

INDUSTRY OUTLOOK / SEPTEMBER 2026

The State Of Climate Geospatial Intelligence

Q4 2026 | Outlook 2027

BOOK EDITION

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TEE BARR

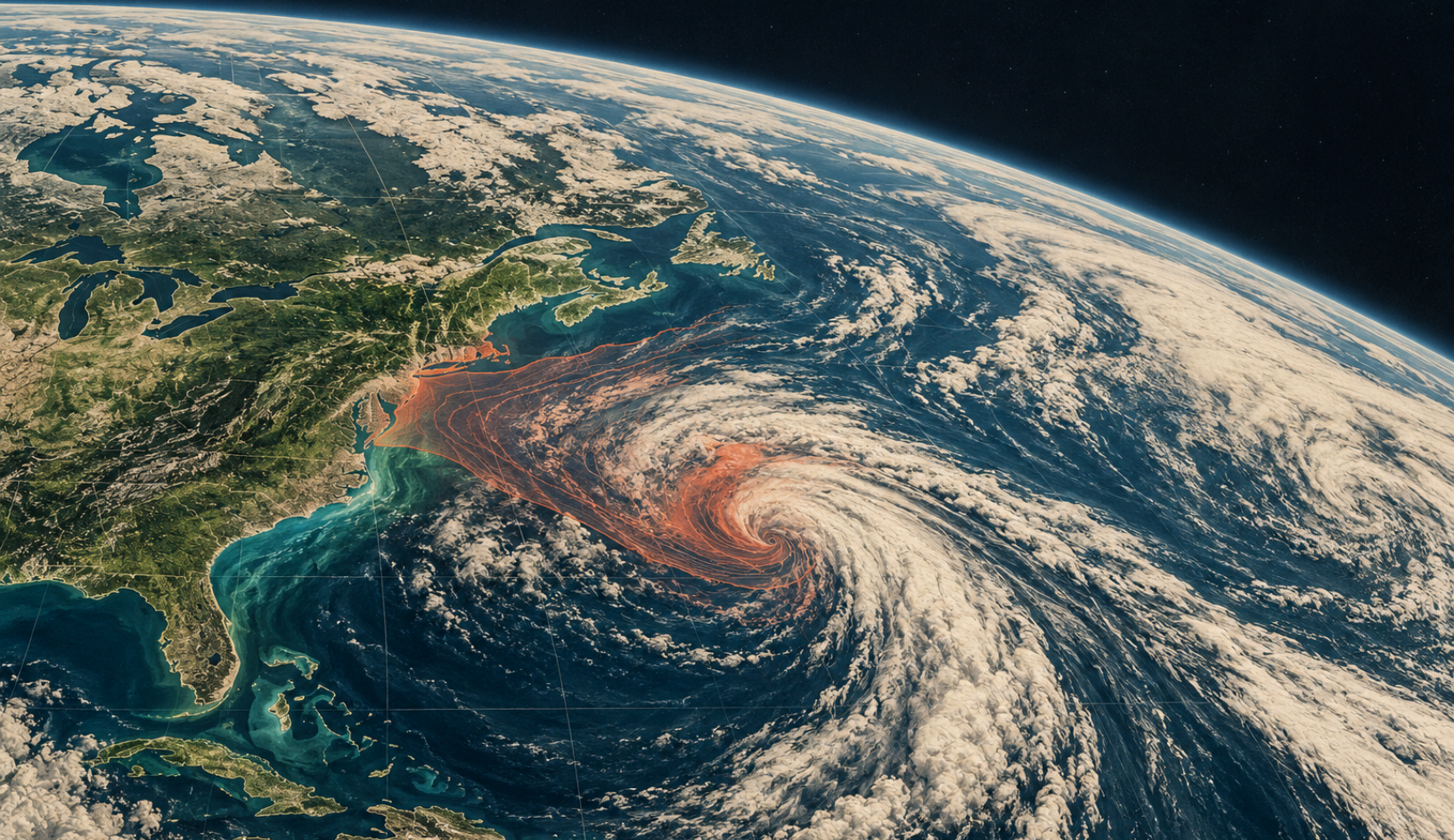


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Foreword

Climate risk happens somewhere. So does the bill.

That is where I start. A flooded warehouse. A mortgage portfolio exposed to fire. A coastal community trying to decide what to protect, what to move, and who gets to pay. Geography gives those decisions their shape. Intelligence should help someone make them.

We have become extraordinarily good at observing the planet. We can see more, model more, and produce more layers than most institutions know what to do with. The industry has also become very good at presenting that capability. A beautiful dashboard can still leave the person responsible for the loss asking exactly the same question they had before the demo.

What changes my decision?

C&GIG works at that junction: climate, geography, intelligence, and consequence. My interest is in the chain connecting an observation to a judgment, a judgment to an action, and an action to an outcome somebody can defend. Every link deserves scrutiny. Especially the ones everyone assumes somebody else has checked.

This book follows the money, the methods, and the institutions. Who funds the sensing? Who validates the models? Who buys the analysis? Who carries the loss? Those questions tell us where the industry has durable value, where it is vulnerable, and where its promises have outrun its commercial reality.

I have spent enough time across intelligence, geospatial technology, and insurance to respect uncertainty. Confidence has to be earned. Evidence needs a date, a source, and a clear account of what it supports. A forecast should arrive with its assumptions visible. The future has a tiresome habit of refusing to read the pitch deck.

Read this with your own decisions in mind. Challenge the assumptions. Look for the missing institution, the weak translation step, the incentive nobody wants to name. Ask what would have to change for a finding to stop being true.

The work earns its place when somebody can use it to decide what happens next.

TEE BARR

Climate & Geospatial Intelligence Group

The State Of Climate Geospatial Intelligence

Q4 2026 | Outlook 2027, Book Edition

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About This Book

This book assesses the global climate geospatial intelligence industry as it stood at the end of September 2026: its commercial maturity, technical capability, institutional adoption, economic value and structural limits. It then sets out the developments most likely to reshape the industry in 2027.

Baseline. The evidence baseline is September 24, 2026. Developments between September 24 and 28, including the close of New York Climate Week and the September 26–27 nor'easter, are included and marked as such.

Evidence labels. Every material claim carries one of three labels.

Label	Meaning
Completed	Occurred and publicly verifiable on or before the baseline
Announced	Publicly committed but not yet delivered: launches, rules, closings
Anticipated	Expected Q4 2026 or 2027 activity, based on stated schedules or the author's inference

Sources. Numbers in square brackets refer to the endnotes. Company figures come from filings and press releases; market figures from brokers, reinsurers and trade data; policy status from official texts and law-firm trackers. Figures that could only be sourced from a participant's social media post are identified as claims in the text and flagged in the verification log in the appendix.

What this book is not. It is not investment, legal or insurance advice. Scenario likelihoods in Chapter 9 are the author's judgment, not market consensus. Market-size estimates from commercial research houses are excluded as non-comparable; the book anchors instead on disclosed revenues, deal prices and loss data.

How to read it. Readers short on time should read the executive summary and Chapter 9. Chapter 10 translates the findings for five kinds of reader. Chapter 7 records what practitioners said at New York Climate Week, the industry's largest annual gathering.

Executive Summary

Climate geospatial intelligence is technically mature and commercially immature. In 2026 the capability frontier became largely free and public, while the money flowed to three places: defense-funded sensing, incumbent data platforms and the risk bearers who own the losses. The pure-play analytics layer in between is being consolidated at modest prices.

Sensing is being revalued by security, not climate. ICEYE's valuation rose from about €2.4B to over €10B in six months on sovereign demand [3][4]. Planet's 58% revenue growth leans on government satellite services [1]. Climate users ride on capacity that defense budgets pay for.

Analytics is consolidating cheaply. MSCI closed its purchase of First Street on August 3, 2026 for \$120M upfront plus an earnout [9][10]. SLR absorbed Planetrics and ClimSystems [11], and Glass Lewis merged with Clarity AI during Climate Week [12]. The category's pricing benchmark is now a data-company multiple, not a platform multiple.

Frontier models went open. Google open-sourced WeatherNext 2 and WeatherNext Cyclones [15][16], AlphaEarth embeddings are free [19][20], NOAA runs AI ensembles operationally [14] and NISAR's L-band radar record is public [22]. Differentiation now rests on validation and financial translation, not access.

Re/insurance is the anchor buyer; disclosure demand shrank. Catastrophe bond issuance hit a record of nearly \$18B in H1 2026, but 81% of it used indemnity triggers [26] [27]. US bank climate principles were withdrawn [33], California's SB 261 remains enjoined [34] and the EU cut CSRD's scope [29]. The ECB is the one major regulator tightening [28], and the NGFS now tells supervisors that capital buffers for flood-exposed mortgages are on the table [38].

The market is soft. Benign first-half losses and record capital cut property-catastrophe rates 16% year to date [44]. The Atlantic went without a hurricane until later in the season than in any year since at least 1966 [71]. Soft markets reduce the urgency to buy new analytics going into 2027.

The limits are institutional, not technical. Model divergence, opaque AI outputs, dependence on government budgets and pressure on public reference data such as Landsat cap how fast capability converts into revenue [13][21][35].

New York Climate Week confirmed the thesis. Across the official program, the major reports and 194 LinkedIn recaps, the recurring message was that physical risk is now a pricing and credit problem, and that the hard step is translating hazard into a financial decision [52][56][73]. Practitioners put it simply: it is easier to price the cost of an event than the value of avoiding one.

2027 in one line. Expect cheaper, better data and models; continued low-multiple consolidation; EU-weighted compliance demand; and slow parametric growth, unless a major catastrophe hardens the market and forces validated physical-risk data onto board agendas.

Chapter	Question it answers
1	What is climate geospatial intelligence, and where does value sit in the stack?
2	How commercially mature is the industry?
3	What can the technology now do, and what can't it?
4	Who is adopting it, and why?
5	How much economic value does it create, and who captures it?
6	What structurally limits the industry?
7	What did New York Climate Week 2026 add?
8	What is scheduled for the rest of Q4 2026?
9	What could reshape the industry in 2027?
10	What should each type of reader do about it?

Each chapter opens with an **In Brief** box summarizing its argument, and each includes a **Story** box built from a documented event, with the same endnote sources as the text. No story is a composite or an invented case.

Chapter 1

What Climate Geospatial Intelligence Is

In Brief

- Climate geospatial intelligence is a four-layer stack: sensing, models, financial translation and the risk bearers who act.
- Value pools at the two ends. The middle, where most start-ups sit, is squeezed between free inputs and consolidating buyers.
- Demand is most durable where someone owns the loss, and weakest where it exists only to satisfy a disclosure rule.

Every climate decision that involves money eventually asks a spatial question. Is this warehouse inside the hundred-year floodplain, or just outside it? How many of the homes in this mortgage pool sit in the wildland–urban interface? Did the storm surge reach the ground floor of this hospital, and if it did, how many days until the claim can be paid? The answers depend on knowing where things are, what they are exposed to and how that exposure is changing. Climate geospatial intelligence is the industry that has grown up to answer those questions.

In this book the term covers the whole chain that turns observations of the Earth into decisions about climate risk. It begins with satellites, aircraft and ground sensors that observe the planet. It continues through the models that turn raw observation into estimates of hazard and exposure, how deep the water will be, how hot the street, how fast the wind. It then passes through a translation step that converts those estimates into something a financial institution can act on: an expected loss, a change in credit quality, a premium, a capital charge. And it ends with the institutions that bear the risk and take the decision, insurers and reinsurers, investors in catastrophe bonds, banks and their supervisors, asset owners and governments.

The diagram below shows those four layers and the state each was in by the autumn of 2026.

