



Convective storms: From research to loss prevention

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It's your reaction to adversity
not adversity itself
that determines
how your story develops.

Dieter F. Uchtdorf

Severe convective storms = **Thunderstorms!**

Perils:



Warming ~ increase of extreme precipitation

Clausius-Clapeyron

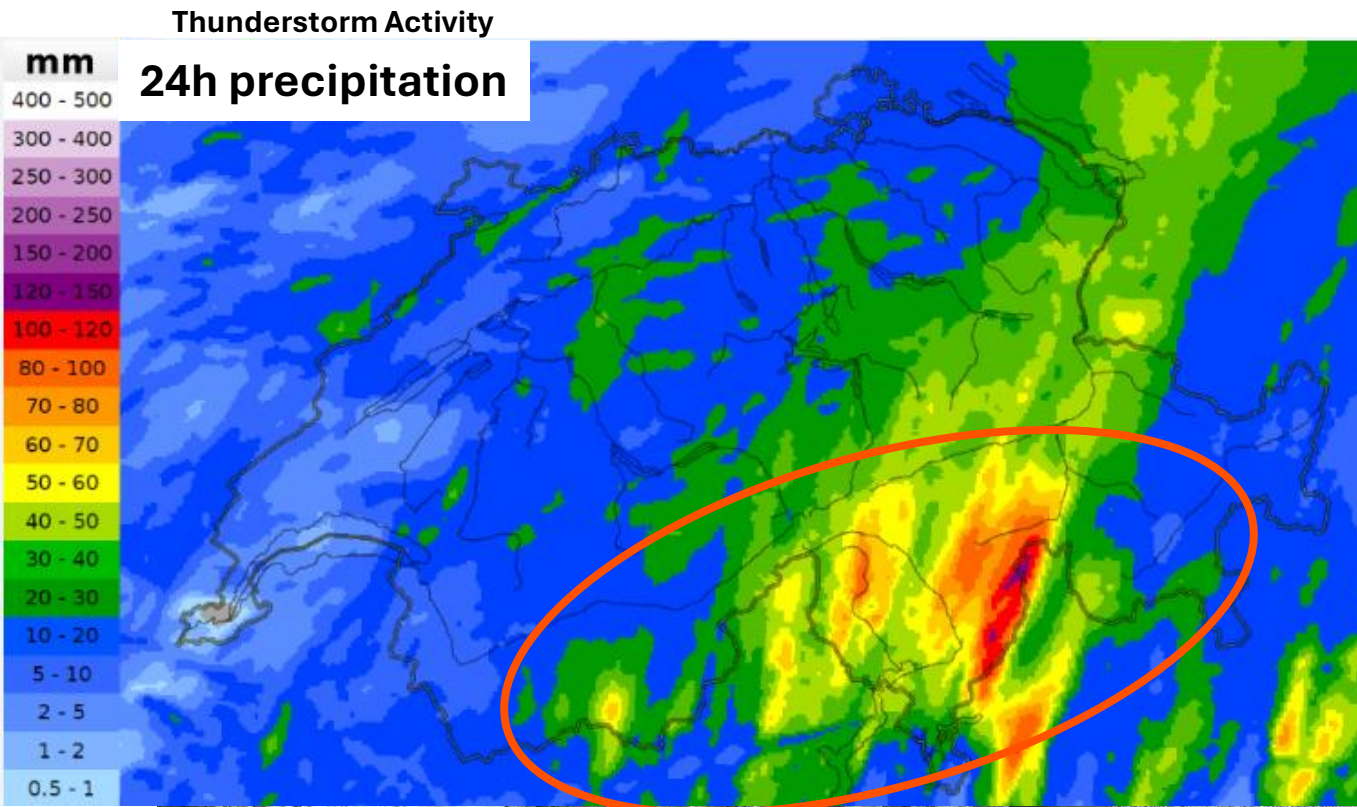
+1°C ~6-8% more moisture in air available for cloud formation and extreme rainfall

When do Thunderstorms occur?

- ❖ when it's warm, humid areas (pm spring/ summer)
- ❖ moisture, rapidly raising air (instability)
- ❖ force: weather front, sea breeze, mountains

- ↗ Chance of thunderstorms
- ↗ Violent storms
- ↗ Lightning strikes
- ↗ Flash floods

Swiss floods 2024: USD 170mn economic losses



Large areas of Ticino & Graubünden experienced 15-25% of their mean annual convective activity in a single day

Severe Convective Storm Weather & Snowmelt 21st June 2024

- 3+ fatalities
- Damage to homes and infrastructure
- A13 motorway segment closed for months
(major route between San Bernardino and Roveredo)
- >100mm of rain in 24 hours ~ 20-30yrs RP
- Very short event: most rain within 3 hours
- Heavy rains melted late spring snow falls
- Severe Flooding & debris flow: Wallis, Tecino

Does this event fit into the severe convective storm category?

