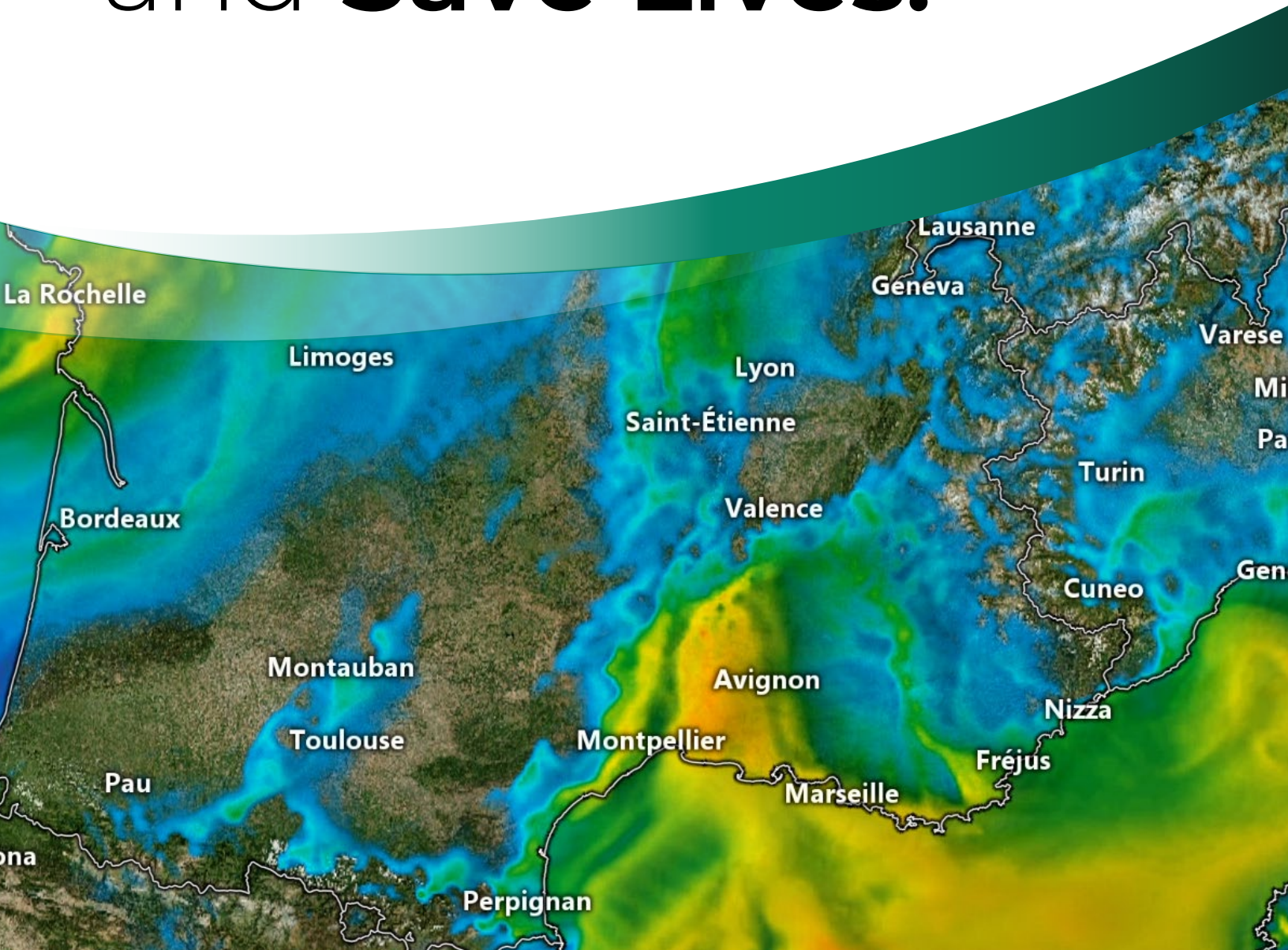


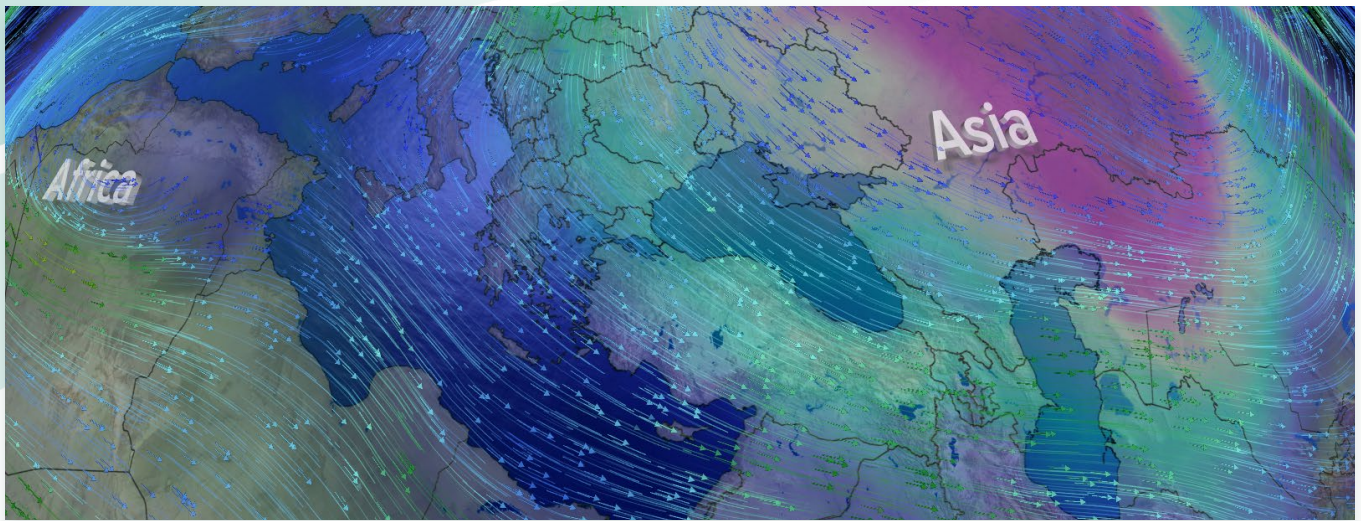
GLOBAL



# Forecasting to **Protect, Prepare, and Save Lives.**





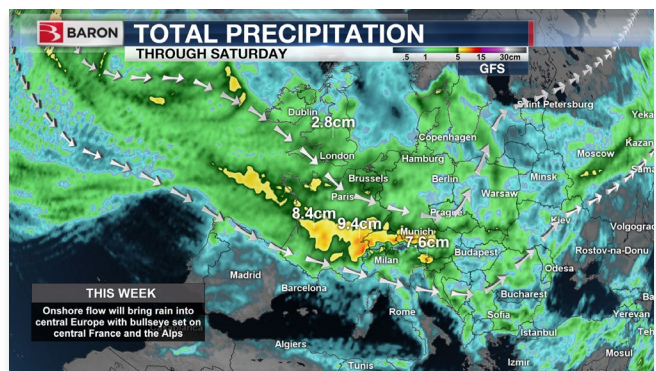


# Experience the **Future of Meteorological Forecasting**

Weather forecasting has made significant strides in recent decades, and at the heart of these advancements lies the power of high-resolution modeling, a crucial element of any Early Warning System. Weather modeling employs cutting-edge algorithms and mathematical equations to simulate and predict weather patterns. Thanks to leaps in computing capabilities, we now have the tools to efficiently and cost-effectively run customized models tailored to specific regions, putting the control of meteorological forecasting resources firmly in your hands.

Experience the future of meteorological forecasting with Baron's advanced high-resolution models. Our models are finely tuned to provide pinpoint-accurate forecasts, tailored to the unique weather dynamics within your operational domain. This precision empowers organizations to issue forecasts of unparalleled

accuracy, enhancing their capacity to anticipate and effectively mitigate the consequences of severe meteorological and hydrological events with unwavering precision. Ultimately, our solutions facilitate the timely dissemination of vital information, saving lives, and minimizing the devastating impact of severe weather conditions.



# The Baron Modeling Solution

The Baron Numerical Weather Prediction (NWP) model is a customized Weather Research and Forecast (WRF) model. When your team needs accurate, short and/or mid-term forecasts for weather conditions like reflectivity, precipitation, temperature, wind, hail, and severe weather, Baron's NWP has you covered. Our NWP models are tailored to meet user-specific requirements with a state-of-the-science, land-surface model. Model forecast length, domain, and resolution are configurable. The frequency of forecast runs depends on the specific needs and requirements of users and can be customized based on the urgency of weather updates, new data input abilities, and computational resources available.

