




Radar Engineering with Precision

| Baron Gen3 Radar





Exclusive weather radar technology delivering the highest quality data for superior life-saving weather detection.



Clutter Suppression

Amazingly clear radar returns with advanced clutter suppression technology



Calibration

Improved precision, reduced downtime and field maintenance with patented auto-calibration



Processing

Better data and reduced attenuation from signal processing at the antenna



Support

Around the clock support from degreed meteorologists and radar technicians



Forecaster Workstation

A powerful, easy to use forecaster workstation in native languages

Early Weather Detection and Life-Saving Technology

Building a reliable early warning system requires a science-driven weather detection solution for monitoring, assessing, and understanding weather hazards to reduce the loss of lives and protect local economies and communities. Operators and organizations responsible for this task require a solution that provides accuracy, reliability, ease of use, and longevity.

Solving these challenges for organizations around the world, Baron offers a series of radar solutions designed specifically to meet those needs. Baron Gen3 radars deliver the highest quality data in the market and will become the foundation of a more effective and efficient meteorological operation.

Baron has the knowledge and experience to provide you with a radar solution that delivers outstanding performance, research quality data, and unequaled support. We have sold, installed and performed Dual Polarization upgrades to more than 350 radars worldwide. Learn more about the ground-breaking technologies in calibration, processing and the unique features of our forecaster workstation and understand why Baron is uniquely suited to meet your radar needs.

The Benefits of a Baron Gen3 Radar Include:



Better detection of flooding, precipitation, hail, tornados and other disastrous weather events



Higher quality data to initialize your numerical weather prediction models, resulting in more accurate forecasting



More in-depth real-time analysis of current conditions



More effective early warning systems that can save lives



Exclusive Calibration

Baron has resolved the problem of accurately and efficiently calibrating radars with new sophisticated and patented algorithms that reduce labor costs, increase operation time, and reduce maintenance headaches. Ensuring that

**Ultimate Radar Reliability.
Less Labor Costs.**

radars perform consistently Baron first developed the Baron Auto-Calibration technology. Next, came our groundbreaking Multi-Radial ZDR Calibration, setting an even higher standard for radar reliability.

| Baron Auto-Calibration

Baron developed the unique Baron Auto-Calibration technique for the National Weather Services' NEXRAD upgrade project, and this is now standard on all Baron Dual Polarization radar systems. As a result, you get unprecedented precision from your Gen3 radar, such as ± 0.1 dB ZDR accuracy.

Most radars are calibrated about once or twice a year and requires the radar to point vertically. Baron's auto-calibration checks numerous param-

eters with every volume scan, ensuring the radar system is automatically calibrated up to 10 times per hour. Even when operating in adverse environments, the hardware can accommodate any temperature-related effects, ensuring continuous accuracy. This keeps customers' Gen3 radar systems reliable, accurate, as well as easier to operate and maintain.

| Baron Multi-Radial ZDR Calibration

Baron developed the next generation of calibration technology that raised the bar again for weather radar calibration. Called Baron Multi-Radial Calibration, this patented ground-breaking technology solves several calibration and operational challenges — even in fast-changing meteorological environments. Baron Multi-Radial Calibration is automatically calculated radial by radial, equaling 300 times per hour. This removes the need for human intervention to keep radars precise at all times. This focus on precision drives data quality throughout the entire radar solution.

Baron Multi-Radial Calibration instantly accounts for any detrimental effects on radome perfor-

mance, from the obvious—rain, ice and snow—to the less considered, like bird droppings, radome seams, ground cables and natural wear.

Working simultaneously together the entire Baron calibration process ensures the radar performs accurately, consistently, and reliably resulting in the highest quality signal possible. Built-in test equipment eliminates the need for external testing hardware and multi-radar networks perform with stability and accuracy across a geographically widespread area.



