VALUE SPACE

SATELLITE BASED RISK ASSESSMENTS AND MONITORING

THE WORLD IS FACING A DUAL PROBLEM

On one hand, there is aging and deteriorating infrastructure around the world that has surpassed its ‘alert age’ and;

On the other, climate change pushes the physics of brittle infrastructure to breaking points, faster than ever before.

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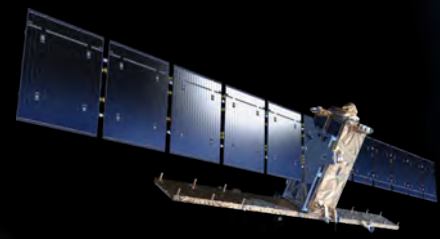
- **$19m**
  Costs saved for clients
- **152.25+**
  Tons of CO2 emissions saved
- **$25bn**
  Value of assets profiled
- **3,500+**
  Total assets risk-profiled
- **70+**
  Countries



Focused Asset Classes

- The survey is conducted 100% remotely to minimize data collection costs.
- Value.Space can look back up to 8 years and see prior risks that have been present in the past.

Mines

Dams

Commercial Property

MANUAL WORKLOAD COMPARED TO VALUE.SPACE

Photo by Scott Blake on Unsplash

Manual solution:

Takes weeks or months, with a considerable C02 footprint and is costly.

It does not give a full overview of risks if the area is large (1km2, 10km2 or 100km2).

Value.Space a digital solution that is:

x 10 faster (days),
100% remote and
up to x25 more cost efficient

and due to its viewing angle, provides data that is not even available by manual alternatives.

SOUTH AFRICA, JAGERSFONTEIN, DIAMOND MINE TSF

Several risk markers could have been foreseen at least a year and a half before the loss event, likely longer if it would have been monitored regularly.

Loss event occurred 11th September, 2022

Deformation Gauge

Red = Downward Movement

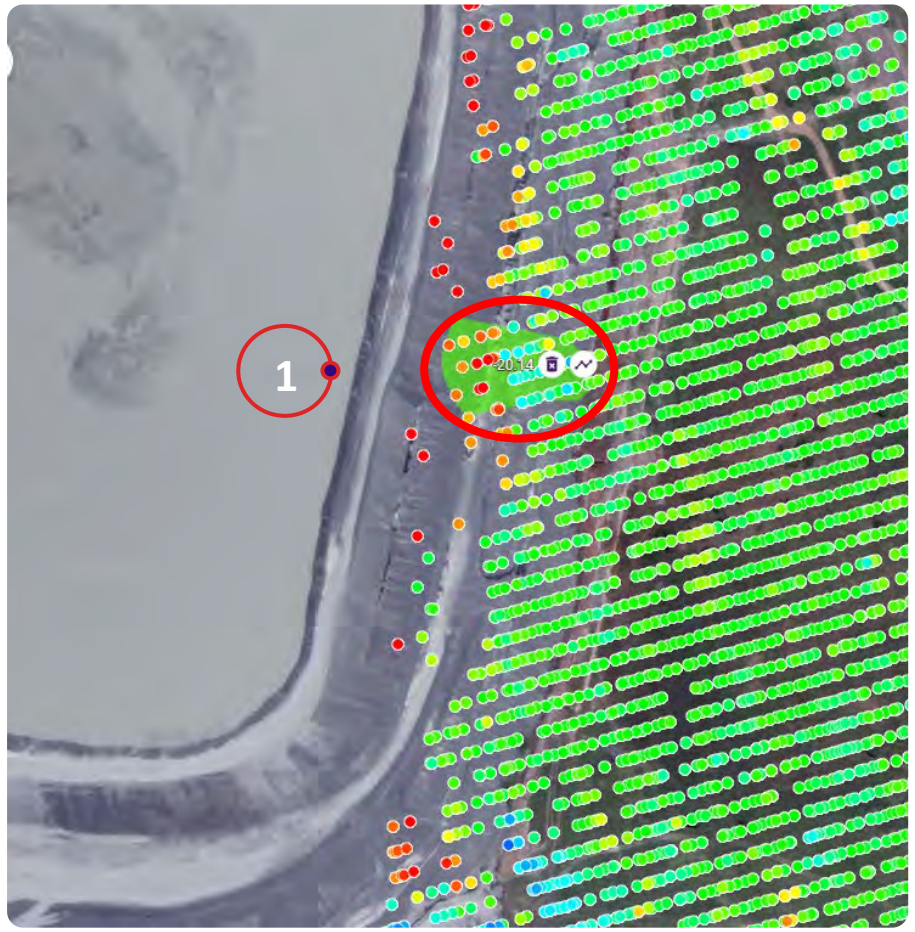
Green = Stable

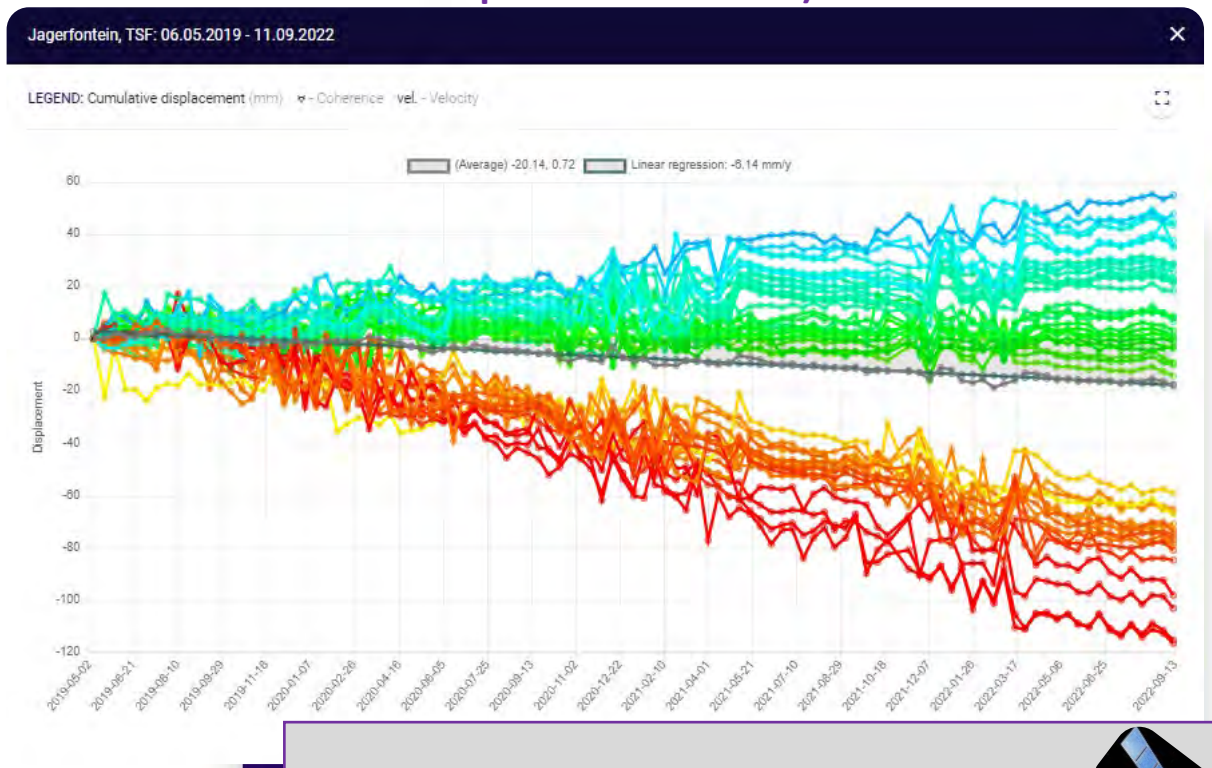
Blue = Upward Movement

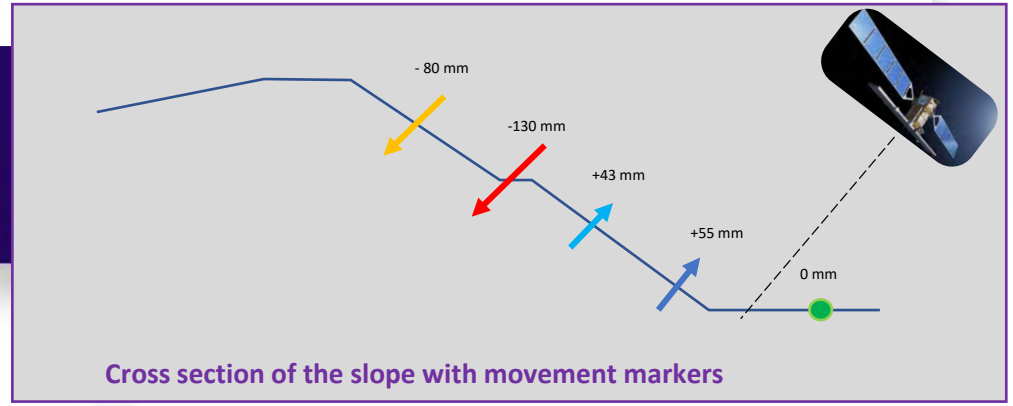

1
Find 1: Bidirectional movement cluster
2
Find 2: Bidirectional movement cluster
3
Find 3: Bidirectional movement cluster
4
Find 4: Bidirectional movement cluster
5
Find 5: area without stable reflection
1
2
3
4
VALUE SPACE

1

Timeline: 05.2019 – 09.2022
Find 1: Bidirectional movement cluster (differs from usual compaction behaviour)





