ClimateScore Global 2.7

Jupiter ClimateScore™ Global quantifies physical climate risk around the world. With its expansive and detailed projections of perils for the remainder of this century, it answers the fundamental question, "How will climate change affect me?" Specifically:

- How will multiple perils—flooding, wind, heat and cold, wildfire, drought, hail, and extreme and chronic precipitation—affect my portfolio of assets around the world, and how will this change over time?
- How can I better estimate, in monetary terms, the potential damages or economic losses climate change may inflict, based on different scenarios?
- How can I optimize my risk management, risk disclosure, and resiliency planning processes?

Corporations Must Quantify and Disclose Climate Change Risk

Risk is everywhere. A bond might default, a trade war might shock oil prices, or a virus might sweep through the globe. Much of our economy has been built around containing risk: construction companies design buildings to specific resiliency standards, while actuaries, catastrophe modelers, and other quants put a price on risk. Meanwhile, the quantification of climate risk is becoming mandatory public policy and a corporate governance tool for world leaders in government, business, and finance to measure and adapt to the physical and transitional risks of climate change.

While climate change has already been linked to record heat waves, wildfires, and catastrophic floods, any material accounting of climate risk has lagged behind. Despite its potential to disrupt companies' finances and business models, it is rarely included in the risk management frameworks of the world's largest companies. The Task Force on Climate-related Financial Disclosures (**TCFD**), an initiative designed to encourage companies to examine how climate risk might affect their resilience, found in 2018 that relatively few disclosed the financial impact of climate change on their operations or business model. More recent studies show that, even when adhering to TCFD recommendations, many companies still do not—or cannot—disclose the most accurate, complete, or timely information related to climate risks.

Investment groups warn that many companies that report climate risks are not being thorough enough. According to an analysis of TCFD adherence by the Investment Association, a UK trade body for asset managers, the number of FTSE 100 companies who say they are following TCFD guidelines more than doubled in 2020 to 77, but only half of those reported under all four pillars of the framework.

Climate change preparation starts with an accounting of climate risk that goes beyond guesswork and qualitative assessments. It requires a bottom-up approach that is firmly and transparently grounded in science before economic analysis is layered on. Like other forms of risk, it must be quantified not only to satisfy regulators and investors, but also so that risk managers can prioritize immediate and future mitigation strategies for individual assets and their organization's broader ERM framework. The climate is already changing. Whether they're ready or not, it's time for organizations to act—and adapt.

Jupiter ClimateScore™ Global

ClimateScore Global employs dozens of the scientific community's most respected climate models, coupled with machine learning, land use and elevation data, and models for tropical cyclones, hydrology, wildfire, severe weather, and evapotranspiration.

By distilling the complex interactions between expected changes in sea levels, surge, storm intensity, land and sea surface temperatures, and pressure and precipitation patterns, it pinpoints what decision-makers need to know: the depth of the water, the speed of the wind, the intensity of the heat, and the probability of drought, wildfires, and hail.

Those metrics, in turn, can feed damage and economic loss models so that climate risk can be reported to regulators and shareholders, incorporated into enterprise risk management frameworks, and inform day-to-day decision-making.

Use Cases

ClimateScore Global's scope and granularity captures the most complete view of climate risk across the globe and across time. This allows business users within multiple industries to project how a portfolio of assets may be affected by climate change: the perils it will be exposed to, the vulnerable segments and locations, and how that risk will change over time and across varying carbon emissions scenarios.

The breadth of data available means that users aren't pigeon-holed into only looking at specific timescales or scenarios; instead, they can select the metrics that are most appropriate for their assets' vulnerabilities and holding periods. In addition, Jupiter can customize metrics to explicitly model the probability of key thresholds being breached, such as the wind speeds at which a wind turbine shuts down, or the flood depths where critical infrastructure is damaged.

With this knowledge, companies can incorporate climate risk into their overall enterprise risk management strategy, where it can be further used to respond to increasing demands from regulators and shareholders and to disclose under TCFD. Furthermore, climate risk can be deployed across numerous business processes that are specific to each industry:

Retail companies

- Improve supply chain resilience by identifying climate risk in the company's physical assets as well as supplier and distribution networks
- Avoid downtime and physical damage by retrofitting existing assets and determining new areas for expansion to stay ahead of changing climate risk

Industrial companies

- Quantify and manage the changing frequency of business interruption costs due to climate perils that may strike upstream suppliers anywhere in the world
- Allocate resiliency budgets to deploy mitigation strategies at key facilities based on the degree of risk they will face in the future

Power and utility companies

- Optimize infrastructure planning decisions based on changing heating and cooling needs over various timescales

- Integrate climate change's effects on the long-term efficiency of thermal and renewable power generation assets into planning assumptions
- Incorporate climate resilience into integrated grid planning and implementation