Risk Managers/
Engineers

Fire



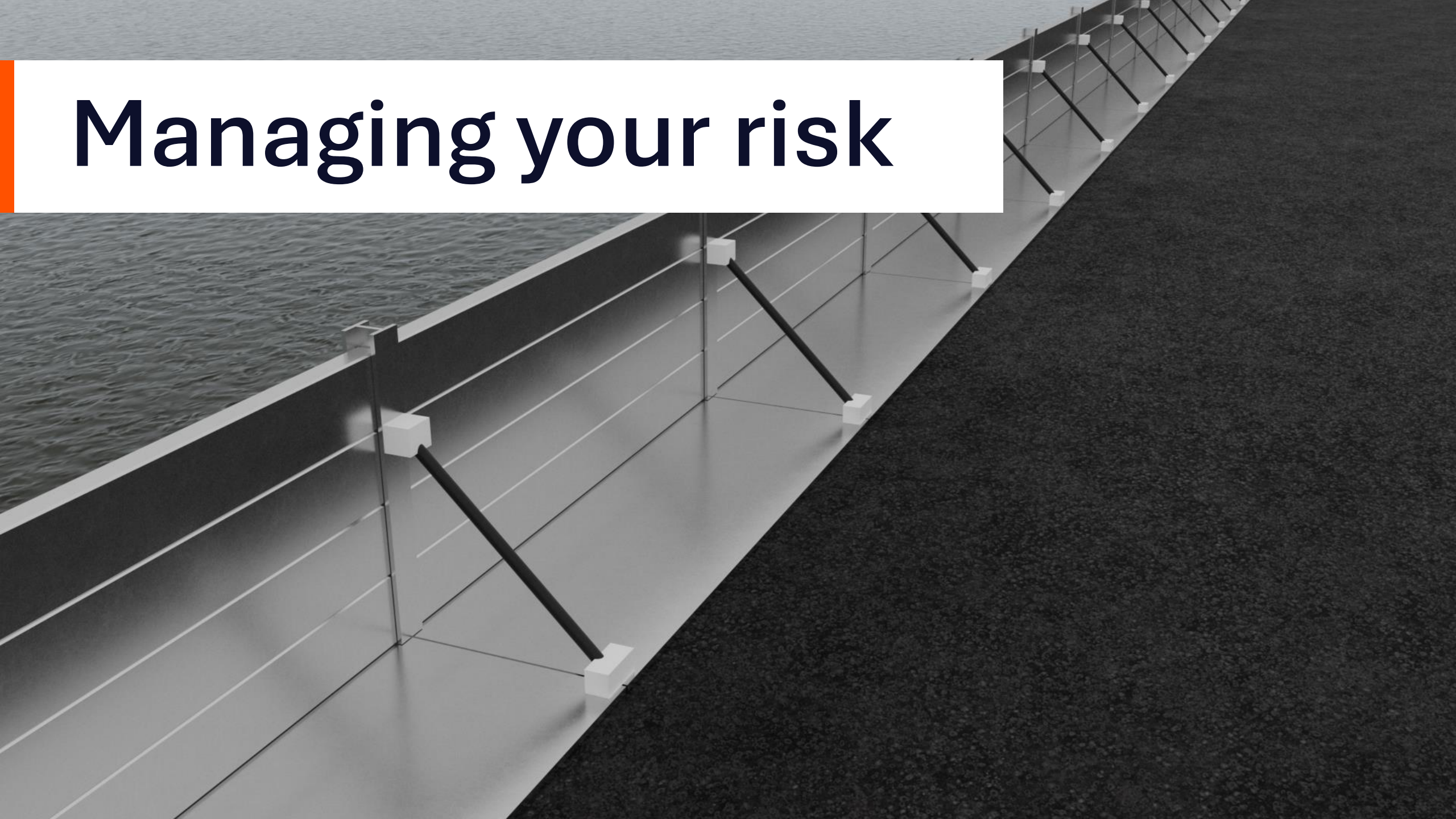
Flood



SCS



Managing your risk

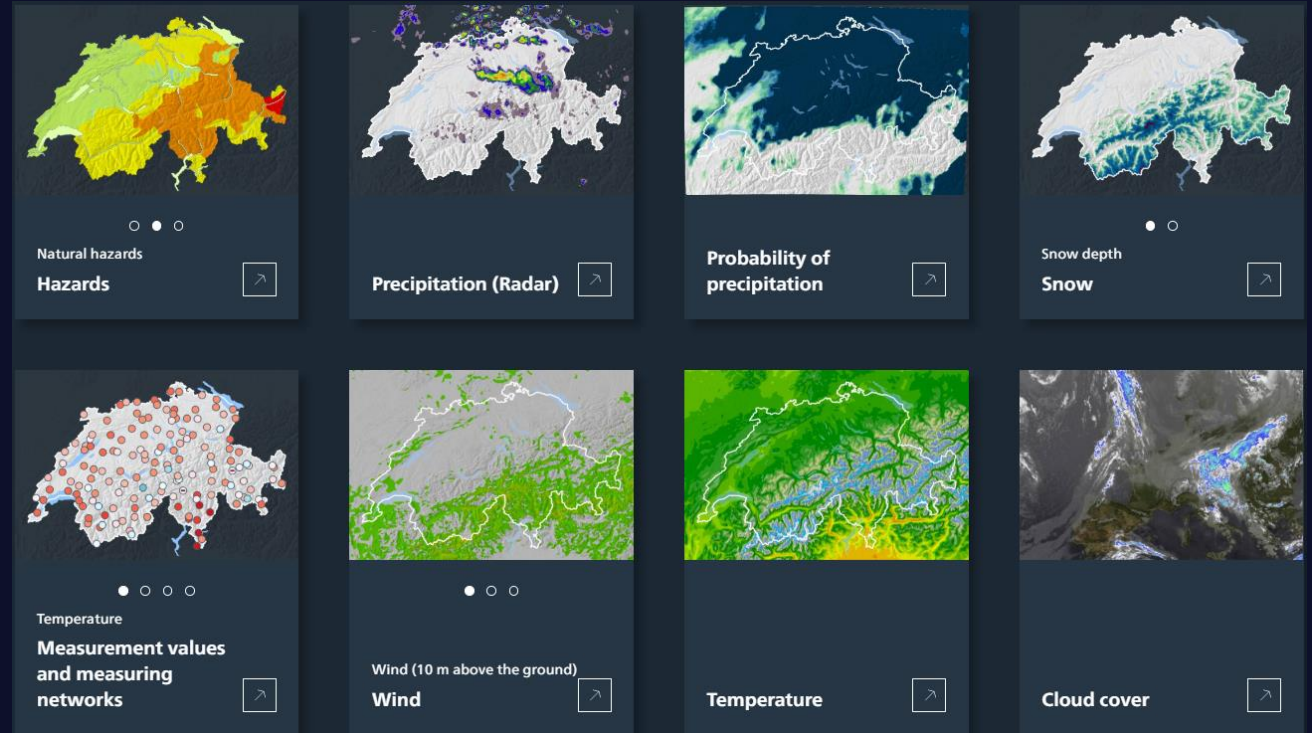


Weather monitoring

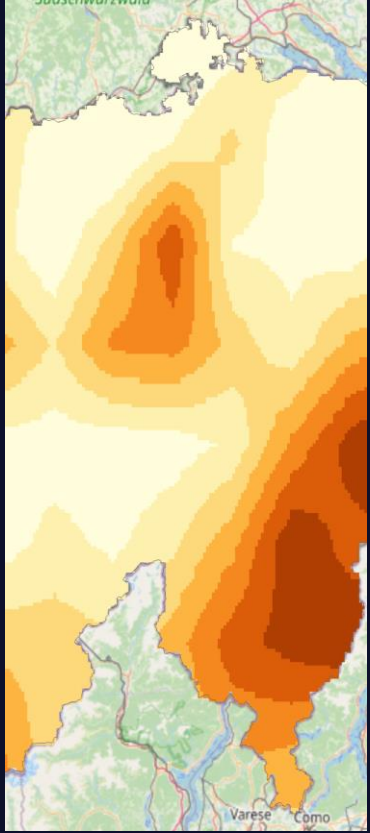
- MeteoSwiss
- www.natural-hazards.ch
- Alertswiss (WeatherAlarm for Europe)

