

Quarterly Climate API & Data Analytics Service

April 2022

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Table of Contents

1	Executive Summary
2	What is a Seasonal Climate Forecast?
3	Can We Trust a Prediction?
4	The Climate API
5	Climate Data Analytics Service
6	Benefits of Quarterly Risk Management

Message from our CTO

1



"Climate-related financial disclosures can be all about box-ticking. To supplement traditional climate projections, seasonal climate forecasts can also reduce flood risk"

With the current climate emergency there is now mounting pressure on larger companies to build their awareness to its perils. Aside from regulation, reliable short-term climate information can help build resilience. While climate risk depends on the location and value of different asset classes, flooding widely accounts for the largest average annual losses. Following a review by the National Physical Laboratory, I am therefore pleased to announce the launch of our Climate API. The product will deliver new insights into quarterly climate hazards to both inform and manage acute risks.

Climate-related financial disclosures can be all about box-ticking. To supplement traditional climate projections, seasonal climate forecasts can also reduce flood risk. Our new product supplies reliable quarterly outlooks for UK and Spanish towns and cities. These weather hazard outlooks are independently validated, providing analysts with data to model fluvial as well as pluvial flooding.

With global weather patterns undergoing change, climate risk firms must embrace new predictive technologies to reveal exposed business properties and infrastructure across their supply chains, and develop appropriate contingency plans to best ensure uninterrupted operations.

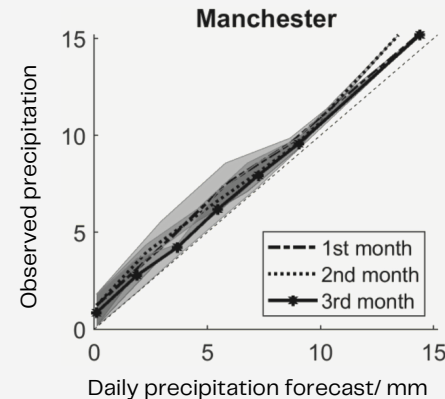
With weather expected to get more extreme, heavy rainfall events are becoming more common. Last summer's floods in the City of London caused losses in excess of £100m. For those reporting their disclosures, how will flooding impact next quarter's business operations?

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CTO

Dr Christopher Nankervis,

What is a Seasonal Climate Forecast?

2



"Seasonal climate forecasts are a powerful risk management tool. They reveal how drivers such as the jet stream and other climate drivers influence local weather extremes"

Seasonal climate forecasts are a powerful risk management tool. They reveal how drivers such as the jet stream and other climate drivers influence local weather extremes. They are not weather forecasts; however they can inform on the frequency and severity of weather events associated with physical climate risk. Seasonal forecasts are therefore like other natural hazard products in that they build awareness of extreme weather perils that likely to impact business operations.

Weather Logistics recently received an independent assessment of its precipitation forecasts from scientific experts at the National Physical Laboratory. Their validation work demonstrated that its forecasts are skilful and well-calibrated; offering an improvement over "weather-as-usual" alternatives. The Task Force on Climate-related Financial Disclosures (TCFD) indicates that companies and LLPs should consider acute physical risks on all time frames wherever possible.

Weather Logistics' Climate API delivers data for most UK towns and cities. Delivered as a collection (or "ensemble") of 100 daily weather time series, it covers multiple meteorological variables: temperature, humidity, precipitation, hail risk, solar radiation and wind speed. Its seasonal climate product can be used to assess both extremes of daily precipitation and accumulations that are likely to lead to local flooding.

Reinsurance firms, corporations or strategic planners will benefit from these seasonal climate risk insights by incorporating quarterly risk scores into their decisions.

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Can we Trust a Prediction?

3

"Weather Logistics' precipitation forecasts were rigorously assessed. This demonstrates the potential of its Climate API for flood risk management"

Our weather is getting warmer, wetter and more variable. Building subsidence is more common as a consequence, reducing the value of commercial and residential property. The East of England and Southeast is also now at greater risk of agricultural drought, impacting crop production and quality at harvest. Flooding events, such as that experienced in Yorkshire during late 2019 are now also more frequent, as the jet stream is liable to meandering [1]. Sir James Bevan, the Environment Agency's chief executive emphasised that in recent years several of the "reasonable worst-case scenarios" had happened in the UK from extreme weather [2].

While climate products are available of variable fidelity, independent validation is essential to ensure data integrity. Working in collaboration with the National Physical Laboratory in 2022, Weather Logistics' precipitation forecasts were rigorously assessed. This demonstrates the potential of its Climate API for flood risk management. Combining external model data from trusted external suppliers together with its own statistical approaches, improvements were demonstrated in both accuracy and resolution. This provides businesses with best-on-market information about their exposure to acute climate risk over the next quarter.

Weather Logistics supplies well-calibrated estimates of future weather events to facilitate strategic planning. For example, a rainfall event that is forecast to occur 1 in 10 times will have that same frequency of occurrence over a course of several years. Decisions can therefore be hedged accordingly, game-changing for those involved in supply chain planning, utilities or transportation. Seasonal forecast products available elsewhere are often unreliable and not suitably resolved for asset management.

Weather Logistics combines two approaches to better calibrate its forecasts and has undertaken rigorous internal and external validation. This shows a 64% sensitivity of cold versus warm events during a 7-month trial, contrasted to 50% otherwise.