Value Pools At The Ends Of The Stack

TRANSLATION IS THE BOTTLENECK

01 Sensing

Commercial radar and optical constellations; Landsat, Sentinel and NISAR

2026: defense and sovereign demand; public reference data

02 Models And Analytics

AI weather models, geospatial foundation models, catastrophe models, physical-risk scores

2026: frontier open-sourced; analytics at data-company prices

03 Financial Translation

Hazard into loss, credit impact, price and capital

2026: the bottleneck, named at Climate Week; validation against realized losses is the new pitch

04 Risk Bearers And Decision Owners

Insurers, reinsurers, ILS investors, banks, supervisors and governments

2026: re/insurance anchors demand; US disclosure demand retreats

The CGI stack · four layers, top to bottom

Why The Layers Matter

It would be convenient if value flowed evenly down the stack, with each layer earning a fair share of what the next one is willing to pay. It does not, and 2026 made the imbalance unusually plain.

At the top, the sensing layer is being revalued, but the buyers setting the price are defense ministries and sovereign governments, not climate risk managers. ICEYE, the Finnish radar-satellite operator, saw its valuation rise more than fourfold in six months on the back of what it calls sovereign intelligence [3][4]. Its production line is now aiming at roughly a satellite a week [8]. Climate users benefit from that capacity, but they did not pay for it and they do not decide where it points.

At the bottom, the risk bearers own both the loss and the budget. When a reinsurer prices a hurricane layer, when a bank sets aside capital against a flood-exposed loan book, or when a government decides which coastline to defend first, spatial data is an input to a decision that has immediate financial consequences. Those institutions have been spending more on climate risk, not less, because their own balance sheets are on the line [26][28].

The middle of the stack is where most climate-data start-ups sit, and it is the layer under the most pressure. Its inputs became dramatically cheaper during 2026, as Google, NOAA and NASA released high-quality weather models, land-surface embeddings and radar archives free of charge [14][15][19][22]. Its outputs, meanwhile, are being bought by incumbents at prices that look like data-company multiples rather than platform ones [9][11][12]. A business that sits between free inputs and consolidating buyers has a narrow space in which to earn a margin.

That space is the translation layer. Knowing that a property faces a one-in-a-hundred-year flood depth of 1.2 metres is interesting. Knowing what that depth does to the property's insurance premium, its collateral value, the covenant headroom on the loan against it and the capital a bank must hold is useful. The first is a hazard estimate. The second is a financial decision. Almost every theme in this book, the low acquisition prices, the insurers building their own models, the Climate Week panels that kept returning to the same frustration, comes back to how hard, and how valuable, that conversion is.

This book is not alone in reaching that conclusion. An independent monograph circulated in September 2026, *The State of Climate Intelligence: Q4 2026 and the Road to 2027*, puts it more bluntly: climate intelligence rarely fails for lack of scientific precision or sensor resolution, but breaks down in the translation between hazard estimation and institutional power, becoming consequential only when it alters a balance sheet, changes a credit rating or triggers a contract [76]. Where that monograph's evidence could be verified, it is used in the chapters that follow; the appendix sets out which of its claims held up.

Story: The Whole Stack In One Insurance Policy

In June 2026 Liberty Mutual launched a wildfire cover that shows every layer of this industry working in a single product [6]. When a wildfire burns through an insured area, ICEYE's radar satellites image it, through smoke, at night and in any weather. Software matches the imagery to property footprints and uses machine learning to sort each insured building into one of two classes: destroyed or undamaged. If the agreed conditions are met, the policy pays within days. No loss adjuster has to wait for the fire line to move before visiting the site.

Sensing, models, translation and a risk bearer are all present: a satellite fleet financed largely by defense customers, a classification model, a contract that turns a classification into cash, and an insurer that decided the speed was worth paying for. It is also a reminder of where the value sits. The satellites and the model are inputs. The product is the promise to pay.

Three Distinctions Used Throughout

Three terms recur in the chapters that follow, and it helps to fix them now.

Forecast skill is how well a model predicts the weather hours to weeks ahead. Artificial intelligence has improved it dramatically and quickly. A model that says where a hurricane will make landfall three days from now is a forecasting tool.

View of risk is a model's distribution of possible losses over decades, the thousands of simulated years that tell an insurer how often a loss of a given size should be expected. Views of risk are used to price insurance, set capital and rate catastrophe bonds. They move slowly, they are scrutinized by regulators and rating agencies, and they cannot be verified against next week's weather.

Translation is the step that converts hazard and exposure into a financial effect a decision-maker can act on: a price, a covenant, a capital charge, a decision to build or not to build.

The gap between the first two terms is one of the quiet facts of the industry. Most of the headlines of 2026 were about forecast skill. Most of the money depends on views of risk. Chapter 3 explains why progress on one does not automatically carry over to the other, and Chapter 6 treats that gap as a structural limit.

Who Buys, And Why

Demand for climate geospatial intelligence comes from four motives. They differ sharply in how durable they are, and the order matters for reading the rest of this book.

The most durable motive is **owning the loss**. An insurer, reinsurer or catastrophe bond investor who pays out when a flood or fire strikes has a direct, continuing reason to buy data that sharpens a price or speeds a payout. That demand does not depend on regulation or fashion, and it grew through 2026 [26].

The second is **supervisory pressure**. Banks in the euro area must now show their supervisor that they have assessed physical climate risk in their lending books, and the European Central Bank has begun to fine those that are late [28]. The Network for Greening the Financial System, the club of central banks and supervisors, is pushing its members elsewhere in the same direction [38]. Supervisory demand is less direct than owning the loss, but it is hard to ignore.

The third is **public adaptation spending**. Governments and multilateral lenders need maps of who is vulnerable, and to what, before they can decide where resilience money goes. The European Union's resilience framework, due in October 2026 and built around a map of its hundred most vulnerable regions, is the clearest current example [31][32].

The weakest is **disclosure**. Companies buy climate analytics to satisfy reporting rules. That demand shrank in 2026 in both the United States and the European Union [29][33][34], and even where it survives it rarely changes a decision. A report written to comply with a rule is filed; a price written to cover a risk is paid.

The chapters that follow trace the stack from top to bottom. Chapter 2 examines commercial maturity, Chapter 3 the technology, Chapter 4 who is adopting it, Chapter 5 how much value it creates and who captures that value, and Chapter 6 what holds the industry back. Chapters 7 and 8 bring the story up to the end of September 2026, and Chapters 9 and 10 look ahead.

Chapter 2

Commercial Maturity

In Brief

- Sensing is booming on government money: Planet grew 58% in its latest quarter and ICEYE's valuation rose from about €2.4B to over €10B in six months.
- Analytics is being bought, not built: MSCI paid \$120M upfront for First Street, and Clarity AI and Planetrics were absorbed by firms with distribution.
- Market-size estimates disagree by multiples; disclosed revenues and deal prices are the only solid anchors.

By the autumn of 2026 climate geospatial intelligence had stopped being one market and become two, moving at very different speeds. The first is a sensing market: companies that build and fly satellites and sell what they see. It is growing quickly, attracting large amounts of capital and being revalued upward. The second is an analytics market: companies that turn observations into risk scores, maps and models. It is being absorbed by larger firms at modest prices. Climate is a genuine customer in both markets. In neither is it the customer that sets the price.

Sensing: Growth Led By Governments

The clearest window into the sensing market is Planet, the largest publicly listed operator of Earth-observation satellites. In its fiscal second quarter of 2027, the three months from May to July 2026, Planet reported revenue of \$116.1 million, up 58% on a year earlier. Adjusted EBITDA was \$13.9 million, and the company's backlog of contracted future revenue stood at about \$815 million. Management guided to full-year revenue of \$430 million to \$441 million [1].

Those are the numbers of a company that has found scale. But the composition of the growth matters as much as its size. Part of the quarter's revenue came from one-time handovers of satellite hardware to government customers, and the guidance for the following quarter, \$101 million to \$105 million, implies growth slowing to about 27% once those handovers fade [1]. The backlog is also less solid than its headline suggests: \$61.7 million of it is contract value that customers are entitled to cancel [2]. Planet's growth, in other words, is increasingly the growth of a government contractor that also sells to commercial users, rather than the other way round.

ICEYE tells the same story at higher volume. In June 2026 the company raised a €450 million primary Series F round led by General Atlantic, at a valuation above €10 billion; secondary share sales took the total size of the round past €1 billion [3]. Six months earlier its Series E had valued it at about €2.4 billion [4]. Nothing about the company's climate business changed enough in six months to explain a fourfold revaluation. What changed was Europe's appetite for sovereign space capability. ICEYE now presents itself as a provider of sovereign intelligence, and seven European governments have bought dedicated systems from it [3]. It is targeting production of roughly one satellite a week [8].

It would be a mistake to conclude that climate does not matter to these companies. Underneath the defense story, ICEYE's insurance business has kept compounding. In June 2026 Liberty Mutual launched a parametric wildfire cover that uses ICEYE's radar imagery to classify each insured building as destroyed or undamaged, paying out within days and without a loss adjuster visiting the site [6]. In August ICEYE announced a strategic partnership that brings FloodID, The Water Institute's predictive flood platform, and its core development team into the company, adding flood forecasts to the flood observations it already sold [7]. In September Sompo Japan signed with ICEYE for flood response [5]. These are real, recurring commercial relationships. They are simply not what investors paid €10 billion for.

The practical consequence for the climate market is that it is riding on capacity built for someone else. That is good news for climate users in the short term, more satellites, more frequent revisits, lower marginal costs, and a source of dependency in the long term, a theme Chapter 6 returns to.

Analytics: Consolidation At Modest Prices

If the sensing market is being revalued upward, the analytics market is being repriced downward, mostly through acquisition. Three transactions in 2026 define the pattern.

Date	Acquirer	Target	Terms	Status
Sep 23, 2026	Glass Lewis	Clarity AI (ESG data and analytics)	All-share merger through a new holding company; financials undisclosed [12]	Completed

Date	Acquirer	Target	Terms	Status
Jun 24, 2026	MSCI	First Street (property-level physical risk)	\$120M cash at close plus a revenue-based earnout over two years [9]	Closed Aug 3, 2026 [10]
Apr 2026 (disclosed)	SLR Consulting	Planetrics and ClimSystems	Undisclosed [11]	Completed; relaunched as SLR Digital Services

The most important of these is MSCI's purchase of First Street. First Street was one of the best-known brands in property-level physical climate risk, with models covering more than two billion structures around the world [9]. MSCI paid \$120 million in cash at closing, with further payments over two years tied to revenue [9][10]. For a category leader with global coverage and a strong public profile, that is a price that reflects a data asset rather than a software platform. The earnout is telling in its own right: a buyer confident in a target's standalone revenue does not usually need to make part of the price contingent on it.

Story: Two Companies, Two Prices

ICEYE began as a university spin-out in Finland with a contrarian idea: that radar satellites, traditionally large and expensive, could be made small and cheap enough to fly in large numbers [4]. By December 2025 investors valued it at about €2.4 billion. Six months later, in the middle of a European rearmament, they valued it at more than €10 billion [3][4].

In the same June, MSCI announced it would buy First Street, the company that had done more than any other to put property-level flood, fire and heat risk in front of American homeowners, lenders and journalists. The price was \$120 million upfront, with more to come only if revenue grew [9].

Both companies are good at what they do. The difference in their prices says less about their quality than about who their buyers are. One sells to defense ministries. The other sold to people who wanted to understand climate risk, and in 2026 that market paid data-company prices.

SLR Consulting's absorption of Planetrics and ClimSystems, relaunched as SLR Digital Services, follows the same logic from a different direction. Here the buyer is a consulting firm that already sells to the decision-maker and wants modeling capability to sell alongside its advice [11]. The terms were not disclosed.

