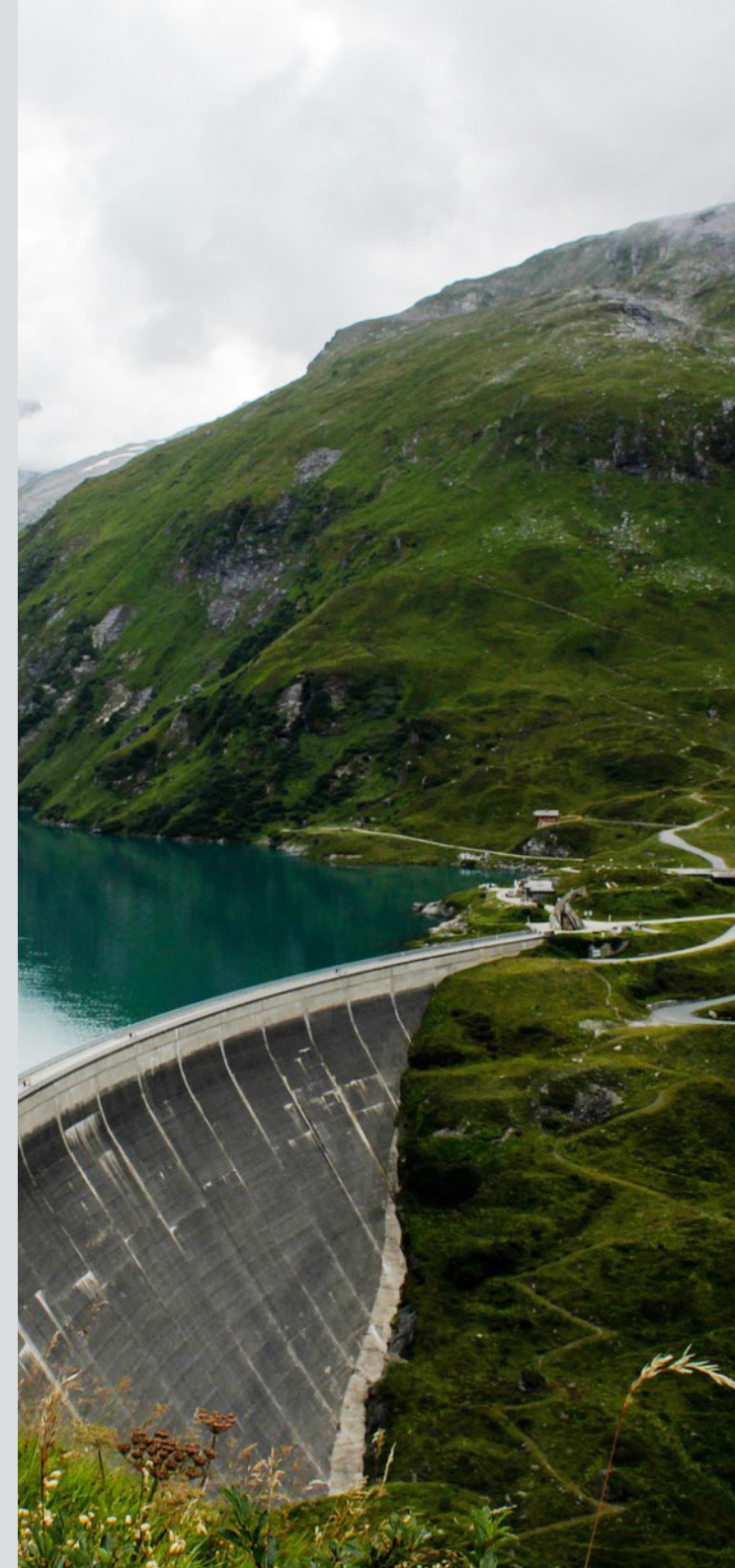
- View all state-wide changes & all inundation zones
- Focus on areas of concern
- Deploy inspection resources optimally

### Track issues between inspections

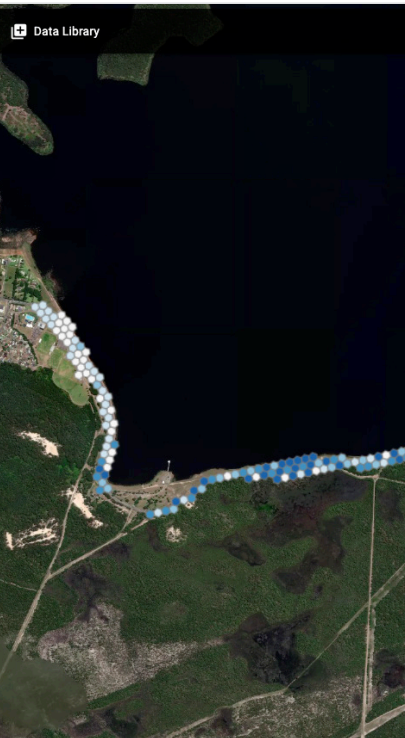
- Quickly determine changes
- Assess risk
- Proactively determine an appropriate response

