



An AI-enhanced multi-sensor multi-operator EO approach to bring transparency to global supply chains

Understand what's new in satellite data and AI, how these technologies can be integrated to answer complex questions, at scale cost effectively.

**ESA Living Planet Symposium – Session C3.01.1 - Powering the data
revolution for transformational change in the supply chain management**

23rd May 2022

Introduction to Earth-i

What do we do?

Earth-i delivers low-cost, value-enhancing **metals and minerals** geospatial insights at global scale. We bring **transparency** in an increasingly complex and dynamic world.

Why are we doing it?

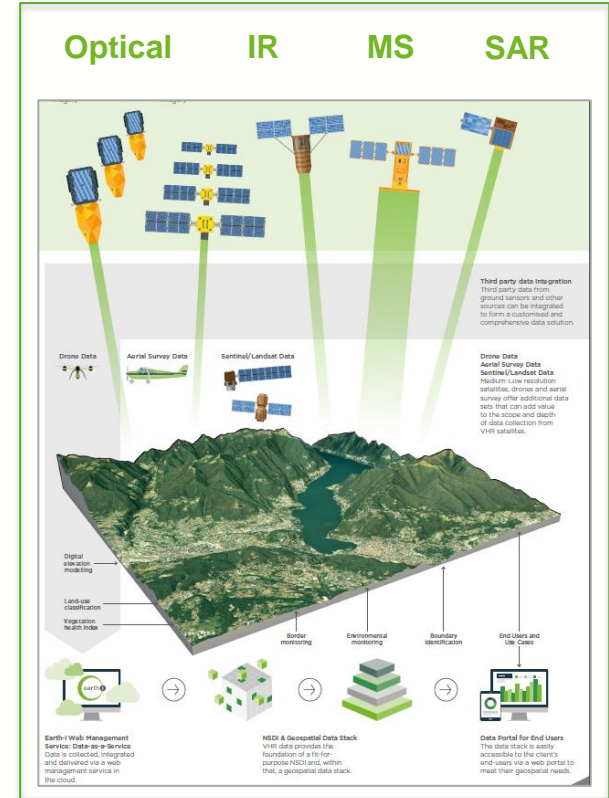
We want to deliver **information advantage** to our clients through **scalable, innovative, data-agnostic** geospatial solutions.

We want to provide **sophisticated information products** that are **easy for non-technologists** to understand and use.

We want to be **the go-to geospatial insights service provider** for industry and government.

How are we doing it?

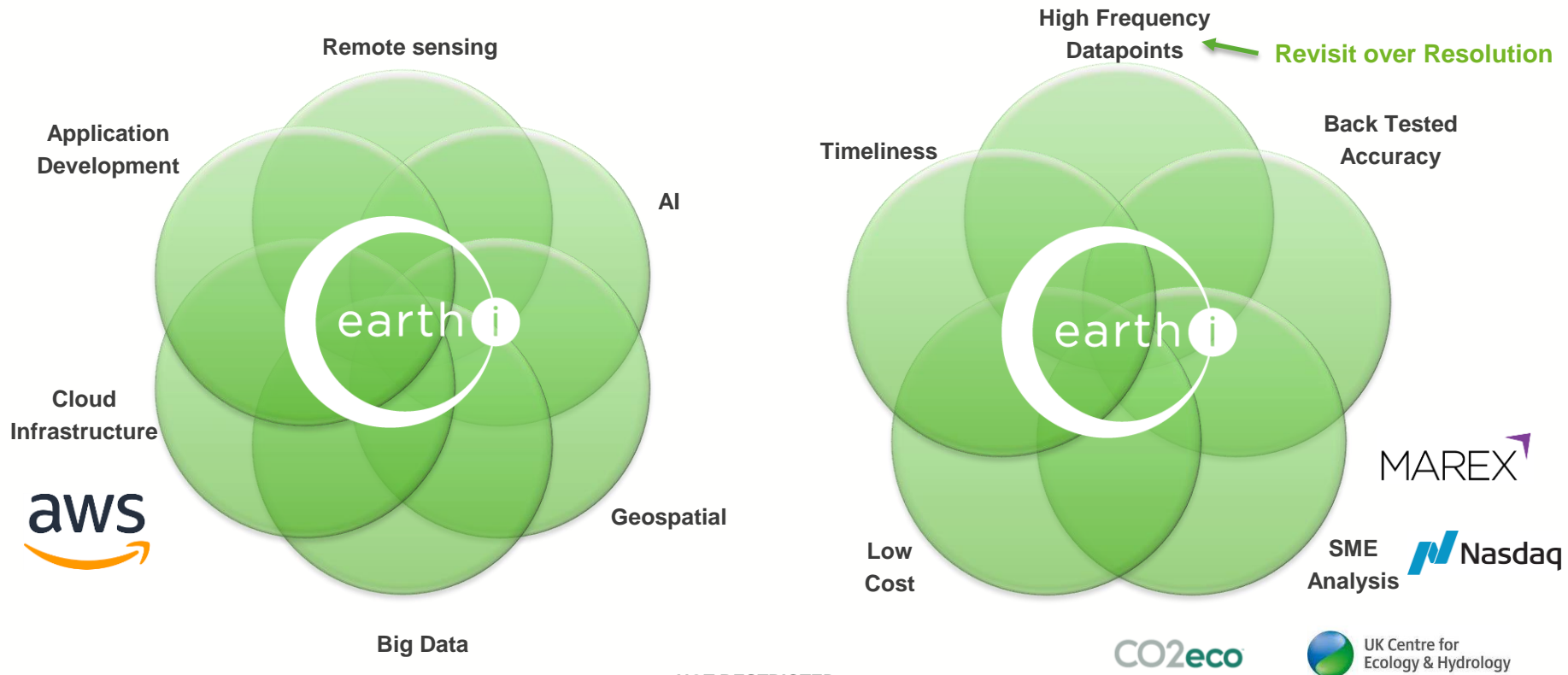
Using automated data analytics and artificial intelligence to exploit **multi-sensor, multi-resolution, multi-operator** satellite and complementary data.



Introduction to Earth-i



A diverse, experienced, versatile and great multi-disciplinary team which delivers!