The Glass Lewis merger with Clarity AI, completed during New York Climate Week, is not a geospatial deal, but it belongs in the same story. An ESG data and analytics business has been folded into a proxy advisory firm that already owns relationships with institutional investors [12]. In each case, data and analytics are being moved inside firms that control distribution, an index provider, a consultancy, a proxy adviser. The standalone analytics vendor is becoming a feature of someone else's product.

Venture Capital: Recovering, But Small

Venture funding has not disappeared. BloombergNEF data put investment in climate-monitoring technologies, including satellite analytics, at \$245 million in the first quarter of 2026, on pace for the strongest year since at least 2022 [13]. But the scale is instructive. ICEYE's single primary round was roughly twice as large as a full quarter of venture funding for the whole category. Capital is flowing to sensing platforms with defense customers, not to independent analytics.

The Problem With Market-Size Estimates

Any reader who searches for the size of the climate risk analytics market will find confident numbers. They disagree with one another by several multiples, because each research house defines the market differently: some include general weather services, some include ESG ratings, some count only software. This book does not rely on them. It anchors instead on revenues that companies have disclosed and prices that buyers have paid, which are harder to dispute. The honest answer to the question of how large the pure-play analytics market is remains that nobody has produced a credible, audited estimate.

Where The Industry Stands

Put together, the evidence describes an industry at two stages of maturity at once. The sensing layer is scaling fast, with public companies reporting real revenue and substantial backlogs, and its prices are set by defense and sovereign buyers. The analytics layer is consolidating, with few independent players left at scale, and its prices are set by the incumbents buying it. The translation and risk-transfer layer, where insurers, reinsurers

and capital markets actually take on the risk, is established and growing, and its prices are set by the risk bearers themselves. Chapter 5 looks at why value collects at that end of the stack.

Chapter 3

Technological Capabilities

In Brief

- AI weather forecasting went operational: NOAA's AI ensemble matches its physics model at about 9% of the compute, and Google open-sourced its cyclone model.
- Free foundation-model embeddings and NISAR's public L-band radar made high-quality inputs a commodity.
- The bottleneck is the long-horizon view of risk that sets prices and capital, which incumbents still control and are quietly upgrading with AI.

If 2026 was an awkward year for the business of climate geospatial intelligence, it was a remarkable year for its technology. Artificial intelligence moved from research papers into the operational forecasts of national weather services. A new kind of general-purpose representation of the Earth's surface became freely available. A new public radar record began to accumulate. And most of this arrived free of charge. The result is a paradox that runs through the rest of this book: the industry's capabilities improved faster than at any point in its history, while the commercial value of owning those capabilities fell. What remains scarce is not data or models, but the validated, financially calibrated conversion of both into loss.

Weather And Cyclone Forecasting Went Operational

The most visible change was in weather forecasting. In December 2025 NOAA deployed a new generation of AI global models, which ran through their first full year of operation in 2026. They include a 31-member AI ensemble, known as AIGEFs, that matches the skill of NOAA's physics-based ensemble while using about 9% of the computing power [14]. For an agency under budget pressure, that is not a marginal efficiency. It changes what a public forecaster can afford to run.

Google DeepMind pushed further on tropical cyclones, the peril that matters most to the reinsurance market. It published its WeatherNext Cyclones model in Nature and, in August 2026, released both WeatherNext 2 and the cyclone model as open source [15] [16]. Google reports that the model's three-day cyclone forecasts are as accurate as

earlier models' two-day forecasts, roughly a day of added lead time, across track, intensity and wind structure [15]. The claim did not rest on Google's word alone. The US National Hurricane Center's own verification of the 2025 season found that WeatherNext slightly outperformed official track forecasts between 12 and 72 hours ahead [17].

Story: The Forecaster That Checked The Machine

For most of the history of weather forecasting, a new model earned trust slowly, over seasons of comparison against the tools forecasters already knew. In 2025 the US National Hurricane Center compared an experimental Google DeepMind model against the real storms of the season. When the season was over and the forecasts were scored, the AI model's track forecasts had slightly beaten the center's own official forecasts from 12 to 72 hours ahead [17].

The significance is less the margin than the referee. The verification came from the institution whose forecasts the model was being measured against. A year later Google published the cyclone model in *Nature* and released it as open source [15] [16]. What had been a competitive advantage became a public good, and the question for the industry moved from who has the best forecast to who can turn a better forecast into a better price.

The European Centre for Medium-Range Weather Forecasts, the other pillar of global forecasting, is moving in the same direction. Its AIFS-TC prototype adds a machine-learning correction to the intensity forecasts of its AI model, and on test storms from 2025 it approached the quality of official human-issued guidance [18].

Intensity is the frontier that matters. Track forecasts have improved steadily for decades; intensity forecasts, and especially forecasts of rapid intensification, have not. A storm that strengthens from a tropical storm to a major hurricane in a day or two, close to the coast, is among the costliest surprises in catastrophe modeling. Any model that narrows that blind spot will be watched closely by insurers.

Foundation Models Became Infrastructure

A quieter but equally consequential change happened on land. Google DeepMind's AlphaEarth Foundations produces what are called embeddings: for every 10-metre square of the Earth's land surface, a compact set of 64 numbers that summarizes what satellites have observed there over a year. The embeddings are free, updated annually and, through Google Earth Engine, now cover every year from 2017 to 2025 [19][20].

For a risk modeler, this is a ready-made description of the planet. Instead of assembling and cleaning years of imagery from different satellites, a team can start from embeddings that already capture land cover, vegetation, built form and change over time. Peer-reviewed studies have already used them for flood mapping, wildfire susceptibility, crop yield estimation and urban heat. A task that once required a specialist imagery pipeline can now begin with a download.

The weakness is interpretability. The 64 numbers are abstract; none of them means "impervious surface" or "tree canopy" in a way a person can read. Researchers have flagged this as the open problem with the approach [21]. For many uses it does not matter. For an insurer filing rates with a state regulator, or a bank explaining a capital model to its supervisor, it matters a great deal. A model that cannot explain why it rated a property as high-risk is hard to defend in a regulated setting.

A New Public Radar Record

The third change came from space. NISAR, a joint mission of NASA and the Indian Space Research Organisation, began public release of calibrated L-band radar data on July 20, 2026, and ISRO released its S-band products days later [22][23]. The full first-year science record is expected by the end of 2026 [75].

L-band radar has two properties that make it valuable for climate risk. It passes through vegetation to the ground beneath, and it can measure very small movements of the ground surface over time. NISAR revisits the same places every 12 days. That makes it a tool for tracking subsidence, the stability of levees and embankments, landslide-prone slopes and, after a flood, how deep and how widespread the water was. When the first full year is released it will give the world its first free, global L-band baseline, a reference against which later change can be measured.

Commercial Sensing Is Scaling On Defense Budgets

Alongside the public missions, the commercial constellations are growing. ICEYE is targeting roughly one satellite a week of production [8], and Planet's backlog is increasingly made up of work for sovereign customers [1]. As Chapter 2 described, the money behind this expansion is defense money. For climate users the effect is more frequent revisits and more capacity to task satellites after a disaster, bought with someone else's budget.

Open Hazard Data Is Spreading

Openness is not limited to weather. In June 2026 Riskthinking.AI launched its Climate Risk Commons, offering open physical-risk data on more than 50 hazards across a very large grid of locations [25]. Several Climate Week posts presented it as a new launch; it predated the week by three months. Either way, it is another sign that basic hazard layers , the flood, heat and wildfire maps that many early climate-analytics companies were founded to sell, are becoming a commodity.

The Bottleneck: Views Of Risk

All of this progress sits upstream of the question that most of the industry's money depends on. Chapter 1 drew the distinction between forecast skill, which predicts the weather days ahead, and a view of risk, which describes the distribution of losses over decades. Forecast skill is improving faster than views of risk, and for a structural reason: a forecast can be checked against what happens next week, while a view of risk describes events that may occur once in a century and are being reshaped by a changing climate.

The views of risk that set reinsurance prices and regulatory capital still come from the incumbent catastrophe modelers, principally Moody's RMS and Verisk. Rather than being displaced by AI, those incumbents are absorbing it. The Financial Times described how Fathom, the flood modeler owned by Swiss Re, uses diffusion models to generate thousands of years of plausible 2030-climate weather and sharpen it to about 10 kilometres; how Verisk's new European model simulates rain and wind together; and how Moody's RMS applies AI to satellite imagery to estimate insured damage after an event [24].

That pattern, AI as a component inside an incumbent's regulated model, rather than a standalone challenger, is the most likely shape of change in the near term. As of September 2026 no AI-native model had been accepted as a primary view of risk by a major rating agency or regulator. Whether one will be in 2027 is one of the six scenarios in Chapter 9.

A Scorecard

Capability	State at baseline	Commercial consequence
Days-ahead weather and cyclone forecasts	AI at or above physics models; open source	Forecasting is no longer a moat

Capability	State at baseline	Commercial consequence
Land-surface description (embeddings)	Free, global, annual, 10 m	Cheap inputs for any risk model; an explainability gap
Radar observation	Commercial frequent revisit plus free public L-band	Event response and parametric triggers get cheaper
Long-horizon view of risk	Incumbent catastrophe models, adding AI internally	Still the regulated bottleneck
Financial translation	Bespoke, uneven, weakly validated	Where the remaining margin sits

Read from top to bottom, the table describes an industry in which each layer of capability is cheaper and better than it was a year ago, until the last two rows, where the hard, regulated and financially consequential work still happens. That is where the next chapter, on who is actually adopting this technology, begins.

Chapter 4

Institutional Adoption

In Brief

- The buyers who matter now own the loss: catastrophe bond issuance hit a record \$17.98B in H1 2026, though 81% still used indemnity triggers.
- Bank supervisors are the growth channel: the ECB is fining late banks and the NGFS has floated capital buffers for flood-exposed mortgages.
- Disclosure demand shrank in the US and narrowed in the EU, while nature reporting doubled on a voluntary basis.

For most of the last decade the story of climate risk adoption was told through disclosure. Rules would require companies and financial institutions to report their exposure to physical and transition risk; reporting would require data; data would require vendors. By 2026 that story had largely run out. The institutions deepening their use of climate geospatial intelligence were the ones that bear losses, insurers, reinsurers and the investors who buy their risk, and, increasingly, the bank supervisors who worry about those losses turning up on bank balance sheets. Disclosure-driven demand contracted in the United States and narrowed in the European Union.

The table below summarizes the direction of each channel. The rest of the chapter explains it.

Channel	Direction in 2026	Evidence
Re/insurance and ILS	Expanding	Record H1 cat bond issuance [26]; ICEYE deals with Liberty and Sompo Japan [5] [6]
Euro-area bank supervision	Hardening	ECB penalty on Crédit Agricole [28]
Global bank supervision	Hardening	NGFS guide floats capital buffers for flood-exposed mortgages [38]
EU corporate disclosure	Narrowed, now settled	CSRD scope cut; revised ESRS adopted [29][30]
EU public resilience	Expanding	Climate insurance alliance; resilience framework due October [31]
US federal bank supervision	Withdrawn	Interagency climate principles withdrawn [33]
California disclosure	Split	SB 261 enjoined; SB 253 proceeding [34]
US federal science and data	Contested	FY27 request cuts NASA Science; House pushes back [35][36]
Nature-related disclosure	Expanding, voluntary	TNFD reporters doubled [39]

The Anchor Buyer: Re/Insurance

The most striking number in the adoption story comes from the catastrophe bond market. Issuance in the first half of 2026 reached a record \$17.98 billion across 83 transactions, following a record \$25.6 billion for the whole of 2025 [26]. Catastrophe bonds transfer the risk of large natural-disaster losses from insurers to capital-markets investors, and every one of them depends on a model of how often and how severely the underlying peril will strike. They are, in effect, a market that prices geospatial risk.