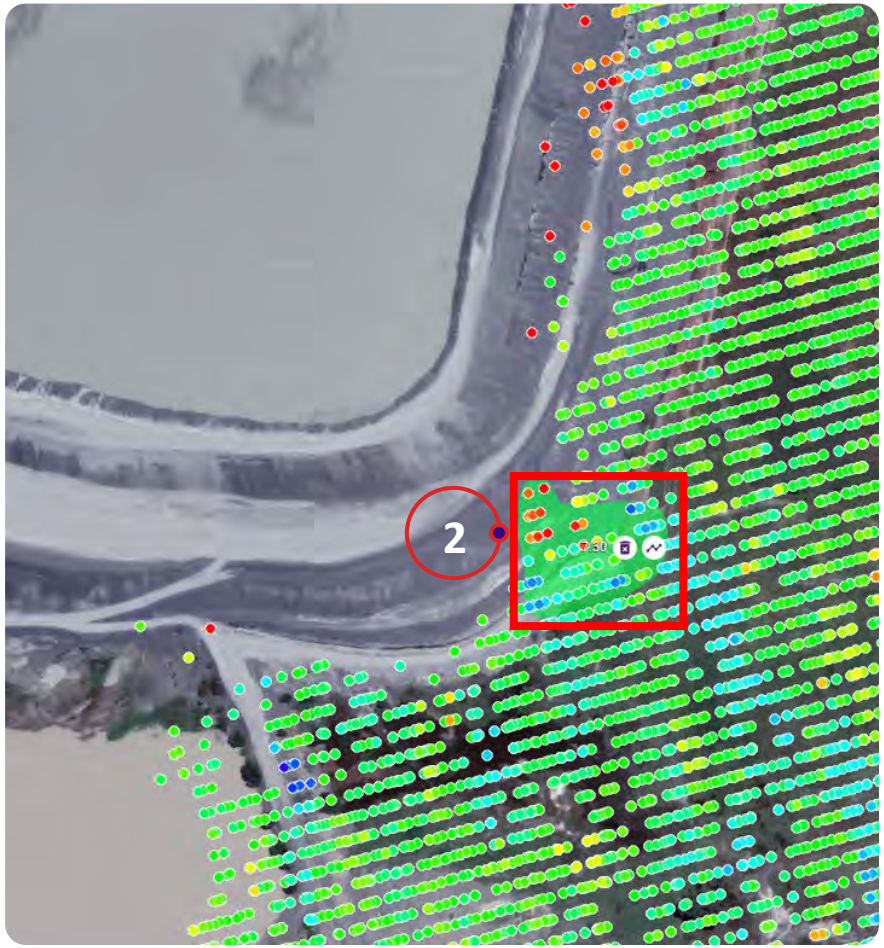


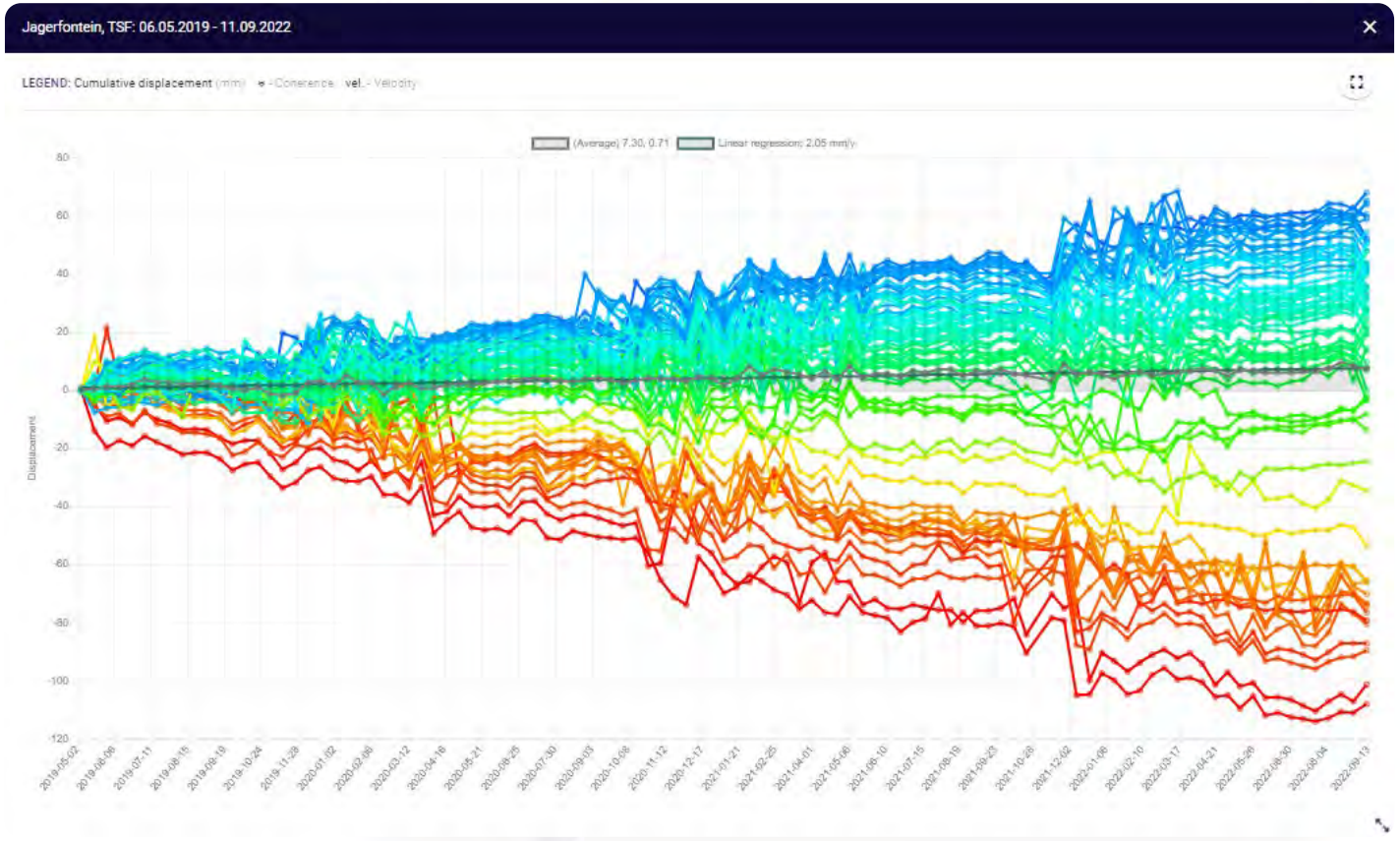
Cross section of the slope with movement markers

