The DTN Forecast System: Empowering Decisions with Precise Weather Intelligence

The DTN Forecast System delivers unparalleled weather forecast accuracy through advanced modeling, machine learning, and blending techniques. It provides real-time updates and customizable alerts to help businesses stay ahead of changing conditions.

With industry-specific insights across over 280 parameters, DTN transforms raw weather data into actionable intelligence tailored to operational needs. This innovative system empowers informed decision-making, enabling users to navigate weather-dependent operations proactively.

DTN Forecast System highlights

Multiple data inputs: Incorporates observational data, multiple numerical weather prediction models, radar, satellite data, and DTN proprietary models.

Advanced statistical techniques: Uses statistical comparisons and machine learning to blend multiple forecast sources, emphasizing the most accurate predictions.

Global coverage: Provides forecasts for any location worldwide eliminating the need for location-specific configuration.

Gridded historical weather: Comprehensive, high-resolution historical weather information, offering a powerful tool for model training and climate change adaptation strategies.

Scalable cloud infrastructure: Utilizes Amazon Web Services for dependable, redundant, and scalable computing power to manage complex weather modeling tasks.

Continuous updates: Forecasts update constantly as new data becomes available, rather than on a fixed schedule, ensuring the most up-to-date predictions.

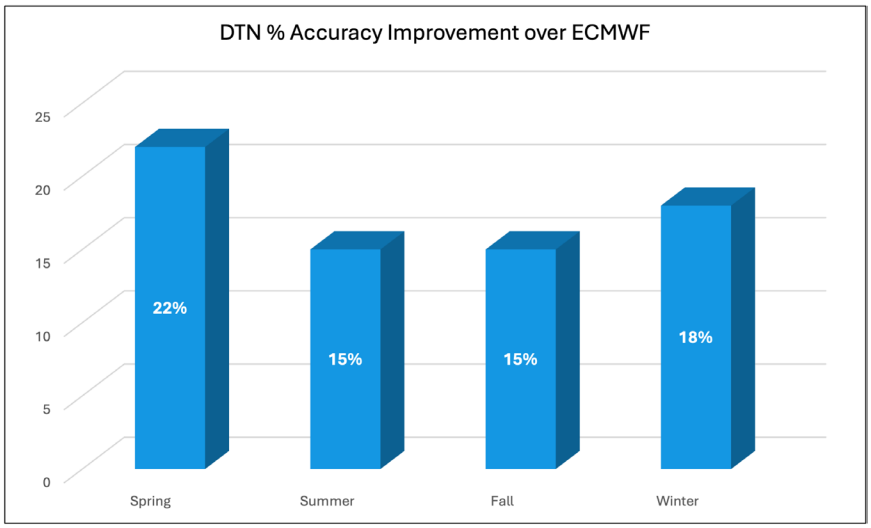
Detailed forecasts: Produces hourly forecasts out to 360 hours (15 days) ahead.

Extensive verification: Undergoes rigorous accuracy testing through partnerships with third-party vendors as well as internal verification processes.

Accuracy and reliability: the foundation of confident decision-making.

The DTN Forecast System leverages an advanced blending approach, incorporating data from multiple global and regional weather models. Using machine learning algorithms, the system constantly evaluates and scores model performance, ensuring optimal forecasting across various locations and times. It employs a sophisticated blending technique for optimal model selection, downscaling techniques for precise location-specific predictions, and undergoes extensive third-party verification for continuous improvement.

This advanced blended approach yields more accurate forecasts than any of the individual models it comprises. Across four consecutive three-month periods, the DTN forecast consistently demonstrated superior accuracy compared to the high-resolution ECMWF forecast. From March to May 2024, DTN was 22% more accurate, marking the strongest improvement observed. During the summer months of June to August 2024, DTN maintained a significant advantage with 15% greater accuracy, continuing to outperform ECMWF. In the fall period from August to October 2024, DTN remained highly dependable, showing a 15% accuracy improvement. As winter approached, DTN advantage increased again, reaching 18% more accuracy from November 2024 to January 2025. Overall, DTN consistently provided more precise forecasts across all seasons, with particularly impressive performance in the spring and winter months.



DTN Forecast System accuracy increase over High Resolution ECMWF by Season
Forecast Verification Summary Mean Absolute Error (MAE) day-ahead temperature over past four seasons for 300+ European Cities

Timeliness and real-time updates: staying ahead of changing conditions

The system excels in providing timely and real-time updates, ensuring users always have access to the most current weather intelligence. Its cloud-based architecture allows for automatic scaling and rapid processing, while an hourly update cycle incorporates real-time observations. Customizable alerts for critical weather thresholds or events enable users to anticipate and respond to changing conditions effectively, transforming the system into a dynamic decision support tool.

Tailored industry insights help you make better decisions

The DTN Forecast System goes beyond generic weather forecasts by providing industry-specific insights that directly inform operational decisions. It offers tailored parameters for various industries such as agriculture, energy, and transportation, with over 280 different forecast parameters, including probabilistic forecasts. The system seamlessly integrates with existing workflows and systems, transforming raw weather data into actionable insights and allowing organizations to move from reactive weather management to initiative-taking strategies.

The DTN Forecast System represents a significant advancement in weather intelligence. By delivering unparalleled accuracy and reliability, timely and real-time updates, and industry-specific insights, it empowers users across various sectors to make informed decisions in the face of ever-changing weather conditions. As climate variability increases and the need for precise weather intelligence grows, systems like DTN's will play an increasingly crucial role in helping organizations navigate weather-dependent operations. With the DTN Forecast System, users gain not just a weather forecast, but a powerful tool for strategic decision-making and operational excellence.

Access DTN weather data through our seamless API integrations.

Learn more