### Optimize resource

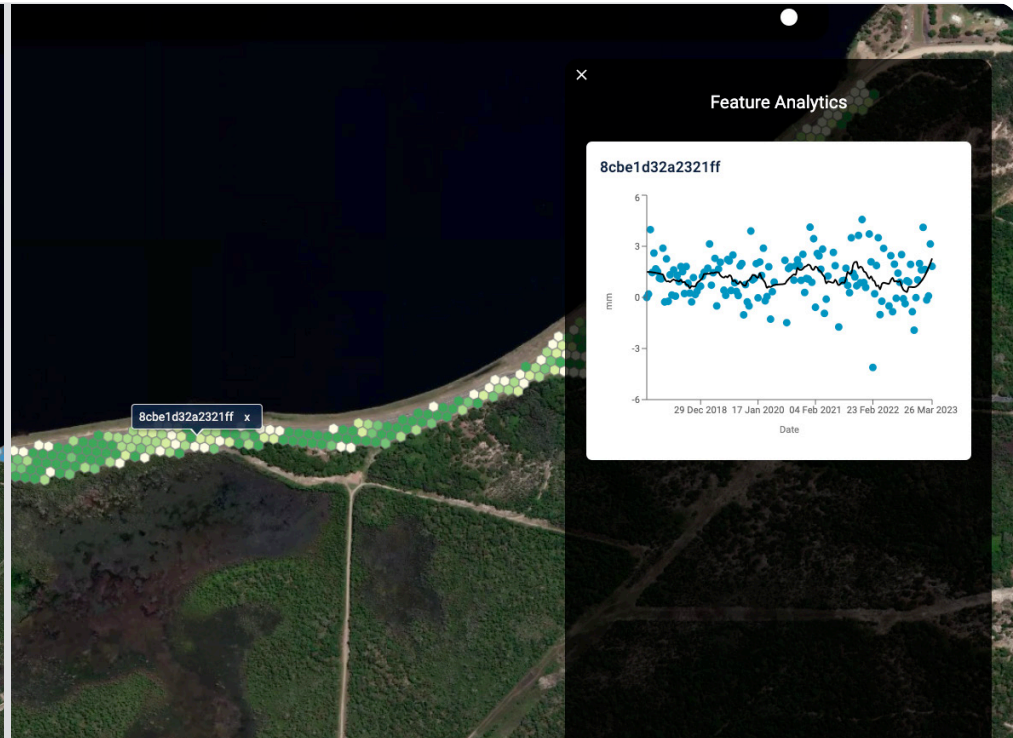
- Direct inspection teams to exact areas
- Focus emergency preparations
- Cut non-targeted inspection time



Vegetation Moisture



Vegetation Vigor





## Powered by Rezatec.

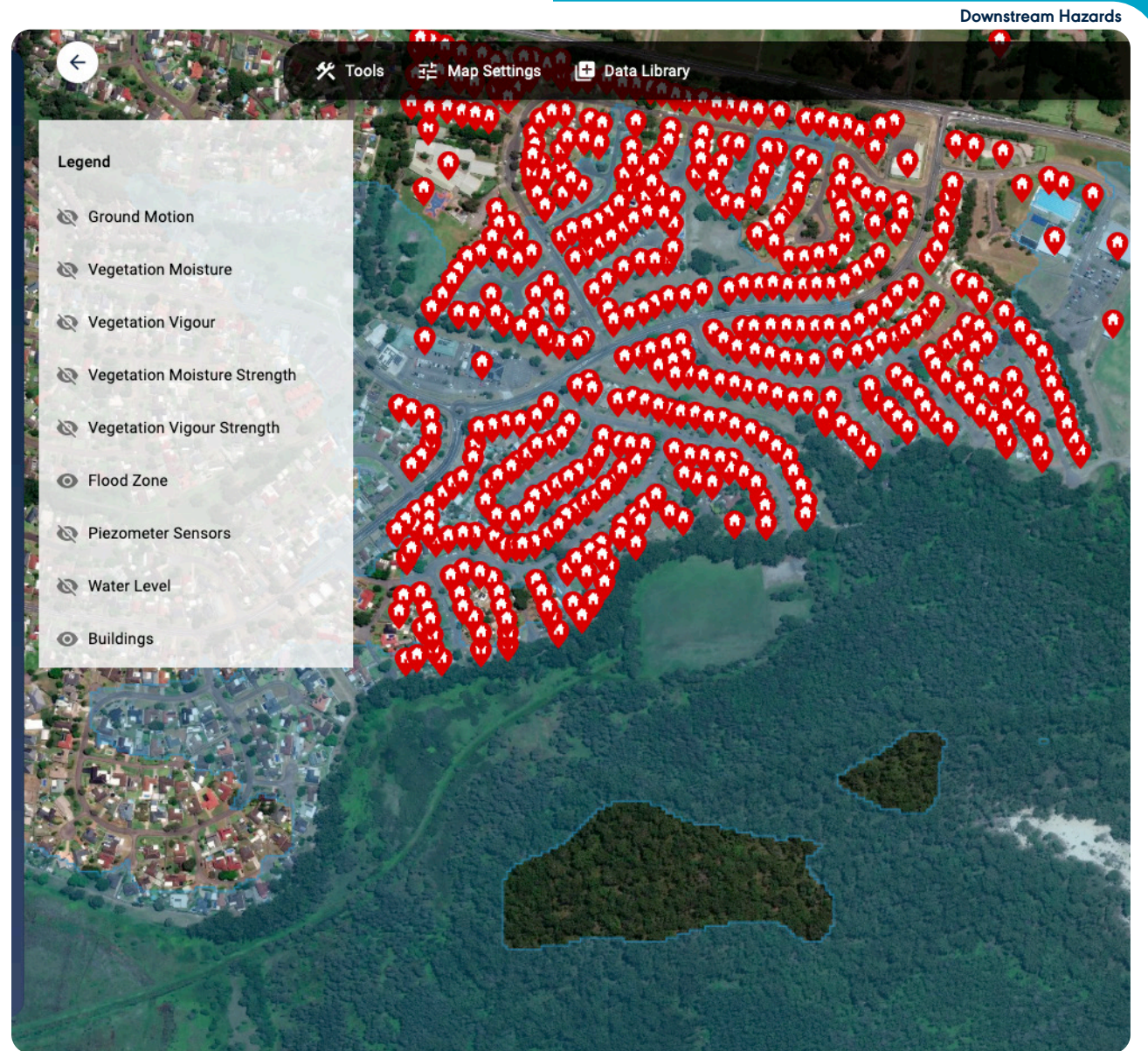
Dam Monitoring is a geospatial AI product providing a central platform for all dam-related data that remotely monitors risk, at scale. Its satellite and multiple data feeds fuse with the most advanced analytics on the market to bring you insights on key anomalies and indicators for failure modes. Built on Rezatec, the #1 geospatial AI platform, Dam Monitoring is rapidly becoming the tool of choice for dam owners, operators and regulators who need frequent risk insights across whole structures to efficiently direct ground resources, boost safety and mitigate risk.