Emergency plan

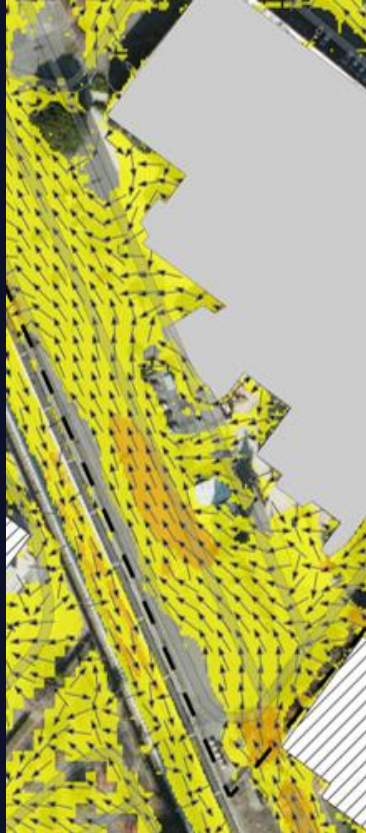
- Pre-event actions
- Active fixing during the event
- Post-event plan to repair and clean-up



Six Steps to better Risk Management



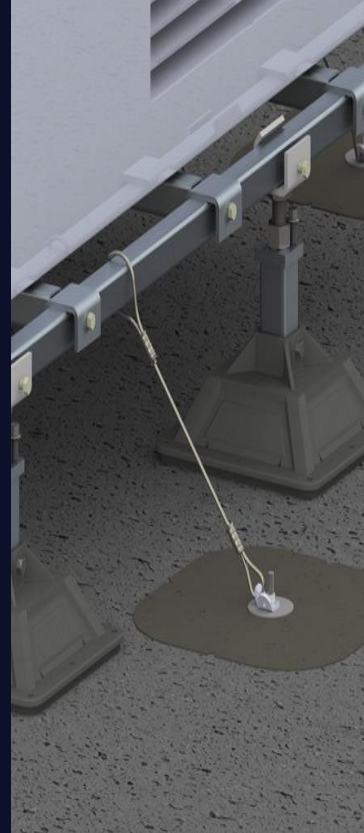
Understand



Analyze



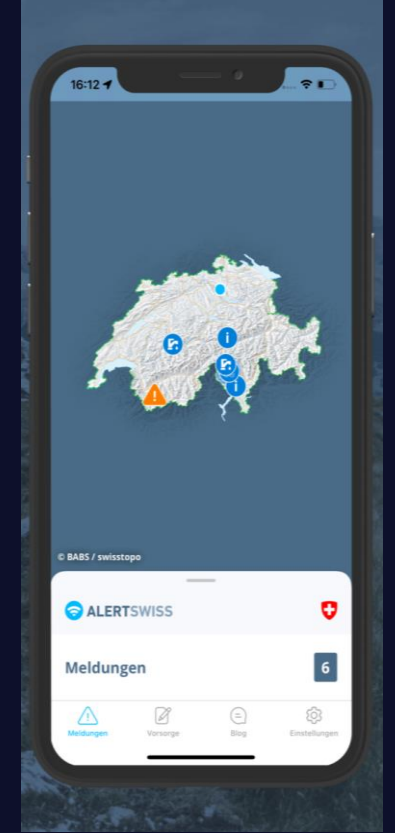
**Develop a
Plan**



Protect



Train



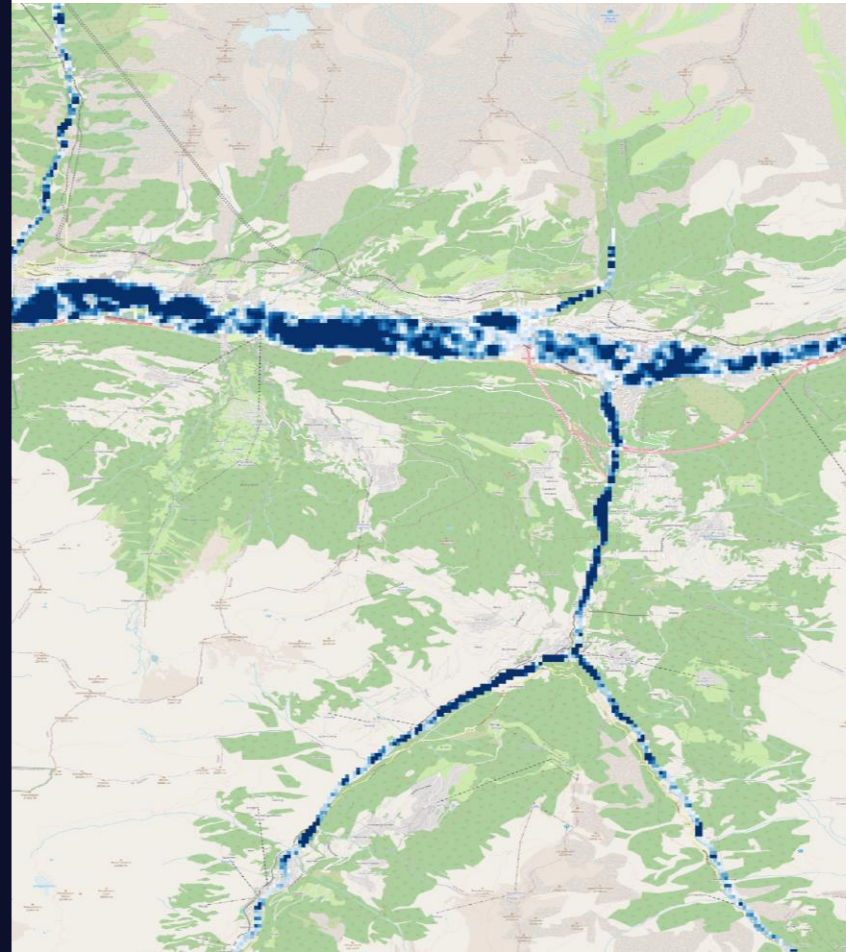
Monitor