The detail beneath the record is more sobering. Of the risk capital issued in the first half, 81% used indemnity triggers, which pay according to the issuer's actual losses, a share that rose from the year before [27]. Parametric triggers, which pay when a measured quantity such as wind speed, earthquake intensity or flood depth crosses a threshold, remain a minority. Parametric structures are the most direct way to turn geospatial data into money, because the measurement itself is the trigger. Their slow progress in the largest risk-transfer market says something about how cautious investors remain about basis risk, the chance that a parametric payout does not match the real loss.

Bank Supervisors: The Growth Channel For Compliance

If disclosure has weakened as a driver, supervision has strengthened. The European Central Bank has moved from publishing expectations to enforcing them. It imposed €7.55 million in periodic penalty payments on Crédit Agricole over late climate materiality assessments [28]. The fine is small relative to the bank, but the signal is not. Every euro-area bank now knows that its supervisor will check whether it has assessed physical risk in its lending book, and that being late has a price. That creates non-discretionary demand for property-level and asset-level hazard data across European lending.

Story: The Price Of Being Late

For years, European banks received letters from their supervisor about climate risk: expectations, guides, good-practice reports. Then the European Central Bank stopped writing and started charging. It imposed €7.55 million in periodic penalty payments on Crédit Agricole because the bank had not completed its climate materiality assessments on time [28].

For a bank of that size the sum is small. The message is not. Every bank in the euro area can now see that a missed climate deadline carries a financial penalty, and every one of them needs to know which of its borrowers sit on flood plains, in fire zones or on subsiding ground. That is why supervision, not disclosure, became the compliance channel that grew in 2026.

The Network for Greening the Financial System widened the pressure in September. Its 2026 Guide for Supervisors, which updates the 2020 edition, draws on a survey covering about 70% of the network's members and finds that about 40% already assess nature-related risk [38]. More significant for this industry, the guide floats the use of capital buffers for concentrations in high-emitting lending and in mortgages on properties in flood-prone areas [38]. A capital buffer tied to flood exposure cannot be implemented

without knowing, property by property, which mortgages are exposed. If any national supervisor adopts one, it will create one of the strongest demand signals for geospatial risk data the industry has seen.

European Disclosure: Narrowed, But Settled

The European Union's corporate reporting regime spent much of 2025 and 2026 being cut back. Directive (EU) 2026/470, the first Omnibus simplification package, entered into force on March 18, 2026 [29]. The Corporate Sustainability Reporting Directive now covers only companies with more than 1,000 employees and more than €450 million in turnover. The second wave of companies will report on their 2027 financial year in 2028, and the requirement for transition plans under the due-diligence directive was deleted. Member States must transpose the changes by March 19, 2027.

The detailed standards were revised too. On July 3, 2026 the Commission adopted a revised set of European Sustainability Reporting Standards as a delegated act, cutting the number of mandatory datapoints by more than 60% [30]. Parliament and Council have two months to object, extendable by two more, after which the act is published in the Official Journal. The earlier edition of this report treated adoption as still pending; it was not.

The outcome is a regime that is smaller than it was meant to be, but final. For vendors, a smaller and certain market is in some ways easier to serve than a larger and uncertain one.

Europe is also opening a different kind of demand. On September 16 Commission President Ursula von der Leyen announced an EU climate insurance alliance, noting that only about a quarter of catastrophe losses in the bloc are privately insured. She said a resilience framework due in October would map the Union's hundred most vulnerable regions [31]. Bloomberg Intelligence estimates that Europe will spend €500 billion on climate resilience through 2035 [32]. That spending will need to be targeted, and targeting it is a geospatial problem.

The United States: Retreat And Fragmentation

The American picture moved in the opposite direction. The three federal bank regulators, the Office of the Comptroller of the Currency, the Federal Reserve and the Federal Deposit Insurance Corporation, withdrew their joint principles on climate risk management for large banks [33].

California, which had been expected to become the country's de facto climate disclosure regulator, is split. In November 2025 the Ninth Circuit enjoined SB 261, the state's climate-risk reporting law, and the California Air Resources Board treats compliance as voluntary until the court rules. SB 253, which requires emissions reporting, went ahead with an August 10, 2026 deadline [34]. As of September 28, 2026, no ruling on the appeal had been found.

The Public Data Backbone Under Pressure

One American decision affects the whole industry, not just American buyers. The administration's budget request for fiscal 2027 would cut NASA's science budget by \$3.4 billion and move the Landsat program to a commercial solution after one final government satellite [35]. Landsat's fifty-year archive of calibrated imagery is the reference against which much of the world's land-surface analysis is checked. The House appropriations committee pushed back, funding Landsat Next at \$110 million toward a first launch in 2031 [36].

The immediate threat of a shutdown passed when H.R. 6500, a stopgap funding bill, was signed into law on September 2, 2026, funding the government through December 11 [37]. The earlier edition of this report treated its enactment as unconfirmed. The longer-term decision about Landsat, and about NASA's Earth science budget as a whole, has only been deferred.

Nature Follows Climate's Path

One adoption channel is growing without any mandate at all. The Taskforce on Nature-related Financial Disclosures reported in September that more than 1,000 organizations in 56 countries now publish reports aligned with its recommendations, twice as many as the year before. Separately, 802 organizations have formally committed to adopt its framework, including financial institutions with USD 26.6 trillion in assets under management. More than 70% of the over 500 organizations it surveyed support making nature-related reporting mandatory within one to three years [39].

Nature metrics, land cover, deforestation, habitat condition, water stress, are geospatial by their very nature. The same satellites and models that serve climate risk serve nature risk, which gives the industry a second demand channel that is still early in its growth.

What The Pattern Means

Across every channel, the institutions increasing their use of climate geospatial intelligence share one characteristic: they carry, or supervise, a financial exposure to the physical outcome. Where the motive was reporting for its own sake, demand fell. That is uncomfortable for vendors whose products were designed around disclosure. It is also clarifying. The buyers who remain want data that changes a price, a payout or a capital requirement, which is exactly the translation problem this book keeps returning to.

Chapter 5

Economic Value

In Brief

- Losses keep rising: Verisk expects \$171B of insured catastrophe losses in an average year, and 2025 was the sixth straight year above \$100B.
- A quiet 2026 has softened reinsurance prices by 16%, reducing the urgency to buy new analytics.
- Value is proven in claims, event response and parametric payouts; it is claimed but not yet proven in portfolio analytics and disclosure.
- The industry's central puzzle: a \$171B annual loss base, and \$120M for a leading property-risk company.

The economic case for climate geospatial intelligence begins with a very large number and ends with a very small one. The large number is the cost of disasters, which keeps rising. The small number is the price paid for the companies that measure it. Between the two lies the central economic puzzle of the industry, and this chapter tries to explain it.

The Loss Base Keeps Rising

Verisk's 2026 global modeling report puts expected insured catastrophe losses at \$171 billion a year on average, up \$19 billion on its previous estimate and the highest figure it has published [40]. That is an expected value, the average of many possible years, some quiet and some catastrophic, rather than a forecast for any single year. Verisk also estimates that only about 38% of modeled economic losses are insured [40]. Its broader estimate, reported by the Financial Times, puts expected disaster losses of all kinds at about \$450 billion a year, with about 62%, or some \$279 billion, uninsured [41].

Allianz added a macroeconomic view during Climate Week. Its first annual Climate Economics Report, launched on September 24, estimates that extreme weather cost the world €184 billion in 2025, 20% above the average for 2000 to 2019. It calculates that Europe's 2026 heatwaves cost €113 billion in lost output, and that a 2027 El Niño could cost about €395 billion across 144 economies [49]. The report is built on ClimRad, a model Allianz developed with the AI firm Earthian [49]. That detail is as important as the numbers: one of the world's largest insurers chose to build its own translation layer rather than buy one.

Measure	Figure	Source
Expected global insured catastrophe losses, annual average	\$171B	Verisk [40]
Share of modeled economic losses insured	About 38%	Verisk [40]
Expected disaster losses, all kinds, per year	About \$450B; about 62% uninsured	Verisk via FT [41]
2025 extreme-weather economic losses	€184B	Allianz [49]
Potential cost of a 2027 El Niño	About €395B	Allianz [49]

Realized losses tell the same story from the other direction. Swiss Re estimates that insured natural-catastrophe losses reached \$107 billion in 2025, against economic losses of \$220 billion, making it the sixth consecutive year in which insured losses exceeded \$100 billion [77]. The uninsured share keeps growing in absolute terms: Swiss Re puts the global protection gap for 2025 at \$424 billion, up more than 7% on the year before [78].

The adaptation side of the ledger is just as stark. The UN Environment Programme's 2025 Adaptation Gap Report estimates that developing countries will need \$310 billion to \$365 billion a year for adaptation by 2035, while international public adaptation finance to those countries was \$26 billion in 2023, down from \$28 billion the year before, a gap of twelve to fourteen times [79].

A Quiet Year, Which Cuts Both Ways

Against that rising baseline, 2026 itself has been unusually calm. Aon estimated first-half economic losses at \$111 billion, the lowest first half since 2018, with insured losses of \$47 billion and a protection gap, the share of losses not covered by insurance, of 57%

[42]. Munich Re put insured first-half losses at \$44 billion [43].

For insurers, a quiet year is profitable. The Financial Times reported global combined ratios at their lowest since 2006 [47]. Profits attract capital, and capital competes on price. Guy Carpenter's index of property-catastrophe rates-on-line fell 16% in the year to July 1 [44]. Lloyd's chief executive has warned that prices are falling faster than is rational, and Fitch says its outlook for reinsurance is deteriorating [47]. Bloomberg Intelligence reports that catastrophe bonds outperformed high-yield corporate bonds by 3.05 percentage points through August [51], which pulls still more capital toward insurance risk.

For the climate data industry, a soft market is double-edged. It lowers the urgency of any new purchase: when losses are low and capital is plentiful, an underwriter has less reason to buy a better model. But it also creates the conditions for the next hard market. Capital that floods in during quiet years is repriced after a large event, and the firms that invested in better data during the calm are the ones positioned to use it.

Where Value Is Demonstrated

Some of the value that climate geospatial intelligence creates is well evidenced.

The clearest case is **event response and claims**. Near-real-time mapping of flood extent, wind damage and burned buildings lets insurers estimate their losses within days, set reserves sooner and pay claims faster. This is where ICEYE's insurance contracts concentrate, from Sompo Japan's flood response to Liberty Mutual's parametric wildfire cover [5][6].

The second is **parametric payouts**. Jamaica's \$150 million parametric catastrophe bond, arranged with the World Bank, was expected to pay out in full after Hurricane Melissa in October 2025 [45]. For a sovereign government, cash in weeks rather than months after a disaster is the difference between funding the recovery and borrowing for it.

Jamaica is not an isolated case. The Caribbean Catastrophe Risk Insurance Facility, the regional parametric pool, reports 82 payouts totalling \$483 million since 2007 [81]. And the market that carries this kind of risk is larger than it looks from issuance alone: the outstanding catastrophe bond market reached a record of almost \$65.6 billion at the end of the second quarter of 2026 [80]. Parametric speed has a cost, however. Basis risk, a payout that does not match the real loss, is the recurring objection, and the monograph cited in Chapter 1 proposes hybrid parametric-indemnity layers as the answer [76].

Story: Cash In Weeks, Not Months

In October 2025 Hurricane Melissa struck Jamaica. For most countries, the weeks after a disaster of that scale are spent waiting: for damage assessments, for insurance claims to be adjusted, for donor conferences to pledge money that arrives months later. Jamaica had prepared differently. With the World Bank, it had bought a \$150 million parametric catastrophe bond that pays according to the storm's measured characteristics, not an assessment of the damage. Melissa met the terms, and the bond was expected to pay out in full [45].

