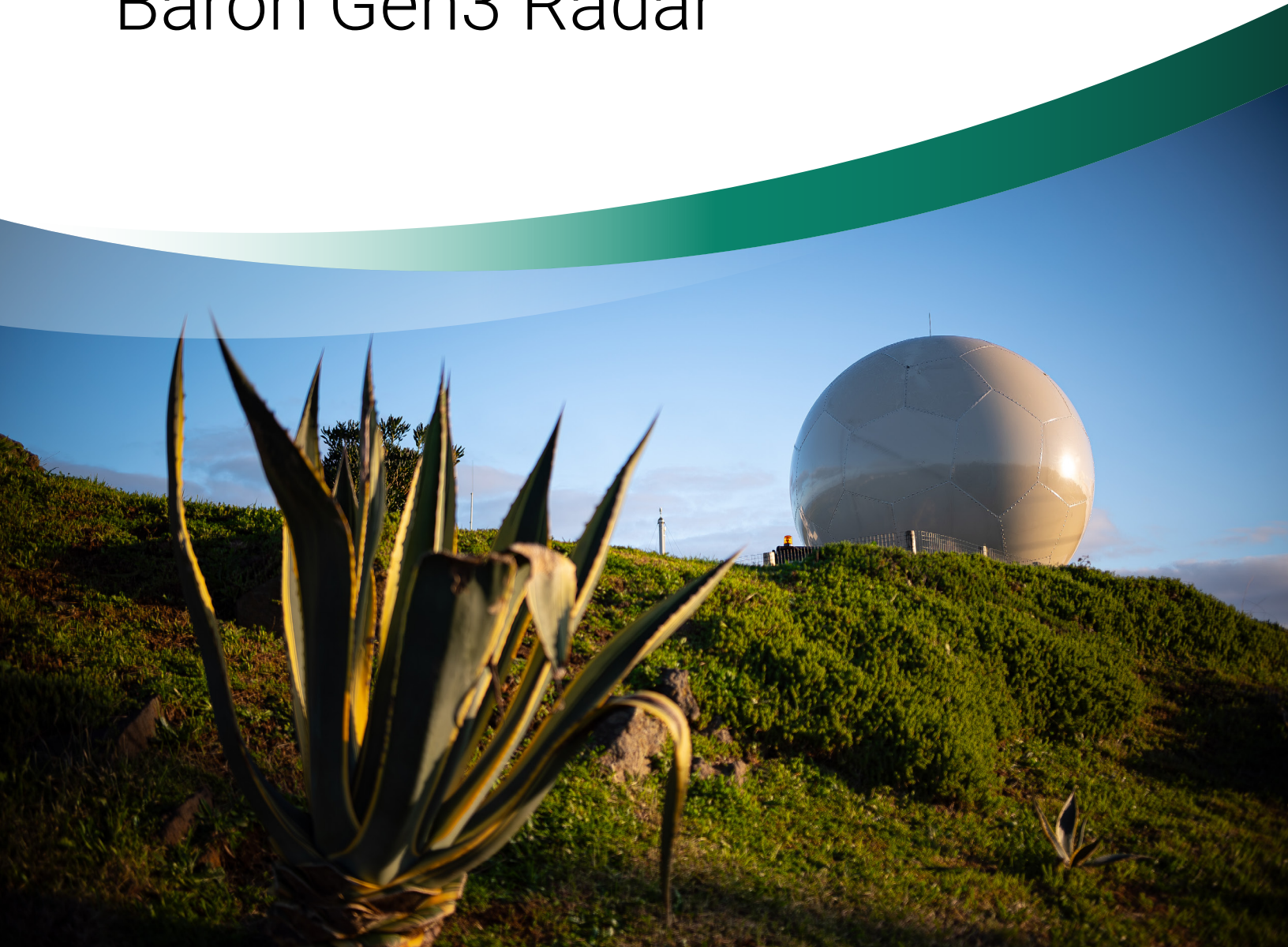


GLOBAL



Engineered for Sustainability

Baron Gen3 Radar





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 worldwide, 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.

Evaluating the best solution for your needs is a big part of our process. Our engineers and staff can perform an in-depth needs analysis to guide you toward a successful investment. Baron has the knowledge and experience to provide a radar solution that delivers outstanding performance, research-quality data, and unequalled support.

The Benefits of a Baron Gen3 Radar Include:

High-Quality Data

Amazingly clear radar returns with advanced clutter suppression technology and patented calibration techniques.

