Bridging Earth Observations and Risk Analytics at Scale

A Synthesis from the LunateAI Event at NY Climate Week

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Lunate AI

Geospatial, Earth Observations & AI

INTRODUCTION

During Climate Week NYC 2025, **LunateAI** hosted a pivotal session on *Bridging Earth Observations (EO) and Risk Analytics at Scale*. The discussion brought together data providers, users, developers, and investors to examine what's working, identify persistent gaps and explore where joint investment can have the greatest impact.

What began as a focused exchange on EO–risk analytics gaps quickly evolved into a broader dialogue on the **state and promise of the geospatial ecosystem**—its data, technologies, communities.

Despite tremendous progress in satellite capabilities, the **divide between upstream investment in EO infrastructure and downstream adoption in analytics** remains wide. The challenge now is to scale EO for impact—technically, structurally, and commercially.

BRIDGING EARTH OBSERVATION AND RISK ANALYTICS

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Climate week NY – Sep 25, 2025 1:00 -> 4:30 PM
St. John's University Manhattan Campus

A GROWING EO And AI LANDSCAPE

- Over the past decade, the number of operational EO satellites has grown by nearly **200**, with **44 more countries** planning launches in the next 5 years.

- Roughly **1,373 new satellites** are expected to deploy, generating **130+ terabytes of daily data** from missions like *NISAR, Sentinel, Landsat,* and *PlanetScope.*

- *Landsat* alone contributes more than **$25 billion annually** in economic value through freely available 30m data.

- Meanwhile, **Generative AI (GAI)** investments surpassed **$29 billion in 2023**, with momentum accelerating through 2025.

EO Satellite Surge
1,373
new satellites expected in the next 5 years, adding to the 200 launched in the last decade.

$25 B
Annual Value
from Landsat's free 30m data alone.

$29.1 B
GenAI VC Funding
in 2023, with continued strong growth.

130 TB
Daily Data
from NISAR, Sentinel, Landsat, & PlanetScope.

Turning this abundance of EO data into **actionable risk insights** remains elusive—constrained by fragmented infrastructure, skill gaps, and unclear business models.

KEY ADOPTION AND SCALING BARRIERS

The NY Climate Week conversation highlighted a persistent misconception: EO data is for science and geospatial is for mapping. In reality, EO is **one form of geospatial data,** and **all data is geospatial** - everything is eventually associated with a location and time. When combined, these elements reveal what has happened, what is happening, and what may happen across many domains touching our lives.

Shifting this perception requires strong **use cases** that demonstrate business value and improved workflows as well as executive comprehension to include C-Suite expertise to add geospatial (and GeoAI) to corporate architectures. One example that came up during the session is that of **parametric insurance** as an emerging application that effectively connects geospatial insights to tangible economic outcomes. The financial institutions that are incorporating **geospatial, Earth Observations and GeoAI** are seeing more informed analysis outcomes.
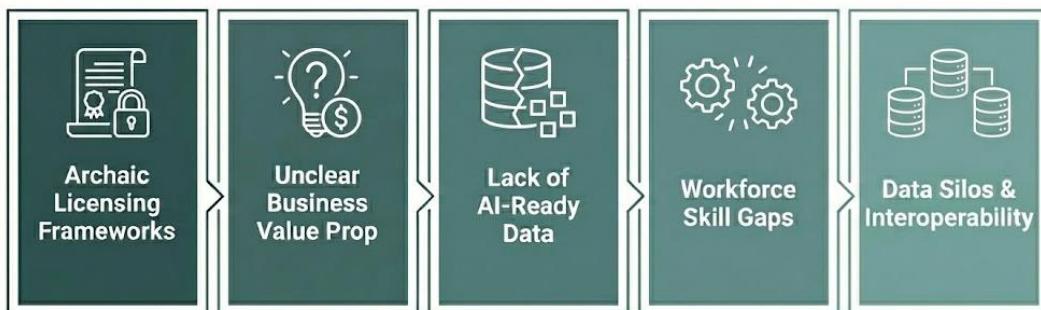
The combination of licensing, unclear value proposition, lack of AI-ready data, interoperability and workforce skill gaps creates **significant friction for adoption of EO**.

AI-READINESS

Barriers persist across the technical spectrum—from a lack of AI-ready data and modeling capabilities to inadequate workforce understanding of how EO data can support better decision-making. Considerable effort is still needed to make data truly **analysis-ready**—addressing calibration, harmonization, metadata, and fusion issues behind the scenes. Achieving this requires a **global effort** to make EO infrastructure **cloud-native and AI-ready**.

EXPANDING OPEN DATA RESOURCES

Expanding **open-data resources**, such as building and parcel datasets, could unlock substantial value across industries. For example, **New York City's** detailed and regularly updated infrastructure datasets have proven invaluable for both disaster response and urban resilience planning.

COLLABORATIVE PILOTING

Weather forecasting offers a successful model—AI-ready data and models have transformed prediction and decision-making. The same open, collaborative approach is needed for **climate risk modeling**: shared baselines, transparent processes, and public benchmarking. We need **collaborative pilots** that emphasize practical use cases and facilitate rapid dissemination of successful solutions.

INTERDISCIPLINARY ACADEMIC PROGRAMS

Interdisciplinary academic programs are also critical. Initiatives like **Clark University School on Climate, Environment, and Society** and **CIESIN's programs** that combine EO with socioeconomic data demonstrate how interdisciplinary approaches can better assess vulnerability, societal change, and resilience. Greater investment in joint **industry-government-academia AI Centers** could accelerate these advances.