The same week, the UN Environment Programme published its Adaptation Gap Report, warning that developing countries need \$310 billion to \$365 billion a year for adaptation by 2035 while receiving about \$26 billion in international public finance [79]. The two events together capture the economics of this chapter: the tools to move money quickly after a disaster exist and work, and they remain a very small part of what is needed.

The third is **filling reinsurance gaps**. AM Best has noted that insurers are turning to parametric covers to fill holes left by traditional reinsurance [44].

The fourth is the **economics of adaptation** itself. The McKinsey Global Institute estimates that the world spends about \$190 billion a year on climate adaptation against about \$540 billion needed, and that every dollar spent avoids about \$3 of damage, rising to roughly 7 to 1 in a world 2°C warmer [48]. Measuring avoided damage requires exactly the hazard and exposure data this industry sells. If adaptation spending rises toward what is needed, so does the demand for measuring it.

Where Value Is Claimed But Not Yet Proven

Other claims are weaker. First Street research cited by MSCI finds that companies became more than 6.5 times more likely to issue profit warnings after extreme weather over two decades [46]. It is a striking finding, but it is correlational and comes from the vendor being acquired.

Disclosure-driven analytics has a thinner case still. Private equity firms remain reluctant to disclose the financial effects of weather on their portfolio companies, for fear of hurting exit valuations [13]. Analytics bought to satisfy a reporting requirement rarely reprice an asset.

Marsh and the World Economic Forum made the most ambitious argument of the season. Their Addressing Insurability playbook argues that affordable insurance increasingly depends on the resilience of whole places, towns, river basins, coastlines, and calls for a shared view of place-based risk data and standardized resilience metrics that insurers, lenders and investors can all use [50]. It is a strong argument for the industry's value. It is also, for now, an argument: no market yet pays for those metrics at scale.

The Central Puzzle

Set the two ends of this chapter side by side. On one side, an expected insured loss of \$171 billion a year [40] and a broader disaster bill of about \$450 billion [41]. On the other, a price of \$120 million upfront for one of the leading property-level physical-risk companies in the world [9].

The explanation is not that the data is worthless. It is that the value accrues to whoever owns the decision. The risk bearer who sets the price captures the benefit of a better model. The incumbent with distribution, the index provider, the rating agency, the catastrophe modeler, the consultancy, captures the benefit of selling that model into existing relationships. The standalone analytics vendor sits between them and captures little. Allianz building ClimRad, MSCI buying First Street and Glass Lewis absorbing Clarity AI are three versions of the same move: the translation layer is being internalized by those who already sell to the decision-maker.

Chapter 6

Structural Limitations

In Brief

- Most of what holds the industry back is institutional, not technical, so better models alone will not fix it.
- Model divergence, opaque AI, the gap between forecasts and long-run risk, dependence on government budgets, fragile public data and sovereignty all cap growth.
- Beneath them sit two human problems: reports bought for compliance rarely change decisions, and buyers' own incentives favor deferring resilience spending.

The previous chapters describe an industry whose technology is improving quickly while its commercial value is captured elsewhere. It is tempting to assume that better technology will eventually close the gap. This chapter argues that it will not do so on its

own, because most of what holds the industry back is institutional rather than technical. Six constraints stand out, a seventh runs beneath all of them, and an eighth sits inside the buyers themselves.

Model Divergence Erodes Trust

Ask three physical-risk providers to assess the same portfolio of buildings, and you will often get three materially different answers [13]. The differences come from legitimate choices, which climate scenarios to use, how to downscale them, how to represent flood defenses, how to translate hazard into damage, but to a buyer they look like disagreement. Without shared standards for validating models against observed losses, buyers reasonably treat outputs as opinions. Opinions are cheap, and so prices stay low.

Incentives do not always help. A catastrophe modeler told the Financial Times that insurers tend to buy the model with the lower loss estimate, and that better modeling of extreme tail events can force larger capital buffers [24]. A more accurate model that tells an insurer it needs more capital is not always a welcome purchase. Until regulators, rating agencies or large buyers insist on validation, the market will not reliably reward accuracy.

Story: The Model With The Lower Number

Speaking to the Financial Times about how AI is changing disaster prediction, one catastrophe modeler described a problem the technology cannot solve on its own. When insurers choose between competing models, the modeler said, they tend to pick the one with the lower loss estimate. A model that captures extreme tail events more faithfully can force an insurer to hold more capital, and capital is expensive [24].

Nothing in that choice is illegal, and every model involved may be defensible. But it means accuracy is not automatically rewarded. A vendor that builds a better view of the tail may find that its reward is a harder sale. Until regulators, rating agencies or the largest buyers insist on validation against real losses, the market will keep paying for the answer it prefers.

Interpretability Blocks Regulated Use

Chapter 3 described how foundation-model embeddings give risk modelers a powerful, free description of the Earth's surface. They often outperform models built on raw imagery. But researchers have flagged their abstract, opaque nature as an open weakness [21]. An insurer filing rates with a state regulator, or a bank defending its capital model to a

supervisor, must be able to explain why a property was rated as it was. "Because the embedding said so" is not an explanation that survives a regulatory review. Until explainability improves, the most powerful new tools will be used for screening and research more than for the regulated decisions that carry the most money.

Forecast Skill Is Not A View Of Risk

AI models now match or beat physics-based models at forecasting the weather days ahead [14][17]. That achievement does not transfer automatically to the question insurers and banks actually price: how large, and how frequent, losses will be over the coming decades. Views of risk depend on rare events for which historical data is scarce, in a climate that is changing underneath the data. A model that is superb at predicting next Tuesday's storm has not thereby learned how often a storm of that size will hit a given coastline in 2040. Progress on the second problem will be slower, and harder to verify, than progress on the first.

Revenue Depends On Governments

The sensing layer's growth is increasingly government-funded. Planet's backlog includes \$61.7 million of contract value that customers can cancel, and its government agreements carry termination and funding risk [2]. ICEYE's valuation rests on sovereign demand [3]. That is a strength while defense budgets rise, and a vulnerability if they are reprioritized. Climate users are, in effect, passengers on vehicles whose route is set by security policy.

Public Data Continuity Is At Risk

Much of the industry's quality control depends on free, calibrated public data. Landsat's half-century archive is the reference against which much land-surface analysis is checked. The US budget request for fiscal 2027 would move Landsat to a commercial model and cut NASA's science budget by \$3.4 billion [35]. The stopgap signed on September 2 only defers that decision to December 11 [37]. If free reference data became paid, or disappeared, every downstream model that uses it as ground truth would become more expensive to build and harder to validate.

Sovereignty Fragments The Market

ICEYE's pitch is now sovereign intelligence, and governments increasingly buy their own constellations rather than buy imagery from a shared commercial fleet [3]. That adds capacity, but it can also restrict the sharing of data across borders and tie commercial access to security policy. A satellite built for one government may not be tasked for

another country's flood. On the demand side, data-privacy rules can limit how much property- and client-level information a lender can combine with hazard data, which constrains the very analysis supervisors are asking for.

Beneath Them All: Reports Are Not Decisions

A seventh, softer constraint runs through the six. Disclosure regimes create demand for reports, not decisions. Where climate analytics are bought to comply with a rule, they are filed, published and rarely acted on. They do not change underwriting, lending or pricing, and so they do not demonstrate value, and so they do not command a premium. Climate Week participants named this problem directly. PwC's summary found that firms can identify their perils but struggle to connect them to capital decisions [52], and practitioners in the WBCSD's new initiative said the hardest step is from business impact to financial effect [73].

An Eighth Constraint: Decision Friction Inside The Buyer

The six constraints above sit mostly between the industry and its buyers. The monograph *The State of Climate Intelligence* adds a constraint that sits inside the buyer, and it deserves a place in this book [76].

Its argument starts with a mismatch of time horizons. Physical infrastructure is financed and amortized over fifteen to thirty years; property insurance is re-underwritten every twelve months. An owner who spends heavily to fortify an asset against 2050 flood risk bears the whole cost today, while the insurer can re-price, raise deductibles or withdraw at the next renewal. The benefit of resilience is uncertain and deferred; the cost is certain and immediate.

Standard financial practice then makes the mismatch worse. When climate models present a wide range of outcomes, analysts tend to raise discount rates, which penalizes upfront resilience spending while shrinking the present value of losses avoided twenty years out. The monograph calls this the discount-rate trap, and it adds a governance layer: executive tenures of a few years sit against asset lives of decades, so a board choosing between fortification and a share buyback faces incentives that favor the buyback.

The monograph also stresses a distinction boards often blur. Some uncertainty is epistemic, a missing first-floor elevation or an unrecorded flood barrier, which better data can fix. Some is aleatoric, the irreducible randomness of the atmosphere, which no

sensor will remove. Treating the second as if it were the first leads to requests for confidence intervals that cannot be narrowed, and to decisions that are postponed until the event arrives.

Finally, it points to the weakest input in many risk models: the exposure data itself. Corporate asset registers often locate buildings by postcode centroid, value them at historical book cost and omit the engineering details, floor elevation, flood defenses, drainage, that determine loss. Satellite imagery can show a building's footprint; it cannot show whether its roll-up doors will hold. Owners also have little incentive to document vulnerabilities that would trigger capital spending, higher deductibles or write-downs.

The monograph illustrates these points with detailed scenarios, a port authority, a private equity acquisition, an automated underwriting portal. They are illustrative cases rather than documented events, and this book does not treat their figures as evidence. The mechanisms they illustrate, however, are consistent with what Climate Week participants described [52][73]: the hard step is not knowing the hazard, but getting an institution to act on it.

Which Constraints Could Ease

Limitation	Type	Could it ease in 2027?
Model divergence	Institutional	Partly, if validation standards emerge, as Marsh and the WEF urge [50]
Interpretability	Technical and regulatory	Slowly; needs regulator guidance
Forecast vs view of risk	Scientific	Slowly; years, not quarters
Government revenue dependence	Commercial	Unlikely; defense demand is rising
Public data continuity	Political	Depends on FY27 appropriations
Sovereignty	Political	Unlikely; the trend is toward more sovereign systems
Decision friction inside the buyer	Institutional and financial	Only if contracts, covenants or pay tie resilience to money [76]

The pattern in the table is the argument of this chapter. The constraints most likely to ease are the ones that depend on institutions agreeing on standards. The ones least likely to ease are political. Neither category is solved by a better model.

Chapter 7

New York Climate Week 2026

In Brief

- Climate Week treated physical risk as a pricing and credit problem, not a disclosure exercise; no major geospatial launches or funding rounds surfaced.
- The incumbents ran the stage: MSCI, Moody's, Allianz and Glass Lewis–Clarity AI.
- Across 194 LinkedIn recaps, practitioners kept returning to one problem: it is easier to price the cost of an event than the value of avoiding one.

New York Climate Week ran from September 20 to 27, 2026, alongside the United Nations General Assembly. It arrived at an unusual moment. A war-driven energy shock dominated the agenda, the United States had left the Paris Agreement for a second time, and the Atlantic was having one of its quietest hurricane seasons on record. Bloomberg's summit wrap led with finance, energy security and geopolitics [55], and the host, Climate Group, noted that far less capital moves than is pledged [63]. Physical climate risk surfaced mainly through three doors: adaptation finance, the insurance industry and the weather itself.

For this industry the week produced no major geospatial product launches or funding rounds. Its one data-industry deal was the Glass Lewis merger with Clarity AI, an ESG transaction rather than a geospatial one [12]. Callaway Climate Insights summed up the mood: many deals and events, little action, and none at UN level [54]. Yet read closely, the week's programs, reports and practitioner accounts told a consistent story, and it was the same story this book tells.