Our high-resolution meteorological modeling enhances your forecasting knowledge, providing greater detail than global model output. Baron's robust solution enables you to accurately identify precipitation lines to decipher rain, snow, and ice.

We offer standard NWP model parameters and a variety of additional Baron-exclusive features. Our models run at 3km and 1km resolution and account for local geographic variations. This includes integrating local land use, coastline, mountains, and other geophysical data that improves model performance for your region.



## Baron Model Advancements:

- Improved Cloud and Thunderstorm Prediction
- Improved Lightning Forecasts
- Added Aviation Forecasts
- Numerous Other Improvements Not in Standard WRF
- Tropical Cyclone Tuning

# Standard Numerical Weather Prediction Products

PRODUCT	USE/BENEFIT
Categorized Max Reflectivity & Rate	Display the type of precipitation & rate forecast
Cloud Cover (Low, Mid, High, and Total)	Display cloud cover forecast
Temperature & Effective Temp (Surface & Aloft)	Display temperature/effective temperature forecast
Dew Point Temperature (Surface)	Display dew point temperature forecast
Wind Speed and Direction (Surface and Aloft)	Display wind speed and direction forecast
Relative Humidity (Surface and Aloft)	Display humidity forecast
Surface Pressure	Display surface pressure forecast
Accumulation of Rain, Freezing Rain, Sleet, Snow	Display precipitation accumulation forecast
Forecast Aids – Vorticity, Thickness	Products to aid forecasters in forecast analysis



# Baron Value-Added **Numerical Weather Prediction Products**

<b>PRODUCT</b>	<b>USE/BENEFIT</b>
<p><b>Severe Weather Forecast Products:</b></p> <ul style="list-style-type: none"><li>→ Lightning</li><li>→ Hail Location and Size</li><li>→ Tornado Track</li><li>→ Severe Indices (CAPE, CIN, EHI, Updraft Helicity Tracks)</li></ul>	<p>Display forecast products that provide guidance on the occurrence and location of various severe weather threats.</p>
<p><b>Aviation Application Forecast Products:</b></p> <ul style="list-style-type: none"><li>→ Max Reflectivity from all Layers</li><li>→ Echo Tops</li><li>→ Visibility</li><li>→ Cloud Ceiling</li><li>→ Surface Layer Fog</li><li>→ Aircraft Icing Potential</li><li>→ Super Cooled Liquid Drops</li><li>→ Low Level Wind Shear</li><li>→ Clear Air Turbulence</li><li>→ Flight Restrictions</li></ul>	<p>Display forecast products that provide guidance for aviation interests.</p>