2

Timeline: 05.2019 – 09.2022

Find 2: Bidirectional movement cluster

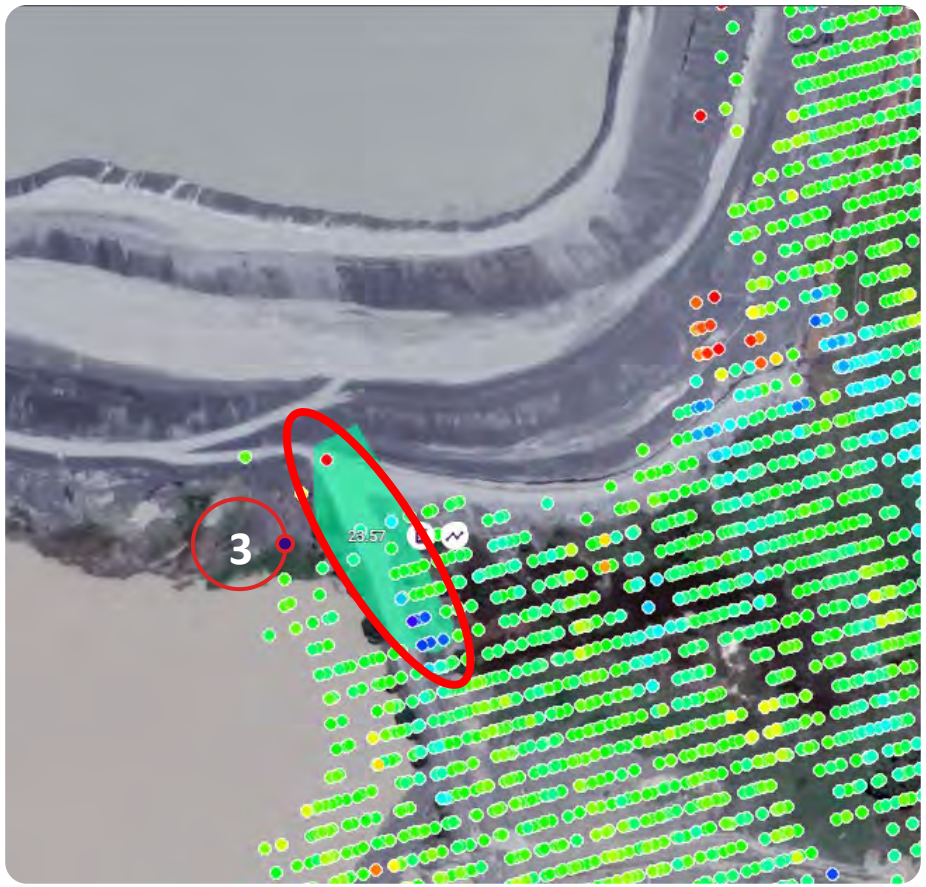




3

Timeline: 05.2019 – 09.2022

Find 3: Bidirectional movement cluster



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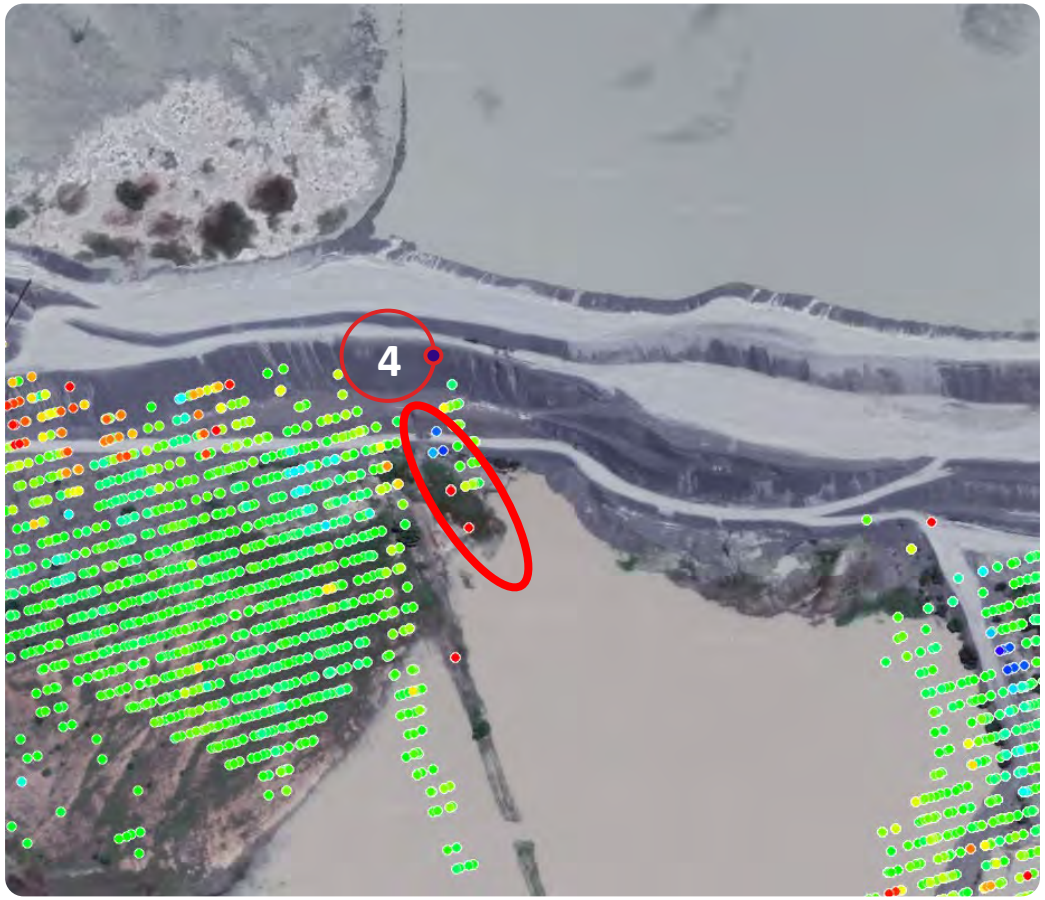
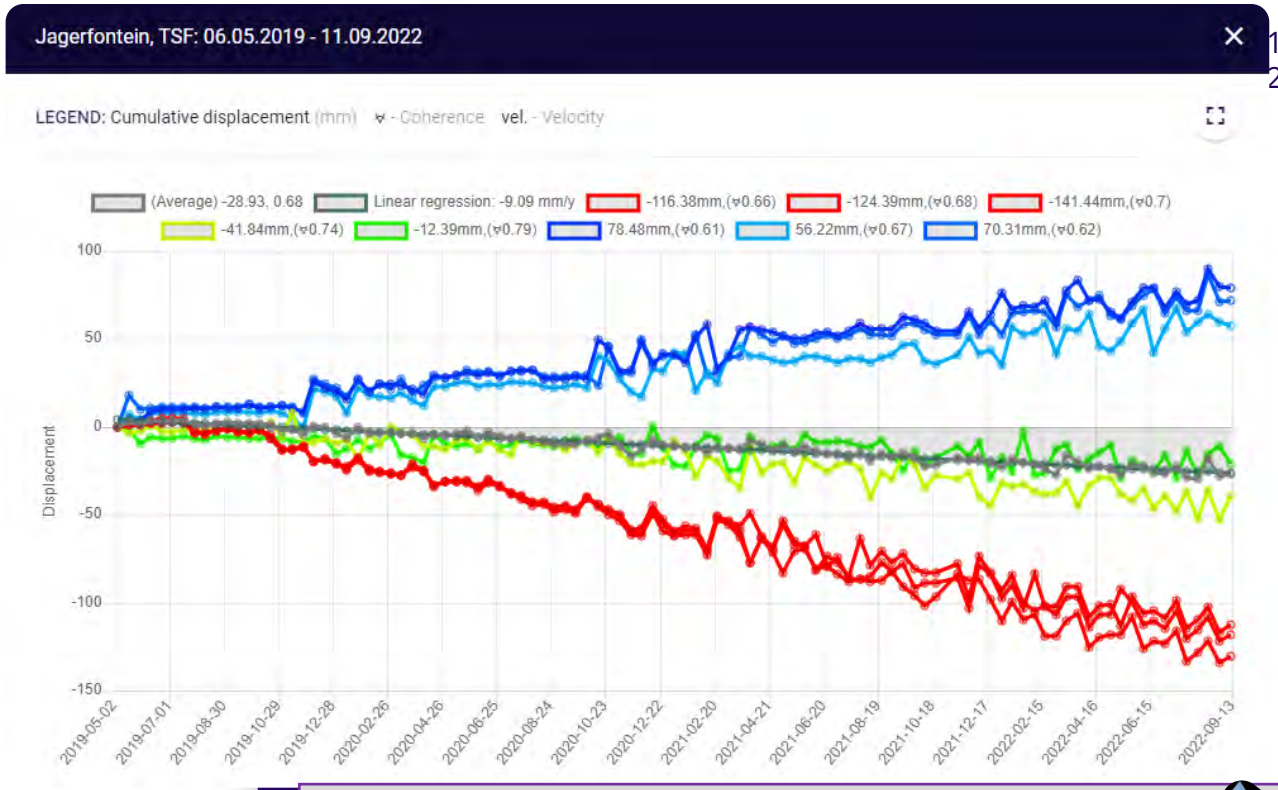
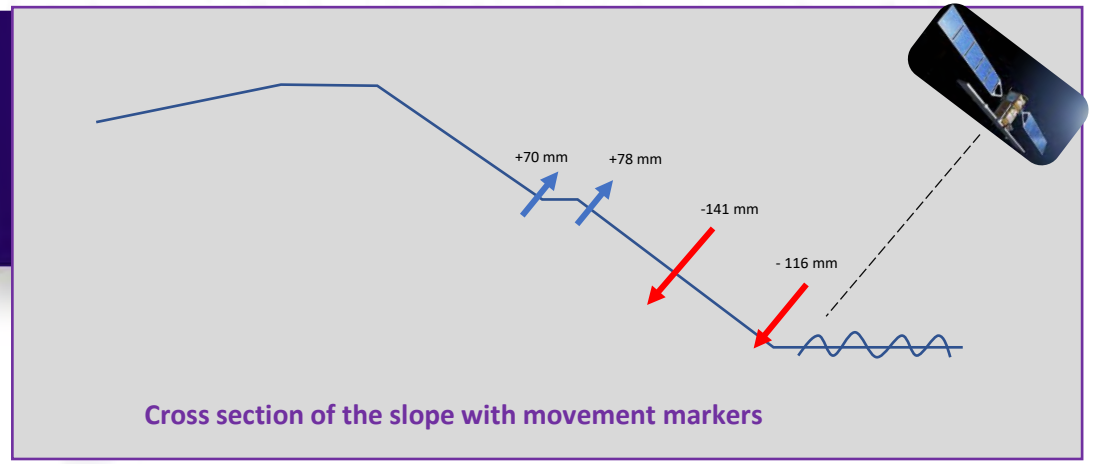
4 Find 4: Bidirectional movement cluster (between relatively stable areas)







Cross section of the slope with movement markers

SARDOBA TAILINGS STORAGE FACILITY (TSF), UZBEKISTAN

ASSESSMENT TIMELINE
05.01.2019 - 29.04.2020


Breached area

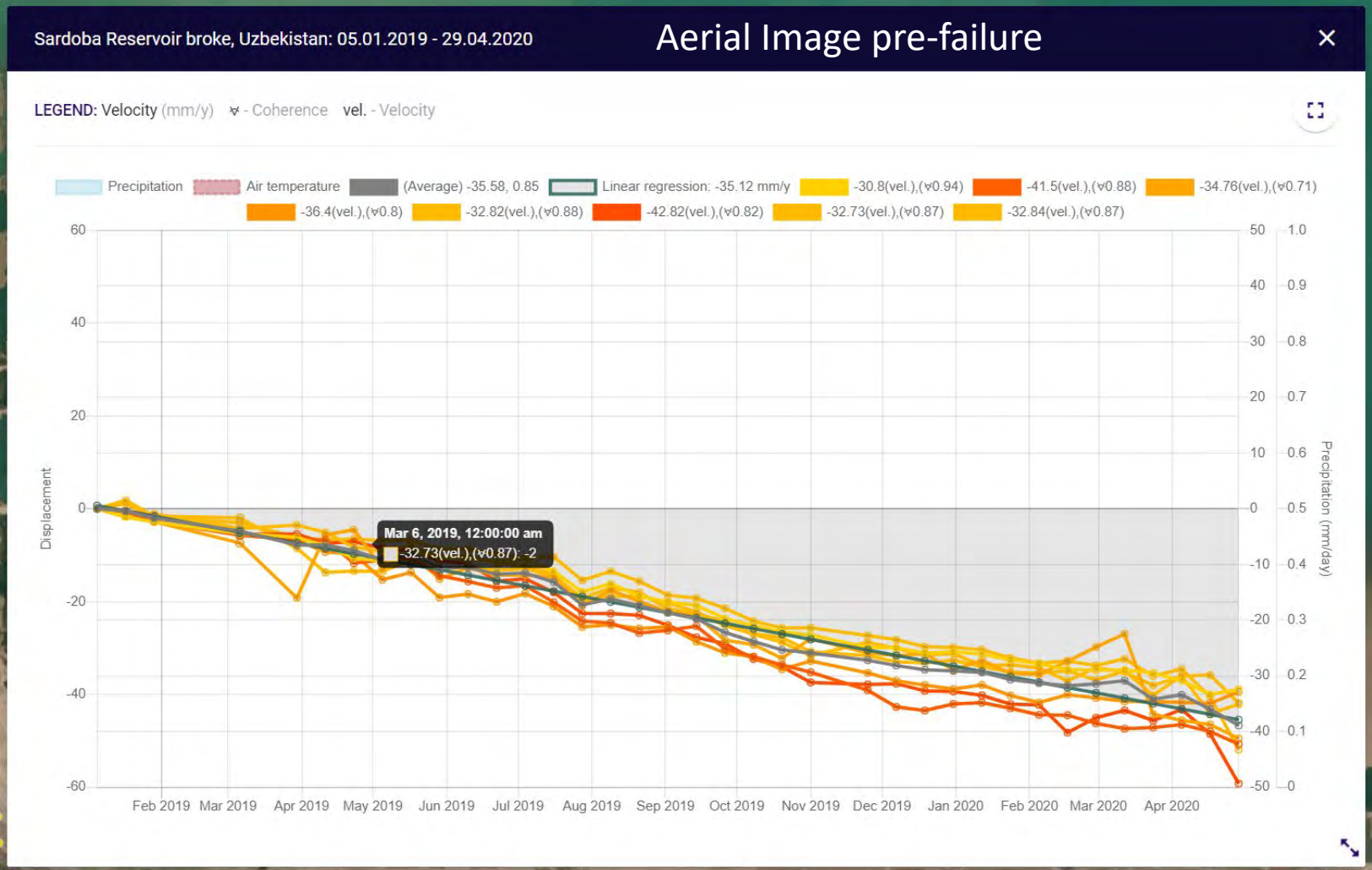
Orders

Account

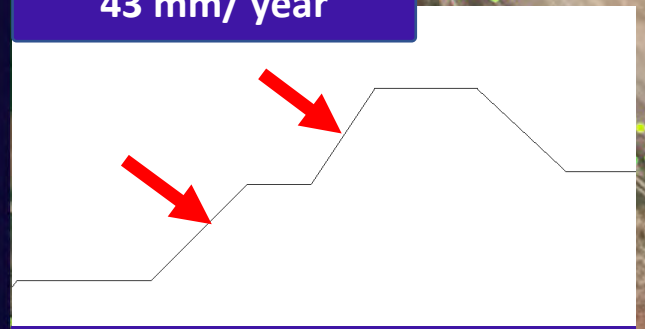
Log out

Sardoba Reservoir broke, Uzbekistan: 05.01.2019 - 29.04.2020

Aerial Image pre-failure



43 mm/ year



*The shape and the angle of the slope are illustrative and may differ from the actual slope profile