“ This is the most significant upgrade to the nation’s weather radar network since Doppler radar was first installed in the early 1990s. ”



Jack Hayes,
Former U.S. National Weather Service Director,
Discussing the NEXRAD Dual-Pol Upgrade

Key Advantages of the Baron Auto and Multi-Radial ZDR Calibration

- Calibrates with every radial sweep, equaling 300 times per hour.
- No human interaction is involved during installation or at any point in time
- No intensive steps involved after hardware replacements are performed
- Accounts for rain on the radome
- No solar measurements required
- Performed in real time through software under any weather condition
- No hardware measurements required
- Built-in Test Equipment eliminates the need for any external testing hardware
- Your radar network performs with stability and accuracy across a geographically widespread area

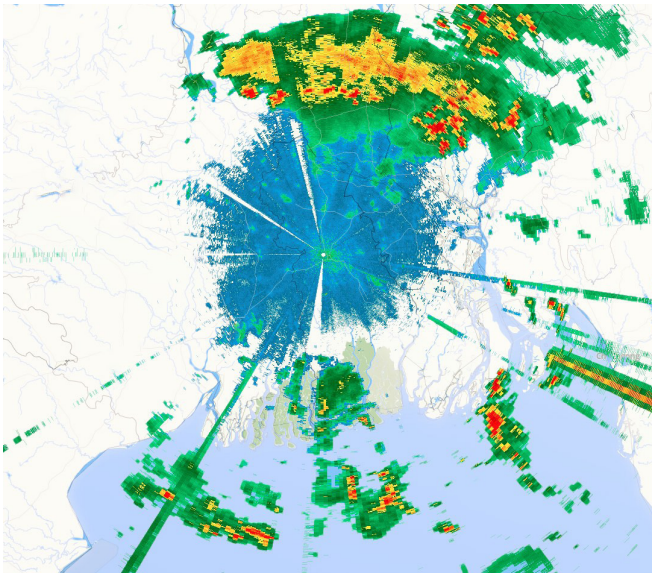
Next Generation Clutter Suppression Technology

Clutter removal is critical to accurate and reliable radar data. With the emergence of 5G and the general increase in radio frequency (RF) transmissions its importance has never been greater. Exclusive technology from Baron gives you the most advanced and proven suppression systems for ground clutter and RF interference, resulting in greatly improved meteorological data quality.

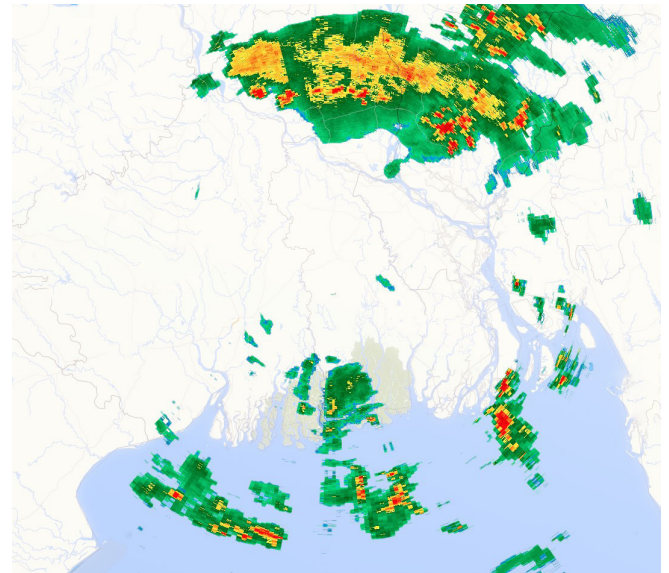
| The Baron ClearScan™

This patent-pending Baron technology uses machine learning algorithms to recognize quality radar data verses anomalous propagation (often caused by wind farms or general ground clutter) or radio frequency interference from other electronic devices. The Baron ClearScan removes the unwanted noise, resulting in cleaner, easier to read and more accurate displays of radar data. ClearScan can be tailored to better recognize specific issues your radar is likely to encounter at its location.

BEFORE



AFTER

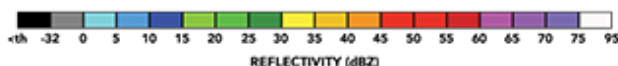
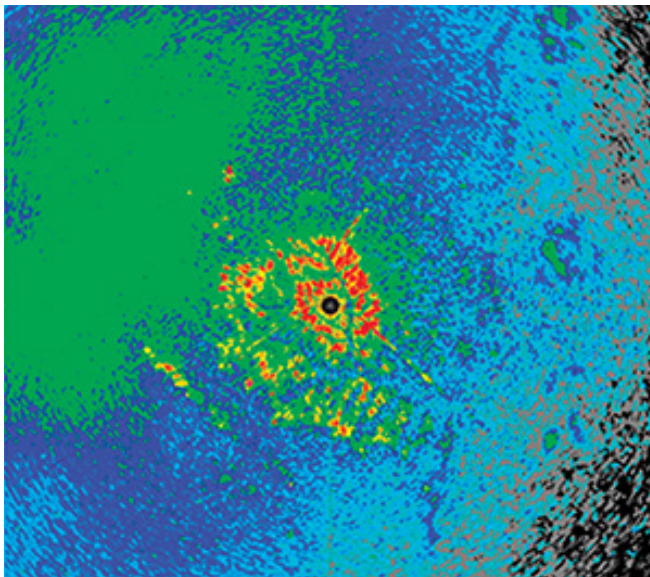