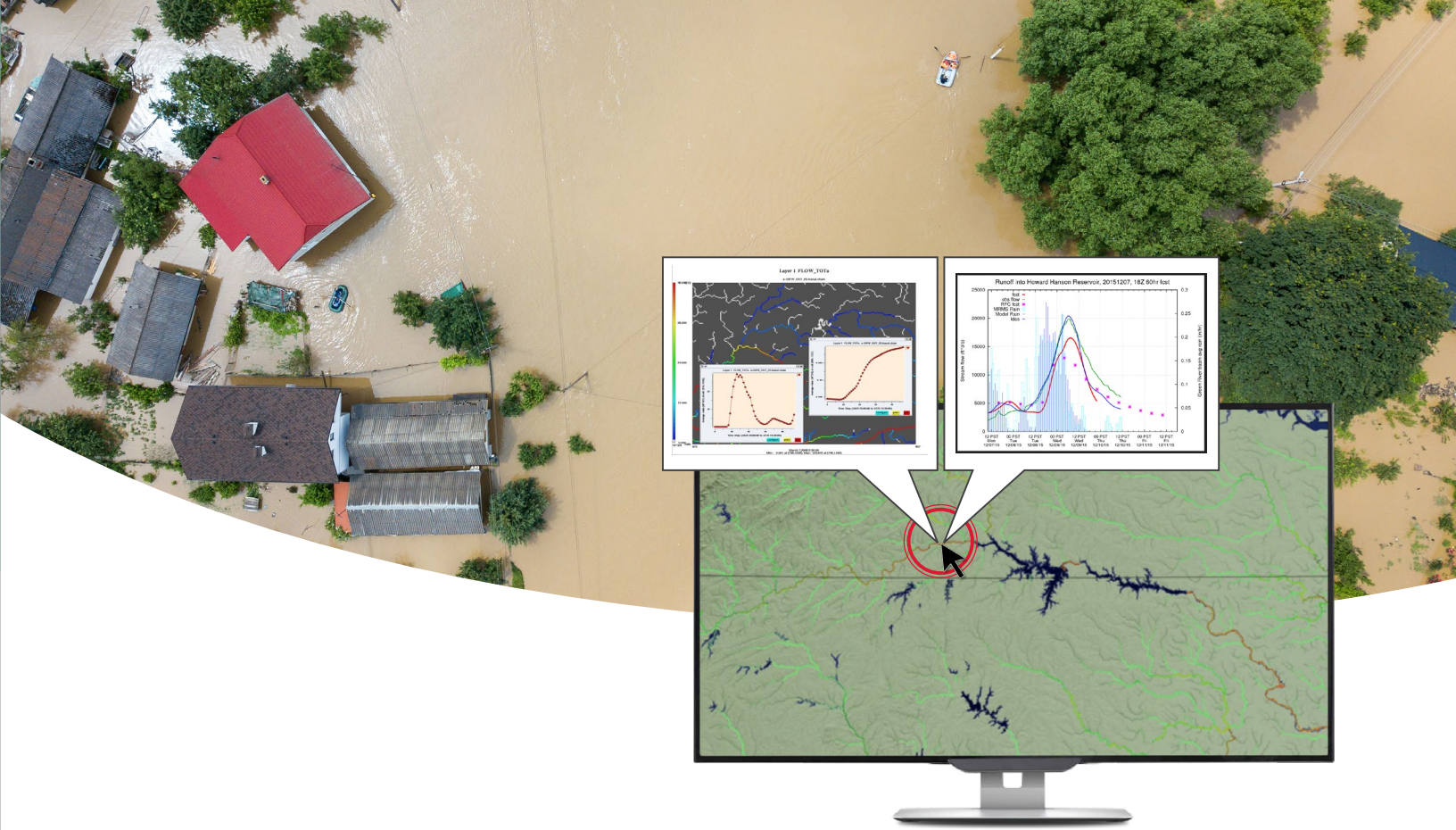


# Proprietary Power: The Baron Land Surface Model

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Baron's Land Surface Models (LSM) provide supremely accurate and updated soil and land-surface (snow, runoff, etc.) conditions. Our proprietary technology is conditioned to the highest-quality terrain, soil, land use, and land cover data available. Baron's LSM provides for one or two-way coupling between the Land Surface Model, Baron NWP, and other models – thus improving the results and range of all modeling applications. The model can also continuously assimilate data from Baron radars and other observation networks for increased short-term precision. Current conditions update every one-half hour, and forecasts can be set to run up to four times a day.





# Hydrometeorological Modeling

At the heart of any Early Warning System is having a decision tool that aids in determining how the rain will impact your inland waterflow and thus cause flooding. Baron has several options for managing local atmospheric or hydrological models so you can monitor weather situations or prepare alerts and notifications to mitigate risk and stay ahead of weather events. Our hydrometeorological models allow you to predict, monitor, and mitigate flooding. Our models feature comprehensive and precise stream-river-waterbody flooding forecasts. Data is continuously assimilated from stream gauges, surface observation sites, agrometeorological sites, Baron's weather radars, and other observation networks.

Our powerful models provide forecast discharge and stage at each gauging station and reservoir/lake inflows/outflows. Models also provide high-resolution imagery of overland flow and depth of ponded water, forecast flood inundation maps, and subsurface flow.

Whether you want to cover a single basin or an entire nation, Baron Hydro Models are scalable and provide automated alerts based on current and forecast conditions. Forecasts can be run on synoptic, four times daily cycles, or in rapid-update mode.

# Dynamically Different: Coupled Hydrological (Flood) Model

## Modeling Technology for Formidable Conditions

Forecasts regarding the atmosphere above the ocean's surface, waves at the surface, and ocean currents ultimately provide life-saving information and protect a nation's property with unprecedented accuracy, thanks to a new state-of-the-art Coupled Atmospheric Water and Ocean (CAWO) modeling system.