The breached area stands out with two specific patterns

(behaviour of the slope is different from other sections nearby)

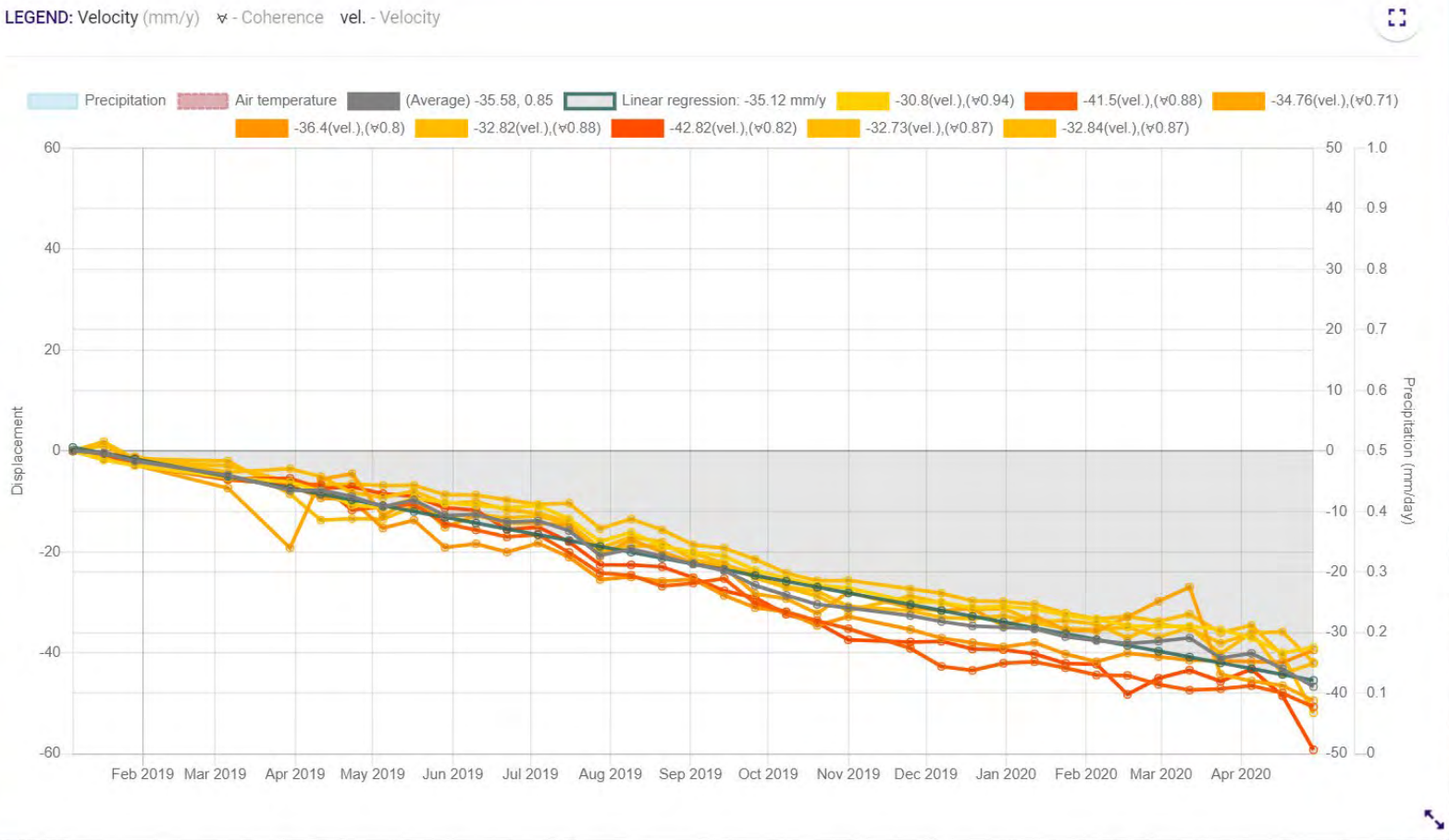
Orders

Account

Log out

Sardoba Reservoir broke, Uzbekistan: 05.01.2019 - 29.04.2020

Aerial Image post-failure



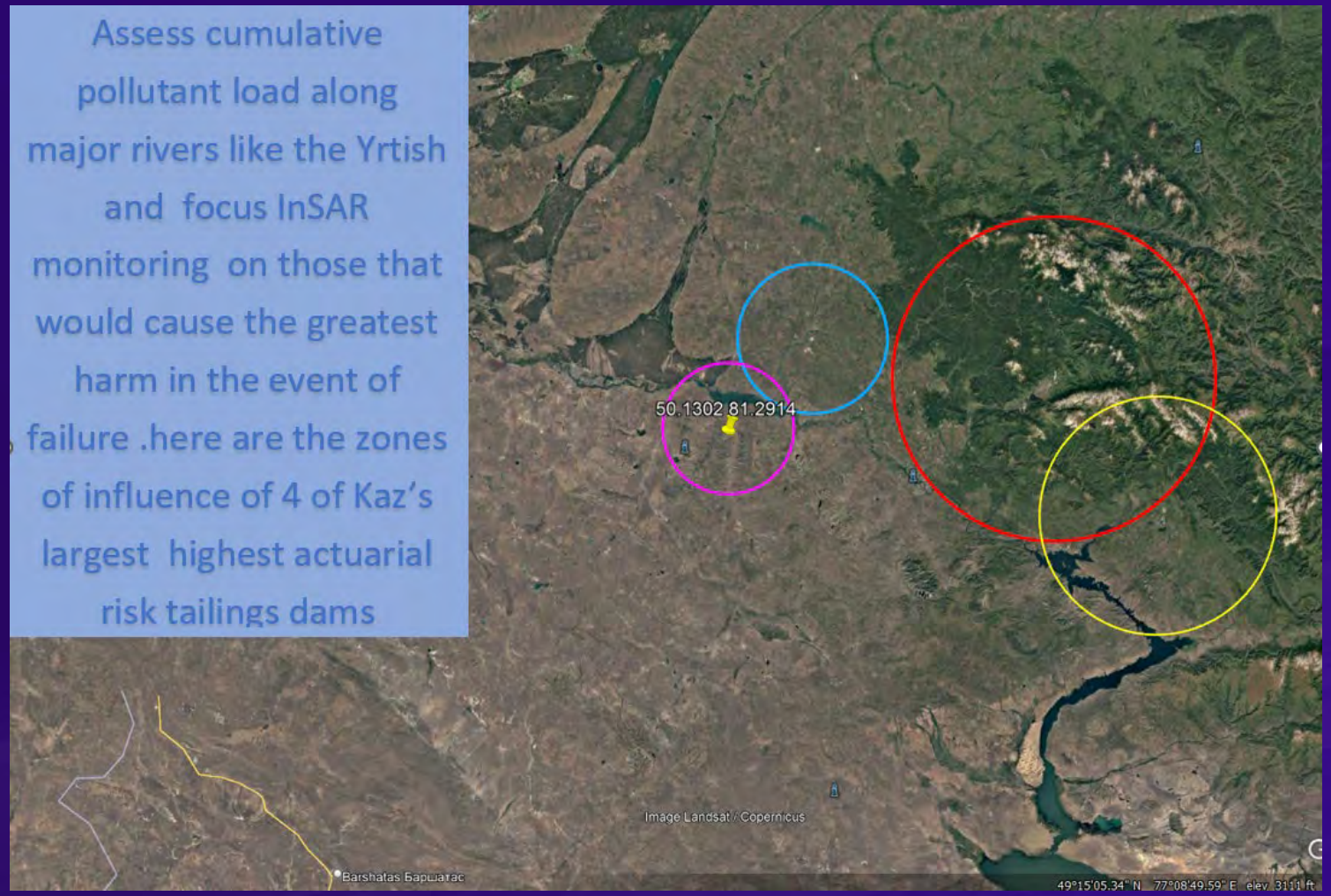
Post-cat imagery reveals that there is a strong correlation between the breach area and outstanding Find

RIDDER-SOKOLNOE TAILINGS STORAGE FACILITY (TSF), KAZAKHSTAN

ASSESSMENT TIMELINE
15.03.2020 - 28.02.2023

Severity and range in event of failure

Assess cumulative pollutant load along major rivers like the Yrtish and focus InSAR monitoring on those that would cause the greatest harm in the event of failure .here are the zones of influence of 4 of Kaz's largest highest actuarial risk tailings dams