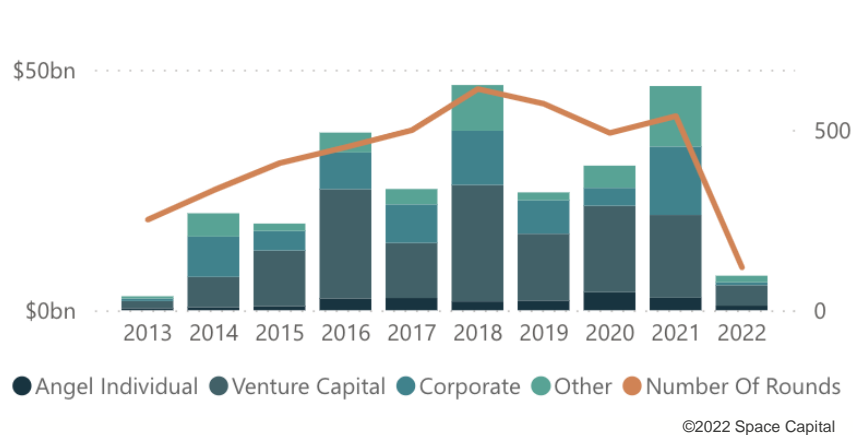


NOT RESTRICTED

A new wave in Earth Observation data is arriving...

The “upstream” investment in Space is unprecedented...

Equity Investment by Investor Type



Great for downstream analytics...Lots of new data to answer more complex questions...

A new wave in Earth Observation data is arriving...



A single source of data can answer few questions

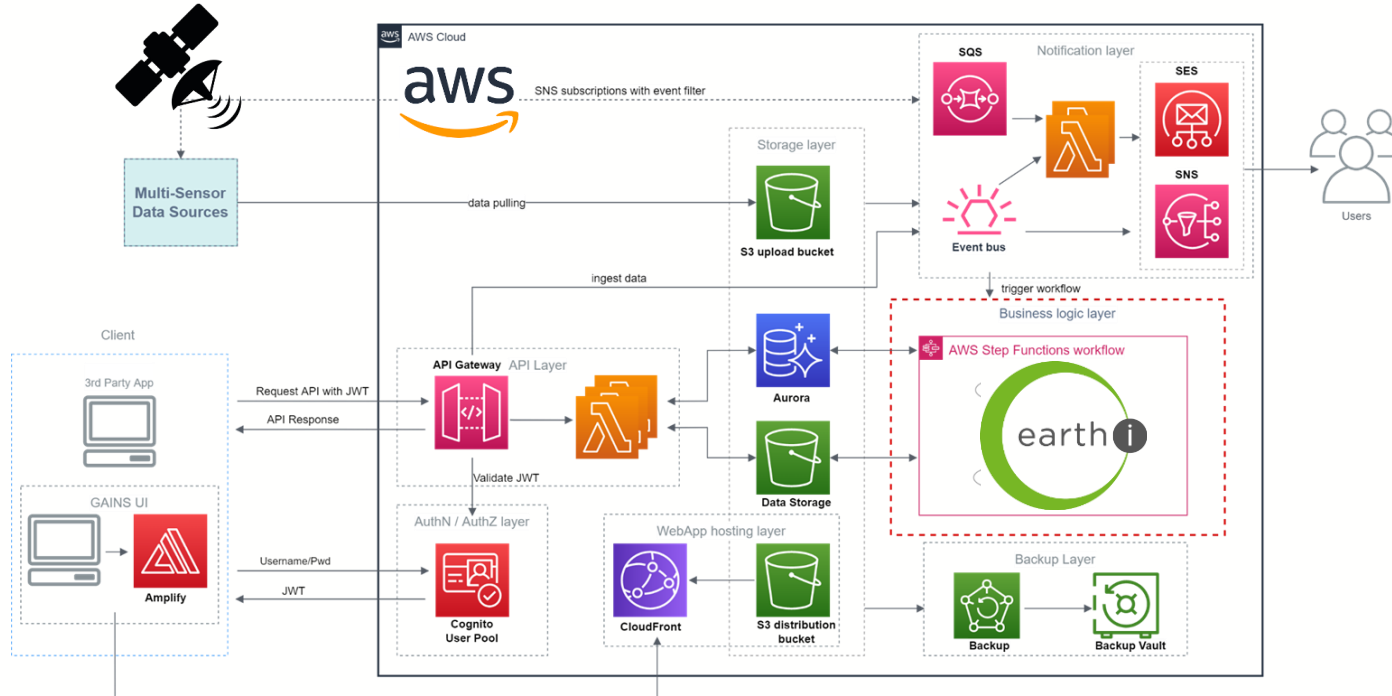
Optical (0.15-0.3M)	Optical (0.3-1.5M)	Optical / MS (0.3M-2.5M)	Optical (3-5.0M)	Optical (10M)	Optical (10M)
SAR (<1.0M)	Optical & MS (<1.0M)	SAR (10-20M)	HS (5-30M)	IR (<1M - 50M)	IR (250M)



Identifying & understanding in detail the question that needs answering defines the data required...

The Earth-i Challenge...

Integrating disparate data sources with few data standards and differing quality...

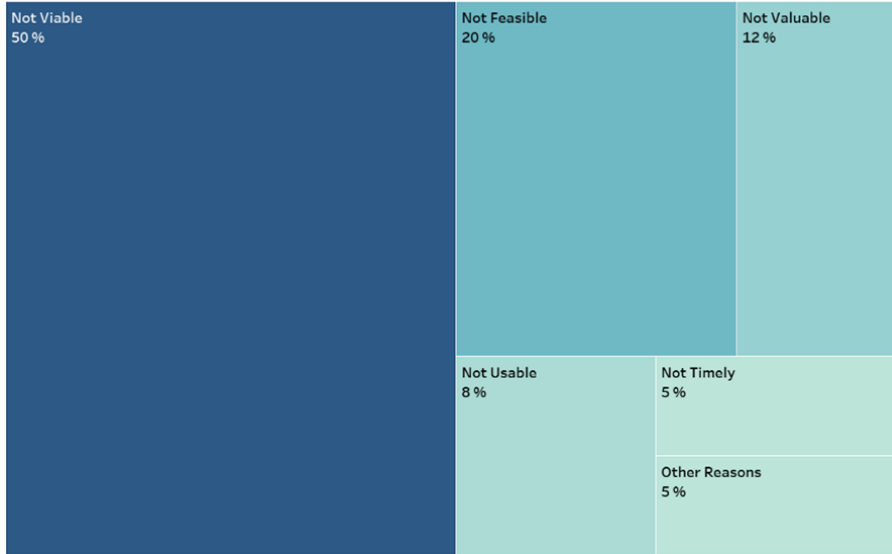


Using AI to process, analyse and report to a high level of accuracy in near-real time...

The Earth-i Challenge

This is an industry challenge...

Why products fail...



That's interesting...