Sustainability and Resilience

Radar components are designed to withstand a considerable amount of wear and tear. Magnetron tubes can be rebuilt, if desired, by replacing the cathode structure to reduce waste and cost.

Processing

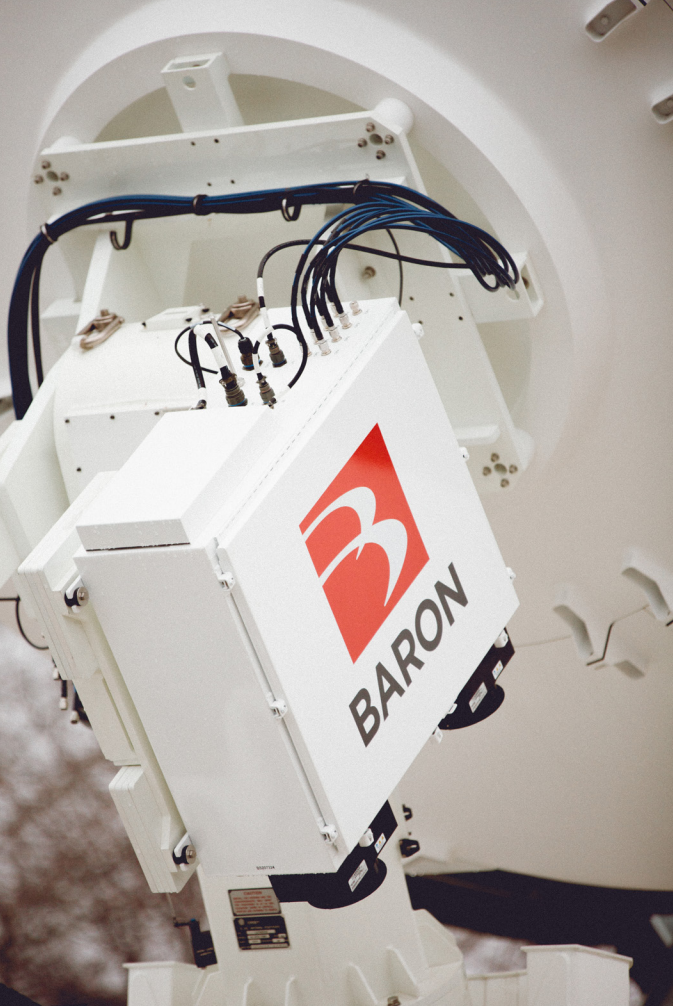
Better data and reduced attenuation from signal processing at the antenna.

Communication and Briefings

A powerful, easy-to-use display enables clear communications with stunning graphics in native languages.

Support

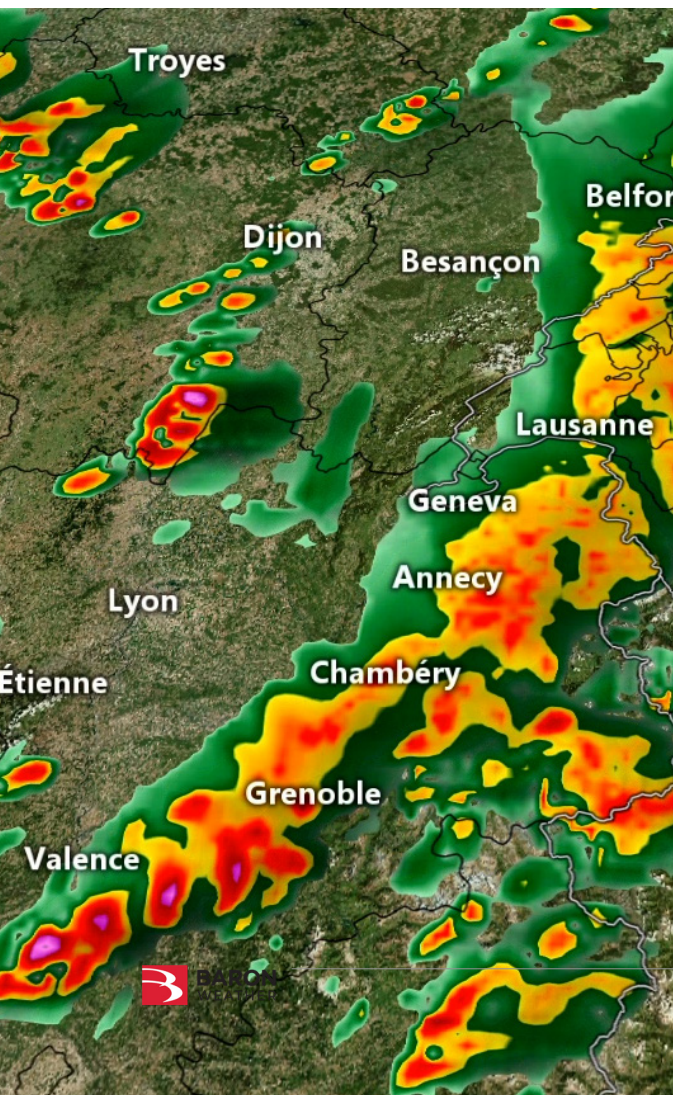
Around-the-clock support from degreed meteorologists and radar technicians.