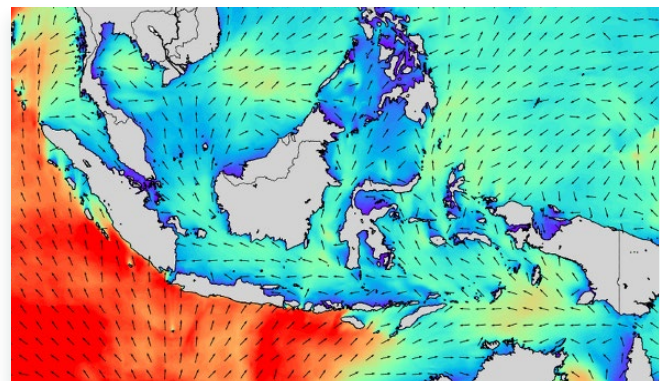
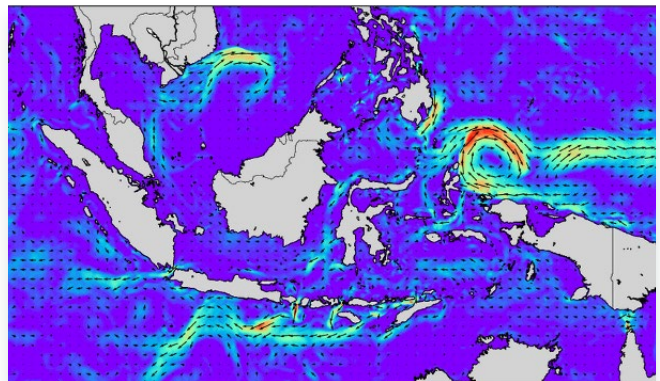
Baron leads the way in modeling technology designed to meet the increasing need for more reliable forecasting worldwide. Our robust modeling can maximize maritime and other economies by increasing weather awareness and safety on the seas and shorelines for better alerting and safety.

## Incomparable Forecasting Capabilities

The Coupled Ocean and Waves model is a Baron exclusive that provides both ocean and wave forecasts. The CAWO modeling system uniquely couples an atmospheric NWP model with a sea surface wave model and a deep ocean circulation model, providing improved fidelity at the atmosphere/ocean interface. You get a 10-day forecast for waves, swell, wind, currents,

temperature, salinity, and water level. Baron's technology coupling the 3 previously distinct modeling components can provide forecasting capabilities unavailable from other models.

Baron can provide a Real-time Operational Modeling Environment (ROME), an end-to-end workflow software which includes web pages that display results and status for operations personnel to refer to when assessing the ongoing progress of model runs.