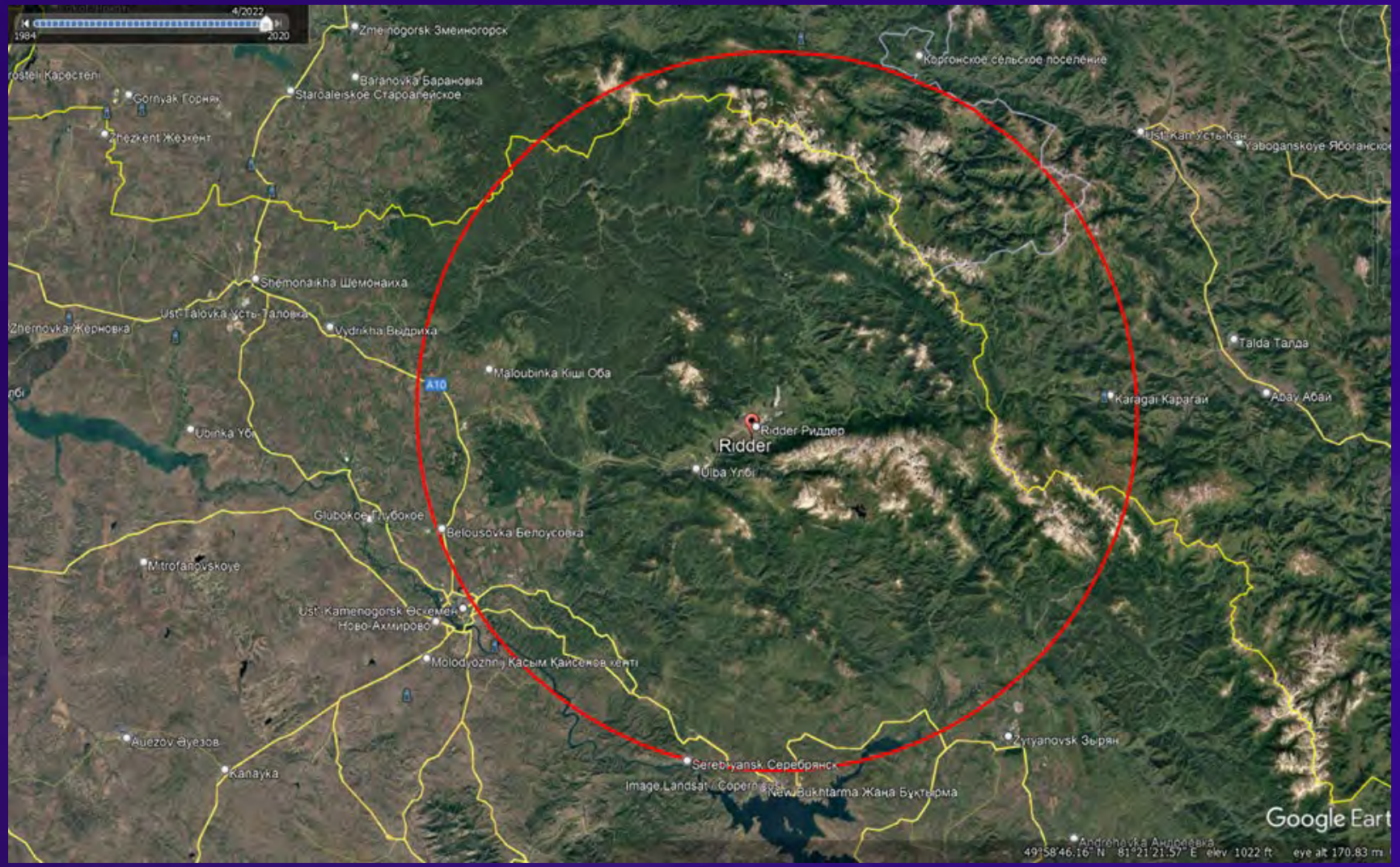


1. Ridder
2. East Boulder
3. Nikolayevsky
4. Zyryanovski

Note Irtysh River

World Mine Tailings Failures (WMTF) – Calculated runout, radius impact in a failure event.

Ridder – Impact radius in event of failure

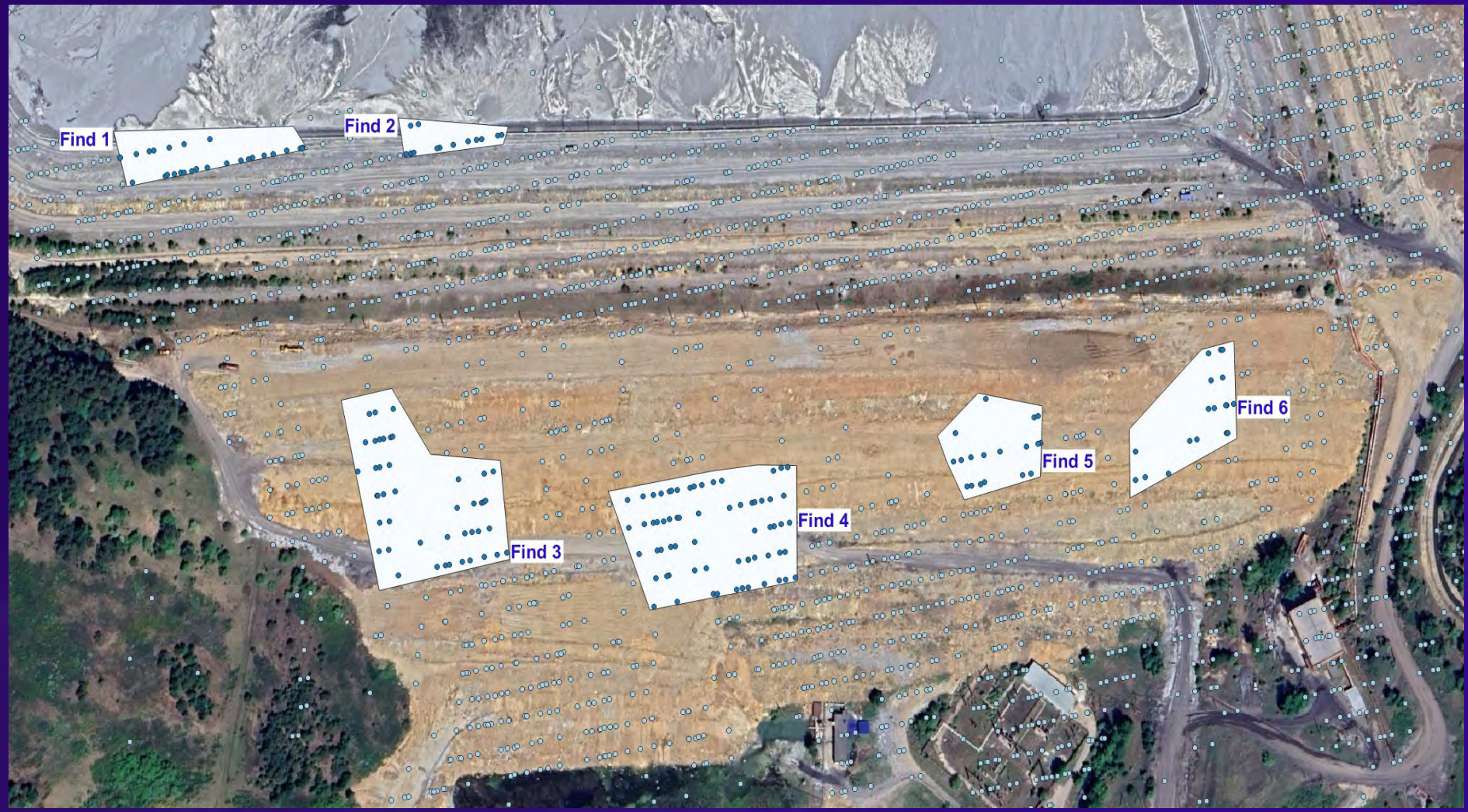


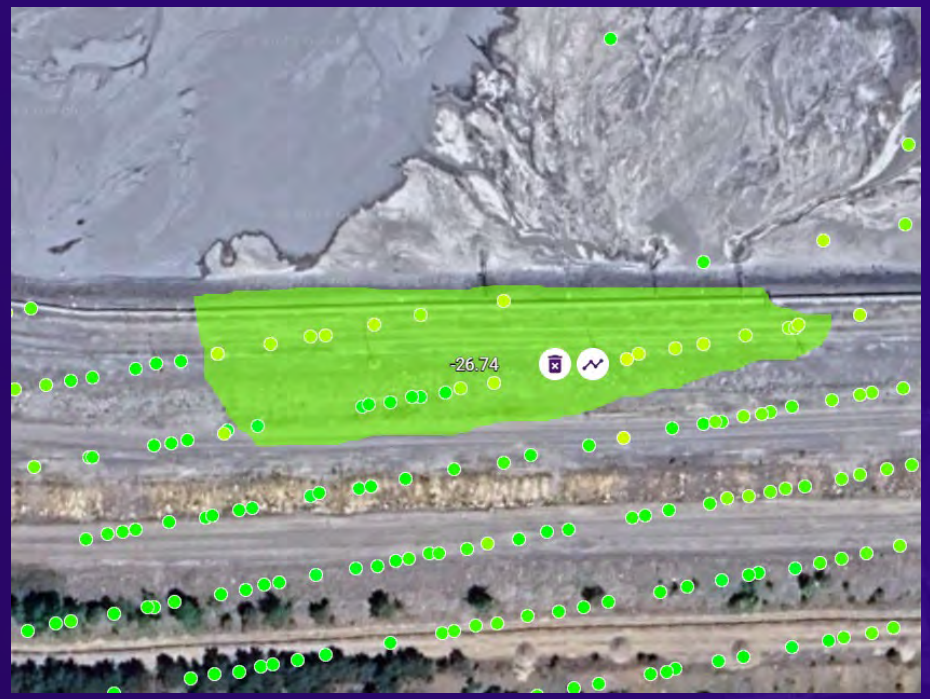
Ridder TSF - Macro Overview

Site B – North Dam
Find 7

Site A – South Dam
Finds 1, 2, 3, 4, 5, 6

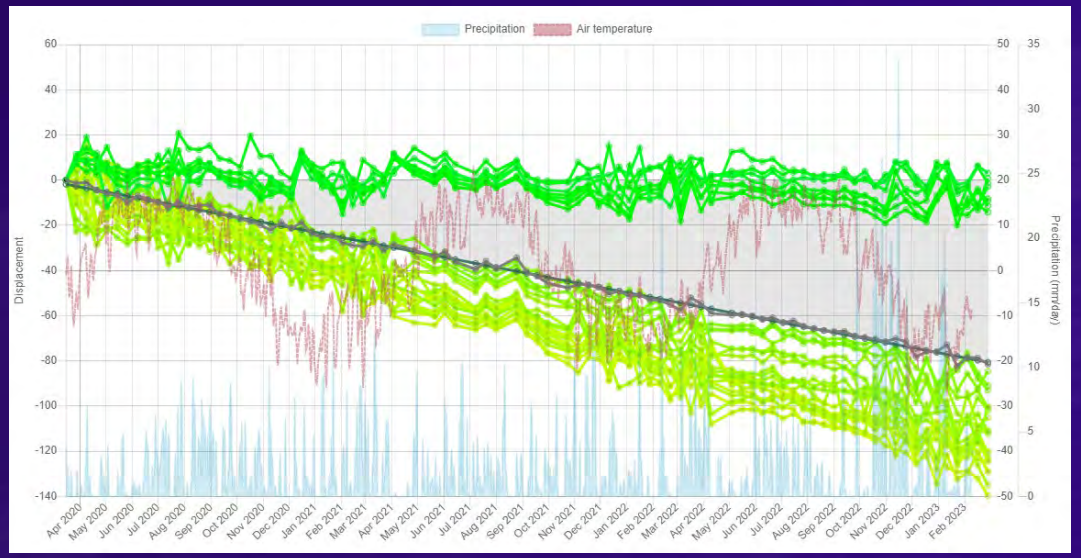
Site A - South Dam Detailed Overview
Finds 1 - 6