How This Chapter Was Assembled

The chapter draws on the official programs of the week's main finance events, the major reports released during it, press and newsletter coverage (including the Financial Times and Bloomberg), Substack commentary, and a harvest of LinkedIn posts. The harvest, run on September 28, captured 213 posts; after duplicates and posts about other climate

weeks were removed, 194 remained, 74 of them carrying document carousels [73]. LinkedIn posts are participants' own accounts. They are treated here as claims, and where a claim could be checked against a primary source, the primary source is used.

The Reports

Five reports released around the week bear directly on climate geospatial intelligence.

The Potsdam Institute's **Planetary Health Check 2026**, published on September 21, found seven of nine planetary boundaries breached, all at record levels. It also questioned whether models of the land carbon sink overestimate how resilient forests and soils will be [67]. That is a measurement problem, and it points to growing demand for satellite verification in carbon and nature markets, beyond insurance.

Marsh and the World Economic Forum's **Addressing Insurability** playbook, released on September 23, argued that affordable insurance now depends on the resilience of whole places, and called for a shared view of place-based risk data and standardized resilience metrics usable by insurers, lenders and investors alike [50]. It is the clearest statement yet, from inside the insurance industry, that the market needs validated common data rather than competing proprietary scores.

Allianz's first **Climate Economics Report**, launched on September 24, put the cost of extreme weather at €184 billion in 2025, estimated €113 billion of output lost to Europe's 2026 heatwaves, and warned that a 2027 El Niño could cost about €395 billion across 144 economies [49]. It was built on ClimRad, Allianz's own model developed with Earthian AI.

The NGFS's **2026 Guide for Supervisors** floated capital buffers for mortgage concentrations in flood-prone areas [38], and the TNFD's **2026 Status Report** showed the number of organizations publishing nature-related disclosures doubling to more than 1,000 [39]. David Carlin's widely shared Substack guide picked out these releases among the week's most important [53]; where his summary figures differed from primary coverage, this book uses the primary figures.

The Finance Programs

The week's most substantive physical-risk programming came from the financial industry's incumbents.

MSCI framed physical risk as already visible in insurance pricing, operating costs, credit metrics and valuations, yet not fully priced into most portfolios. Its sessions tested model outputs against realized losses and traced physical risk through the capital structure, from equity terminal value to stress on debt covenants [56]. A joint UNEP FI and MSCI

roundtable examined how AI-powered geospatial analysis is changing asset-level risk data for bank underwriting, loan pricing and portfolio management [57], and the Sustainable Investment Forum held a panel on repricing physical risk across portfolios [62].

Moody's ran a program on flood modeling, credit impact and innovation in risk transfer aimed at widening protection gaps [58], and screened *The Price of Protection*, a documentary on flood exposure in New York, London and other cities [73]. EY hosted a session on pricing resilience [64]; PRI one on moving adaptation from physical risk to investable action [59]; Ceres an invitation-only session on resilience for banks and insurers [62]; and Duke's Nicholas Institute with ICLEI USA a session on turning local resilience priorities into projects that can attract finance [65]. SEI previewed the year's new climate-science findings, including record ocean heat uptake and accelerating sea-level rise, framed for business risk [66].

Three smaller items stood out because they involved actual prices. ClimateTech Connect launched CTC Peril Labs, focused on severe convective storm, wildfire and flood, with speakers from Gallagher Re, Adaptive Insurance, MSCI and Connecticut's insurance commissioner [60]. NYSIF, New York State's workers' compensation insurer, expanded premium credits for policyholders that commit to climate action and resilience plans [61], a modest but real example of an insurance price tied to resilience. And the WBCSD, hosted by LSEG, launched a Business Value Initiative with a diagnostic for moving from physical risk to financial decisions in corporate finance teams [73].

The Earth-Observation Voices

The Earth-observation companies spoke less about new capability than about consistency and cost. EarthDaily, sponsoring TerraWatch Space's Earth Observation for Climate event, argued that financial decisions need calibrated, continuous time series, and warned that AI trained on inconsistent observations learns the quirks of the sensors rather than the behavior of the planet [68]. GHGSat, the methane-monitoring operator, wrote in *Fortune* that it had deliberately passed on finer resolution for its second-generation satellites to keep the service affordable enough for customers to renew, choosing instead to double sensitivity and daily coverage per satellite [69].

LinkedIn accounts filled in the picture: a Quebec panel with MethaneSAT; a Cloud-Native Geospatial Forum session at which wildfire crews said they needed data on the first 30 feet around a home; a Taylor Geospatial and AWS panel on food-security pilots that included pre-training a geospatial foundation model for seasonal crop suitability; and pitches for water intelligence in data-center siting and agricultural supply chains [73].

The Weather Backdrop

The weather framed the week. By mid-September the Atlantic had gone longer without a hurricane than in any season since at least 1966, with five named tropical storms and a strong El Niño building [71]. A Moody's panelist described the gap on LinkedIn as unprecedented in 75 years of records; the verified record is since 1966. August 2026 had been the hottest August on record, 1.65°C above pre-industrial levels, according to WMO data cited by EarthDaily [68].

And as the week closed, the weather made its own argument. On September 26 and 27 a powerful nor'easter brought tidal and rain flooding to New Jersey, Long Island and the Boston coast, leaving tens of thousands without power [72]. Moody's flood lead tied the storm directly to the insurability debate that had run through the week [73].

Story: The Week The Weather Had The Last Word

For most of Climate Week, the weather was a statistic. The Atlantic had gone longer without a hurricane than in any season since at least 1966 [71], and panelists debated what a strong El Niño would mean for 2027. On the final weekend it became a fact. A powerful nor'easter pushed tidal and rain flooding into New Jersey, Long Island and the Boston coast, and tens of thousands of homes lost power [72].

It was not a catastrophe by reinsurance standards, and it will not move January prices. But it arrived as delegates were leaving a week of panels on insurability and the protection gap, and Moody's flood lead said so directly [73]. The insurability debate had been about places like these.

What The Week Adds

Six lessons emerge from the week, and each reinforces an argument made elsewhere in this book.

First, **the incumbents own the stage**. MSCI and Moody's ran the flagship physical-risk programs, Allianz launched a report built on its own model, and Glass Lewis absorbed Clarity AI mid-week. Value continues to consolidate in platforms that already have distribution, the second of the scenarios in Chapter 9.

Second, **banks, not disclosure, are the new audience**. Session after session targeted credit underwriting, loan pricing and covenant stress, and the NGFS guide pointed supervisors the same way. The buyer of physical-risk data is moving from the sustainability team to the credit desk.

Third, **the translation gap is now named in the room**. PwC's recap of two dozen panels found that firms can name the perils they face but struggle to link them to long-term capital decisions, such as whether to size replacement cooling equipment for future heat [52]. The WBCSD initiative exists because of the same gap. Across the 194 LinkedIn recaps, practitioners kept returning to a line that captures the market's difficulty: it is easier to price the cost of an event than the value of avoiding one [73].

Fourth, **validation is becoming the pitch**. MSCI's back-testing against realized losses, EarthDaily's argument for calibration, GHGSat's trade of resolution for affordability and the Marsh–WEF call for standardized metrics all point toward 2027 sales claims built on the words "back-tested" and "science-grade".

Fifth, **private adaptation capital is still tiny**. A white paper from 500 Global and ALTÉRRRA put private capital at under 2% of tracked adaptation finance and proposed bringing insurers in as a catalytic layer of capital [70].

Sixth, **overshoot is now the working assumption**. UNEP FI's session on business risks in a world beyond 1.5°C [62] and the Planetary Health Check [67] both shift attention from measuring emissions toward measuring exposure and adaptation. That is where geospatial data earns its keep.

Chapter 8

The Rest Of 2026: A Q4 Watchlist

In Brief

- The quarter's decisive date is January 1: reinsurance renewals will set how much insurers spend on data in 2027.
- Already settled: the US government is funded through December 11. Still open: the Ninth Circuit ruling on California's disclosure laws.
- Watch the EU's vulnerability map in October, COP31 in November, the end of the hurricane season and NISAR's first full year of data.

The final quarter of 2026 will settle several of the questions this book has left open. Some of its events are fixed on the calendar; others could arrive on any day. The single most important is the least dramatic: the reinsurance renewals on January 1, 2027. After a year of low losses and record capital, the prices agreed at those renewals will set the mood in which insurers and reinsurers decide whether to spend on new data and models in 2027.

The table lists the quarter's scheduled and pending events, updated through September 28. Items not yet completed are anticipated.

Date	Event	Status	What it decides
Oct 1	US FY2027 begins, funded by the H.R. 6500 stopgap through Dec 11 [37]	Completed (law signed Sep 2)	NASA and NOAA Earth science run at FY26 levels for now; no October shutdown
October	EU climate resilience framework mapping the 100 most vulnerable regions, alongside the climate insurance alliance [31]	Announced	Whether the EU creates a formal, map-based public demand signal for regional physical-risk data
Q4	Revised ESRS delegated act clears Parliament and Council scrutiny and is published in the Official Journal [30]	Adopted Jul 3; publication anticipated	Final physical-risk detail required of remaining CSRD reporters
Any time	Ninth Circuit ruling on SB 253 and SB 261 [34]	No ruling found as of Sep 28	Whether US climate-risk disclosure demand revives in California
Oct 31	Planet's fiscal Q3 FY27 ends; guidance \$101–105M [1]	Scheduled	Whether growth slows to about 27% once hardware handovers fade
Nov 9–20	COP31, Antalya, with Australia leading negotiations [74]	Scheduled	Adaptation-finance follow-through and Global Goal on Adaptation indicators, both of which need geospatial measurement
Nov 30	Atlantic hurricane season ends	Scheduled	Whether 2026 closes as a low-loss year [71]
By Dec 31	Full first-year NISAR science record released [75]	Anticipated	The first free global L-band baseline for subsidence and flood products

Date	Event	Status	What it decides
Dec 11	Stopgap funding expires [37]	Scheduled	Shutdown risk before full-year FY27 appropriations, including Landsat Next [36]
Jan 1, 2027	Reinsurance renewals	Scheduled	Capital inflows and low losses are pressuring rates [27][44]
Mar 19, 2027	Omnibus I transposition deadline [29]	Scheduled	Final national shape of CSRD

Reading The Calendar

The first item has already resolved. When the US fiscal year began on October 1, the government was funded by H.R. 6500, signed on September 2, through December 11 [37]. NASA and NOAA Earth science will run at their fiscal 2026 levels for now. The real decision, whether Landsat stays public and whether NASA's science budget is cut, moves to the December deadline and whatever full-year appropriation follows [35][36].

Story: A Satellite Program On A Stopgap

Since 1972 the Landsat satellites have photographed the Earth's land surface continuously, building the longest calibrated record of its kind. Much of the climate risk industry checks its own work against that record. In 2026 its future became a line item in a budget fight. The administration's fiscal 2027 request would cut NASA's science budget by \$3.4 billion and move Landsat to a commercial solution after one final government satellite [35]. The House appropriations committee answered with \$110 million for Landsat Next, aiming at a first launch in 2031 [36].

Neither position has become law. On September 2 a stopgap bill kept the government funded through December 11 [37]. For a program measured in decades, the next decision point is ten weeks away.

In Europe, October should bring the Commission's resilience framework and its map of the hundred most vulnerable regions [31]. That map matters more than its modest billing suggests. It would be the first time the Union has formally named, on a map, where

resilience money should go, and every such map creates demand for the data behind it. Before the end of the year the revised reporting standards, adopted in July, should clear their scrutiny period and be published in the Official Journal [30].

