



Corporations must act now to prepare for climate change

Climate change is making severe weather more extreme, frequent, dangerous, and costly. Industries, communities, and entire economies become more vulnerable daily to devastating impacts of hurricanes, storm surges, high winds, wildfires, prolonged rainfall, and extremes of heat and cold.

The Fourth National Climate Assessment, updated in 2020, warns that “Future risks from climate change depend primarily on decisions made today.”

Despite this urgency—and the fact that adaptation planning is a pillar of climate risk mitigation—the Assessment also cautions this: “Public- and private-sector decision-makers have traditionally made plans assuming that the current and future climate in their location will resemble that of the recent past. This assumption is no longer reliably true... Incorporating information on current and future climate conditions into design guidelines, standards, policies, and practices would reduce risk and adverse impacts.”

Risk assessment and resiliency planning are often hampered by relying on guidance from inappropriate sources, like FEMA flood maps, that fail to account for critical risk drivers, and are based on purely historic and incomplete datasets.

Static data is not the only barrier to superior adaptation planning. Coarse, low-resolution climate models cannot be trusted to pinpoint the probable physical impacts of extreme weather.

“The direct impacts of climate change are local in nature,” wrote the McKinsey Global Institute in *Climate Risk and Response: Physical Hazards and Socioeconomic Impacts* (January 2020). “...Companies will need to understand how their global asset footprint is exposed to different forms of climate hazard in each of their main locations and indeed in each of the main locations of their critical suppliers.”

Jupiter ClimateScore Planning: Asset-level physical risk analysis

The introduction of Jupiter ClimateScore™ Planning, with its forward-focused, hyperlocal, scenario-based probabilistic climate risk projections of the impacts of severe weather, revolutionized adaptation strategies.

ClimateScore Planning is a comprehensive suite of asset-level physical risk analysis applications—FloodScore,™ WindScore,™ HeatScore,™ and FireScore™—empowering decision-makers to answer the fundamental question, “How will the future climate lead to extreme weather that impacts my assets?”

ClimateScore Planning’s benefits include:

- High-resolution, asset-level climate risk analysis of target geographies and assets
- Dynamic (non-stationary) models using the most current climate data
- Flexible time horizons selected by customers
- Scenario-based approach
- Intuitive GIS (geographic information system) interface or data download

ClimateScore Planning probabilistically predicts and maps the increasing risks of climate-change-driven perils. Its projections are based on rigorous climate, weather, ocean, hydrological, fire, and data science; they utilize novel data sources like satellite, air, land, and ocean-borne sensors and large-scale climate models that simulate Earth’s past, present and future climate states.

Jupiter uses the Community Earth System Model (CESM)® from the National Center for Atmospheric Research (NCAR). CESM is a premier global climate model that has been tested and validated by thousands of peer reviews and re-analyses, and an active participant in CMIP, an international scientific effort committed to advancing the state of the art in climate data and climate modeling.

Through a computationally intensive process powered by cloud computing and artificial intelligence, Jupiter dynamically down-scales the CESM global climate model to project the probable impacts of extreme weather perils on specific assets down to resolutions of one to three meters, and by special customer request even higher resolution, over time horizons that range from hours to 50 years into the future.

Use Cases

<p>Energy utilities, oil & gas</p>	<ul style="list-style-type: none"> ❖ Risk identification ❖ Risk management ❖ Risk and resiliency engineering ❖ Market opportunity identification ❖ Regulatory, shareholder, and stakeholder response
<p>Manufacturing Infrastructure & Mining</p>	<ul style="list-style-type: none"> ❖ Risk identification ❖ Risk management ❖ Risk and resiliency engineering
<p>Real Estate</p>	<ul style="list-style-type: none"> ❖ Portfolio planning ❖ Underwriting and deal structuring ❖ Risk avoidance ❖ Regulatory response
<p>Public Sector</p>	<ul style="list-style-type: none"> ❖ Risk identification ❖ Risk resiliency and planning ❖ Citizen communication and engagement

ClimateScore Planning's peril-analysis applications



FloodScore

FloodScore includes operations and planning applications that provide an accurate picture of asset-level risk down to one-meter spatial resolution, or less. FloodScore also enables detailed “what-if” analysis to visualize how mitigation steps can impact asset-level planning decisions today. FloodScore is designed to support long-term infrastructure planning, engineering, investment, lending and insurance decisions for critical assets such as electrical generation and distribution, refineries, ports and airports, and dense industrial, commercial and residential developments. [Detailed overview of FloodScore.](#)



WindScore

WindScore enables customers to better prepare for likely future changes in wind-related hazards. It is designed for deployment across multiple industries, and offers insights like “days above a threshold” in addition to return periods, and discriminates among the types of physical events (trade winds, non-trade winds, tropical cyclones, etc.) that drive extreme wind events. [Detailed overview of WindScore.](#)



HeatScore

HeatScore accounts for the urban influences on temperature, i.e., urban heat islands, at building scale. It provides the frequency of extreme heat risk as probability distributions for variables, such as multi-day heat events above a defined threshold. It allows users to anticipate and plan for heat impacts on utilities, emergency management, and urban infrastructure. [Detailed overview of HeatScore.](#)



FireScore

FireScore produces a best-in-class decision support system from high-resolution wildfire risk estimates in real-time for emergency operations support, and 50 years into the future for planning applications. [Detailed overview of FireScore.](#)

Data Explorer

The Data Explorer query engine allows users to run thousands of location queries to generate detailed hazard information for large-scale data analysis across the customer's site or domain. This type of data analysis enables customers to efficiently marry in-context information at each location with actual hazard values at those locations driving a deeper understanding of the risks they face.

Data Layers

Data layers including FEMA flood zones, neighborhood boundaries, and demographic data can be imported and overlaid in the mapping interface to support intuition and enhance geospatial analysis.

These high-resolution applications, like ClimateScore Global, Jupiter's portfolio-level physical risk analysis solution, are built on top of the cloud-based ClimateScore Intelligence Platform. Please visit request@jupiterintel.com to schedule a live demonstration of ClimateScore Planning.