THE 1990s LICENSING FRAMEWORK

Many licensing frameworks from the 1990s still restrict how private EO data can be used in modeling and analytics. While intended to protect corporate investments, they **often limit innovation** by allowing only narrow, predefined use cases. Users frequently face unclear or inconsistent language across providers, forcing renegotiation for new applications and increasing the risk of accidental non-compliance. Proprietary platforms and closed ecosystems further **hinder interoperability,** making scalable tools, performance improvements, and simple cross-provider data fusion unnecessarily difficult.

The 1990s Licensing Problem

Outdated licensing frameworks are one of the biggest handicaps to market progress.

- Restrict innovation and data access.
- Create "walled ecosystems" and prevent data fusion.
- Hinder the creation of secondary markets.
- Value must be articulated in **business terms**, not technical jargon.
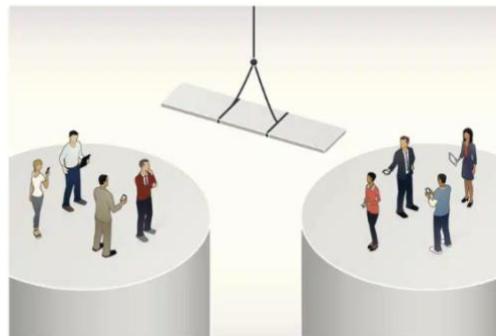
These fragmented, restrictive models also **impede secondary markets and slow broader industry progress.** Additional barriers—such as national security limits, data ownership uncertainties, IP constraints, and incompatible licensing terms—compound the complexity. Collectively, these outdated practices significantly hamper market growth and underscore the **urgent need for open, standardized, and flexible licensing approaches.**

THE GEOSPATIAL AND AI VALUE PROPOSITION

Engaging investors introduces valuable perspectives and helps shape sustainable business models. However, the **value proposition** for EO and geospatial technologies must be clearly articulated in **business terms**, not technical jargon.

Presenting value based on the technology and data **creates a lack of understanding of its benefits**, cost justification concerns, and a typical deficiency of interest due to absence of tangible value for the business.

Geospatial projects require investment in software, hardware, and expertise. Without clear, actionable outcomes, **demonstrable return on investment**, and technical complexity depiction a project's credibility can be undermined.

The Vision: AI as the Catalyst

This isn't "AI for AI's sake." It's about resilience, sustainability, and development. AI is the catalyst that will transform EO data from a niche tool into a mainstream driver of global progress.

Earth Observation Data

+

Generative AI

↓

✓ Climate Action
✓ Economic Growth
✓ Community Resilience

WHERE TO FOCUS OUR EFFORTS

To scale EO and geospatial solutions effectively, we must address both the **Technical dimension (**AI-ready data, fusion, and interoperability) and the **Business dimension** (sustainable models and clear outcomes).

AI-Ready Data

Establish and adopt AI-ready data standards to democratize custom model-building.

Expand Access

Expand access to public-domain Earth Observation data, especially for startups.

Launch Pilots

Invest in harmonization infrastructure and launch collaborative pilots on high-impact use cases.

Support Long Term Programs

Support long-term interdisciplinary programs (not short-lived projects) and show ROI.

Bridge Communication Gap

Simplify language and clarify business value for investors and stakeholders.

Advocate for GIO Role

Establish GIO role distinct from IT to focus on embedding geospatial thinking into the organizational fabric.

Special Thanks

Nadine Alameh
Founder & CEO, LunateAI
"The world needs Geospatial and EO more than ever. Let's focus on mobilizing the ecosystem and co-creating the future of EO and risk analytics"

Aravind Ravichandran
Founder & CEO, TerraWatch Space
"We should tackle the scaling challenge both ways: technical (data fusion, EO relevance) & business (subscription vs. outcome-based)"

Zef Lokhandwalla
Geospatial Product Manager, Bloomberg
"We need clearer branding, less jargon, stronger value proposition. Geospatial is still in the early stages of adoption"

Ryan Abernathey
Founder & CEO, EarthMover
"We need to create an open, public forum for climate-risk modeling (like weather data)"

Mike Jeffe
Director of BD, EarthDaily
"We need to invest in "boring" but vital harmonization infrastructure – cloud-native & AI-ready"

Priscilla Cole
Founder & Director, Geospatial Risk
"It was a pleasure to host this session as part of a dialog on the role of EO and Open Data in applied risk analytics"

Greg Murphy
America Coastal Resilience Lead, Fugro
"We need to focus on the market development. And how about appointing a Chief Geospatial Officer in every corporation?"

Daniel Baruch
ED ClimateTech Investments, JP Morgan
"Market relevance often outweighs technical perfection. Storytelling, trust and a share vocabulary are as critical as the algorithms"

Marge Cole
Strategic Initiatives Director, LunateAI
"I'm excited about how we can collaborate to build the Next-Gen infrastructure with EO, Geospatial, and AI to scale climate risk modeling"

Will Cadell
Founder & CEO, SparkGeo
"We need more conversations with end-users. We also need to manage the expectations of end-users"

Robert Carroll
Founder & CEO, Tera Analytics
"We need to expand open-data resources for startups. Overture Maps' building data is a great example. Let's expand to other data like Parcels"

Kevin Bullock
Head of Partnerships, Development Seed
"Licensing is a HUGE issue. Let's make EO data public domain to overcome licensing hurdles"

Alex de Sherbinin
Director, Columbia Climate School
"We need to advance interdisciplinary research integrating EO with socioeconomic data for vulnerability mapping"

Alan Leidner
Board Member, NY GISMO
"We need to launch collaborative pilots on critical use cases & share what works way better than what we currently do"

Hamed Alemohammad
Director, Clark Center Geo Analytics
"it's time to shift from one-off projects to sustained programs and deepen industry-academia partnerhsips"

Mike Spaeth
Global VP, US AI Institute
"AI has so much unfilled promise. AI will be the catalyst to finally bring it last success outside government contracts and in the hands of all"

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