That's valuable...

That's invaluable...

The global supply chain risk challenge

What Satellite and AI performs well...

- **Thousands** of sites...
- **dispersed globally**...
- to be **monitored**...
- at a **high revisit**...
- In **near real-time**..
- with **high accuracy**...
- A **long history**...
- and **low cost**!



Who we do it for?

- Investment manager – Macro strategists (aggregated)
- Investment manager – Equity traders (asset level and aggregated)
- Commodity traders – Market analysts (aggregated)
- Asset owners – Market and Competitive Intelligence (asset level)
- Hedge funds – Market analysts and macro strategists (aggregated)
- Quantitative traders – Market analysts and macro strategists (aggregated)
- Sustainability officers – Carbon credit trading (asset level)
- Market research firms (asset and aggregated)
- Market regulators (asset level)



ManGroup plc

BlackRock

GLENCORE

BHP

EXODUSPOINT

RWE



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Who we do it with?

- World leading commodities broker with a focus on metals, energy, emissions, ship and freight, agriculture and FX markets.

MAREX

- World leading financial service data distribution partner



Nasdaq Data Link

- World leading industry groups



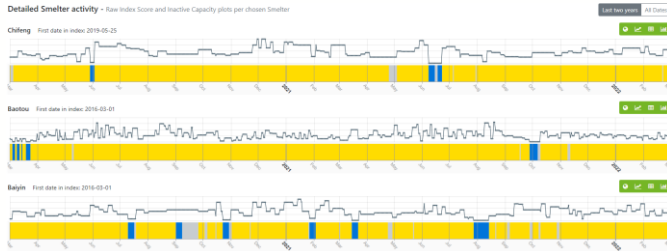
- Helping direct the SAVANT roadmap

SAVANT^{AL}

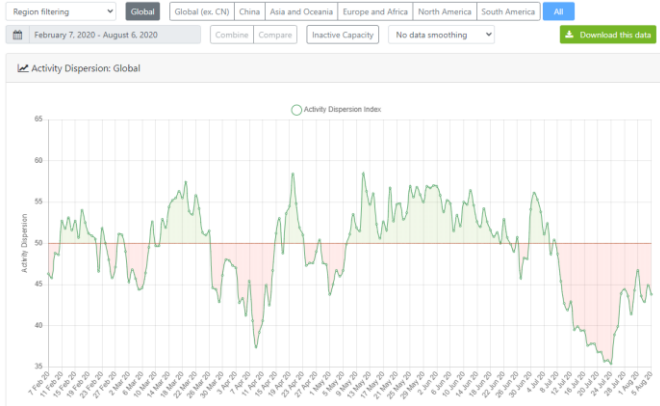
SAVANT^{ZN}

Using Satellite Data & AI to monitor and report on Metals and Minerals global supply chains

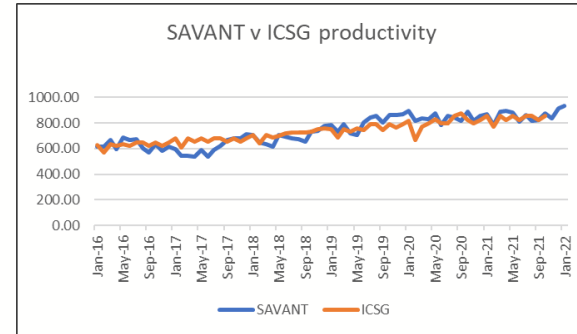
Built from Asset-level activity data..



Creating Aggregated >5 year highly accurate data sets..



90-day lead indicator on Productivity with 0.9 correlation...

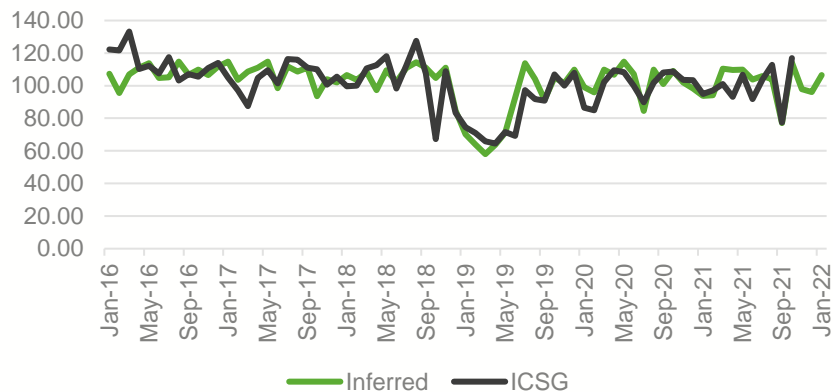


Developing Emissions reporting for ESG validation...

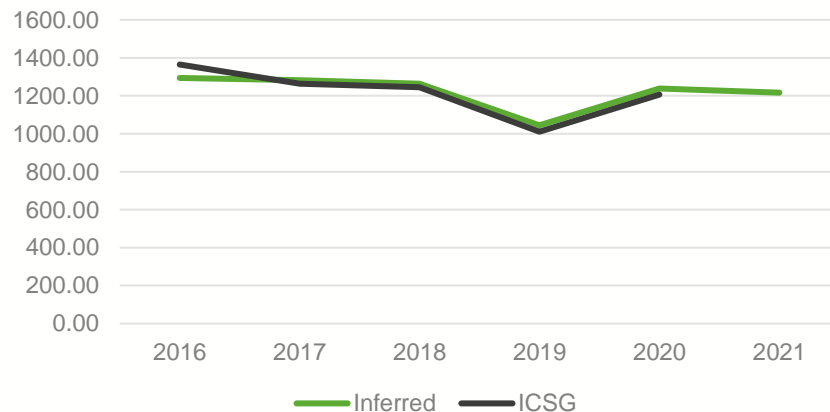


Copper Production: Chile

SAVANT v ICSG production (Chile)
(utilisation rate = 0.79)



SAVANT v ICSG production (Chile)



That's "Valuable".....