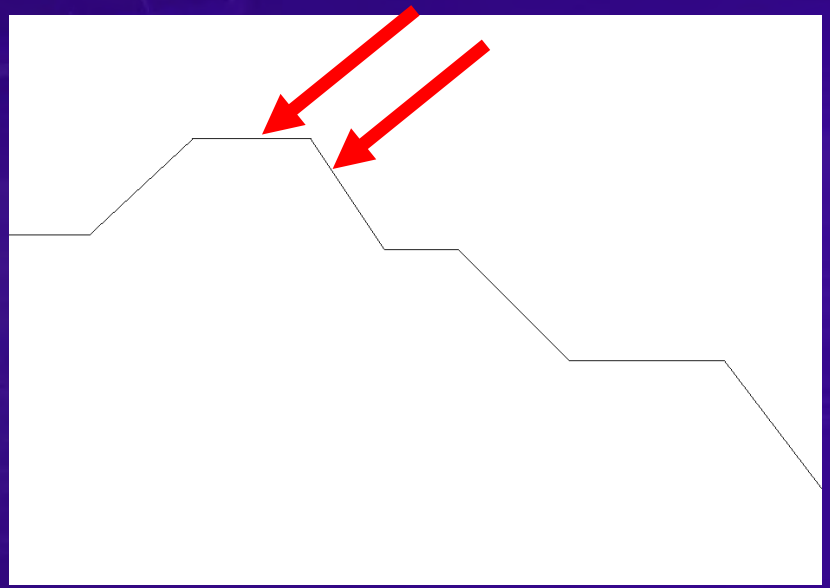


Site A, South Dam - Find 1 in Detail

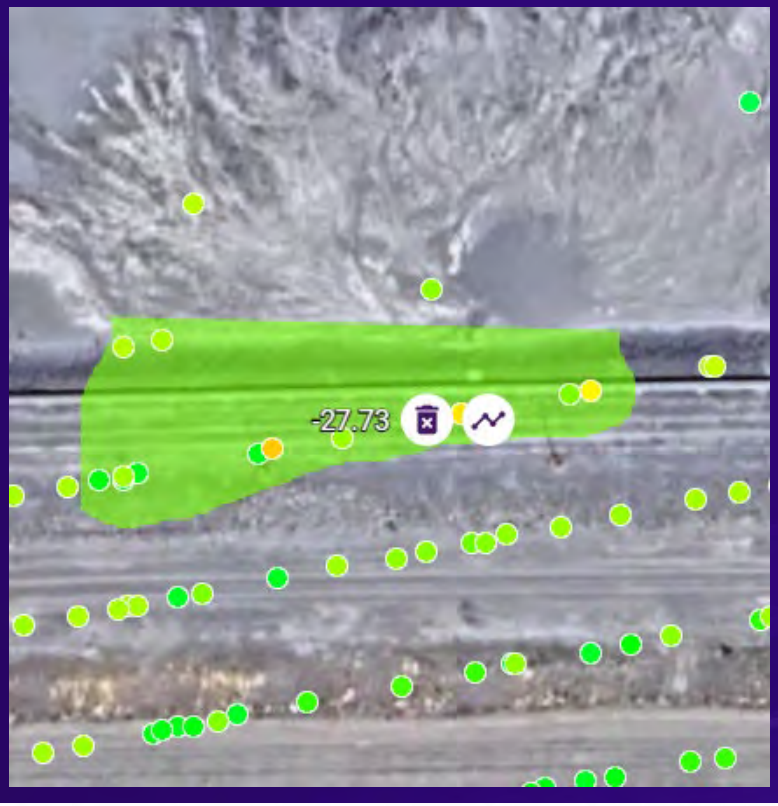
Section deformation up to 44 mm/year



44 mm/y

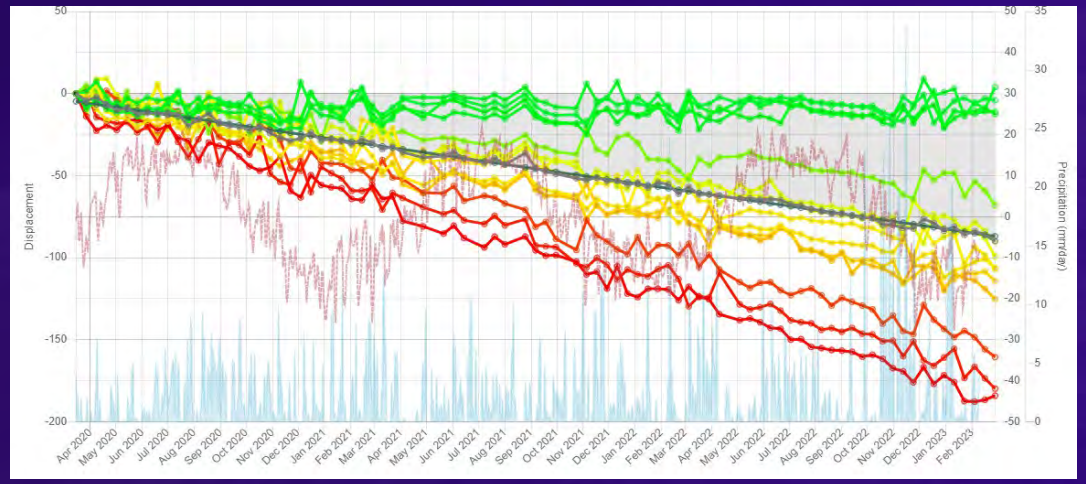


*The shape and the angle of the slope are illustrative and may differ from the actual slope profile