In the United States, the Ninth Circuit's ruling on California's disclosure laws could come at any time [34]. A ruling that allows SB 261 to proceed would revive a large pool of climate-risk reporting demand; a ruling against it would confirm that American demand now rests on risk management rather than disclosure.

In the markets, Planet's fiscal third quarter closes on October 31. Its guidance of \$101 million to \$105 million implies growth slowing to about 27% as one-time hardware handovers fade [1]; the result will show how much of the company's growth is recurring.

The climate diplomacy calendar peaks with COP31 in Antalya from November 9 to 20, with Australia leading the negotiations [74]. The questions most relevant to this industry are adaptation finance and the indicators for the Global Goal on Adaptation, both of which require measurement that only geospatial data can provide at scale.

The Atlantic hurricane season ends on November 30. Unless a major storm arrives before then, 2026 will close as a low-loss year [71], which strengthens the case for a soft renewal season. By the end of December NISAR's full first-year science record should be public, giving the world its first free global L-band baseline [75].

Signals Worth Watching

Beyond the calendar, four kinds of signal would change this book's assessment.

The first is **loss events**. The late-September nor'easter [72] is the kind of mid-sized event that tests event-response and parametric products without moving reinsurance prices. A major landfalling hurricane or earthquake before year-end would.

The second is **El Niño**. A strong El Niño tends to suppress Atlantic hurricanes but raises the risk of drought, heat and flooding elsewhere. Allianz estimates a 2027 El Niño could cost about €395 billion [49].

The third is **supervisors**. Any national supervisor that follows the NGFS guide by introducing a capital buffer for flood-exposed mortgages [38] would create the single strongest demand signal for property-level data in 2027.

The fourth is **deals**. Further acquisitions of analytics firms by index providers, rating agencies, consultancies or catastrophe modelers would confirm that consolidation, not independent growth, is the industry's path.

Chapter 9

Outlook 2027: Six Scenarios

In Brief

- Most likely 2027: sensing and models get cheaper and better while money concentrates in risk bearers and incumbents.
- Three scenarios rate high: defense-financed sensing, open models hollowing out analytics, and Europe anchoring compliance demand while the US fragments.
- The soft reinsurance market could flip overnight on one large event; parametric growth and AI-model acceptance are the upside cases, and both depend on validation.

Forecasting an industry a year ahead is less about predicting events than about identifying the forces already in motion and the few events that could redirect them. This chapter sets out six scenarios for climate geospatial intelligence in 2027. They are not alternatives: several can, and probably will, hold at the same time. For each, the chapter lays out the evidence behind it, the assumptions it rests on, what it depends on, what could overturn it, and what to watch. The likelihoods are this book's judgment, not a market consensus.

The most likely 2027, taken as a whole, is one in which sensing and models get cheaper and better, while the money continues to concentrate among risk bearers and incumbents.

#	Scenario	Likelihood in 2027	Direction for pure-play analytics
1	Defense-financed sensing abundance	High	Positive for users, negative for data resellers
2	Open models hollow out the analytics middle	High	Negative; more low-multiple M&A
3	Soft reinsurance market suppresses demand	Medium-high (flips on a major event)	Negative near term
4	Europe anchors compliance demand; US fragments	High	Mixed; EU-weighted revenue
5	Parametric grows but stays a minority	Medium	Positive but slow

#	Scenario	Likelihood in 2027	Direction for pure-play analytics
6	First formal acceptance of an AI-derived risk model	Low-medium	Strongly positive if it happens

Scenario 1: Defense-Financed Sensing Abundance (Likelihood: High)

The first scenario is the continuation of what 2026 already showed: an abundance of satellite capacity paid for by defense and sovereign budgets. The evidence is strong. ICEYE's round at more than €10 billion rested on sovereign demand [3]; its production is approaching a satellite a week [8]; Planet's backlog is tilting toward satellite services for governments [1]; and NISAR's L-band record adds a free public layer on top [22].

The scenario assumes that European and allied defense budgets stay high and that operators continue to sell surplus capacity to commercial customers. It depends on security policy and on the export and data-sharing rules that govern sovereign systems. The main uncertainty is that classification or sovereignty clauses could wall off capacity from commercial climate users, so that more satellites do not mean more available data. The signals to watch are the price per square kilometre of radar and optical imagery, and whether insurers sign new data agreements on the existing constellations. For users, this scenario is good news. For companies that resell imagery, it is not.

Scenario 2: Open Models Hollow Out The Analytics Middle (Likelihood: High)

The second scenario is the one most threatening to independent analytics firms. Its evidence comes from both ends of the analytics layer. On the input side, WeatherNext 2 and WeatherNext Cyclones are open source [15], AlphaEarth embeddings are free [19], NOAA runs AI ensembles at about 9% of the computing cost of its physics-based ensemble [14], and open hazard data such as Riskthinking.AI's Climate Risk Commons is spreading [25]. On the output side, First Street sold for \$120 million plus an earnout [9] and Clarity AI was folded into Glass Lewis [12].

The scenario assumes that large technology companies and public agencies keep releasing open models and data, which depends on continued investment by Google, ECMWF and others, and on the cost of computing. What could overturn it is that proprietary exposure data, rigorous validation and deep integration into customers' workflows preserve margins for some vendors. The signals are tuck-in acquisitions by

index providers, rating agencies, consultancies and catastrophe modelers, and down-rounds or shutdowns among analytics firms at Series A and B. The expected result for pure-play analytics is more consolidation at low multiples.

Scenario 3: A Soft Reinsurance Market Suppresses Demand (Likelihood: Medium-High, But Reversible Overnight)

The third scenario concerns the level of demand from the industry's anchor buyer. The evidence of softness is abundant: property-catastrophe rates down 16% in the year to July [44]; record catastrophe bond issuance [26]; the lowest first-half economic losses since 2018 [42]; combined ratios at their lowest since 2006, with Lloyd's and Fitch both warning about pricing [47]; catastrophe bonds outperforming high-yield debt [51]; and the longest Atlantic stretch without a hurricane since at least 1966 [71].

The scenario assumes the rest of 2026 stays quiet and capital keeps flowing into insurance risk. It depends on how the hurricane season ends and on investors' continued appetite for insurance-linked securities. It is also the most fragile of the six. A single large US hurricane or earthquake would reverse it within a quarter. The strong El Niño now developing is the other swing factor: Allianz estimates a 2027 El Niño could cost about €395 billion across 144 economies [49]. The signals are the prices agreed at the January 1 renewals, catastrophe bond spreads and the technology budgets insurers disclose in their first-quarter guidance.

Scenario 4: Europe Anchors Compliance Demand; The US Fragments (Likelihood: High)

The fourth scenario describes the geography of regulatory demand. In Europe, the ECB is penalizing banks [28]; the NGFS guide has put flood-mortgage capital buffers on the table [38]; the Commission has announced a climate insurance alliance and a map of its most vulnerable regions [31]; and the reporting regime, though narrowed, is final [29][30]. In the United States, the federal banking principles have been withdrawn [33] and California's climate-risk reporting law is enjoined [34].

The scenario assumes the ECB keeps enforcing and Member States transpose the Omnibus changes by March 19, 2027. It depends on the final content of the revised reporting standards and on the Ninth Circuit's ruling. A ruling for California would revive American demand, and further European simplification could cut demand there. The signals are the ECB's supervisory findings, the first preparation budgets of the second

wave of CSRD reporters, California's reset deadline for SB 261 and, above all, any national supervisor that adopts a flood-mortgage buffer. For vendors, the likely result is revenue weighted toward Europe.

Scenario 5: Parametric Grows But Stays A Minority (Likelihood: Medium)

The fifth scenario is the one in which geospatial data most directly becomes money. Parametric insurance pays when a measurement crosses a threshold, and satellites are increasingly the source of that measurement. The evidence for growth is real: Jamaica's \$150 million parametric bond was expected to pay out in full after Hurricane Melissa [45]; Liberty Mutual and ICEYE launched parametric wildfire cover [6]; and insurers are using parametric covers to fill gaps in traditional reinsurance [44]. But 81% of first-half catastrophe bond capital still used indemnity triggers [27].

The scenario assumes that basis risk remains tolerable and that satellite-based triggers can be verified independently. It depends on validation by recognized modeling agents and on regulators' comfort with index-based products. A single disputed trigger or a visible basis-risk failure would set the segment back. The signals are the parametric share of catastrophe bond issuance and any sovereign or multilateral programs announced after COP31. The direction is positive, but slow.

Scenario 6: The First Formal Acceptance Of An AI-Derived Risk Model (Likelihood: Low To Medium)

The sixth scenario would change the industry most if it happened. The evidence that it could is the steady accumulation of independent validation for AI forecasting: the National Hurricane Center's verification of WeatherNext [17], ECMWF's AI intensity correction [18], the peer-reviewed WeatherNext Cyclones paper [16] and the incumbents' own adoption of generative AI inside their catastrophe models [24].

The scenario assumes that forecast skill can be turned into credible long-horizon stochastic event sets, the thousands of simulated years on which a view of risk depends. It depends on rating agencies, state rate regulators and the modeling agents who stand behind catastrophe bonds. Acceptance cycles in these institutions run for years. The more likely outcome in 2027 is that AI shows up inside incumbent models, or in forecast-conditioned and event-response products, rather than as a standalone model accepted for primary pricing. The signals are an AI-derived model named as the modeling agent on a catastrophe bond, or a formal submission of such a model for regulatory review.

The Wildcard

One event would override much of the above. A single insured loss of \$100 billion or more in 2027 would harden reinsurance prices overnight, reversing scenario 3, and would push validated physical-risk data onto board agendas, blunting scenario 2. It is not a prediction. It is a reminder that in this industry, the most important variable is still the weather.

Story: How Fast A Quiet Year Can End

2026's calm is easy to over-read. At the start of 2025, the Los Angeles wildfires caused about \$40 billion of insured losses in a matter of weeks, the costliest wildfire event on record anywhere, according to Swiss Re [77]. By the end of that year insured catastrophe losses had passed \$100 billion for the sixth year running [77].

A single event of that size in a US hurricane zone or on a fault line in 2027 would reset the soft-market scenario within a quarter. It would also do something no conference panel has managed: it would make validated physical-risk data an urgent board-level purchase.

How The Scenarios Fit Together

The six scenarios operate at different levels. Scenarios 1 and 2 are structural and already under way; they make data and models cheaper regardless of anything else that happens. Scenarios 3 and 4 set the level of demand, and they pull in opposite directions: a soft market dampens insurers' spending while European supervision adds demand from banks. Scenarios 5 and 6 are where the upside for independent vendors lies, but both depend on validation that the industry has not yet agreed how to do. That is why validation, more than any new capability, is the capability to watch in 2027.

A Second View Of 2027

The monograph *The State of Climate Intelligence* frames 2027 as a fork: markets either keep relying on voluntary reporting and unverified AI risk scores, or begin writing enforceable resilience terms into debt and insurance contracts, which it calls spatial adaptation covenants [76]. It sets out four imperatives: hybrid parametric-indemnity layers to reduce basis risk; credit-spread penalties for issuers that have not adapted; tying part of executive long-term incentive pay to certified physical resilience; and removing subsidies for high risk in state residual insurance pools, alongside stronger building codes.

Those recommendations fit the evidence in this book, especially scenarios 4 and 5 and the decision-friction constraint added to Chapter 6. One of its forecasts goes further than the evidence supports: that municipal bond syndicates will impose credit-spread surcharges of 30 to 50 basis points on unadapted issuers by 2027. No source for that figure was found, and this book treats it as a hypothesis to watch rather than a scenario.

