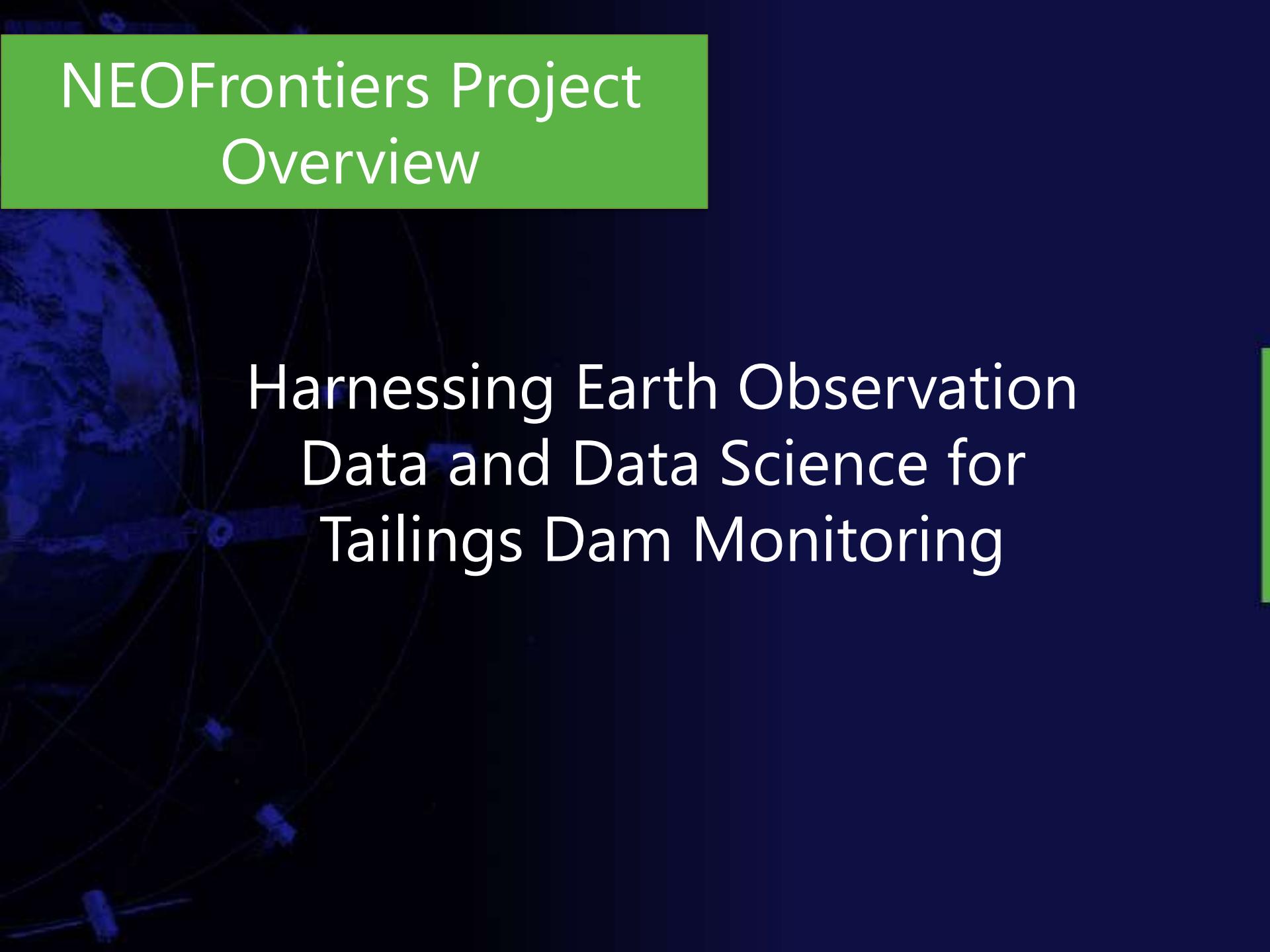


NEOFrontiers Project Overview



Harnessing Earth Observation
Data and Data Science for
Tailings Dam Monitoring



Why this Project matters?