Providing validation to market statements

INDUSTRY NEWS

Two Ukraine Steel Mills Set to Restart Production

by Christopher Rivotso on APRIL 21, 2022
 Style: Industry News Category: Uncategorized

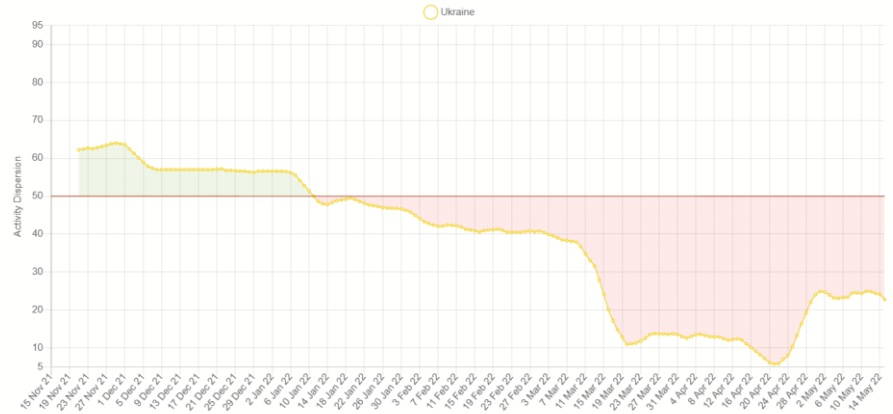
At least two Ukraine steel manufacturers are ready to [restart production](#) amid the ongoing conflict with Russia. Sources indicate this is because the areas where the mills are located have seen less impact from the invasion. Global investors greeted the announcement with much fanfare. After all, the renewed export of Ukrainian steel will undoubtedly have a significant impact on European markets.

A Major Steel Producer Comes Back Online

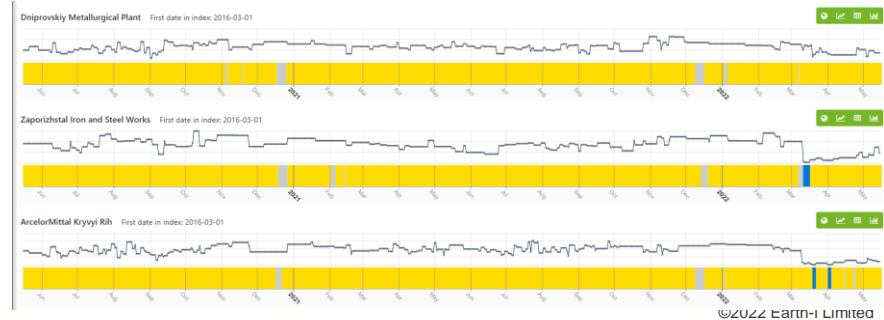
Luxembourg-based ArcelorMittal Kryviy Rih, a long producer in the country's second-largest city, is set to bring Blast Furnace No. 8 back online on May 2. This is according to CEO Mauro Longobardo, who made the announcement in the April 8 issue of the plant newspaper, *Metalurg*. Longobardo went on to say that Blast Furnace No. 6 will resume operations "in the coming days."

ArcelorMittal Kryviy Rih also expressed plans to return rolling production to the "highest possible level" by May 10. At the same time, the company plans to resume exports of iron ore concentrates. However, Longobardo made it clear that these actions are contingent on both logistics and the military situation. Currently, the plan is to dispatch finished products to Poland via train

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That's "Valuable".....

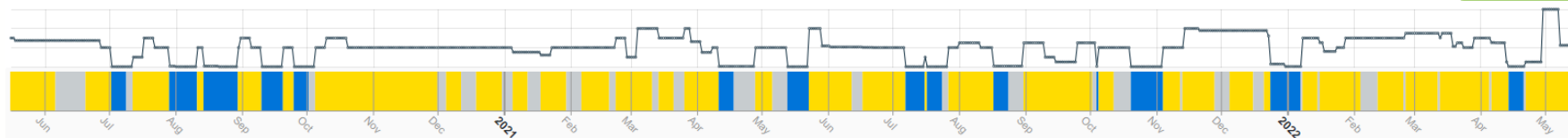
Thermal signatures for “Dirty” industrial assets

Sidenor Stomana (2 EAFs, Bulgaria)



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Sidenor Stomana First date in index: 2016-03-01

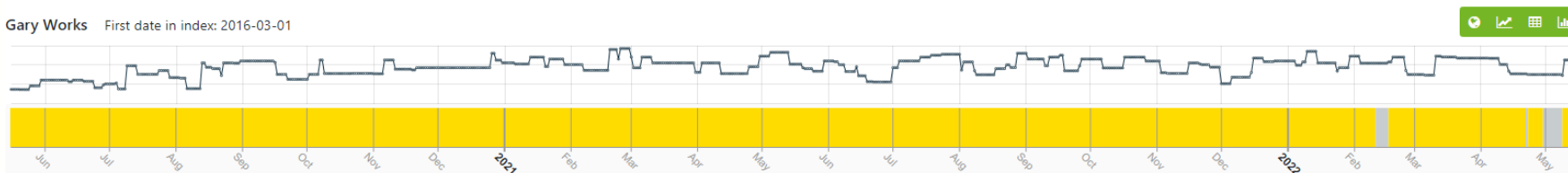


Gary Works First date in index: 2016-03-01

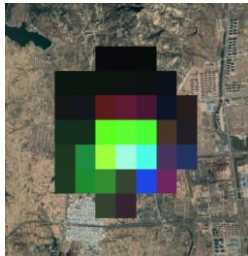
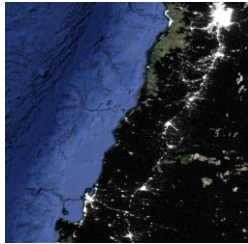
Gary Works (4 BF, US)



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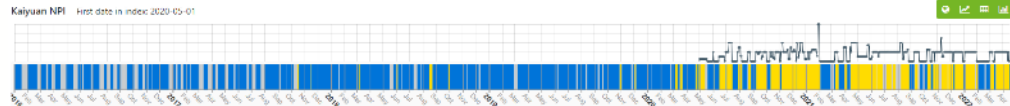
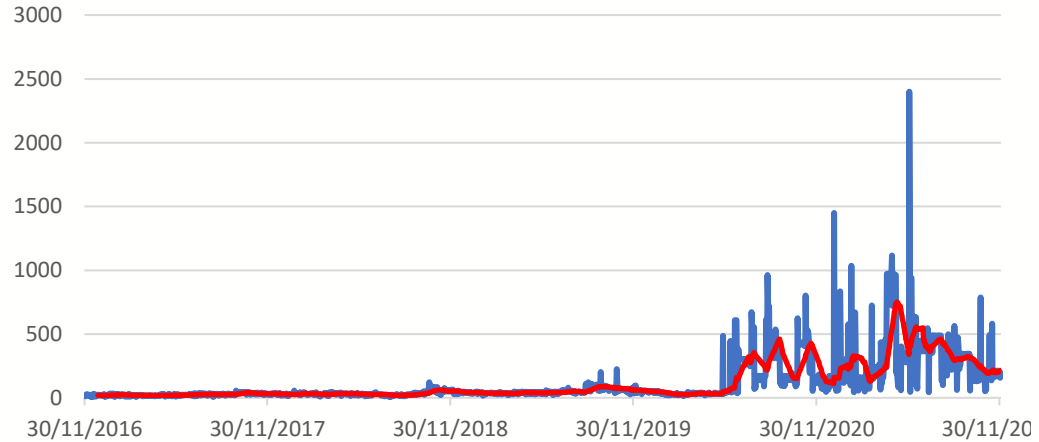