UNDERSTAND: FM and local hazard maps

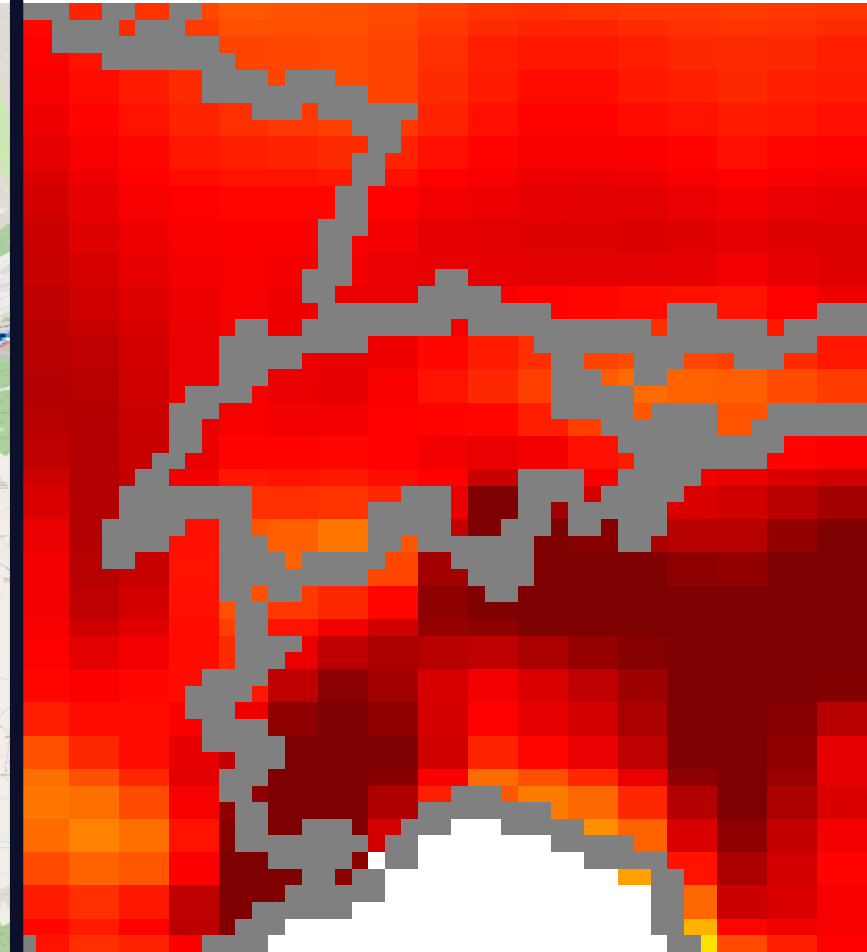
Earthquake



Flood



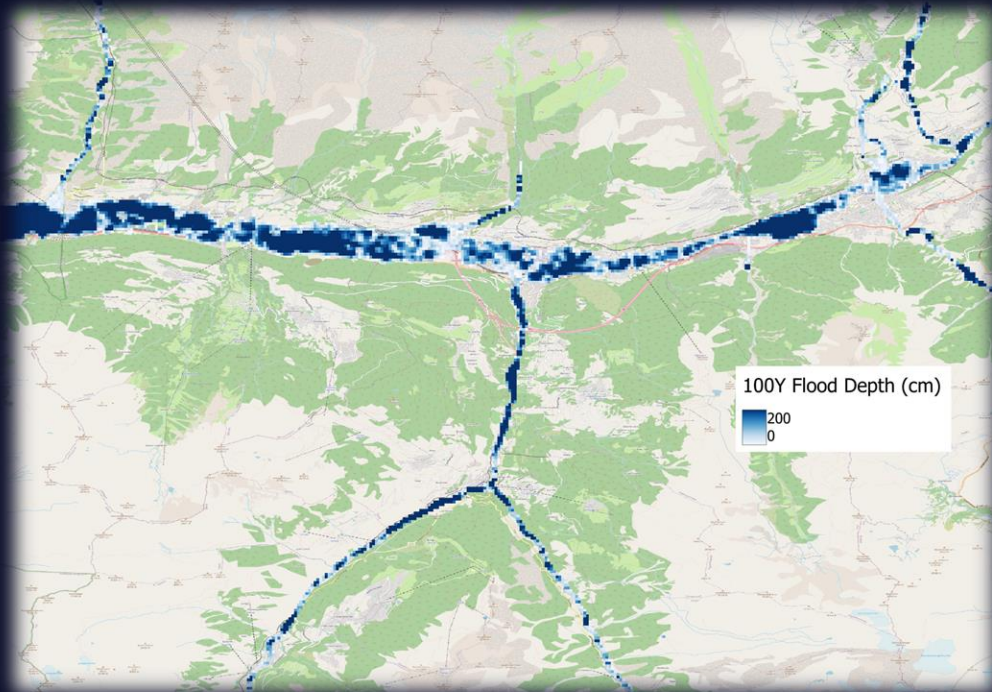
Hail



Continuous improvement of tools

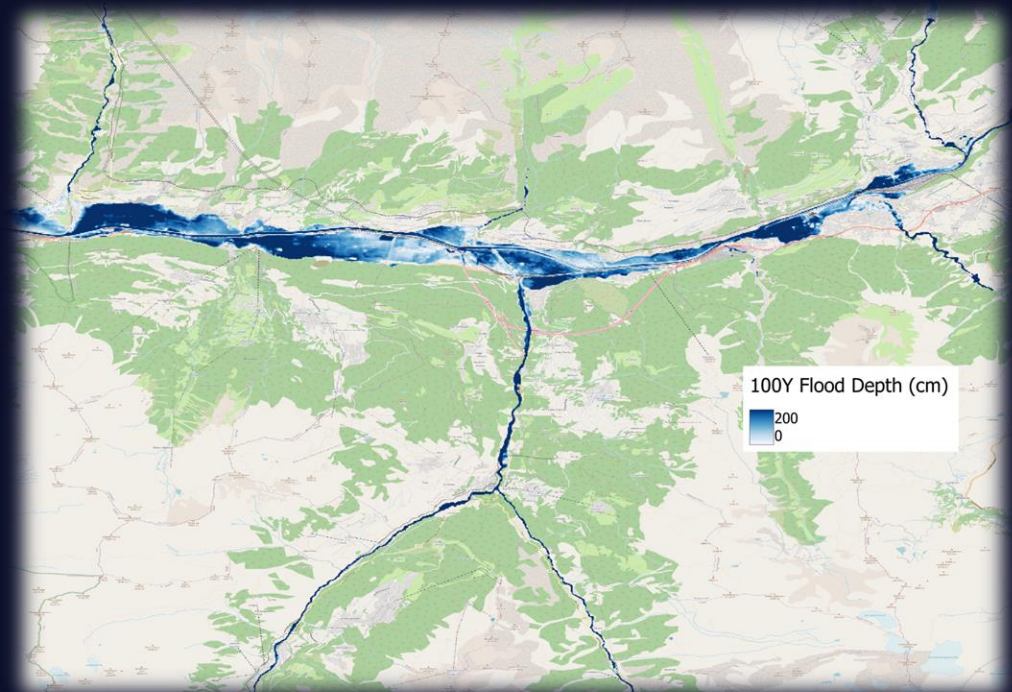
Global Flood Maps **2017**

- 90m resolution
- Topography-defined rivers
- 31-year historical simulations
- Uniform surface roughness
- Physically-based modelling