Improve Compliance



Promote Operational Excellence



Prevent Harm: Lives, Environment,
Economic & Social

South Africa is estimated to have around **200 to 400 tailings dams** – most are old and monitored through inadequate methods. (source: www.earthworks.org)



Project Value Prop & Approach



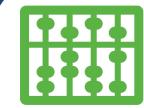
“To empower mining companies with satellite-driven insights to enhance safety, compliance, and environmental stewardship in tailings dam management.”



InSAR Satellite Data



Industry Knowledge



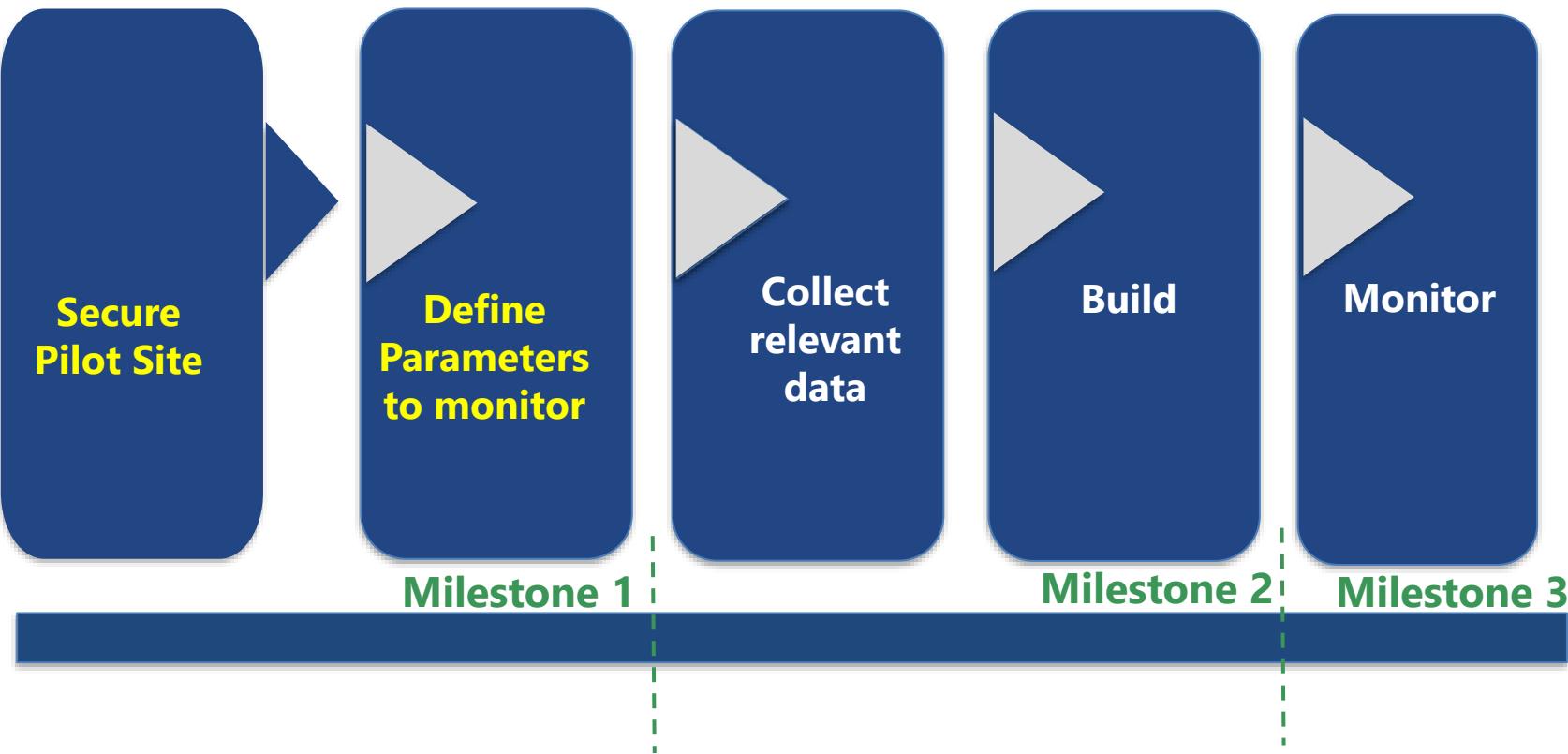
Custom Data Models



Actionable Insights



Progress





**kgothatso
innovations**

locate • analyse • manage

**Earth Intelligence for Inclusion: Shaping South Africa's Space-
Driven Development Future**

Ndilisa Didiza



Introduction

About the Founder and Managing Director:

- BSc Honours in Applied Remote Sensing & GIS
- 18+ yrs Consulting Experience (DWS, SRK Consulting, KI)