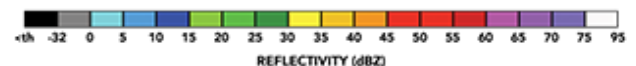
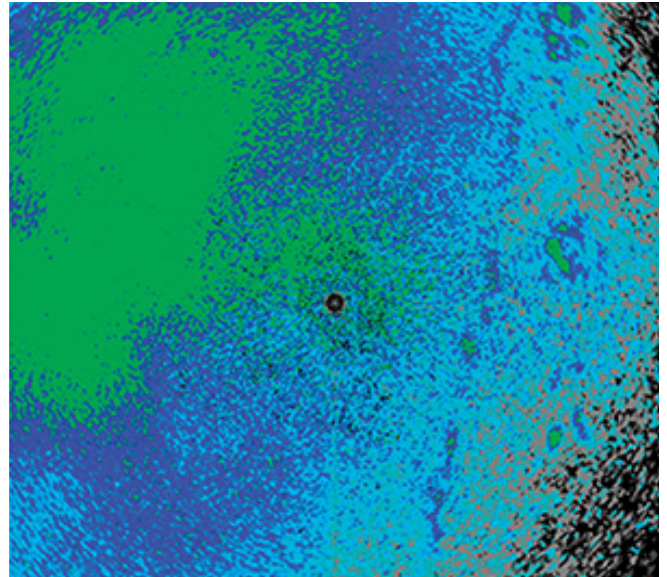
CLEAN-AP™

Available exclusively from Baron through a partnership with the University of Oklahoma, CLEAN-AP™ allows for real-time, automatic ground clutter suppression far superior to GMAP capabilities, in addition to optimally and dynamically adapting the suppression process to the ground clutter environment. The Baron ClearScan and CLEAN-AP can work in unison to provide the most effective clutter suppression.

BEFORE



AFTER





Advanced Processor Components

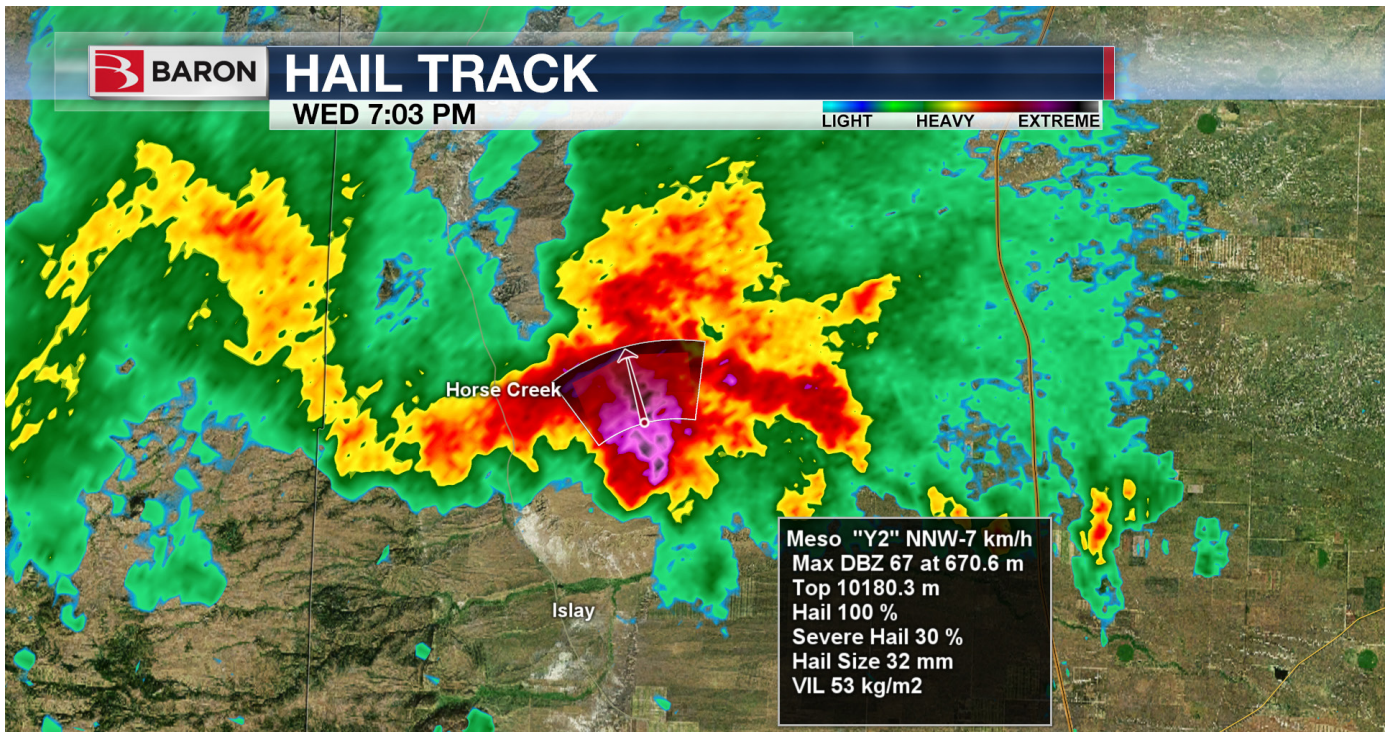
| A Single Interface for Radar Operation