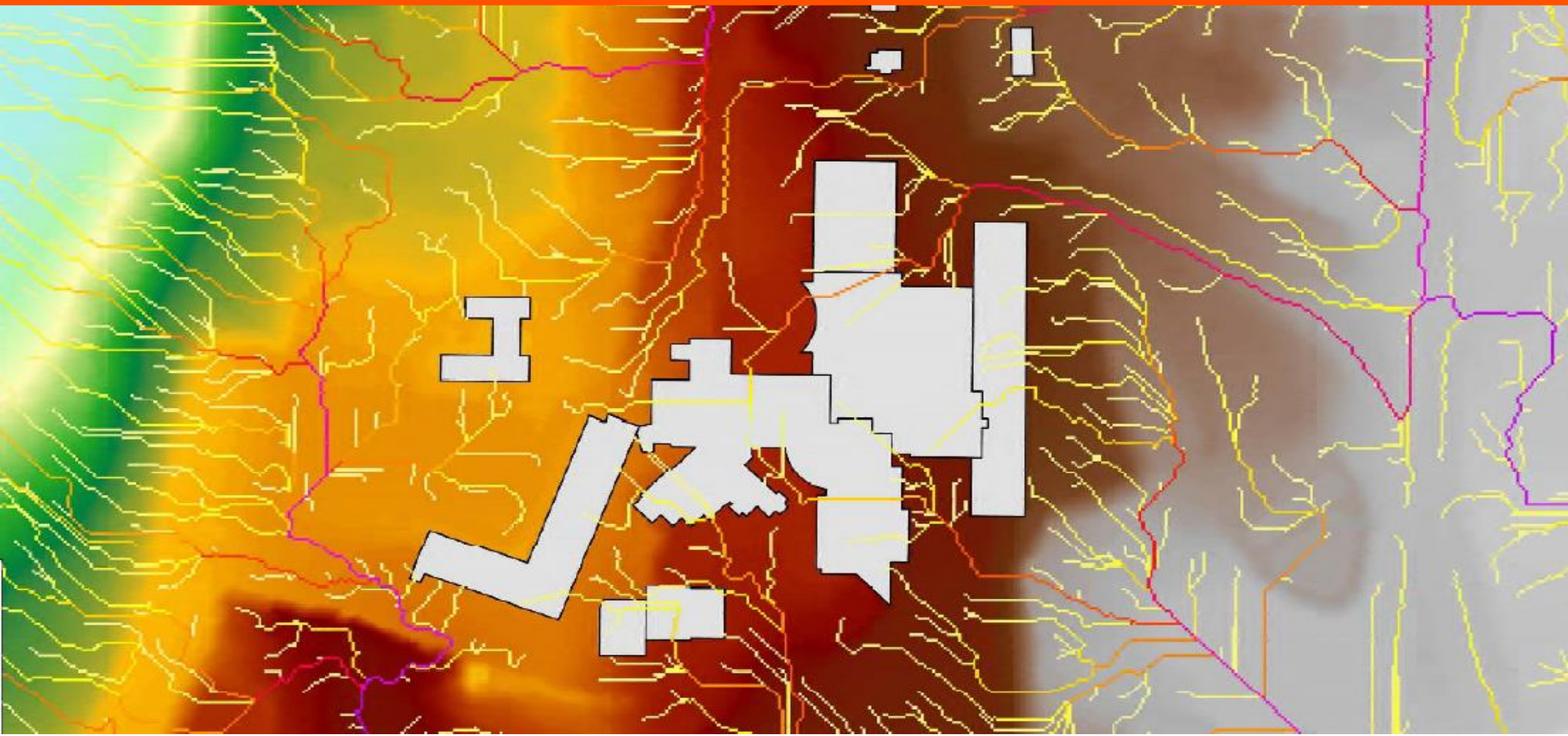


Planned update **2026/27**

- 30m resolution
- Refined river locations from sat. data
- 39-year historical simulations
- Improved Digital Terrain and Soil data
- Updated Rain and Snowmelt events