### City of Spokane

The Upriver Hydroelectric Dam on the Spokane River in Washington state is a straight, concrete gravity dam, operating in a 'run-of-the-river' mode which is subject to seasonal river flows. Initially the team used Dam Monitoring insights to back up inspection reporting to FERC. They are now working through an extensive upgrade program, worth \$15m, to stay in line with the requirements of FERC and other agencies. The team uses Dam Monitoring to demonstrate structural robustness so they can focus on the items that truly need investment.

### Bella Vista Home Owners Association

Bella Vista in Benton County, Arkansas, was established in 1917 as a private resort destination and in 2008 as a city. The Lakes and Parks team ensures long-term maintenance of the Association's amenities, including seven lakes and seven dams with downstream hazards and highways. The team uses Dam Monitoring to demonstrate to stakeholders the link between monitoring and action to keep each dam in line with safety requirements. Regular data updates on the integrity of the dams keep them ahead of potential issues as visual inspections can lack detail and be open to interpretation.





## New Hampshire Department of Environmental Services

NHDES' Dam Bureau ensures safety, maintenance and repair of 300 state-owned dams. In total, there are 2,600 dams across New Hampshire with 800 classified as hazardous. The Bureau is confident Dam Monitoring detects the smallest movements and identified deformation at their pilot site, Goose Pond Dam. Now with additional sites being monitored, their team can prioritize repairs and instrumentation where needed and do a better job at identifying risks and deploying the right resources.

## South Carolina Department of Health & Environmental Control

South Carolina's regulated dams are classified based on potential loss of human life or property damage in the event of failure or improper operation of the dam. Currently, the evaluation process is manual and time intensive. Dam Monitoring can remotely, accurately, and more frequently identify dams with specific changes in structures within flood zones. This can enable South Carolina DHEC to prioritize specific dams, free up staff time to reinvest in important field work and validations, increase reliability and confidence in knowledge of risk, and focus on re-classification and Emergency Action Plans.

## SJWD

SJWD Water District is a public water utility in Spartanburg County, South Carolina. It owns five dams, four of them classified as high or significant hazard. South Carolina Department of Health and Environmental Control, partnered with SJWD to use Dam Monitoring to track changes that impact dam integrity. Instead of replacing inspections, Dam Monitoring enhances decision making by providing new insights. This empowers SJWD with knowledge on its dams and enables better planning for capital improvements.

## LS Power

This US-based energy company is adopting innovative new technology to help managers and engineers understand their dams' exposure to risk. Following its acquisition of four dams, LS Power needed to understand the dams' condition to direct resources to the right place. Having delivered three years' worth of historical data analyses, Dam Monitoring enables the energy company to monitor metrics on an ongoing basis and assist with regulatory reporting, including FERC's Dam Safety Surveillance Monitoring Report.







## About Rezatec.

Rezatec's geospatial AI platform empowers business leaders and engineers to manage risk and improve efficiency across all ground-based assets, remotely and at scale. This means you can deploy resources in the right place at the right time, boost the value of your assets and make smart decisions based on more frequent, accurate new insights.



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