- NEOSS: Co-Chair ('Agric & Food Security' Community of Practice)
- Papers Presented:
 - Assessing Engineering Risk (Geoweb, Cape Town)
 - GIS in Asset Management (GISSA, Pretoria)
 - Qhumanco Irrigation - Water Use Licence (6TH AfriGEO, Accra)





Quick Facts About Us

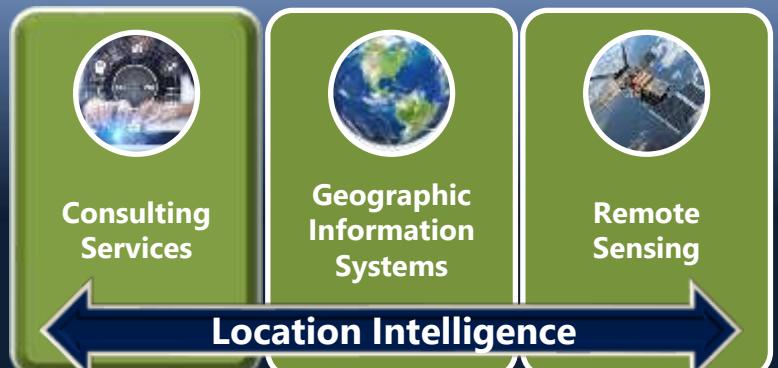
Highlights:

- Founded 2009, Operational since 2015
- Focus: Engineering, Environmental, Mining, Public Sector
- 181 successful assignments, for 30+ customers
- BBBEE Level 1, 100% Woman-Owned

How we are structured:



What we do:



Our Partners: Technology:



Consulting:



A photograph of a satellite in space, showing its solar panels and antennae. The Earth is visible in the background, showing clouds and continents. The satellite is positioned in the upper left quadrant of the frame.

Case studies

Case Study 1 – Engineering



Business Challenge:

Assess ground conditions for a renewable energy feasibility

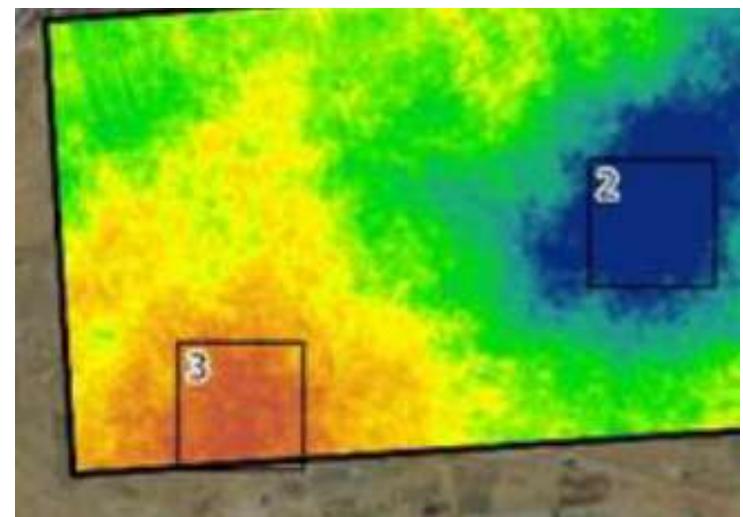
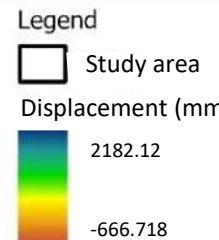
Solution:

- Source satellite data with radar
- Process data to determine subsidence and swelling
- Map results & write report

Outcome:

3 risky areas identified

TOTAL DISPLACEMENT BETWEEN MARCH 2015 AND JUNE 2024





Case Study 2 – Agriculture

Business Challenge:

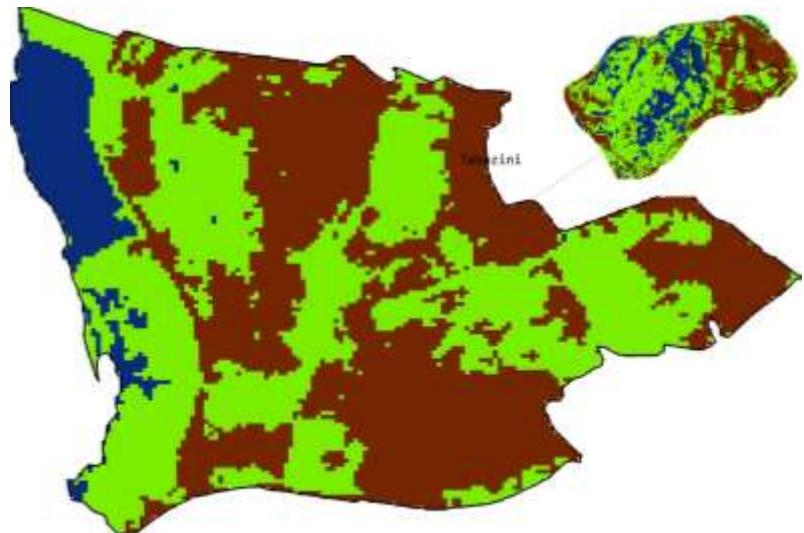
Determine WUL compliance for project

Solution:

- Obtaining historical satellite imagery
- Using remote sensing techniques to determine if irrigation occurred
- Compiling a report with findings

Outcome:

We found that irrigation occurred on >25% of study area, therefore WULA is necessary



Legend

- Places
- ✚ Qhumanco_Irrigation_Boundary
- Uncultivated Lands
- Rainfed Lands
- Irrigated Lands



Case Study 3 – Mining

Business Challenge:

