



April 20, 2021

The Honorable Mikie Sherrill  
Chairwoman, Environment Subcommittee  
of the House Science, Space &  
Technology Committee  
2321 Rayburn House Office Building  
Washington, DC 20515

The Honorable Stephanie Bice  
Ranking Member, Environment Subcommittee  
of the House Science, Space &  
Technology Committee  
2321 Rayburn House Office Building  
Washington, DC 20515

The Honorable Eddie Bernice Johnson  
Chairwoman, House Science, Space &  
Technology Committee  
2321 Rayburn House Office Building  
Washington, DC 20515

The Honorable Frank Lucas  
Ranking Member, House Science, Space &  
Technology Committee  
2321 Rayburn House Office Building  
Washington, DC 20515

**Hearing: Working Towards Climate Equity: The Case for a Federal Climate Service**

Dear Chairwoman Sherrill, Ranking Member Bice, Chairwoman Johnson, and Ranking Member Lucas:

I am the CEO of Jupiter Intelligence (Jupiter), a company that predicts risks from weather and climate change. Jupiter has developed a technological tool, or platform, that predicts the physical risks of extreme weather events, such as hurricanes, wildfires, and floods, for a range of critical infrastructure sectors, including several federal agencies, states, cities, and critical infrastructure sectors, such as the financial, insurance, housing, and power sectors, to mitigate such risks and their impacts.

I commend you for holding this hearing and for your continued attention to these significant issues. I appreciate and welcome the opportunity to submit this letter for the Hearing Record, having testified before the Environment Subcommittee in May of 2019, i.e., almost exactly two years ago. As I will elaborate, much has changed since that time, while more remains to do.

At the outset, I want to clearly state that Jupiter fully recognizes the need for **greater federal coordination of, and investment in**, relevant, authoritative, and accessible federal climate risk information and climate services, and Jupiter strongly supports the formation of a new **Federal Climate Service (FCS)** that would be responsible for a coordinated federal strategy to provide information needed by all relevant stakeholder constituencies.

As brief background, I founded Jupiter in 2016, because it was clear that weather-related physical risks were not well understood or acted upon, and that the impacts of extreme weather events were, and are, increasing in frequency and severity over time. It is critical for Americans to have and use the best available weather and climate risk prediction capabilities to keep us safe

from further physical and economic peril. Jupiter’s high-resolution, dynamic analytics produce hyper-local, physical risk projections, which, in turn, empower its public and private sector customers to make informed decisions that drive superior risk management, risk disclosure, and resilient infrastructure planning.<sup>1</sup>

Following are some of the reasons that Jupiter **strongly supports** the need for more coordinated climate information and climate services, as well as the formation of a **new FCS**. As noted in my written testimony to this Subcommittee in May 2019, “[d]uring the 20th Century, the U.S. Weather Enterprise, including federal agencies, academia, and private industry, led the world in providing information that drove enormous improvements in agricultural productivity, transportation safety, . . . and a broad range of other social and economic benefits. Advances in the U.S. Weather Enterprise also informed key Department of Defense strategic basing and deployment decisions.”

### **The Economic Case for Improved Climate Information and for a Federal Climate Service**

Today, broad sectors of U.S. society are increasingly concerned about the growing risks to life, well-being, and property caused by climate change. Events, such as the recent power outages from the extreme cold in Texas, to California wildfires, tornadoes in Kansas, and flooding across the Midwest, dramatically underscore the growing costs to human safety and lives, and the growing financial costs to communities for emergency response and disaster recovery. Moreover, we can expect more uncertainty, as well as greater frequency and severity, from future extreme events.

In anticipating such uncertainty and greater extremes, the ability to predict such events and impacts could dramatically mitigate and reduce the impacts to communities. In fact, recent [research](#) shows that, for every 1 dollar spent on mitigation or enhanced resilience now, 6 dollars will be saved in recovery.

The impacts of such extreme events tend to fall disproportionately on underprivileged and/or under-served populations and communities, because these populations have fewer financial resources and means by which to relocate before or after such events. Thus, having timely climate-related information could prove particularly beneficial to these underserved communities.

Inadequate forecasting capabilities, and insufficient planning and construction of resilient infrastructure have led to the need to rebuild DoD installations devastated by climate-related events, such as Tyndall Air Force Base (AFB), Camp Lejeune, and Offutt AFB – to the tune of billions of dollars – and the required upcoming expenses at [Kwajalein](#). Such post-disaster expenses will continue without improvements in climate information services.