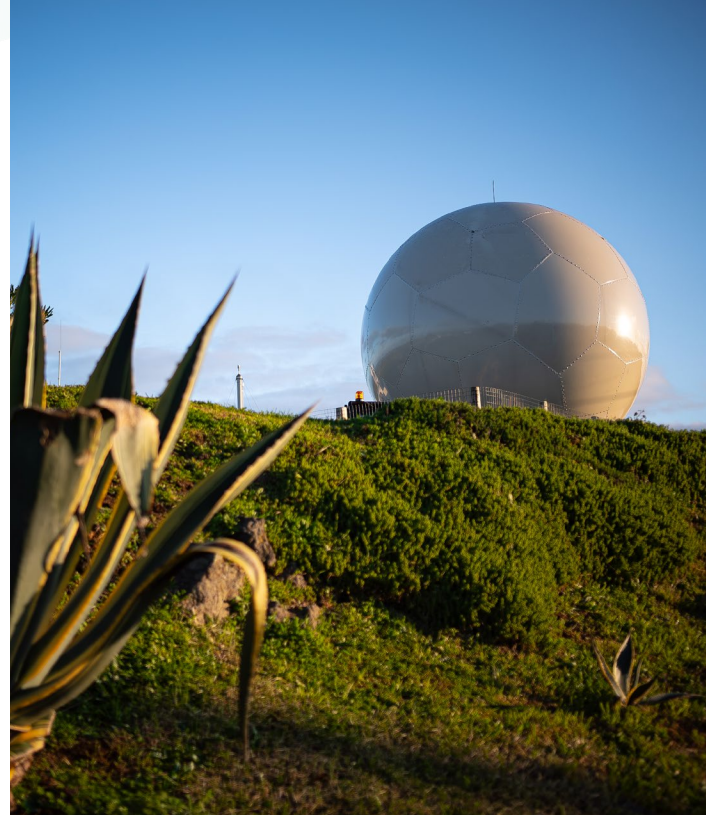


# Radar: **Dynamic Data Sources from Baron**

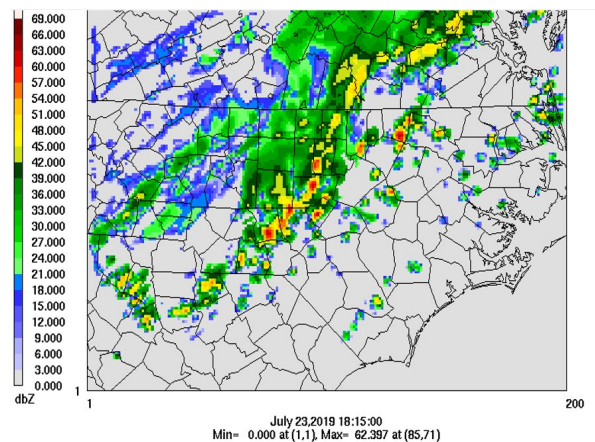
Your forecasting is only as good as the data quality from your radar. Integrating Baron Weather radar data into high-resolution models delivers improved model performance, more accurate forecast predictions, and can be tailored to an area's unique weather dynamics.

Baron highly recommends assimilating the data from high-quality real-time Doppler Weather Radars to improve operational forecast accuracy. To improve short-term forecasts, other datasets can be included, like river gauge sensors, sensor networks, and others. Data assimilation greatly improves the model accuracy, providing a better understanding of the development of impactful weather systems.

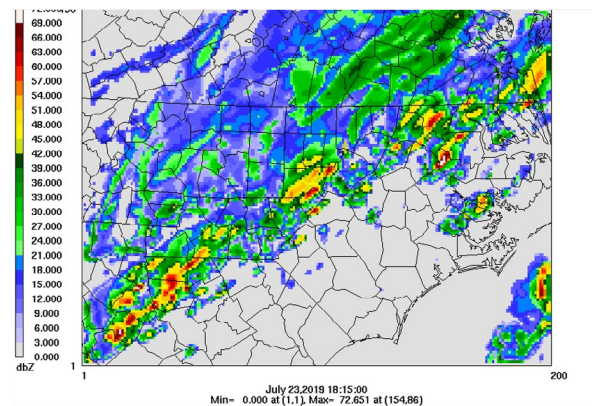
Baron's unparalleled radar systems capture detailed atmospheric information, including smaller-scale weather phenomena like thunderstorms, tornadoes, and microbursts, improving weather model accuracy, especially for localized and short-term forecasts. Our radar systems provide more precise information about the intensity, location, and movement of severe weather, translating to more accurate predictions and the ability to issue timely alerts.



### Forecast without Baron DA



### Forecast with Baron DA





# Customized for Your Needs

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Baron modeling systems are provided as packaged end-to-end solutions or can be fully scaled, tailored, and customized to meet an organization's requirements. Baron ensures your organization can fully control your model, with the ability to modify and adjust the model performance. However, we also offer a fully hosted solution in the Baron computing environment. Both solutions provide a high-resolution output designed to meet individual countries' needs.

## Why Choose Baron Weather?

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Baron offers cutting-edge solutions that harness the power of high-resolution models, visualization, and alerting, which can provide unparalleled weather intelligence tailored specifically for you.

Baron works with you to provide the best local and regional model within the agreed-upon budget. Our modeling systems are provided as packaged, end-to-end solutions and can be fully scaled and/or customized to meet end-user requirements. If you require on-site modeling, Baron partners with several computer providers (e.g. Dell, HPE, etc.) to deliver the best solution. We also provide software to manage the model, several visualization options, and extensive training.

Simply put, Baron provides sustainable solutions with greater accuracy and long-term forecasts that enhance safety and preparedness for your country.





# Support **Around the Clock**

Our visionaries drive value, providing innovative solutions and working with you to define and deliver a solution that meets your unique needs. With Baron, you will have reliable, uninterrupted service of quality-assured data. Additionally, a 24/7 operations center is a dependable source of assistance when needed. Our systems and integration services help you distribute critical weather information across every level of your organization. Because smarter information means better decision-making.



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[baronweather.com](http://baronweather.com)



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