Automated radiance for “Clean” industrial assets



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Kaiyuan NPI smelter: Nightlight radiance Production start: May 2020

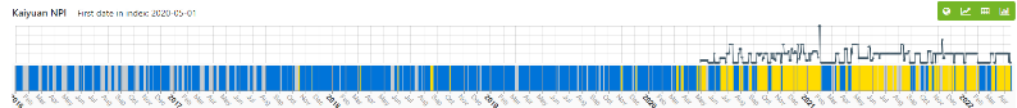
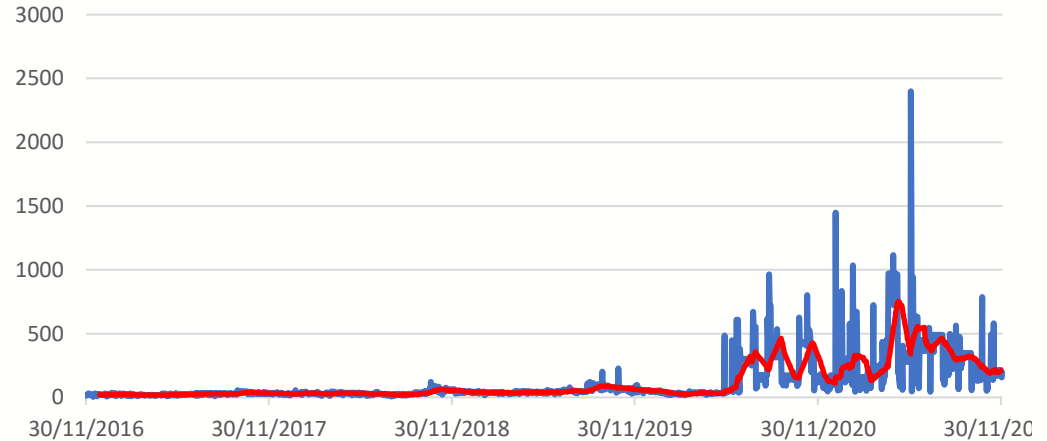


Automated smoke plume detection for “Clean” industrial assets



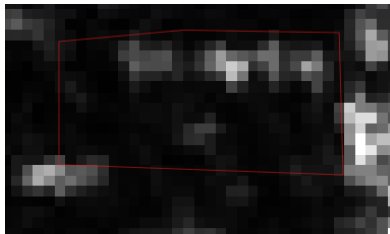
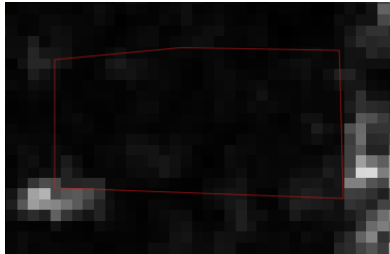
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Kaiyuan NPI smelter: Nightlight radiance
Production start: May 2020

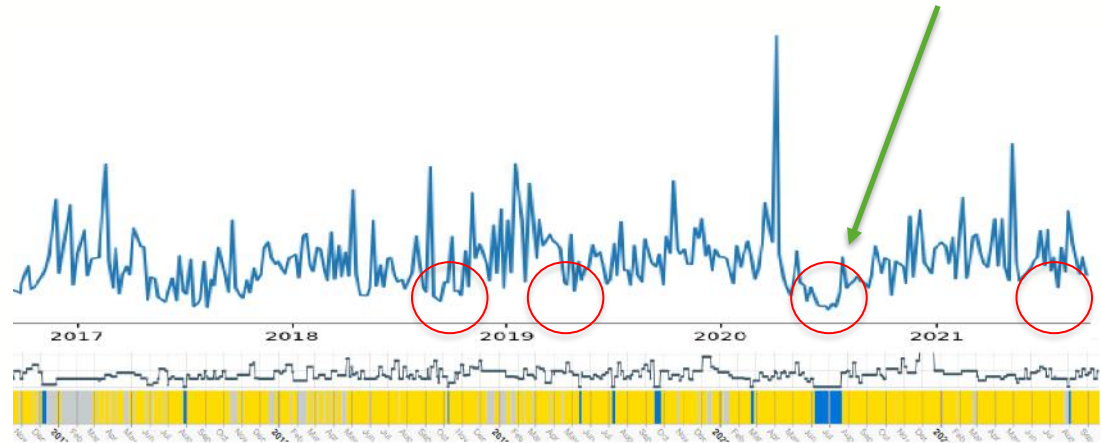


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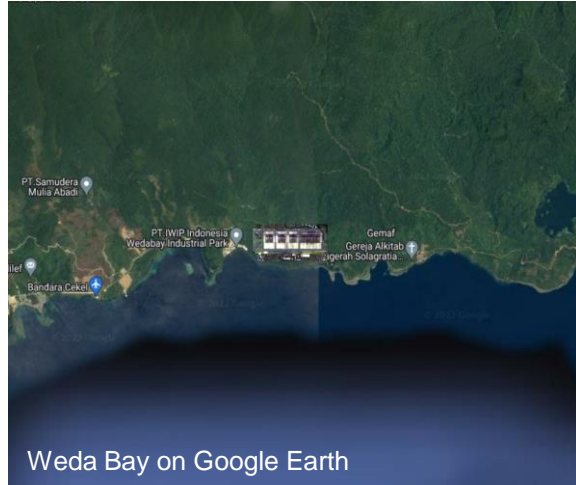
Automated SAR monitoring for cloud-impacted industrial assets



Chambishi copper smelter: outage
from 6 Jun to 21 Jul 2020



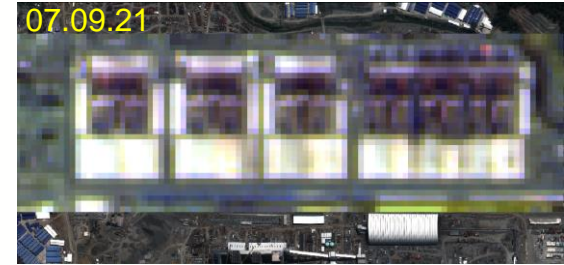
Automated thermal anomaly detection for “Clean” industrial assets