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<sup>1</sup> Jupiter supports the risk assessments and resiliency investments of some of our country’s largest corporations in asset management, banking, insurance, energy, and a host of other sectors, as well as the U.S. Air Force, the Federal Emergency Management Agency (FEMA), the U.S. Department of Housing and Urban Development (HUD), and public sector customers in Florida and New York.

## The Role of the Federal Government in Providing Climate Information Services

Congress and the Administration therefore must take a “whole-of-government” approach. Such an approach includes ensuring that climate and extreme weather event impacts, the related security threats, and the need for mitigation, adaptation, greater resilience, and improved technological capabilities, such as modeling, forecasting, and more, get incorporated not just into documents and reports, but that such relevant recommendations get translated into actions. Jupiter is pleased that the Administration is taking some steps toward a “whole-of-government” approach, including through recent [Executive Order on Tackling the Climate Crisis at Home and Abroad](#) and more.

Today’s decision-makers need better data, including improved weather forecasts, near-term and seasonal, and into the medium and longer term, as well as expanded observations to support the production of actionable climate risk services to mitigate the threats from extreme weather impacts that touch nearly every urban and rural area of the nation. The federal government can play a role in facilitating greater coordination of climate-related information. The federal government is particularly well-suited to provide **basic data and support local communities**, as elaborated on below.

These data must reflect ongoing change and provide consistent approaches to quantifying physical risk in a changing climate. Being equipped with accurate data will enhance public and private sector decision makers’ capabilities to conduct sound critical infrastructure planning and manage operations – including in ways that enhance public safety – along with many other needs. In addition, citizens need access to basic information concerning present and future physical risks from climate change, so that they are able to make better-informed decisions, and take care of themselves and their families.

Fortunately, a new generation of earth system observation and climate prediction capabilities, that provides asset-level climate data analytics for shorter-term (hours to weeks to months) planning, and for the longer term, is becoming increasingly available, both in government laboratories and in the private sector.

As stated in recent Congressional testimony by Sherri Goodman, former Deputy Undersecretary of Defense (Environmental Security), “technological developments, including quantum computing, 5G, artificial intelligence (AI), data analytics, and more, are further increasing our capacity to forecast, predict, and plan for climate and national security risks, from extreme weather events and their impacts, to food scarcity, water shortages, and beyond. These improved predictive capabilities are also being used by city planners, insurers, and across a range of critical infrastructure sectors to reduce climate risk. As [the U.S. Department of Defense (DoD)] adapts these technologies for the military mission, it will further reduce risk to both operations and infrastructure.”<sup>2</sup>

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<sup>2</sup> Goodman, Sherri, former Deputy Undersecretary of Defense (Environmental Security), Written Testimony for the United States House of Representatives Committee on Appropriations Subcommittee on Defense Hearing on “Climate Change, National Security and the Arctic,” March 17, 2021.

Thus, the federal government has an *opportunity, if not an obligation*, to invest in – and enhance the quality of – climate information services, as well as the attendant research, development, and deployment to facilitate greater preparedness. This is especially the case with respect to the forecasting, planning, and preparedness that must be part of future decisions across all critical infrastructure sectors.

In short, the **federal government should focus on:** investments in basic scientific research, the provision of basic data, development of Global Climate Modeling (GCM), contributions to climate model projections, and earth observations – recognizing that National Laboratories (and universities) might struggle to meet the demands that will be needed for scalability and reliability of services.

In addition, the federal government, including a federal climate service, if and when it is stood up, could establish agreed-upon rules for when entities must or should consider future climate conditions, including base case scenarios for time horizons, risk thresholds, and methods for evaluating the scientific integrity of modeling, aligned with the state of the science and services to end-users. To some extent this can be compared to pharmaceutical products. There is an overriding public interest in balancing the need for safety and efficacy with a desire and need to keep pace with, and accelerate, innovation and private sector capital investments into research and development (R&D) and services for innumerable segments of the market. In some extreme circumstances, like the recent COVID-19 pandemic, technical and/or financial investments by the federal government can accelerate private sector services.

Another important role for the federal government is to provide technical and financial assistance, for example, to states and localities, in this case, so the latter can avail themselves of critical climate information services, where they otherwise would be unable to afford to do so. Because, the vast majority of smaller public sector entities, whether they are big cities in big states, like Miami, or states with smaller tax bases, like Hawaii or Mississippi, lack the resources, and often the capability, to address resiliency.