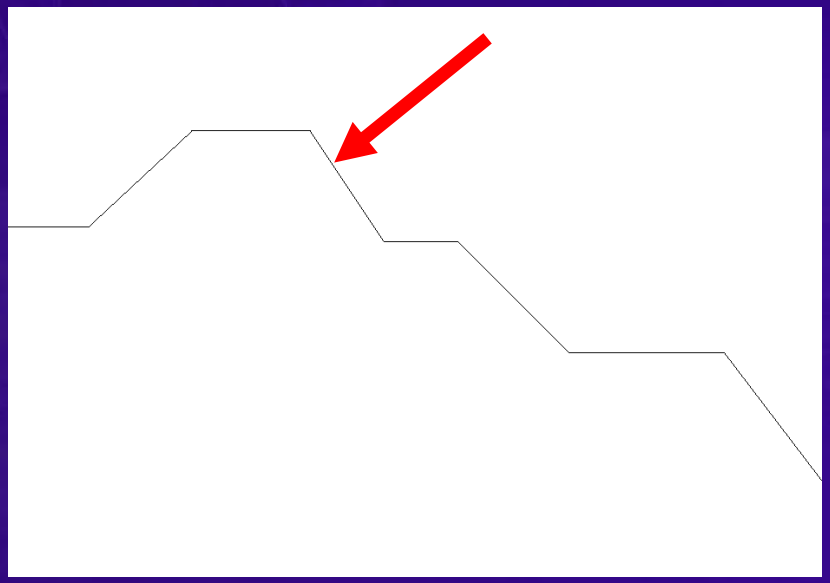


Site A, South Dam - Find 2 in Detail

Section deformation up to 61 mm/year



61 mm/y



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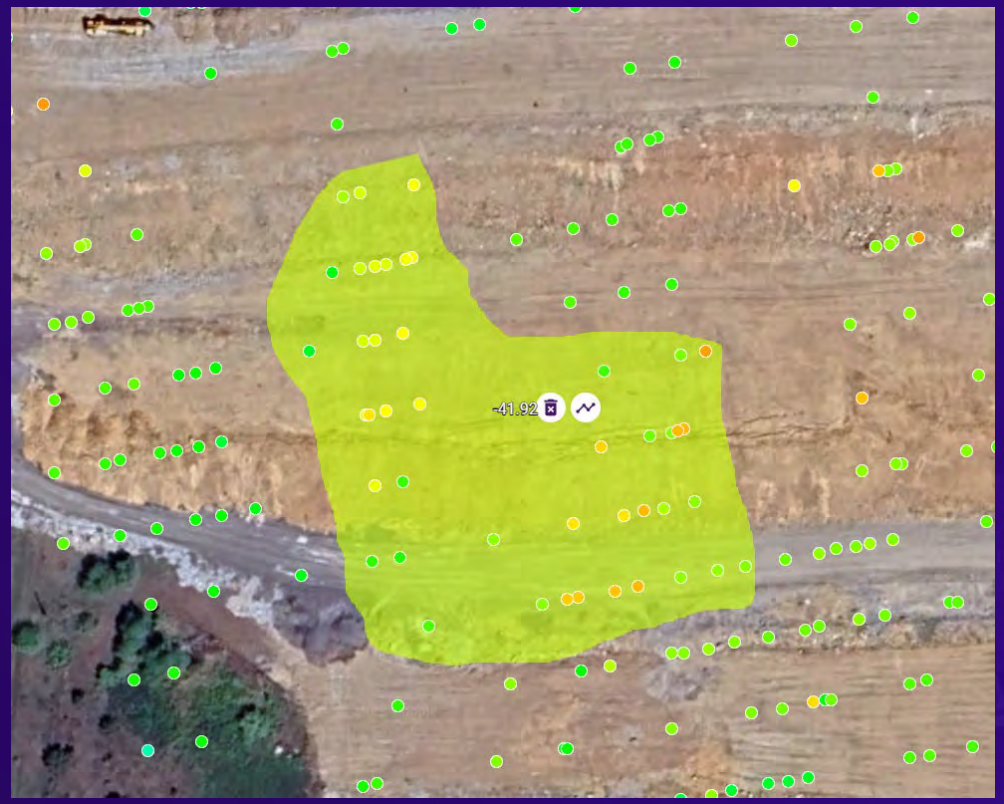
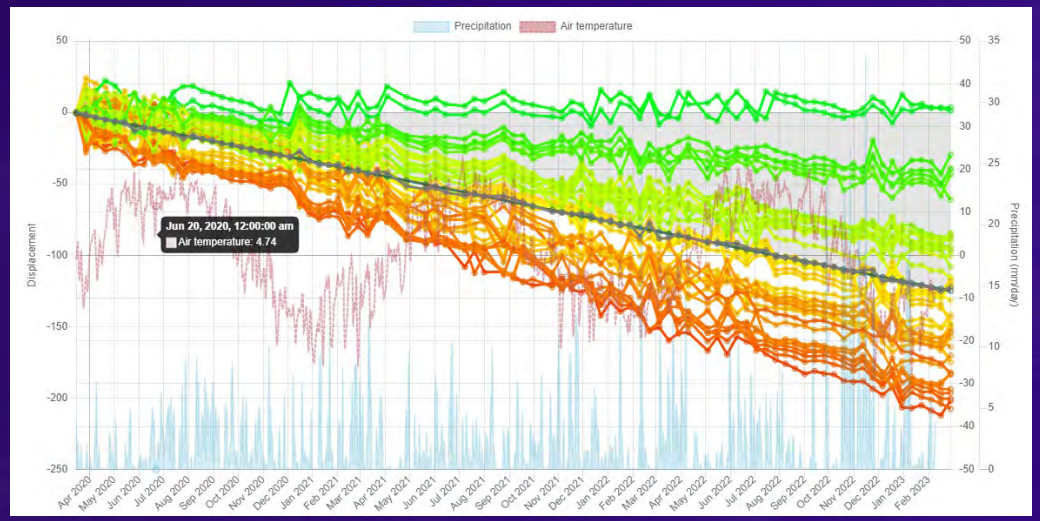
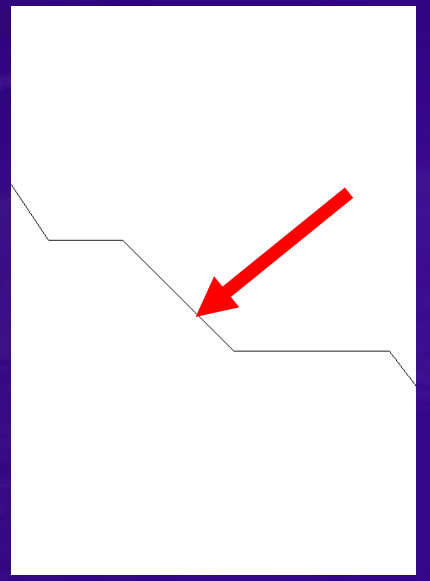


Site A, South Dam - Find 3 in Detail

Section deformation up to 69 mm/year





69 mm/y

*The shape and the angle of the slope are illustrative and may differ from the actual slope profile

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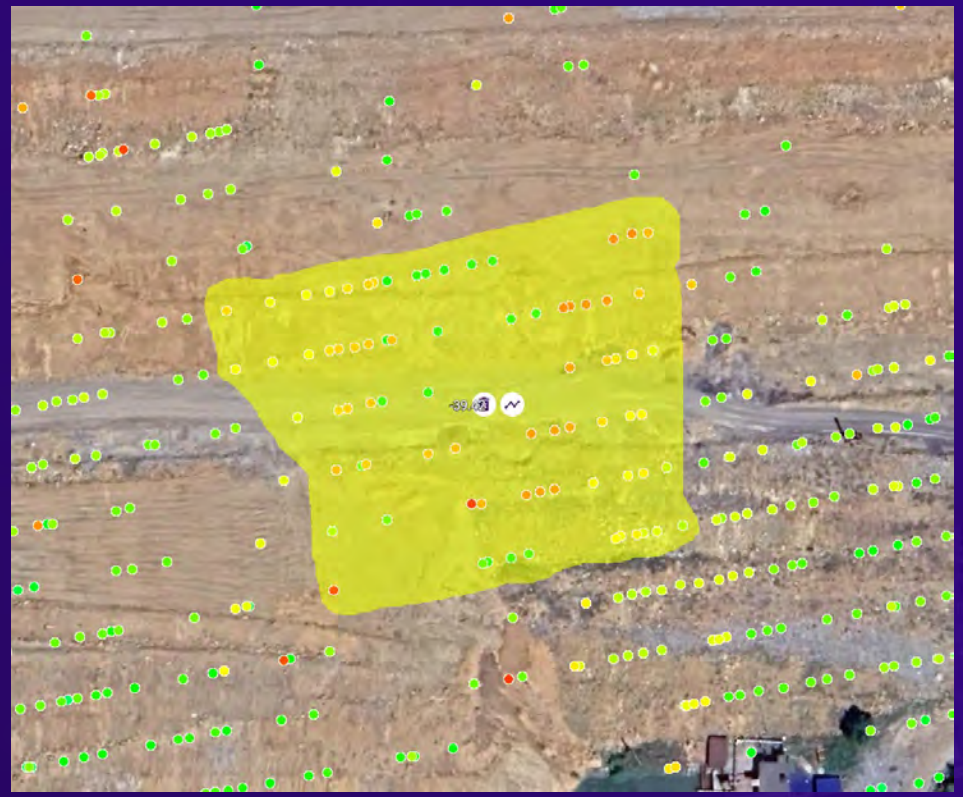
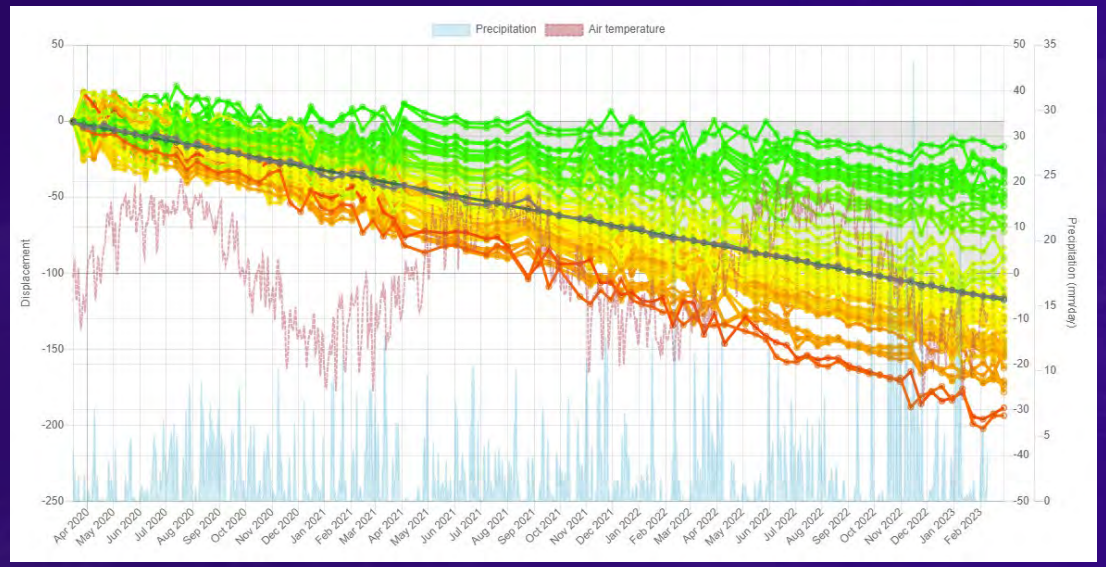
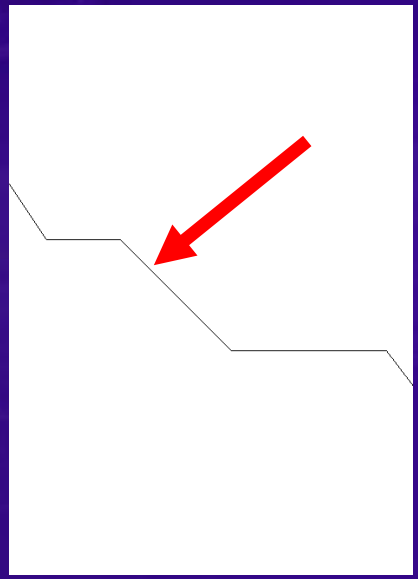


Site A, South Dam - Find 4 in Detail

Section deformation up to 69 mm/year





69 mm/y

*The shape and the angle of the slope are illustrative and may differ from the actual slope profile

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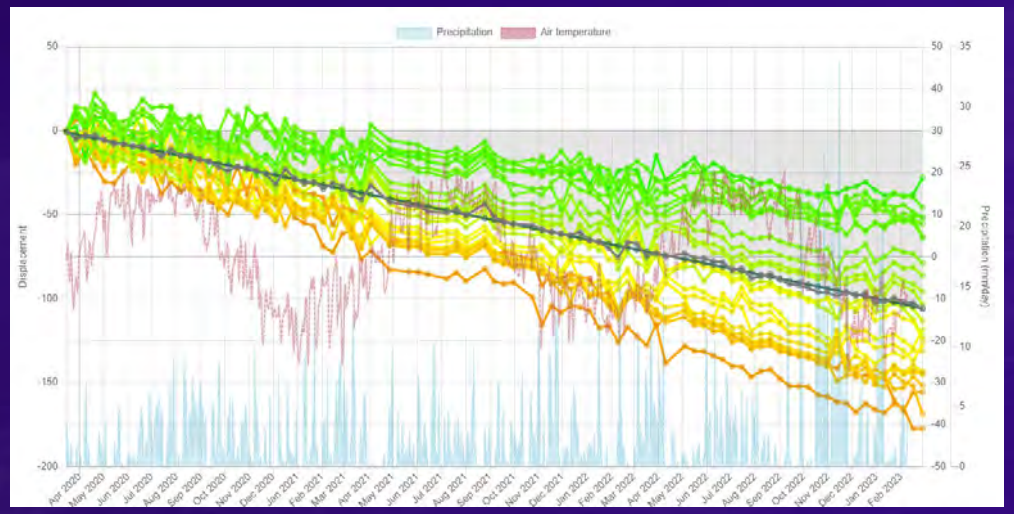
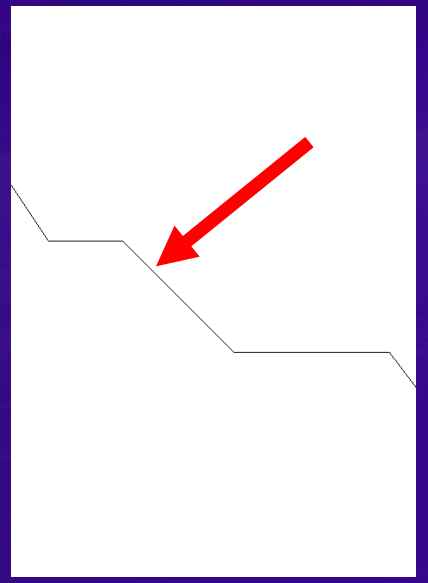
Site A, South Dam - Find 5 in Detail