The technology housed on-board Baron Gen3 radar systems provides forecasters with superior detection and analysis of meteorological targets. A custom-designed Radar Control Processor (RCP) is the brain of the radar, disseminating the workload to the different components of the system. It also provides the user with a single access point for using and controlling the entire system, helping streamline the overall workflow.

In addition to handling the unique calibration capabilities of Baron Gen3 radar, the RCP allows the user to select radar modes, such as PPI, RHI, as well as volume, sector and point scans.

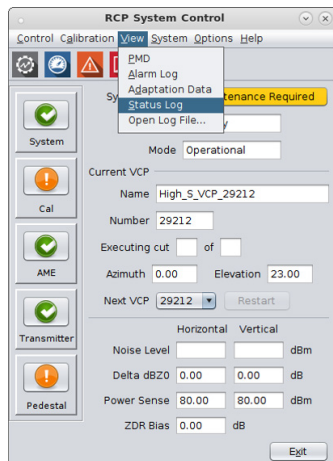
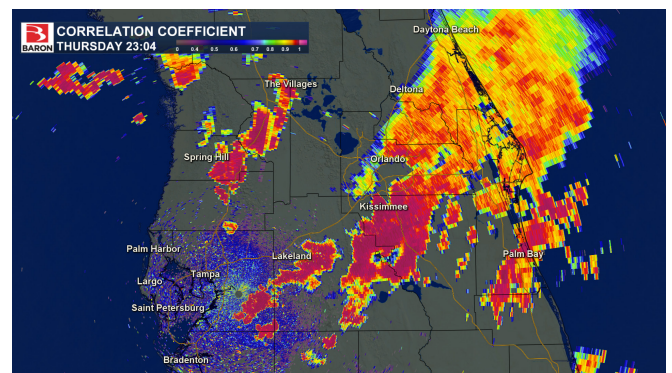
| Stronger Signal and Better Data

Baron hardware and software digitizes the signal behind the antenna in the radome. From there, fiber optics are used to transmit the signal to the Radar Signal Processor, reducing signal loss. Reflectivity, velocity, spectrum width and dual-pol measurements are produced as a result of signal processing, where they are subjected to range unfolding and velocity de-aliasing. This processor is also responsible for implementing CLEAN-AP™ processes and other data thresholds—determining which echoes are relevant to the display and applying appropriate clutter filters.