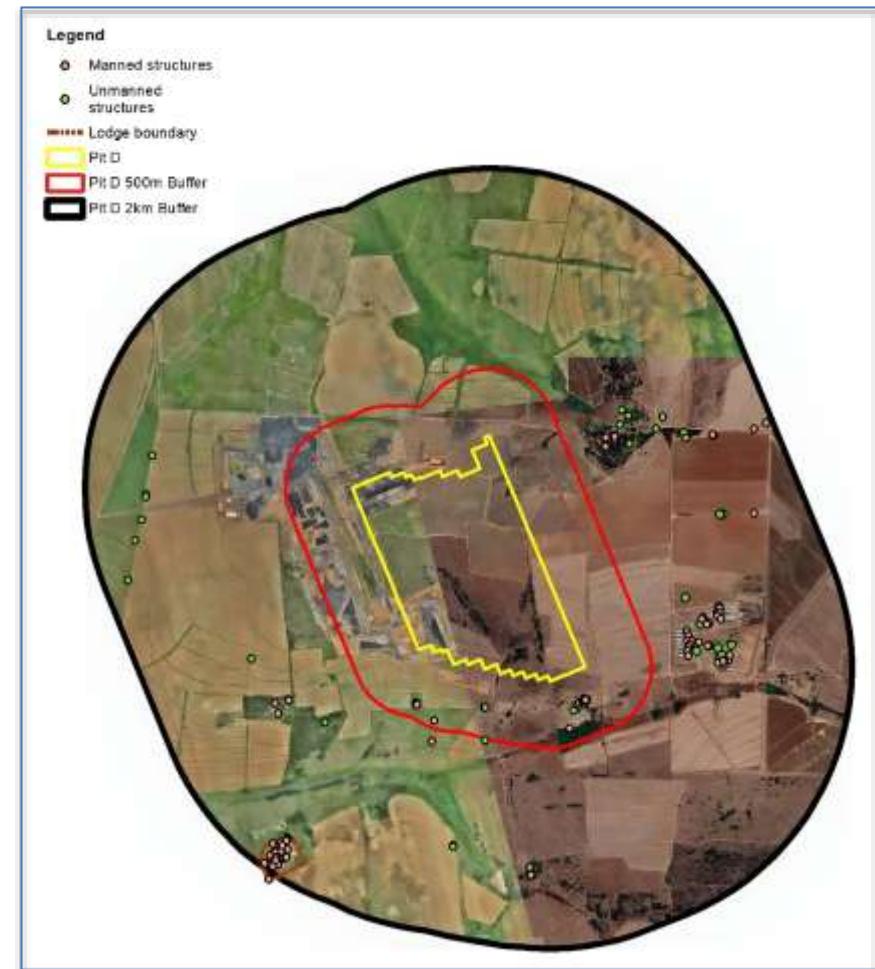
Reducing liability for coal mine as a result of blasting activities.

Solution:

- Capturing and Geolocating Structures within 2km radius of blast
- Developing a Geodatabase for future reference
- Compiling a report and identifying 'at risk' structures

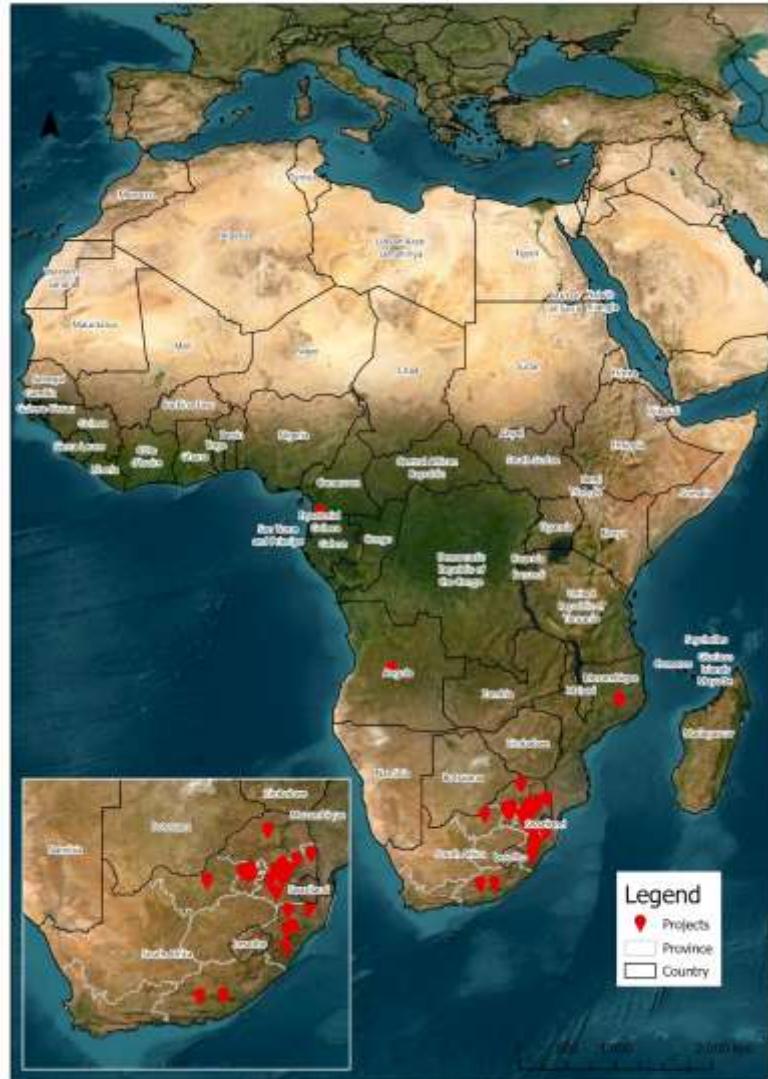
Outcome:

A referenceable database in the event of claims as a result of blasting activity





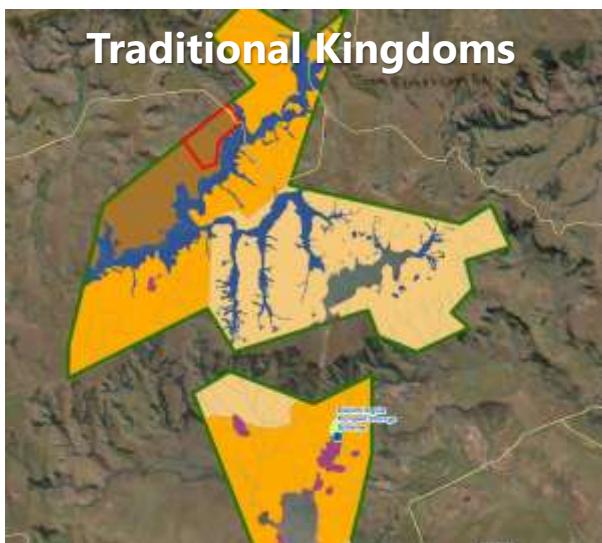
Projects Footprint





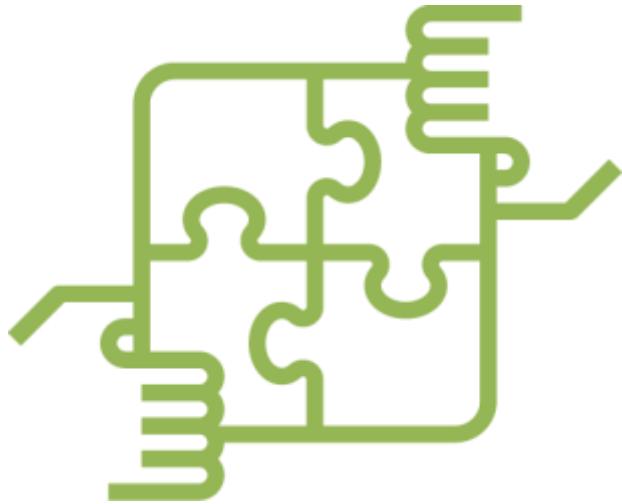
Earth Intelligence for Inclusion – Concrete examples of impact

Concrete examples of impact





How do we do it?



Co-Creation

People-first Innovations

Agencies (NEOFrontiers)