Real estate

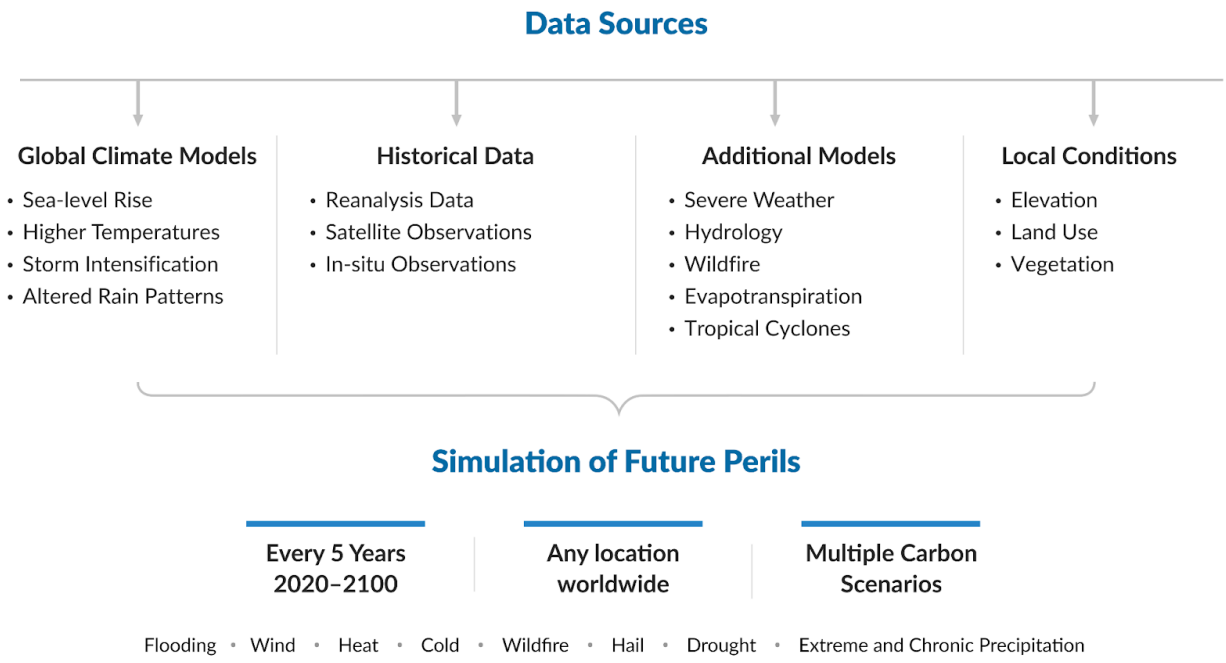
- Target investment opportunities and avoid locations projected to be outside the company's risk tolerance
- Allocate capital to improve the long-term resiliency and lower the insurance costs of specific developments

Agriculture & Forestry

- Make critical decisions about crop/asset management, worker health and safety, pest and pathogen control, and infrastructure (such as irrigation and drainage systems) investment on a hyper-local (micro-climate) scale
- Optimize value chain operations and identify market opportunities affected by climate change

Key Features

- Metrics to directly measure **flood, wind, heat, cold, wildfire, drought and water stress, hail, and extreme and chronic precipitation physical risk**, each offered at multiple customizable return periods and peril thresholds that reflect the vulnerability of the asset at risk, and put into context for users via scores and benchmarks by region
- **Best-in-class spatial resolution** available worldwide, tailored to required use cases and providing a single, consistent solution for quantifying climate risk for globally distributed companies, supply chains, and portfolios
- **Quantified uncertainty** and detailed model, scoring, and loss methodology to minimize model risk and keep up with the increasing expectations of regulators



- Data available at five-year increments from **2020 through 2100**, enabling both medium-term and long-term projections of future risk
- Directly maps physical climate risk to **financial impact and downtime** by peril, region, asset, or sector
- Supports the newest **Shared Socioeconomic Pathways climate scenarios**—SSP1-2.6, SSP2-4.5, and SSP5-8.5—that are used by the most recent IPCC report to quantify how risk responds to different socioeconomic, emissions mitigation, and climate adaptation conditions
- **Interact with the data** via on-demand reports, APIs, hands-on data science tools, and interactive applications that can be customized to users' specific needs

Jupiter ClimateScore™ Intelligence Platform

ClimateScore Global is built on top of the cloud-based Jupiter ClimateScore™ Intelligence Platform. Based on the latest global atmospheric science, ClimateScore is designed specifically for the rigors of dynamic climate and weather analysis and prediction. Its physics-based and artificial intelligence models are continuously fine-tuned using petabytes of constantly refreshed data from millions of ground-based and orbital sensors. Novel machine learning techniques reduce local biases of scientific simulations and continually improve the accuracy of results as new observations become available.

The peril-specific, very-high-resolution ClimateScore Planning suite—FloodScore™, WindScore™, HeatScore™, and FireScore™—is also based on the ClimateScore platform.

Contact request@jupiterintel.com to schedule a live demonstration of ClimateScore Global.