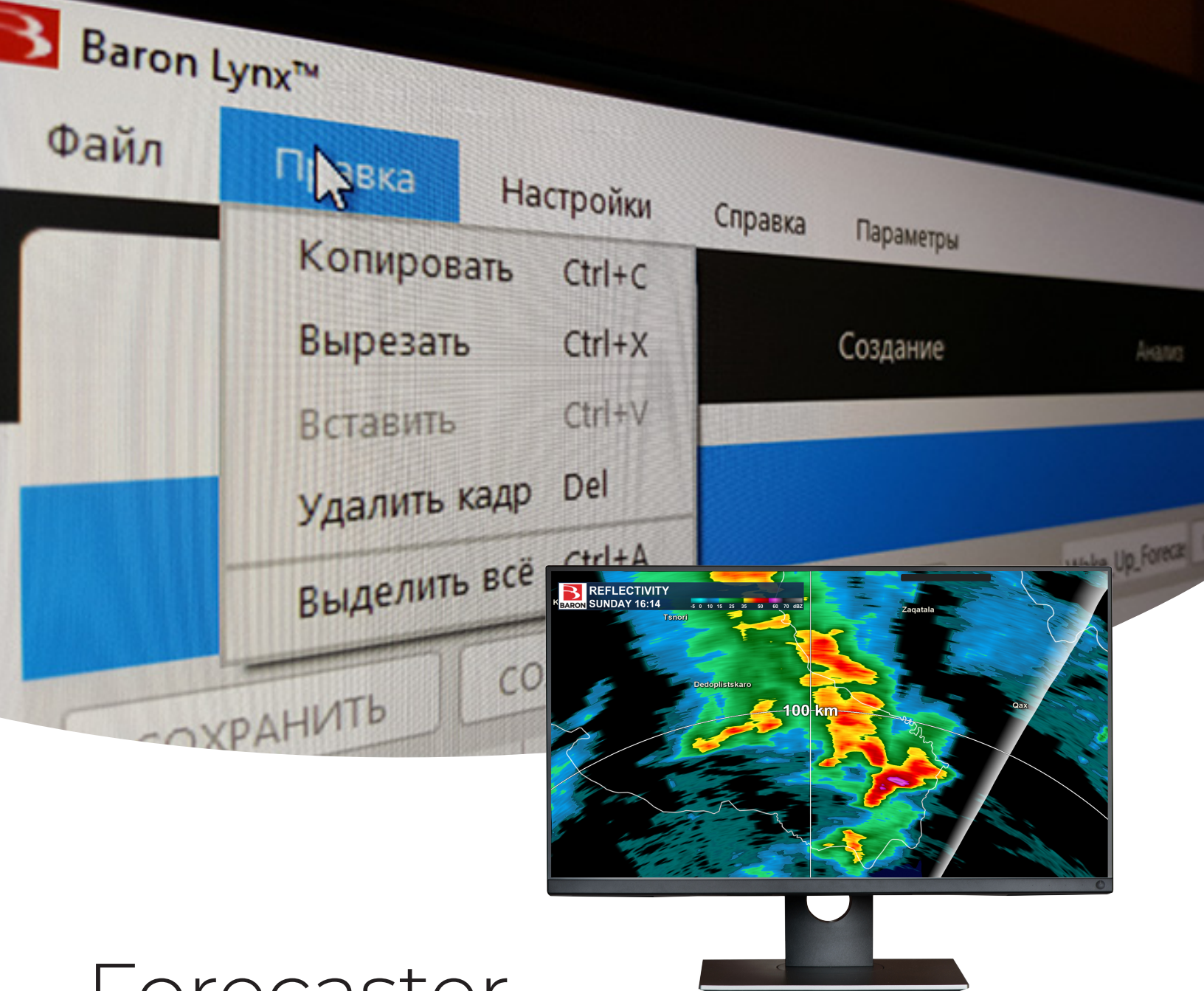
Rise to the Critical Moments

The Baron Radar Product Generator (RPG) works in tandem with the signal processor to derive unique value-added products, many exclusive to Baron. Products are available to help your meteorologists better detect and analyze rainfall accumulation, hourly precipitation, hail, snowfall accumulation and tornadoes.