Sustainable Investment

Radars provide a foundation for a more sustainable world by offering clear-cut forecasts to enable earlier warnings. Baron designs long-lasting components that withstand the usual wear and tear, ensuring customers have the best path for extending the life of the equipment based on their needs and budget. And, because magnetron tubes can be easily rebuilt by replacing the cathode structure, the old tube can be rebuilt if desired to reduce waste and cost.

Baron has transitioned to a high-performance computer with multiple virtual machines to reduce power consumption and future electronic waste.



Improved Model Performance

Baron's modeling technology is designed to meet the increasing need for more reliable forecasting. Our leading-edge models are finely tuned to provide pinpoint-accurate forecasts tailored to the unique weather dynamics within a client's 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.

Exclusive Calibration

Ultimate Radar Reliability. Less Labor Costs.

Baron resolves common calibration issues with new, sophisticated, and patented algorithms. Our auto calibration technology means no human interaction is involved, thus avoiding errors while enabling reliable network-wide adjustments. Multi-Radial ZDR Calibration sets an even higher standard for radar reliability. Tuning can be performed in any weather and requires no solar or hardware measurements, which reduces equipment needs and the opportunity for error.

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. This keeps customers' Gen3 radar systems reliable, accurate, and easier to operate and maintain.

" 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



Baron Multi-Radial ZDR Calibration

Baron developed the next generation of calibration technology that raised the bar again for weather radar calibration. This patented, ground-breaking technology, called Baron Multi-Radial Calibration, 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 always keep radars precise. This focus on precision drives data quality throughout the entire radar solution.

Working simultaneously together, the entire Baron calibration process ensures the radar performs accurately, consistently, and reliably, resulting in the highest quality signal possible.

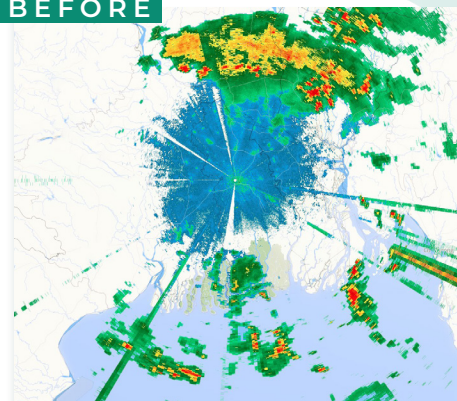
Next-Generation Clutter Suppression Technology

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.

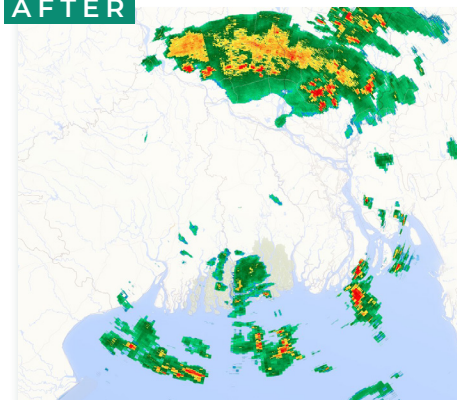
The Baron ClearScan™

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

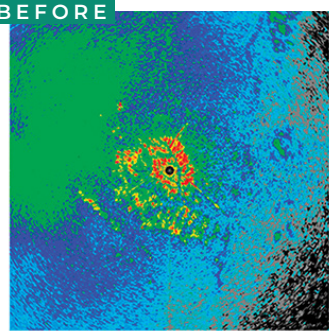
BEFORE



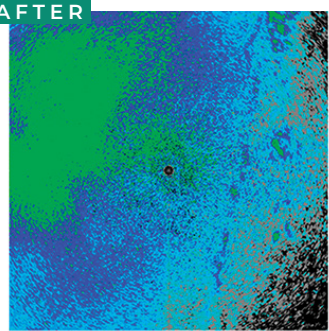
AFTER



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 and optimally and dynamically adapts the suppression process to the ground clutter environment. The Baron ClearScan and CLEAN-AP can work together to provide the most effective clutter suppression.