Chapter 10

What It Means, Reader By Reader

In Brief

- Earth-observation operators: let defense finance the fleet, use climate customers to diversify, and sell calibrated consistency rather than pixels.
- Analytics vendors: assume models are free, compete on validation and financial translation, and follow the buyer to the credit desk.
- Insurers, lenders and governments: use the soft market to invest, price the protection gap, and treat public Earth data as infrastructure.

The same evidence means different things depending on where a reader sits in the stack. This closing chapter draws out the implications for five kinds of reader. They are strategic implications of the analysis, not investment advice.

For Earth-Observation Operators

Operators should treat defense as the financier and climate as the diversifier. Sovereign demand now sets their valuations [3]. Insurance contracts, flood response, parametric wildfire cover, predictive flood intelligence [5][6][7], are smaller, but they smooth revenue, prove civilian value and hedge against the day defense budgets turn.

They should also sell consistency rather than pixels. The customers and modelers who matter increasingly ask for calibrated, continuous records that a model can learn from without learning the quirks of a sensor [68]. GHGSat's decision to trade resolution for affordability and renewal [69] shows the kind of trade-off customers will pay for.

Finally, they should plan for the possibility that public reference data becomes scarcer. If Landsat moves to a commercial model [35], operators with well-calibrated archives will find themselves playing a reference-data role for the whole industry, an opportunity that comes with a public responsibility.

For Climate Analytics Vendors

Vendors should assume the model layer is free. Open weather models, free embeddings and open hazard layers [15][19][25] have removed access to data and models as a source of advantage.

What remains is validation and translation. "Back-tested against realized losses" is fast becoming a minimum claim rather than a differentiator [56]. The vendors that stand apart will be those that can show calibration to insured losses, credit outcomes or covenant stress, the financial consequences their buyers actually manage.

They should also follow the credit desk. The buyer is moving from sustainability teams to lenders and their supervisors [28][38][57]. Products designed for disclosure need a second life in underwriting and pricing.

And they should know their exit comparables. First Street's sale at \$120 million plus an earnout [9] is the reference price for the category. Capital plans built on platform-style multiples should be revisited.

For Insurers And Reinsurers

Insurers should use the soft market to invest. Years of low losses are the cheapest time to upgrade event-response and parametric capability before the next hard market arrives [44][47].

They should also watch the incentive to choose the lower-loss model. It is a known temptation [24], and supervisors and rating agencies will notice if an insurer's tail estimates drift away from its peers'.

And they should decide whether to build or buy their translation layer. Allianz's ClimRad [49] shows the largest carriers building their own. Mid-sized carriers, which cannot justify that investment, are the natural buyers for independent vendors.

Story: A Small Insurer Prices Resilience

The most concrete announcement of Climate Week came from an unexpected place. NYSIF, New York State's workers' compensation insurer, expanded the premium credits it gives policyholders that commit to climate action and resilience plans [61]. It is a small program from a specialist insurer, far from the headline catastrophe markets.

But it does the thing this book keeps saying the industry struggles to do: it puts a price on resilience. A policyholder that plans for climate risk pays less. Scaled up, in property insurance, in mortgage pricing, in bond covenants, that link between measured resilience and cost of capital is what would turn climate geospatial intelligence from a report into a decision.

For Lenders And Investors

Lenders should expect supervisory data demands to rise, and to rise in Europe first. The ECB's enforcement [28] and the NGFS's capital-buffer options [38] point toward property-level flood and heat data becoming part of credit processes.

They should also price the protection gap. With about 62% of expected disaster losses uninsured [41], the risk that insurance does not cover falls on borrowers, on collateral values and, ultimately, on lenders.

And they should discount valuation claims that come from vendors until they are replicated independently [46]. A correlation published by a company being acquired is a starting point for analysis, not a conclusion.

For The Public Sector And Multilaterals

Governments should treat public Earth-observation data as infrastructure. Landsat, Sentinel and NISAR are the calibration backbone for the entire industry [22][35][36], and their value is mostly captured by users who never pay for them directly.

They should recognize that measurement is the bottleneck for adaptation. The Global Goal on Adaptation indicators to be discussed at COP31 [74] and the EU's vulnerability map [31] both depend on standard, shared metrics, the same need Marsh and the WEF identified from the insurance side [50].

And they should build independent verification into parametric programs from the start. Jamaica's expected full payout [45] is the model to follow; a disputed trigger is the risk to design out.

A Closing Thought

Climate geospatial intelligence enters 2027 with better tools than it has ever had and a weaker hold on the value those tools create. The companies that thrive will not be the ones with the best satellite or the cleverest model; those are becoming common goods. They will be the ones that can stand in front of an underwriter, a credit officer or a supervisor and show, with evidence, what a hazard means for a price. As one line repeated through Climate Week put it, it is easier to price the cost of an event than the value of avoiding one. The industry's next chapter belongs to whoever closes that gap.

Appendix: Methodology And Verification Log

How The Evidence Was Gathered

1. **Primary sources first.** Company filings and press releases, regulator and agency publications, peer-reviewed papers and official event programs.
2. **Specialist and financial press.** Artemis, The Insurer, Risk & Insurance and others; FT and Bloomberg read directly with the author's subscriber access.
3. **Commentary.** Substack newsletters and practitioner blogs, used for interpretation and pointers, not as the source of record for figures.
4. **LinkedIn harvest.** A search of LinkedIn posts about New York Climate Week 2026, run on September 28. 213 posts captured; 19 dropped as duplicates or about other climate weeks; 194 retained, 74 with document carousels. Posts are treated as participants' claims. The full log is in the companion tab and CSV of the original report [73].

Commercial market-size estimates were excluded as non-comparable. Vendor-published statistics are flagged in the text.

Verification Log: Secondhand And Open Items Checked For This Edition

Item	As first reported	Verified finding	Result
Revised ESRS	Publication expected Q4 2026	Adopted by the Commission on Jul 3, 2026; >60% fewer mandatory datapoints; two-month scrutiny, extendable by two [30]	Corrected
H.R. 6500 stopgap	Enactment unconfirmed	Signed into law Sep 2, 2026; funds government through Dec 11 [37]	Corrected
Ninth Circuit, SB 253/261	Ruling status unknown	No ruling found in searches through Sep 28, 2026 [34]	Still open
Atlantic hurricane drought	"No hurricane in 75 years of records" (LinkedIn panelist)	Longest hurricane-free stretch since at least 1966, per CBS on Sep 15 [71]	Confirmed in substance; wording corrected
NGFS Guide for Supervisors	67 supervisors; 77% / 73% / 26% (via Carlin)	Published Sep 2026; survey covering about 70% of NGFS members; about 40% assess nature risk; capital-buffer options [38]	Primary figures used; secondhand figures not relied on
TNFD 2026 Status Report	1,000+ companies, 56 countries; 70%+ support mandation (via Carlin)	Confirmed for reporters: 1,000+ organizations publish aligned reports (up 100%); 802 have formally committed, including financial institutions with USD 26.6tn AUM; 500+ respondents [39]	Confirmed

Item	As first reported	Verified finding	Result
Riskthinking.AI Climate Risk Commons	Presented as a Climate Week launch (LinkedIn)	Launched Jun 25, 2026 [25]	Date corrected
ICEYE and FloodID	"Brought the team in-house"	A strategic partnership that brings the FloodID platform and its core development team to ICEYE, Aug 27, 2026; not a stated acquisition [7]	Confirmed
Liberty parametric wildfire	Launched June 2026	Announced Jun 15, 2026; US and Australia; building-level destroyed/undamaged trigger [6]	Confirmed
Allianz Climate Economics Report	Figures via LinkedIn	Read in the primary report [49]	Confirmed
Marsh–WEF playbook	Summary via Carlin	Read in the primary publication [50]	Confirmed
Cat bonds vs high yield (3.05 points)	Bloomberg Intelligence	Read on Bloomberg; no stable URL recorded [51]	Not independently re-verified
Florida June renewals down 15–20%	In Sep 24 report	No source retained	Removed from this edition

Before publication, an independent review re-checked more than 20 headline figures against their cited sources. Most were confirmed. It led to five corrections in this edition: TNFD reporters and committed organizations are now counted separately; ICEYE's FloodID deal is described as a partnership; WeatherNext's lead-time gain is given as roughly a day; Jamaica's cat bond payout is described as expected rather than paid; and NOAA's AI models are dated to their December 2025 deployment.

Review Of The State Of Climate Intelligence Monograph

On September 29, 2026 the author supplied a ten-page monograph, *The State of Climate Intelligence: Q4 2026 and the Road to 2027*, attributed to a "Geospatial & Climate Risk Strategy Group" [76]. It names no individual author and gives source names without links. Its central thesis and its analysis of decision friction are incorporated in Chapters 1, 5, 6 and 9. Its factual claims were checked against primary sources before use:

Monograph claim	Verified finding	Result
Insured nat cat losses above \$100B for six consecutive years (attributed to Verisk)	Confirmed, but the source is Swiss Re, Dec 16, 2025 [77]	Confirmed; attribution corrected
2025 insured losses \$107B	Swiss Re: \$107B insured, \$220B economic [77]	Confirmed
Protection gap \$424B (Swiss Re 2026)	\$424B for 2025, published Jun 3, 2026 [78]	Confirmed
Cumulative protection gap \$1.8T	Not found in the Swiss Re coverage reviewed	Not verified; not used
Adaptation need \$310B–\$365B a year vs \$26B public flows	Needs are estimated for 2035; the \$26B is 2023 flows [79]	Confirmed, with dates clarified
Outstanding catastrophe bonds \$45B	Almost \$65.6B at end of Q2 2026 [80]	Corrected
CCRIF pools 21 countries, \$260M across 30 events	82 payouts totalling \$483M; 19 Caribbean and 4 Central American member governments [81]	Out of date; current figures used
Infrastructure accounts for about 79% of GHG emissions	Consistent with the 2021 UNOPS–Oxford–UNEP study [82]	Confirmed
Economic losses \$162B in H1 2025	Not checked; outside this book's scope	Not used
Parametric market \$21B–\$24B, 13% CAGR	Commercial market-size estimate; source not identifiable	Not used (see Chapter 2 on market-size estimates)

Monograph claim	Verified finding	Result
Basis risk causes a 20–30% mismatch; payouts within 72 hours	Source ("Fixing the System Report") not identifiable	Not used as figures
Mexico sovereign cat bonds: \$480M across 4 events; G7 Global Shield €170M	Not verified	Not used
\$2T adaptation market by 2050; 30–50 bps municipal penalty by 2027	Forecasts without identifiable sources	Noted as hypotheses in Chapter 9
Case studies (port elevation, PE acquisition, GeoAI underwriting, REIT buyback)	Illustrative scenarios, not documented events	Mechanisms discussed in Chapter 6; figures not used

Limitations

- The baseline is September 24, 2026; developments from September 25 to 28 are included and marked where they change a finding.
- FT Sustainable Views was not read (separate subscription).
- LinkedIn search is not exhaustive; the harvest reflects what LinkedIn's search surfaced during the session.
- Likelihoods in Chapter 9 are the author's judgment.

Endnotes

All sources accessed September 24–28, 2026.

Commercial Maturity

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6. [Claims Journal, Liberty Mutual and satellite firm ICEYE launch parametric wildfire insurance](#), Jun 15, 2026.
7. [ICEYE, ICEYE and The Water Institute partner to advance the next generation of predictive flood intelligence](#), Aug 27, 2026.
8. [Sacra, ICEYE company profile](#).
9. [MSCI, MSCI acquires First Street to enhance physical climate risk capabilities](#), Jun 24, 2026.
10. [MSCI, MSCI completes acquisition of First Street](#), Aug 3, 2026.
11. [SLR Consulting, SLR Digital Services launch](#).
12. [Bloomberg, Proxy adviser Glass Lewis merges with Clarity AI](#), Sep 24, 2026.
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Technology

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