Automated Performance Monitoring

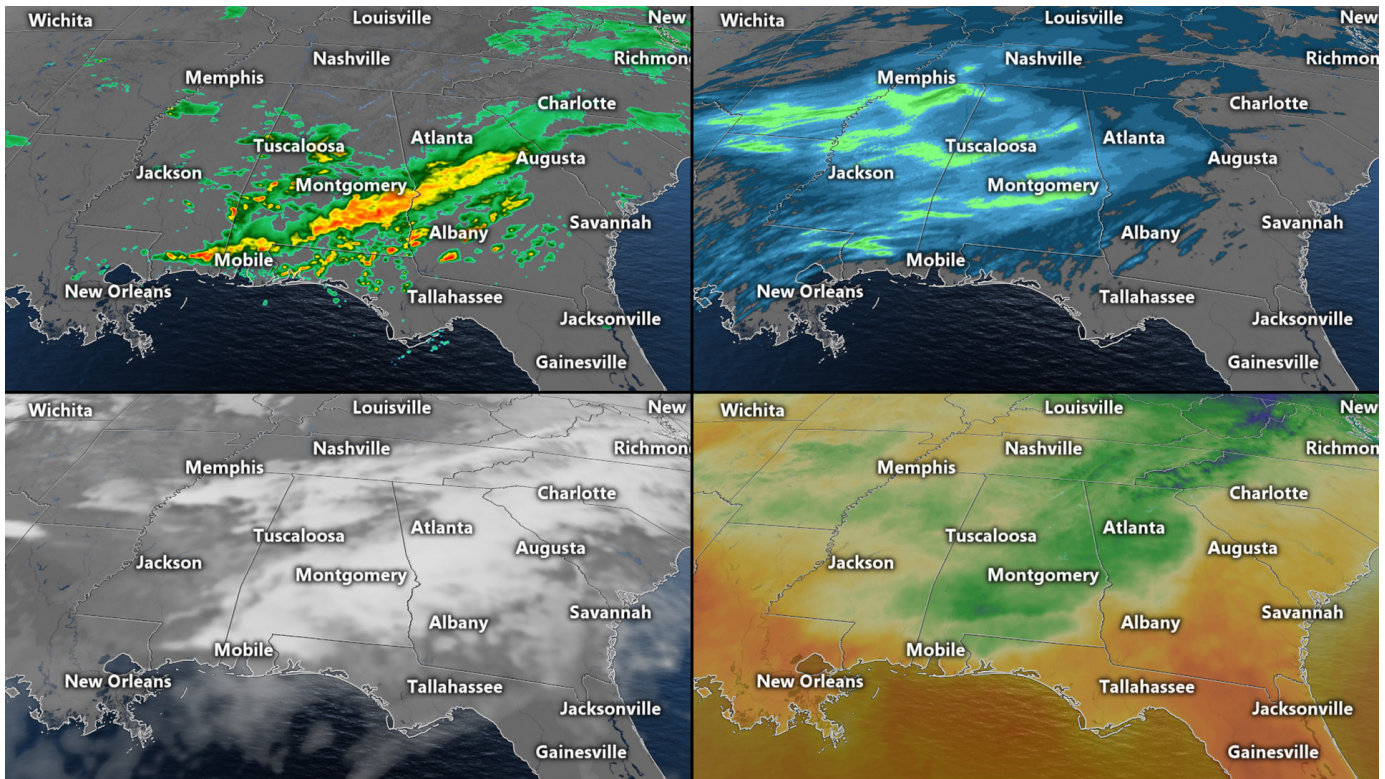
All Baron Gen3 radar systems continuously monitor their performance, including voltages, temperatures, power levels and more. The Radar Control Processor allows the operator to view a complete snapshot of system status in an easy-to-access display, and alerts the user if any system faults should arise. Easier troubleshooting is enabled with color-coded, clearly prioritized alarms for system faults. Baron radar technicians can even troubleshoot your system remotely with your permission, helping ensure continuous stable performance.



Forecaster **Workstation**

Display and analysis of Baron Gen3 radar data is provided by the Baron Lynx Advanced Forecaster Workstation. The workstation provides easy access to view your organization's weather data for scientific analysis and forecasting enabling quicker decision making. During severe weather,

Baron Lynx enables accurate pathcasting, overlaid onto a local mapping database. The system is deployable anywhere in the world, providing integration of data contained within your entire meteorological network.



Powerful but Easy to Use

Datasets typically include radar data (including dual-pol products), value-added products, satellite imagery, forecast models, sensor reports and others, according to the user's requirements. Tools to monitor a storm feature's altitude and distance from the radar, as well as data query for individual pixels, are provided. Users also have the option to tap into live camera networks, like webcams and traffic cams, for a ground-truth view of actual conditions occurring. Multiple languages are supported for the software interface, ensuring smooth deployment anywhere in the world.

On top of its powerful operational nowcasting and forecasting functionality, Lynx delivers advanced graphical capabilities that allows users to prepare and deliver meteorological briefings, present the weather on broadcast television, or use social media and the web to deliver forecasts and vital information.