ANALYSIS: Leveraging technology to understand the risk



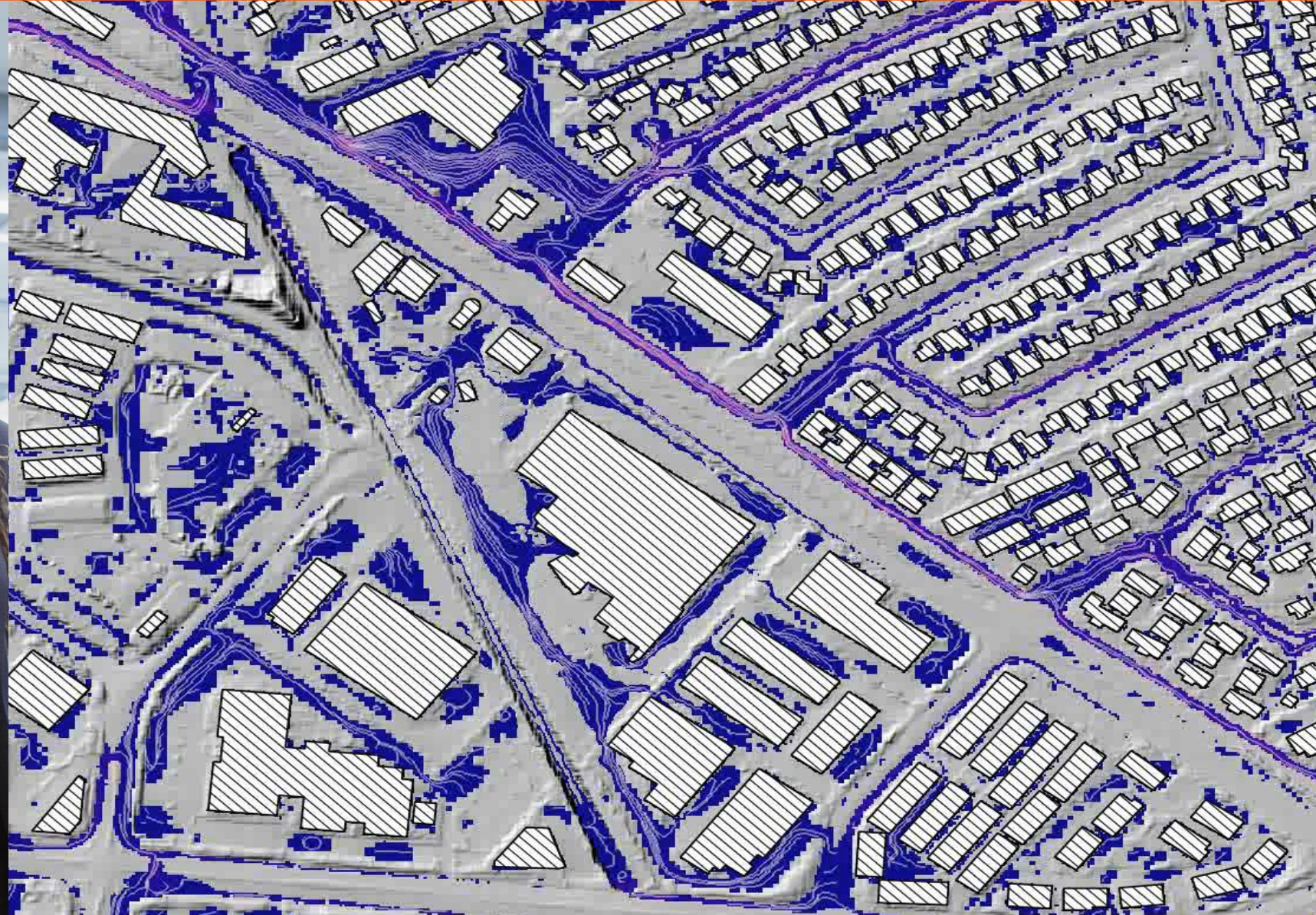
FM brings expertise in engineering, science and technology



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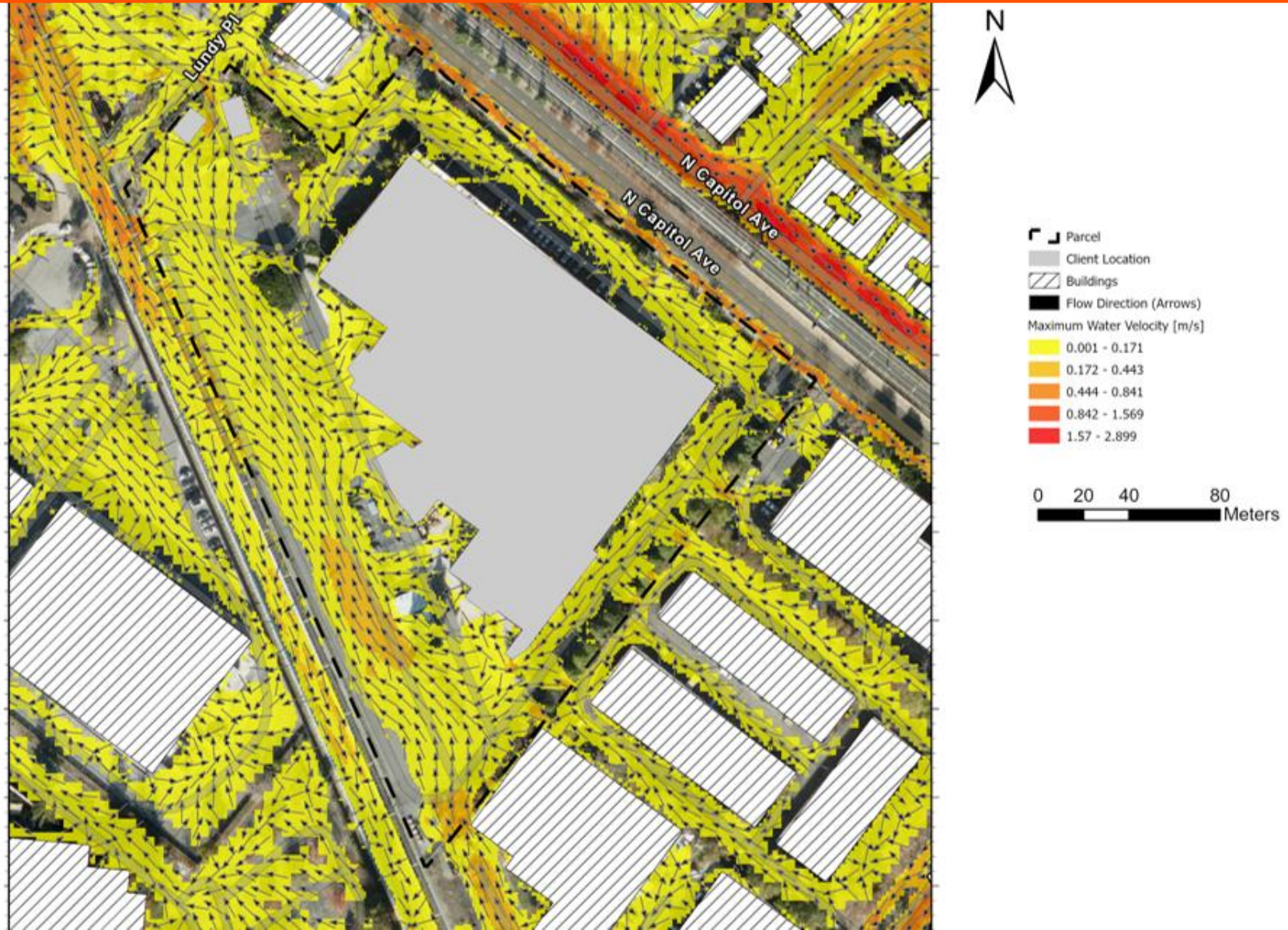
FM brings expertise in engineering, science and technology



...to communicate risks and design protection strategies



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DEVELOP A PLAN: Working to find solutions