Govt/Funders

Researchers

ESD

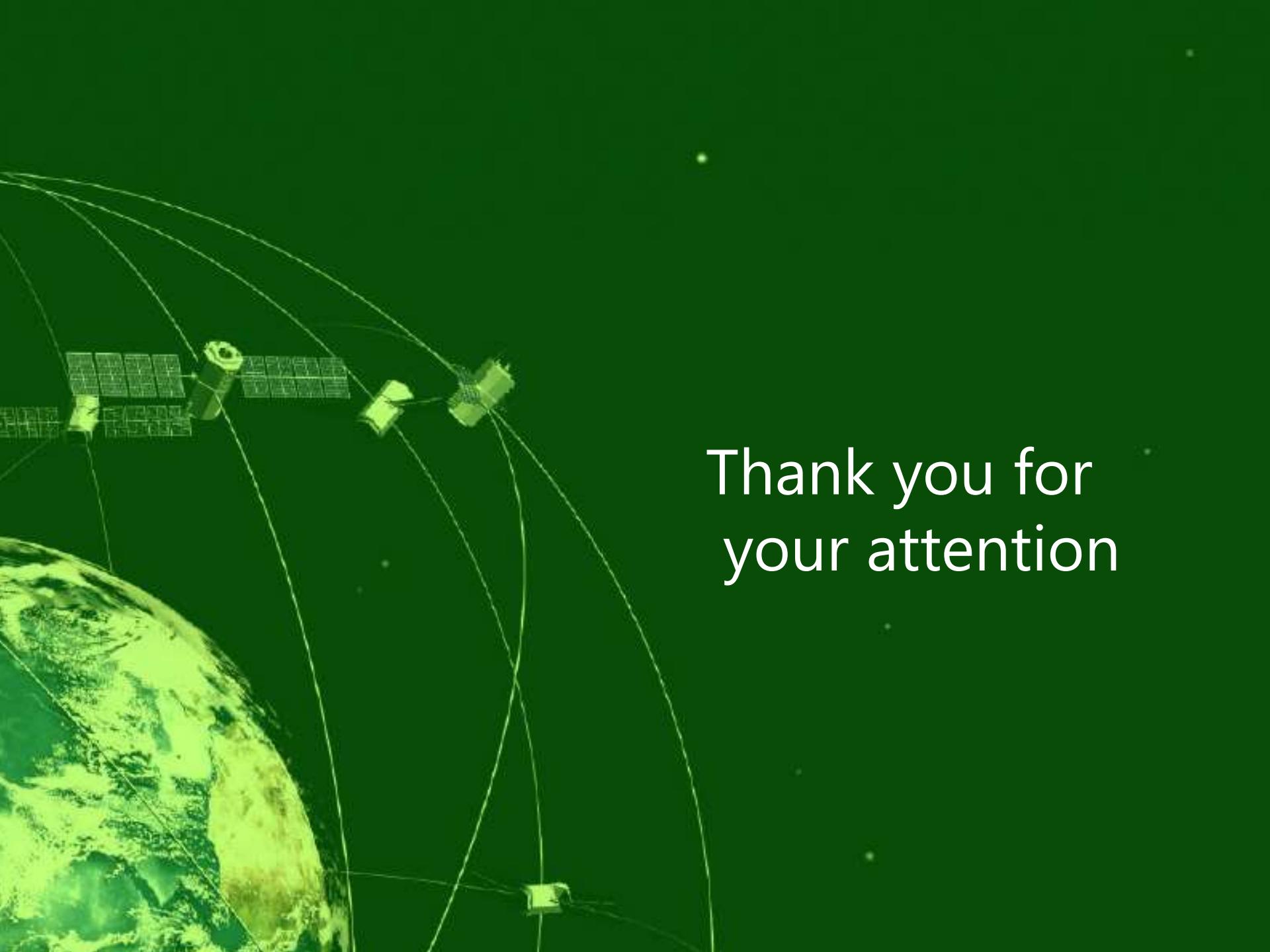
Closing vision



If we want a resilient and transformative space future, we must ground it in the lived realities of South Africans

EO is a shared national asset, not just a technical capability

A space economy where no one is left behind

A photograph of a satellite in space, oriented horizontally. The satellite has a rectangular body with a grid of solar panels on top. Two large, white, cylindrical objects, possibly antennas or scientific instruments, extend from the side. It is positioned against a dark background with a bright, curved line representing Earth's horizon on the left. The image is slightly out of focus.

Thank you for
your attention



Kgothatso Innovations

WhatsApp contact