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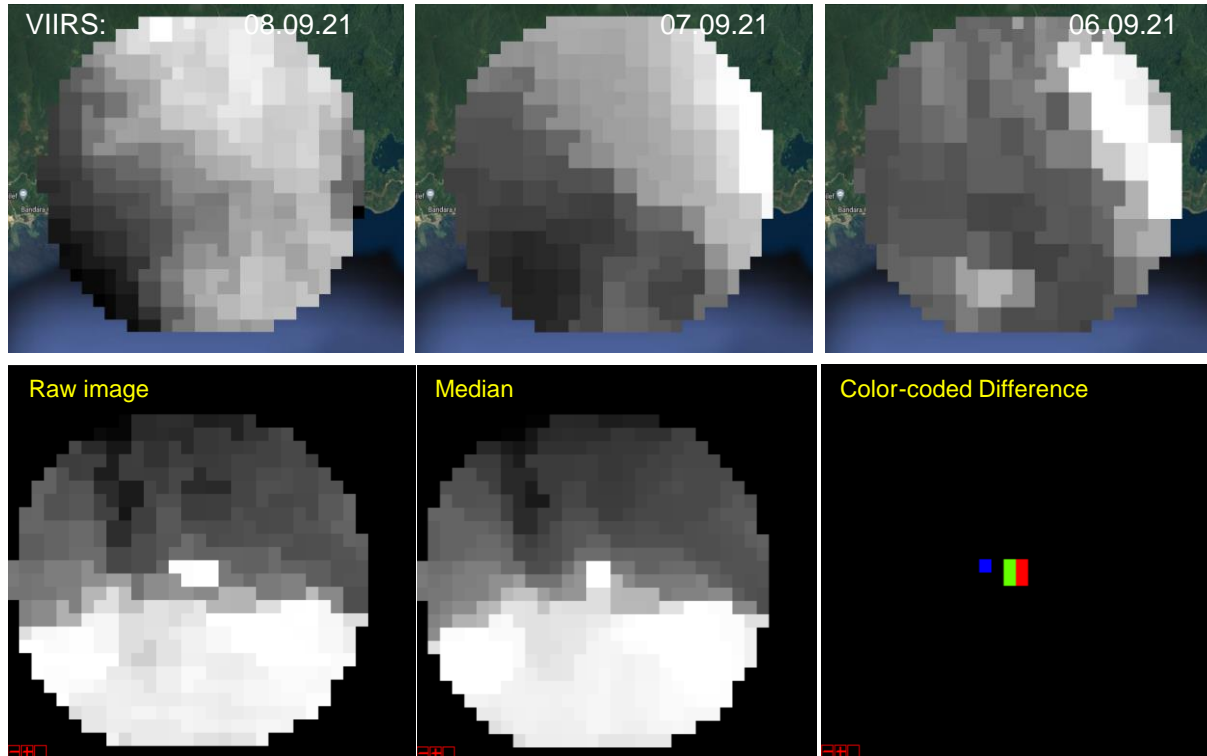


Sentinel 2 @ 20m FCC

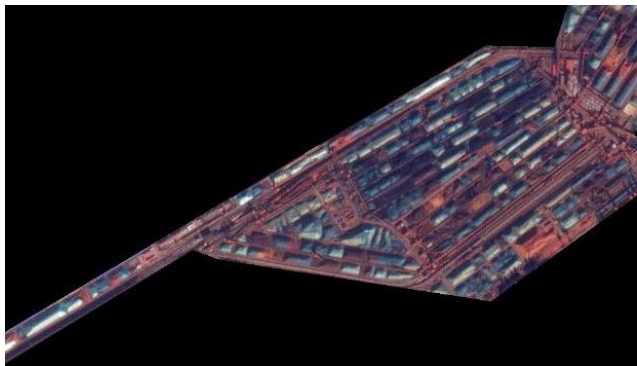


Airbus Pleiades @ 50cm Truecolor RGB

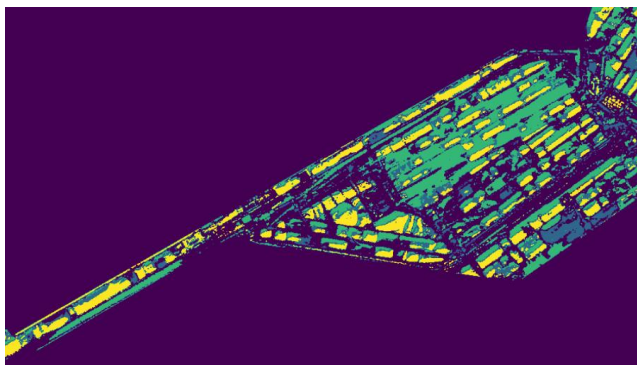
Automated thermal anomaly detection for “Clean” industrial assets



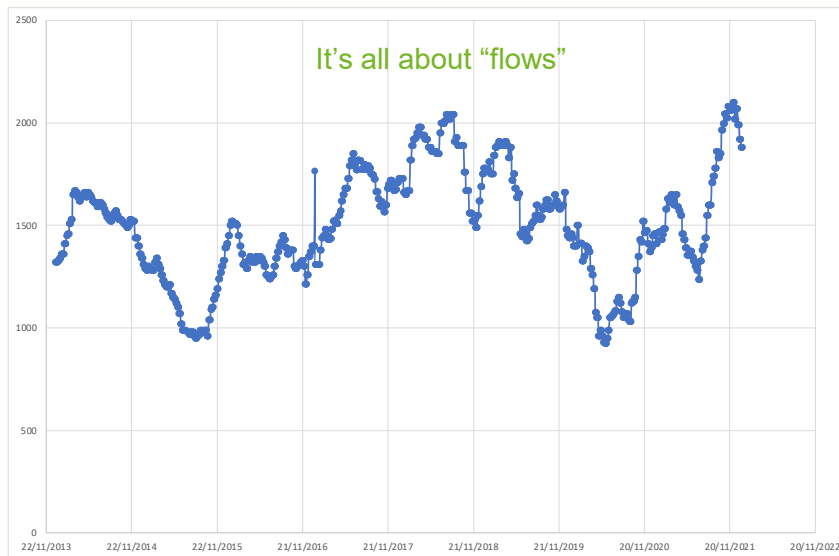
Automated volumetric analysis for industrial assets