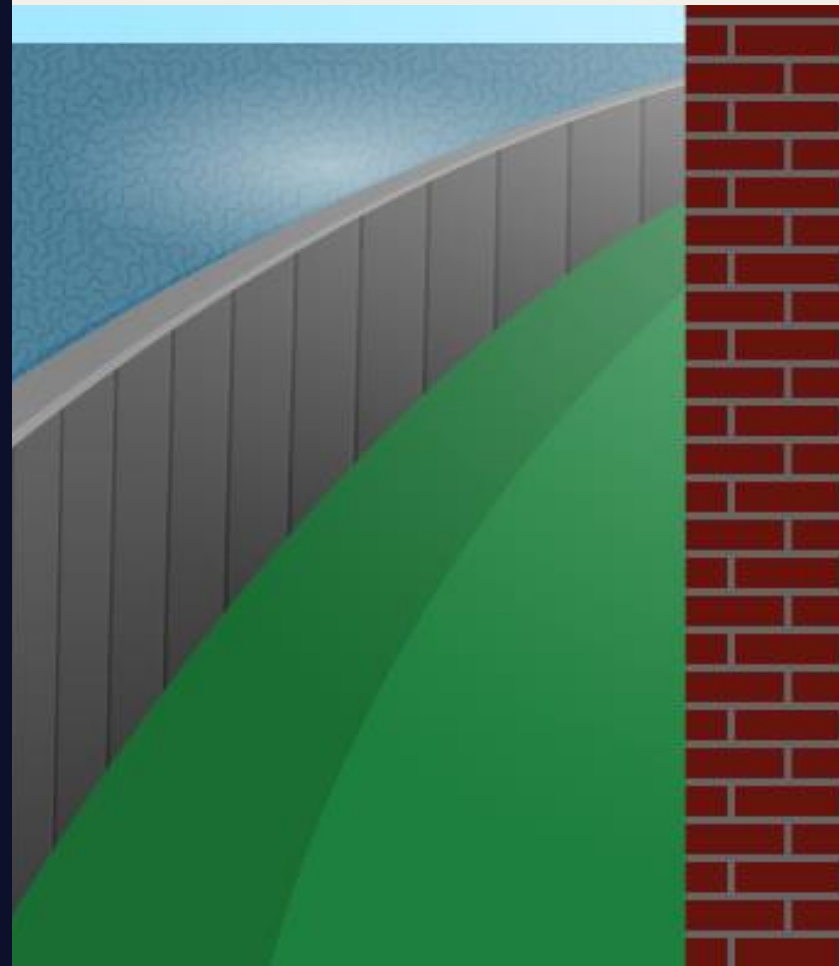


PROTECT & TRAIN: Flood mitigation strategies

Stay above
the flood level



Keep the water out



Wet floodproof





Flood mitigation strategies



Stay above flood level



Keep the water out



Wet flood-proofing



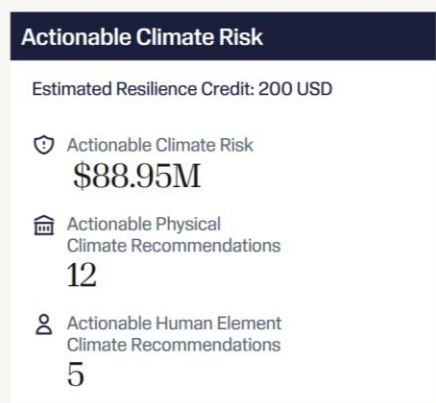
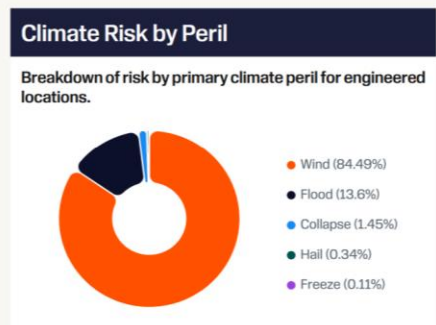
MONITOR: Release of the Climate Resilience Tracker

Executive Summary

The climate is changing and affecting the risks that impact your locations now and in the future. Combining Engineering data from site visits with the latest insights into climate change, FM has prepared this proprietary report that helps you manage and report your climate-related physical risks and exposures.

Note: All currencies referenced are in U.S. Dollar.

Current Climate Risk Exposure



- Assess climate risk for current & future climate perils in a single report
- Self-service through the FM portal
- Access and export data
- Insights for unvisited locations

FM's committment to resilience

Executive Summary

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Current Climate Risk Expo

11 of 11 Engineered Locations

Climate Risk Score



Attained Climate Risk Reduction

- Completed in last 3 years
- Climate Risk Reduced \$65.80M
- Physical Climate Recommendations Completed 3
- Human Element Climate Recommendations Completed 2

FM CLIMATE RESILIENCE TRACKER

Location	Score	Exposure	Requirements	Law	Audit
1	44	High	Met	Met	Met
2	42	Medium	Met	Met	Met
3	40	Low	Met	Met	Met
4	38	Medium	Met	Met	Met
5	36	High	Met	Met	Met
6	34	Medium	Met	Met	Met
7	32	Low	Met	Met	Met
8	30	Medium	Met	Met	Met
9	28	High	Met	Met	Met
10	26	Medium	Met	Met	Met

Actionable Vs. Inherent Risk - Overview

Actionable Climate Risk

This chart illustrates risk to the exposure that our action has been taken.



Executive Summary - Perils Breakdown

Identifying which of your facilities are exposed to extreme climate events is the first step in assessing your exposure to climate risk. Shown here is your organization's top 10 valued locations with the highest exposure to climate risk.

Climate-Related Losses



Managing Your Climate Risk

Climate risk is a business continuity risk. As the effects of a changing climate become more significant, its effect on the frequency and magnitude of climate risk, such as flood or wind, will also likely increase.

Lowering the latest advanced analytics, FM has prepared this proprietary report for you to use in climate audits to help you understand your business resilience, so you can look to the future with confidence.