Advanced Processor Components

A Single Interface for Radar Operation

The technology housed onboard 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 gives the user a single access point for using and controlling the entire system, helping streamline the 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, and 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 transmit the signal to the Radar Signal Processor, reducing signal loss. Reflectivity, velocity, spectrum width, and dual-pol measurements are produced due to 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.

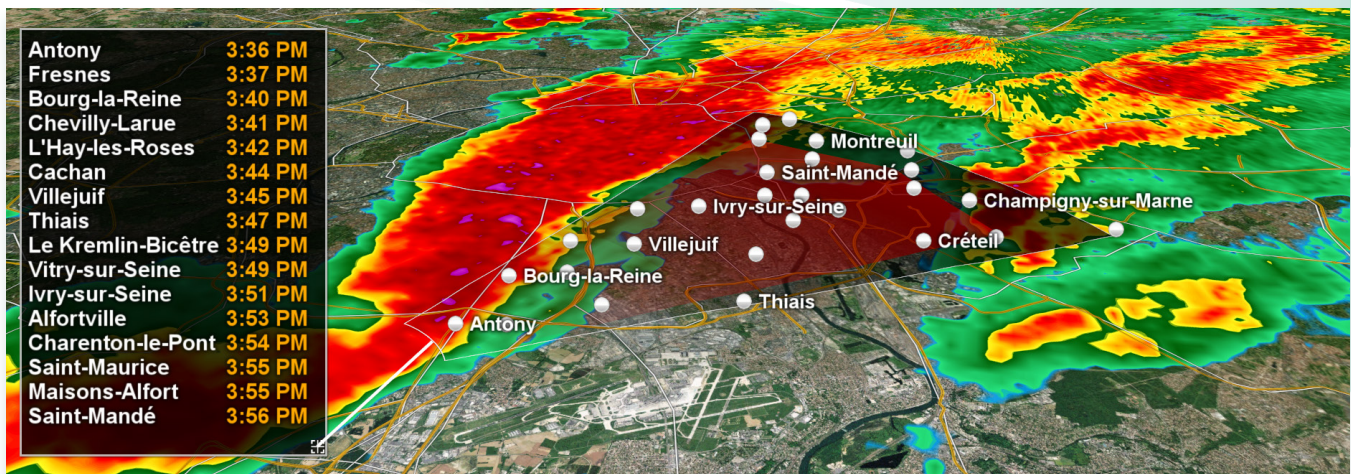


Radar Products for the Critical Moments

The Baron Radar Product Generator (RPG) works 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, etc. The Radar Control Processor allows the operator to view a complete snapshot of the system status in an easy-to-access display and alerts the user if any system faults should arise. Baron radar technicians can troubleshoot your system remotely with your permission, helping ensure continuous, stable performance.



Weather Briefing

Analyze your radar combined with other weather models, sensors, and data within the Baron Lynx display system. The stunning visuals generated by Lynx enable both efficient weather briefings and clear communications of weather hazards. The display system provides easy access to view your organization's weather data for scientific analysis and forecasting, enabling quicker decision-making while empowering you to communicate and notify stakeholders and the public. The system is deployable anywhere in the world, integrating data within your entire meteorological network.



Powerful but Easy to Use

Lynx is a powerful visual engine that ingests and displays data from a large list of sources. 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 and 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.

View and Distribute Weather Data

On top of its powerful operational functionality, Lynx delivers advanced graphics capabilities for scientific and artistic presentation. 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. At the same time, they can prepare and deliver engaging presentations for social media, web, broadcast and mobile use.

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. Figure 2 shows 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 30 years to provide that outstanding level of service, and so can you.



Rebecca Manzou,
Zimbabwe Meteorological
Services Department Director



Figure 1 - University of Alabama Mobile X-band



Figure 2 - Pacific Northwest National Laboratories C-band

Mobile X-Band Solutions

Mobile X-band solutions allow customers to drive to any location and operate nearly on the fly. The system shown in Figure 1, was built and delivered to the 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 "



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 two bases. BAF uses these radars to detect severe storms that could jeopardize the safety of flight training missions. Data from these radars also help prepare for 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 threats arise. 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. This 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 that no other radar manufacturer 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 at your request. 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 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.

Talk to a Baron radar expert and let us help you build your early warning system.



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