[1] Carbon Brief, "Jet stream: Is climate change causing more 'blocking' weather events?", June 2020

[2] The Guardian - Environment, "Climate crisis hits 'worst case scenario' levels - Environment Agency head", 23rd Feb 2021

The Climate API

4

Weather Logistics team are experts in seasonal climate prediction, delivering accurate and more detailed insights into extreme weather hazards that are not available from other suppliers

Its Quarterly Climate API provides analysts with rolling monthly updates of short-term climate that helps businesses disclose their operational risks, perform stress tests, and build their resilience

What we Deliver ...

Reliable seasonal climate forecast data	Build resilience to climate risk across all timescales
Validated flood risk product	Build reputation & supplier/ investor confidence
Powered by Google Cloud	Reliable delivery
Skilful accuracy margins	Cost-benefit for decisions
Local climate hazard precision	Which assets are more exposed to floods?
Collaboration with NPL	Rigorous independent assessment
Expertise in climate risk data	Specialism in climate risk analytics

The Benefits ...

Specification

Climate hazard variables: Temperature, precipitation, hail/ convective precipitation rate, relative humidity, solar radiation, wind speed

Prediction range: Rolling 3-month quarter

Ensemble size: 100 x weather time series

Resolution: Daily / 5km

Update frequency/ range: Monthly release schedule

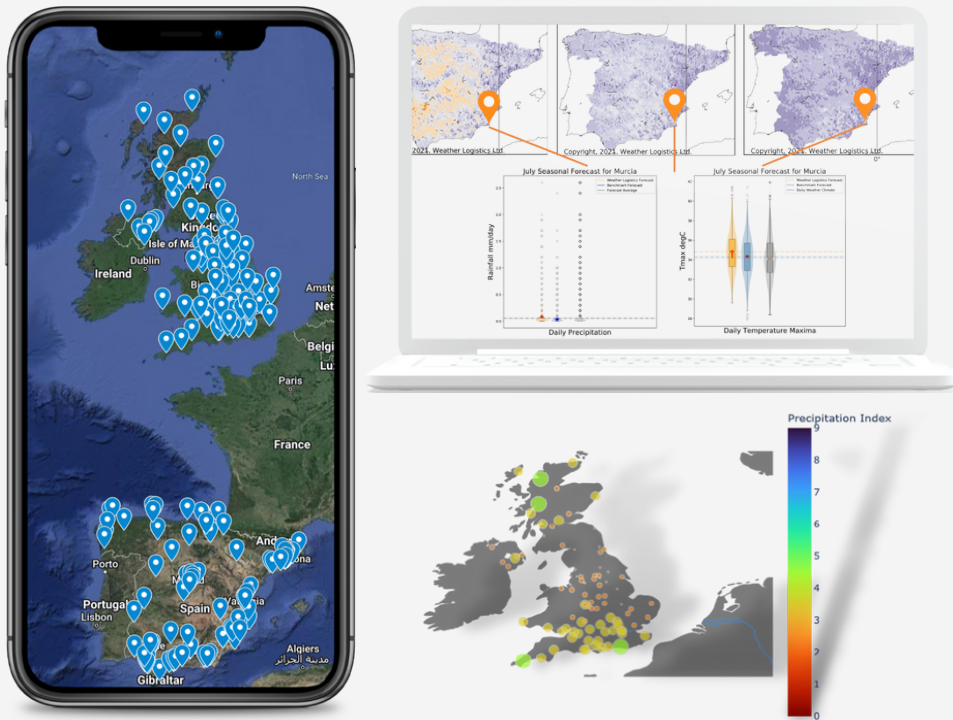
Geographical coverage: United Kingdom, Spain and Turkey

Climate Data Analytics Service

5

Weather Logistics creates value from climate data. Their experienced data scientists develop bespoke algorithms to combine multi-dimensional datasets from satellite observations, models and reanalyses to address ESG challenges

Weather Logistics recently sponsored a successful prediction market for wheat yields, delivered actionable climate data some of the largest agricultural firms, and has undertaken data science consultancy. Innovation is core to its business, with support received from the European Space Agency, the UK Space Agency and Innovate UK.



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Benefits of Quarterly Risk Management

6



"Integrating quarterly climate risk into operational management can make the difference between a loss or profit-making business"

The economic benefits of seasonal climate forecasts are substantial, complementing other products that help manage acute climate risk. For companies and LLPs that currently assume operations under a "weather-as-usual" scenario, quarterly climate risks resulting from seasonal climate variability can result in losses exceeding 5% of gross turnover. For businesses with a scenario-based approach to extreme weather and that only consider specific climate risks beyond 5 years, their estimated savings could be up to 2 to 3% of gross turnover*.

As seasonal weather extremes become more commonplace [1, 2], there is now an increasing potential to unlock value from an adaptive climate service. Integrating quarterly climate risk insights therefore stands to make a positive contribution for stakeholder reputation while providing a competitive advantage for business.

Quarterly flood risk data provides a unique opportunity to manage climate-related financial risk [6] and implement mechanisms and avoid uncertainty related to going concerns. Risk analysts can for instance make use of 'ensemble' weather information to generate trustworthy scenario analyses within an operational setting. More suitable "what-if" and stress tests can be designed to build resilience to imminent extreme weather, reducing average insured losses and business disruption. Weather Logistics' Climate API aims to answer many new questions about climate.

*Seasonal forecast performance will depend on location and year, with a typical range (standard deviation) of 13% between growing seasons

[6] The Climate Disclosure Standards Board – TCFD, Accessed March 2021

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