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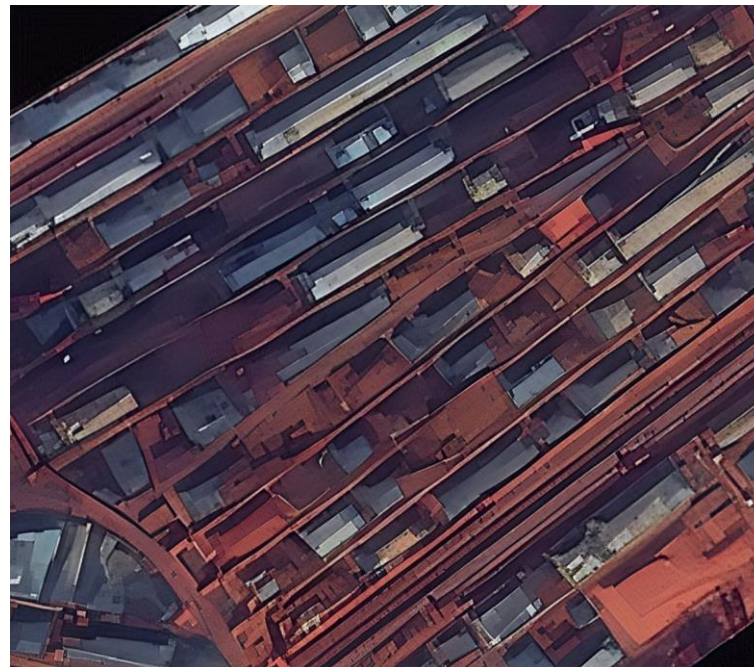
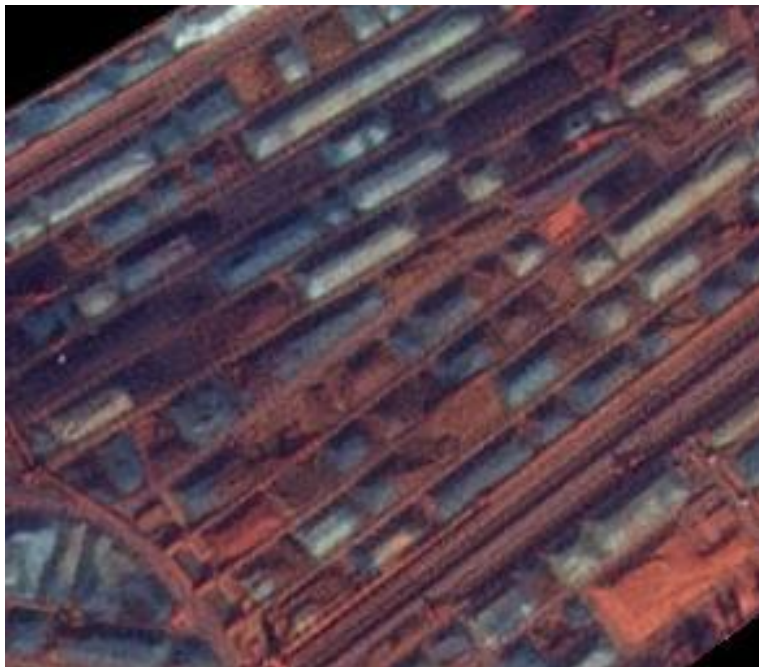
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That's "Invaluable".....

Sometime AI works...and sometimes it does not!



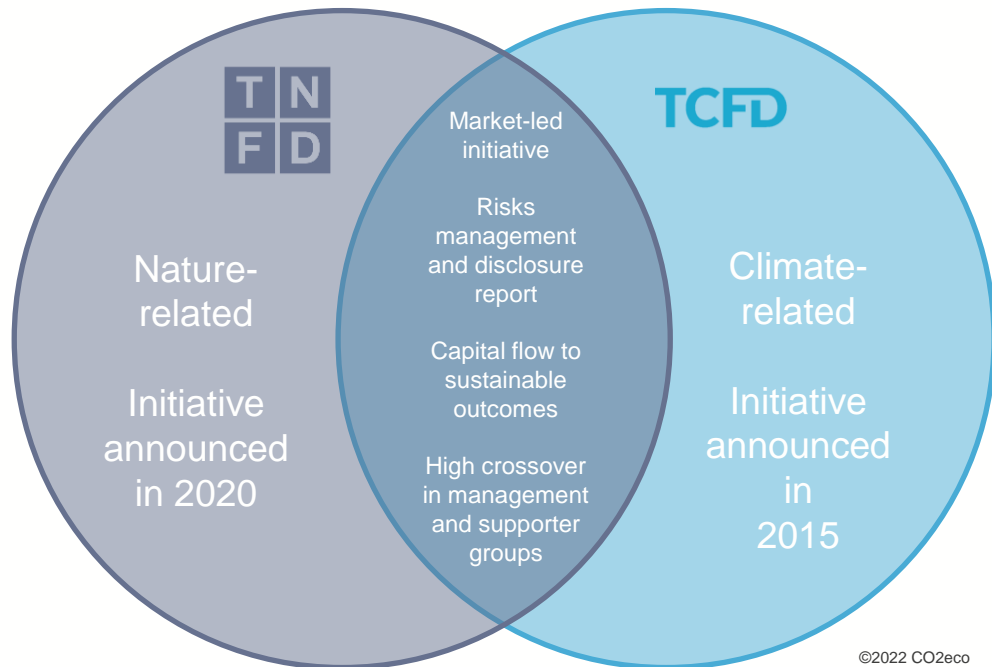
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Bad data in...inaccurate data out...

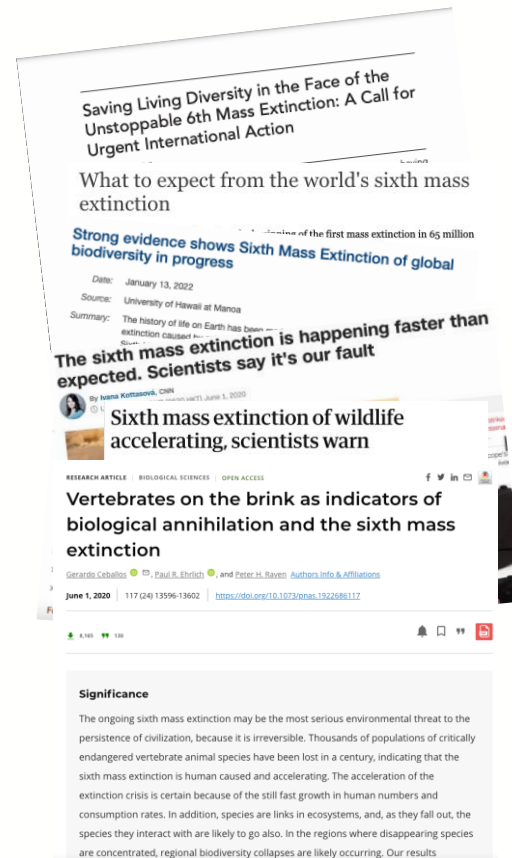
The real opportunity for satellite data and AI