Moreover, the federal government needs better climate information, whether for its military bases, humanitarian assistance, policy decisions around regulated industries, or a host of other direct needs, including with respect to communities, particularly those that are disadvantaged or underserved. The creation of a new FCS would provide an important contribution to advancing climate information services. A key role for this newly-proposed organization would be to provide basic data, as also noted earlier.

Should a new FCS be created, the process for doing so (e.g., helping to shape the entity’s mission, purview, priorities for use cases and end users, and more) should consist of substantial and broad input from all affected stakeholders, including, but not necessarily limited to, state and local governments, relevant representatives from communities, particularly those that are underprivileged or underserved, academia, and the private sector – especially in terms of identifying the new entity’s priorities in the aforementioned context.

Jupiter also has consistently recommended that the federal government consider requiring the incorporation of future conditions into the design and construction of any physical asset it owns, funds, subsidizes, or regulates. Undertaking this step alone would represent enormous progress, especially for national security, government-sponsored enterprises (GSEs), and critical infrastructure sectors.

As you likely are aware, in the Weather Enterprise, the private sector already provides substantial services across U.S. society, and there has been a long and evolving discussion about the role of the private sector in the Weather Enterprise. The federal government benefits from leveraging private sector capital investments in developing these services. A similar discussion about the role of the private sector – with respect to climate information, more broadly – is warranted. As Dr. Richard Moss notes in his written testimony for this Hearing, “[n]on-federal entities . . . are well placed to apply complementary expertise, [including but not limited to] provid[ing] customized information and technical support appropriate to each subject and context.”<sup>3</sup>

Jupiter strongly recommends that, wherever possible, the federal government should **leverage the extensive private sector investments** to date in climate services and seek consistency with information used by the private sector. Doing so also will help leverage and optimize federal support, and provision of financial and technical assistance, to state and local governments, especially to underprivileged and/or underserved or under-resourced communities.

### **Additional Background on Jupiter Intelligence**

Jupiter’s unique, world-class ClimateScore™ risk platform provides predictions of extreme weather events from the street level to the portfolio level on time horizons ranging from a few hours to decades, and at an extremely high resolution. These tools enable customers to assess the vulnerability of systems and critical infrastructure, and to make operational and planning decisions over short- and long-term time horizons that will help improve the resilience of infrastructure assets. These products combine weather prediction and climate models, with Artificial Intelligence (AI), cloud computing, satellite data, and more, providing services that surpass what is available from the public sector or universities.

In fact, *WIRED Magazine* wrote: “If you run a business, or maintain a city, or plan power plants or highways or bridges, you’d like to know how bad things are, and how bad they’re going to get. . . . Jupiter explicitly incorporates climate change into its models for catastroph[ic] risk, both proprietary and public, and then offers that knowledge to the kind of people who might lose money when the floods, fires, storms, and heat waves really kick in.”<sup>4</sup>

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<sup>3</sup> Moss, Dr. Richard, Statement before the United States House of Representatives Committee on Science, Space and Technology Subcommittee on Environment, April 21, 2021.

<sup>4</sup> Rogers, Adam, “Companies Can Predict Climate Catastrophes for You – as a Service,” *WIRED*, April 29, 2019, available at: <https://www.wired.com/story/companies-can-predict-climate-catastrophes-for-you-as-a-service/>.

Jupiter seeks to help fulfill the need to provide highest-quality, actionable data to facilitate the understanding of the impacts of climate change in a form that is relevant, affordable, and easy to use by decision makers. Customers and citizens rely on such data to better understand, manage, disclose, and reduce risks related to climate change. It seeks to provide transparency to ensure that its analytics are credible to both customers and the broader scientific and policy communities. Its platform can examine disparate risk impacts and can thereby help guide investments in local equitable resilience measures, particularly to help *underserved communities*.

## Conclusion

Jupiter reiterates its support for greater federal coordination of, and investment in, climate information services that will facilitate the long-overdue and sorely-needed planning and development of more robust and resilient critical infrastructure across all sectors of society. The contemplation of establishing a new FCS is a laudable undertaking. Where practical, enhanced and thoughtful public-private collaborations will leverage scarce resources and are likely to allow for unprecedented advances that will help secure the infrastructure, economy, and people across all types of communities in the United States. Jupiter again commends you for your leadership in closely examining climate information needs and those for related services. Jupiter stands ready to be a resource to you at any time.

Sincerely,



Rich Sorkin  
CEO  
Jupiter Intelligence