Top 10 Locations with Highest Climate Risk and Associated Climate Perils

Location Details	TVL USD		FDL USD		BE USD		Flood		Freeze		Wind		Wildfire		Collapse		Hail	
	TVL	FDL	BE	TVL	FDL	BE	Exposed	Exposure Trending Up	Exposure Trending Up	Exposure Trending Up	Exposure Trending Up	Exposure Trending Up	Exposure Trending Up	Exposure Trending Up	Exposure Trending Up	Exposure Trending Up	Exposure Trending Up	
01072145-00 75 Columbus Rd, Waltham, 02453-1000, United States of America	\$378.2M	\$306.7M	\$33.5M	\$378.2M	\$306.7M	\$33.5M	●	●	●	●	●	●	●	●	●	●	●	●
01003200-00 3010 E 9th St, Cleveland, 44102-5100, United States of America	\$10.0M	\$10.0M	\$10.0M	\$10.0M	\$10.0M	\$10.0M	●	●	●	●	●	●	●	●	●	●	●	●
01000475-00 2000 E Upper Ave, Minneapolis, 55405-6400, United States of America	\$14.3M	\$13.9M	\$43.0M	\$14.3M	\$13.9M	\$43.0M	●	●	●	●	●	●	●	●	●	●	●	●
01072075-00 2075 MacArthur Blvd, Philadelphia, 19103-5000, United States of America	\$70.2M	\$70.2M	-	\$70.2M	\$70.2M	-	●	●	●	●	●	●	●	●	●	●	●	●
01040520-00 5503 Harford Ave, Annapolis, 20703-4900, United States of America	\$440.5M	\$440.5M	-	\$440.5M	\$440.5M	-	●	●	●	●	●	●	●	●	●	●	●	●
01000570-00 4 Sunnyside, Lexington, 02420-7900, United States of America	\$80.7M	\$80.7M	-	\$80.7M	\$80.7M	-	●	●	●	●	●	●	●	●	●	●	●	●
01000500-00 2 State St, Northborough, 01532-1020, United States of America	\$54.03M	\$70.50M	\$20.50M	\$54.03M	\$70.50M	\$20.50M	●	●	●	●	●	●	●	●	●	●	●	●
01040450-00 12 Lake Ave, Waterford, 01080-4200, United States of America	\$65.0M	\$170.0M	\$170.0M	\$65.0M	\$170.0M	\$170.0M	●	●	●	●	●	●	●	●	●	●	●	●
01002700-00 61 East St, Newark, 07102-2000, United States of America	\$1.0M	\$20.0M	\$1.0M	\$1.0M	\$20.0M	\$1.0M	●	●	●	●	●	●	●	●	●	●	●	●
01047470-00 6 Moray Hill, Chapel Hill, 27514-3000, United States of America	\$14.0M	\$10.0M	\$7.0M	\$14.0M	\$10.0M	\$7.0M	●	●	●	●	●	●	●	●	●	●	●	●

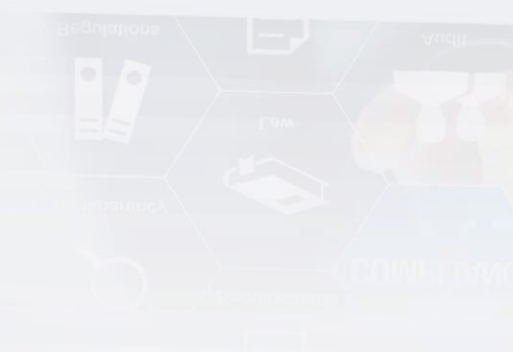
FM CLIMATE RESILIENCE TRACKER Sample Client | PAGE 2 of 9



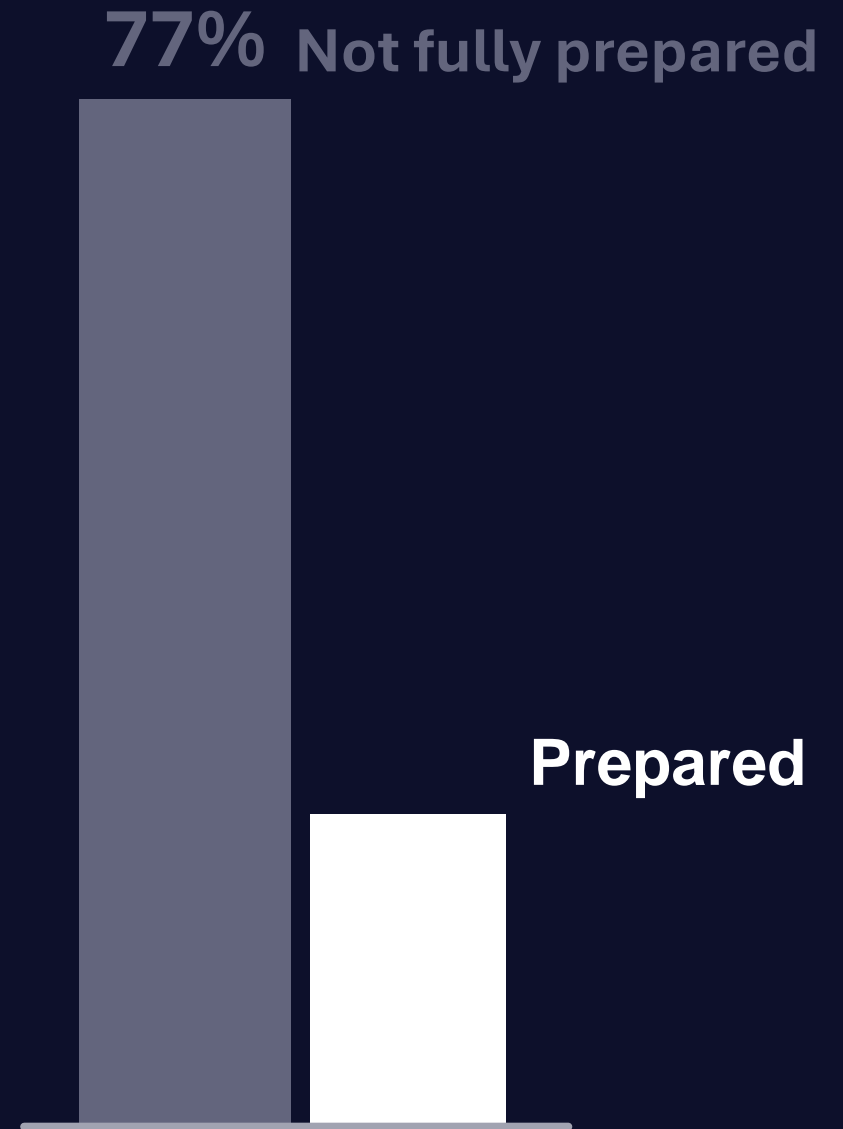
CLIMATE REPORTING AID



CLIMATE REPORTING AID



How prepared is your company to address the adverse financial impact of climate risk?



Thank you. Any questions?

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