Tackling Climate Change and Biodiversity Loss



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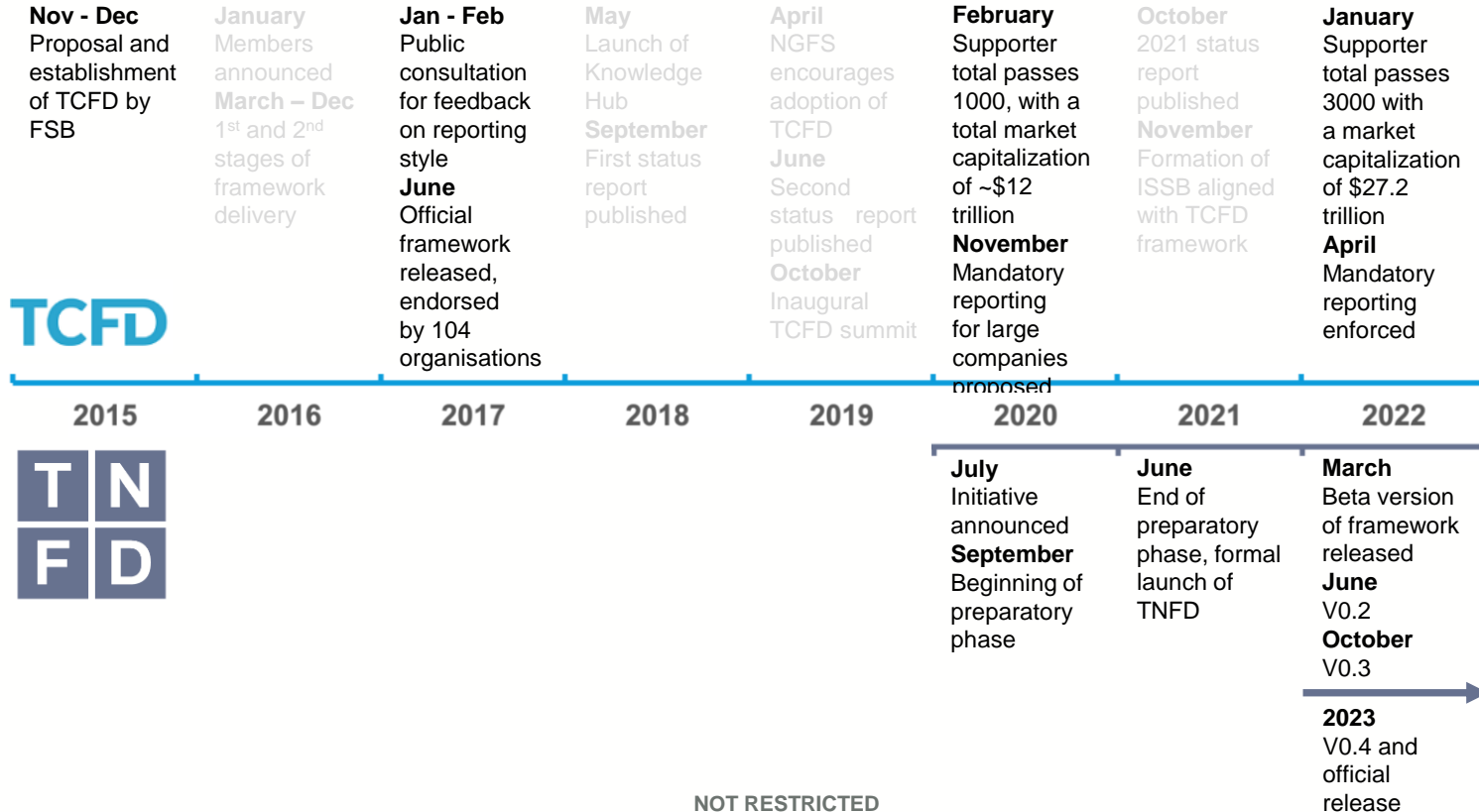


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The real opportunity for satellite data and AI

It is being driven by the market...

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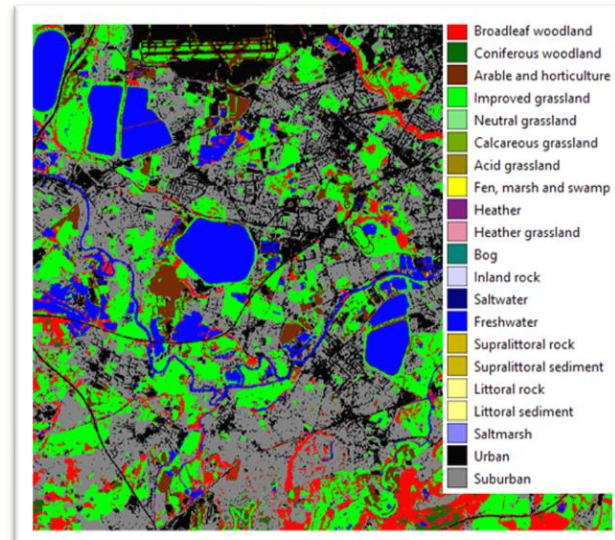


The real opportunity for satellite data and AI

Building understanding up from an asset level...over time...



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Land cover map



Land cover map



Land cover map

The real opportunity for satellite data and AI

The data required to meet this “invaluable” challenge is coming...

Optical (0.15-0.3M)	Optical (0.3-1.5M)	Optical / MS (0.3M-2.5M)	Optical (3-5.0M)	Optical (10M)	Optical (10M)
SAR (<1.0M)	Optical & MS (<1.0M)	SAR (10-20M)	HS (5-30M)	IR (<1M – 50M)	IR (250M)



The gap to be addressed is the interpretation (data science) and the operationalisation.



ANY QUESTIONS?

AND THANK YOU FOR LISTENING

Telephone (UK): +44 (0)333 433 0015
Email: info@earthi.co.uk
Web: www.earthi.space

Earth-i Ltd
10 Nugent Road, Surrey Research Park,
Guildford, GU2 7AF, United Kingdom.