View Multiple Data Products Simultaneously

A quad-panel analysis tool enables simultaneous display of four views, so forecasters can comprehensively evaluate conditions using multiple data products generated by their meteorological network. For example, during a convective event, data might be shown for reflectivity, as well as value-added detection products for flooding, hail and wind shear. Sensor reports, forecast models and other data overlays can be added to these views.

Radars for Every Need

Baron Gen3 radars are designed to meet every need and are offered with X-band, C-band and S-band radars. Your system can be provided in a fixed, mobile or transportable configuration. Transmitter options include klystrons, magnetrons and solid-state.



| Transportable C-band Solutions

Transportable C-band solutions allow users to move their systems to any location and be operational in less than a day. Here is a system that was built and delivered to Pacific Northwest National Laboratories (PNNL). This is a 350 kW, C-band, Dual Polarization radar with 4.3 m/14 ft antenna and 1-degree beam width.

| Fixed C-band and S-band Solutions

Like no other, we understand the importance of building outstanding equipment. To that end, we support, maintain and service a commercial network of about 150 C-band and S-band radars. These customers count on having their systems fully operational day in and day out. They have trusted Baron for nearly 20 years to provide that outstanding level of service, and so can you.



| Mobile X-Band Solutions

Mobile X-band solutions allow the customer to literally drive to any location and operate nearly on the fly. The system shown here was built and delivered to University of Alabama at Huntsville (UAH), where it supports the meteorology department's advanced research.

“ Timely evacuation of at-risk communities whenever there is a high possibility of flooding is critical to reducing the loss of lives and property. **The Baron radars will help us better detect the areas and people that are in danger.** ”



Rebecca Manzou,
Zimbabwe Meteorological Services
Department Director



U.S. National Weather Service

Baron upgraded the U.S. National Weather Service, Federal Aviation Administration and Department of Defense network of approximately 160 NEXRAD radars to Dual Polarization. Data from these radars are key to the safety of approximately 330 million people.



Indonesia

The Indonesian Agency for Meteorological, Climatological and Geophysics installed 5 C-band Baron radars, strategically placed throughout the country. The radars allow the agency to better detect and prepare for flooding, monsoons, and other severe weather events.



Bangladesh

The Bangladesh Air Force (BAF) installed 350 kW C-Band Baron radars at 2 of its bases. BAF uses the radars to detect severe storms that could jeopardize the safety of flight training missions. Data from the radars also helps it prepare response efforts to weather-related disasters. BAF also purchased several Baron Lynx systems to view and analyze the radar data.



Azerbaijan

The nation of Azerbaijan installed two C-band Baron radars to help modernize its National Hydrometeorological Service. The radars are used to generate more accurate forecasts and improve the nation's early warning system, giving the public more time to act when dangerous weather threatens. To view and analyze radar data, Azerbaijan purchased a Baron Lynx system.



PNNL

Pacific Northwest National Laboratory (PNNL) purchased two radar systems. A fixed base 300 kW X-band radar was installed in the Azores. A second 350 kW, C-band transportable radar is deployed in various locations around the US. Both radars are used for scientific research.



U.S. Army Corps of Engineers

Developed for use at the U.S. Army Cold Regions Test Center, this 300 kW X-band radar monitors potentially adverse weather conditions that could impact operations at the Fort Greely base in Alaska.



SBX

Unique custom C-band weather solutions from Baron meet any need or mission. This is the SBX (Sea-Based X-band) platform for the US Missile Defense Agency's Ballistic Missile Defense System. Baron provided two patented C-band radar systems for SBX. These systems provide dual-purpose weather and air surveillance, used by commanders to provide more comprehensive situational awareness at sea.



Taiwan

A 350 kW C-band Baron radar is on site at the Taoyuan International Airport, one of the busiest airports in the world. The radar is vital for detecting inclement weather and typhoons that can make air travel dangerous.



Focused on Your **Success.**

We are a partner for your success. In addition to holding radar and training conferences, Baron offers customer support no other radar manufacture can match. Our worldwide operations center is staffed 24/7/365 by expert meteorologists who can assist with all your needs, and even remotely operate or upgrade your radar system. We can perform as your ROC (radar operations center), remotely monitoring the health of your radar, and alerting you to a potential issue well before the problem actually occurs.

Baron reaches millions of people worldwide and provides you with a level of service unmatched in the industry. And since we are a full-service vendor, you only need to deal with one company for all your weather equipment.



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