Section deformation up to 55 mm/year





55 mm/y

*The shape and the angle of the slope are illustrative and may differ from the actual slope profile

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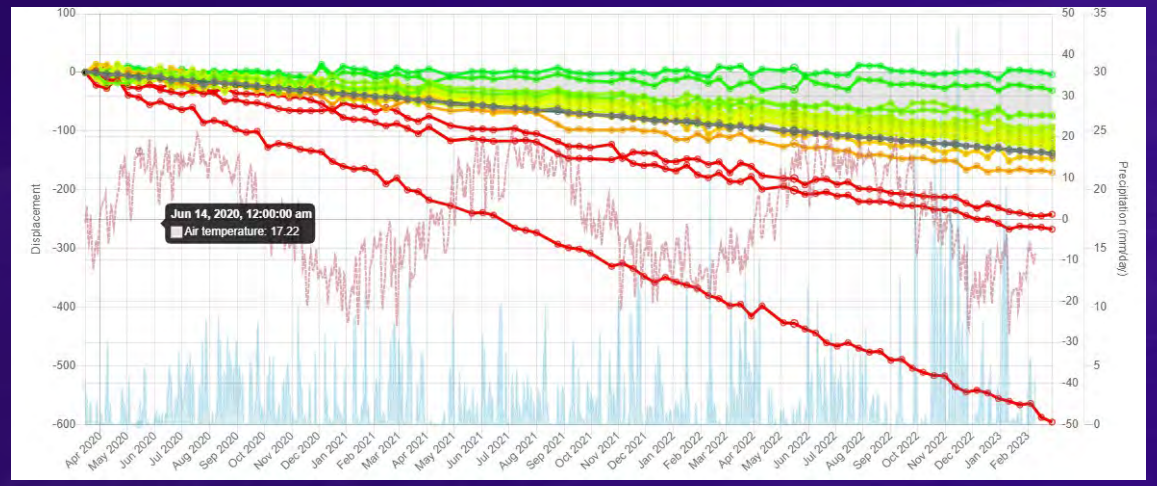
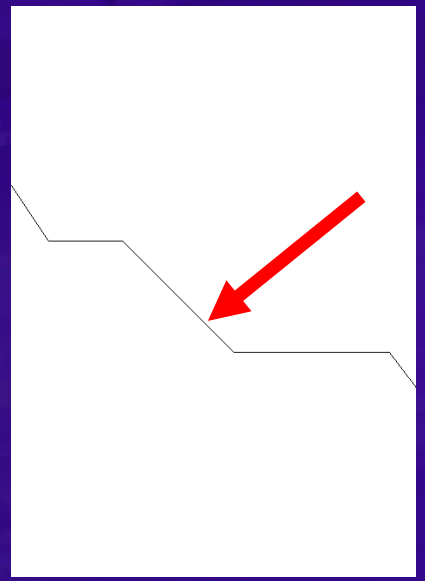
Site A, South Dam - Find 6 in Detail

Section deformation up to 196 mm/year





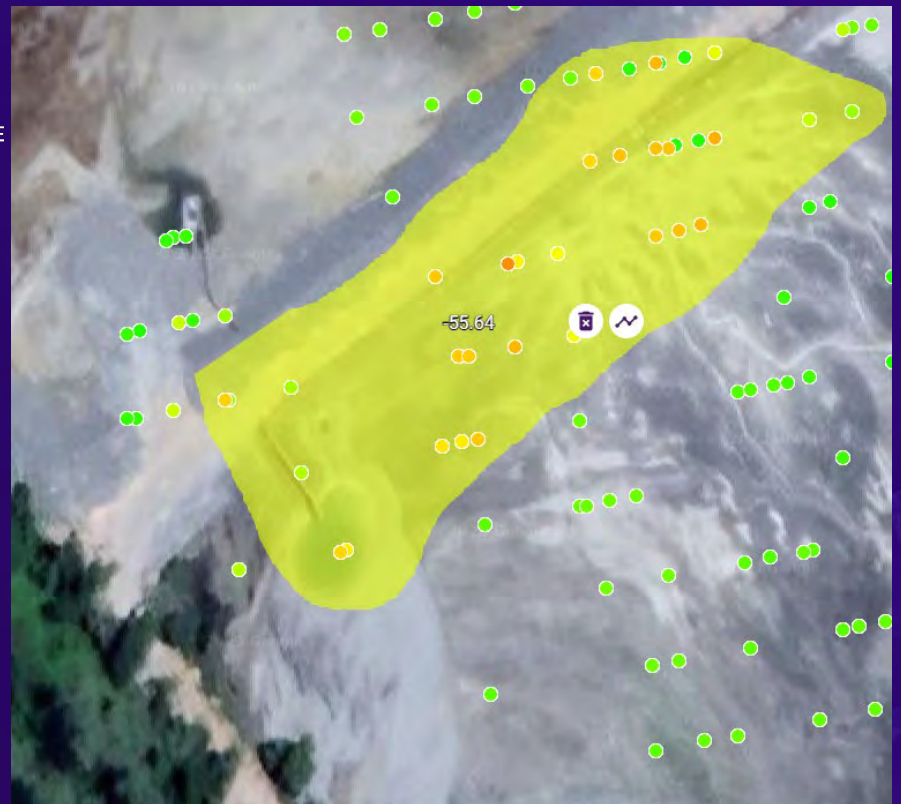
196 mm/y

*The shape and the angle of the slope are illustrative and may differ from the actual slope profile

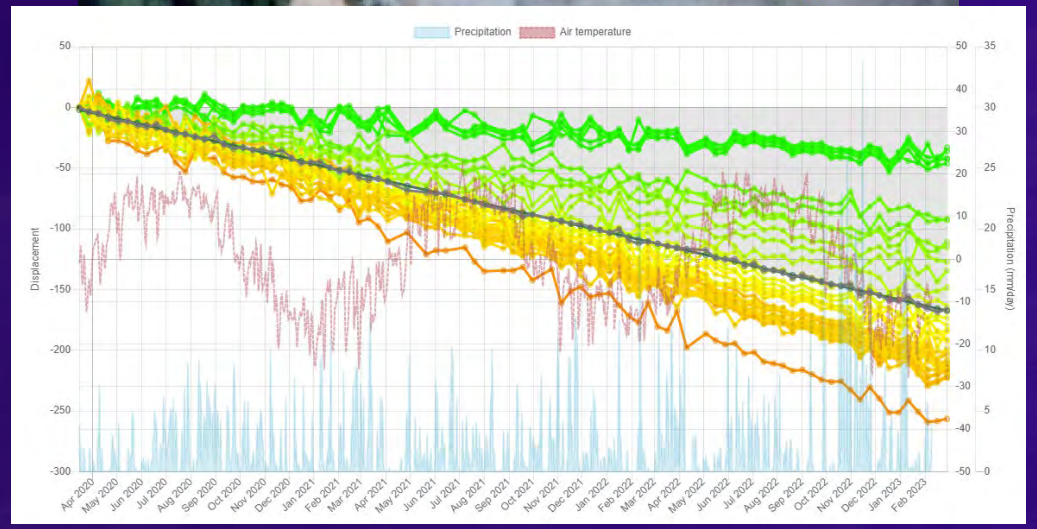
Ridder TSF - Macro Overview

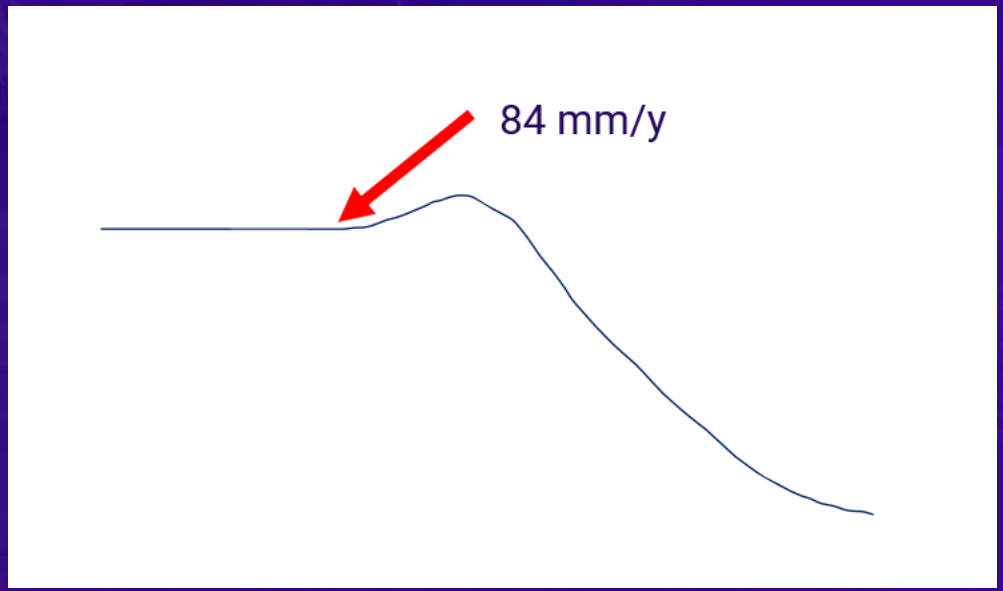
Site B – North Dam
Find 7

Site A – South Dam
Finds 1, 2, 3, 4, 5 ,6



Site B, North Dam Find 7 in Detail: Section deformation up to 84 mm/year





*The shape and the angle of the slope are illustrative and may differ from the actual slope profile

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