Booz Allen®

CLIMATE INTELLIGENCE ECOSYSTEM

ACCELERATING CLIMATE INSIGHTS AND ACTION THROUGH "AS-A-SERVICE" FEATURES FOR OPEN DATA/OPEN SCIENCE

Extreme weather conditions, drought, flooding, wildfires, heatwaves, and other increasingly frequent and intense natural disasters provide dramatic proof of the escalating climate crisis.

Climate data is critical to understanding and predicting these events and their impacts, and ultimately to building climate resilience. Governments and commercial entities across the globe collect data in the process of researching complex climate problems, evaluating climate vulnerabilities, developing adaptation solutions, and responding to climate impacts. Taken together, this data holds immense potential value, but it varies in delivery method, format, geospatial reasoning, and degree of precision and completeness—making it difficult to leverage toward timely, scientifically grounded action.

To surmount this challenge to data-enabled climate mission progress and re-energize scientific collaboration and innovation, scientists and other stakeholders must be equipped with open-architecture data platforms. Such platforms are key to increasing interoperability and democratizing access to climate intelligence data and the tools to analyze it.

Booz Allen's Climate Intelligence Ecosystem accomplishes these goals. Powered by aiSSEMBLE™ and Google Cloud Platform, our Ecosystem combines technology expertise and mission focus to deliver data as-a-service (DaaS) and data science as-a-service (DSaaS) and accelerate the strategic advance of climate intelligence.

INGESTION & ASSIMILATION

Cloud-optimized, low-latency data engineering pipelines form the basis of the Climate Intelligence Ecosystem ingestion and assimilation framework. These automated pipelines are enhanced with machine learning to normalize for geospatial representation between grid and point data, and accelerate correlation and fusion of disparate datasets.

Data ingested in any tabular format (e.g., NetCDF, xarray, or json) is flattened and stored in a common schema and programmatically optimized for parallel computing. Stored in this format, data can be processed by a variety of services, including scientific prediction models and commercial visualization tools with greater throughput, effectively scaling horizontally instead of vertically. Any output produced by the Climate Intelligence Ecosystem can easily be migrated to other platforms or utilized in other format-compatible data products.

DATA SCIENCE AS-A-SERVICE

Booz Allen's aiSSEMBLE™—our Climate Intelligence Ecosystem's artificial intelligence (AI) engine—is a one-of-a-kind approach to AIOps. It leverages reusable software components, data delivery, and machine learning patterns to furnish necessary cloud architecture components, providing a data science workbench with no environment or infrastructure setup required. This empowers users to move straight to data analytics and modeling.

After processing in our automated data ingestion pipelines, data is cleansed, normalized, and stored, and is made accessible to users via a data catalog. Through the data science workbench, users choose from various datasets, fusing data and implementing logic and prediction to process data at scale. Users can add their own datasets to available pre-loaded, high-quality data to maximize impact in analytics and prediction.

DATA AS-A-SERVICE: VISUALIZATION

To deliver data science results at scale, the Climate Intelligence Ecosystem includes a secure application programming interface (API) layer with best-in-class

authentication. With a complete data distribution system in place, fused data is easily transferrable to other cloud provider services or into modern digital twin visualization capabilities.

The Ecosystem will provide a marketplace along with an online data catalog to enable browsing, dashboard and visualization building with tools like Google Earth Engine, and the ability to download to various standard tabular formats.

CASE STUDY: DELIVERING AI-READY DATA TO SUPPORT SCIENCE MISSIONS

Space Agency: Prediction of Worldwide Energy Resources (POWER)

As an example of delivering AI-ready data, POWER gathers NASA Earth Observation data and parameters related to the fields of surface solar irradiance and meteorology to serve out to the public in several free, easy-to-access, and easy-to-use methods. POWER helps communities become resilient amid observed climate variability by improving data accessibility, aiding research in renewable energy development, building energy efficiency, and supporting agriculture projects. All community-specific parameters and outputs are provided in formats, naming conventions, and units that are commonly employed in each user community. Booz Allen assists in a variety of ways: supporting the distribution of solar and meteorological datasets by creating a variety of data access applications, developing and maintaining a thoroughly documented API, conducting data validation of the remotely sensed POWER data archive with site-specific analysis, and collecting and implementing user feedback and requests. In addition, Booz Allen manages POWER's entire catalog of geospatially enabled Analysis-Ready Data (ARD), proving the capability to visually explore data via geospatial image services. With this support, the POWER Team has served over 600,000 unique users 85 terabytes of data since 2018.

KEY FEATURES

Hyper-Localized Analysis: Ability to drive data, analysis, and science that is locally relevant. Provides the right climate data at the right level for proactive climate resilience planning and response.

Open Architecture: Combines best-in-class open-source and cloud-native services that are built on open architecture and hosted on Google Cloud Platform, with the ability to integrate with multiple clouds.

Community of Data Providers: Data exchange that allows for rapid collection, ingestion, and data fusion across public, commercial, and agency providers. Established partnerships around to data accelerate the science.

Data Democratization: Empowers citizen scientists and the public with a range of visualization and self-service options, making climate intelligence broadly relevant. Brings scale to solving this global challenge by engaging researchers, the public, scientists, and policymakers.

Ease of Access: Scalable, open API data fabric that allows access to curated datasets and analytics-ready data products that foster the climate innovation ecosystem.

Single Source of Truth: Users have access to many authoritative data sources across climate threat domains.

FOR MORE INFORMATION, PLEASE CONTACT:

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About Booz Allen

Trusted to transform missions with the power of tomorrow's technologies, Booz Allen Hamilton advances the nation's most critical civil, defense, and national security priorities. We lead, invest, and invent where it's needed most—at the forefront of complex missions, using innovation to define the future. We combine our in-depth expertise in AI and cybersecurity with leading-edge technology and engineering practices to deliver impactful solutions. Combining more than 100 years of strategic consulting expertise with the perspectives of diverse talent, we ensure results by integrating technology with an enduring focus on our clients. We're first to the future—moving missions forward to realize our purpose: Empower People to Change the World®.

Learn more about our Climate Intelligence solutions: **BoozAllen.com/ClimateIntel.**

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