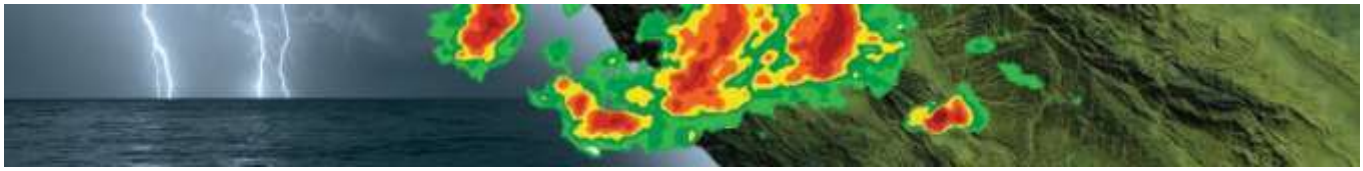


PulseRad℠

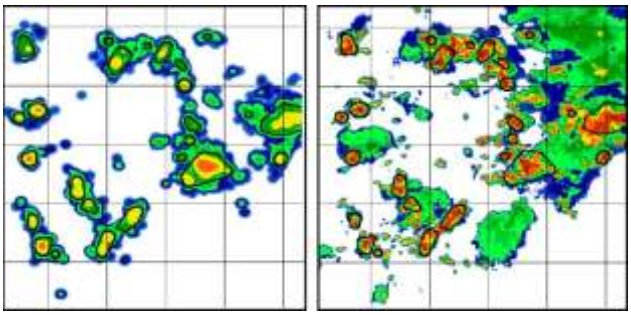
A Weather Visualization and Nowcasting System Based on Total Lightning Detection

While radar has proven an invaluable tool in weather forecasting, alerting and research, gaps in coverage exist due to geographic limitations of the technology. Additionally, many areas of the world lack the financial resources and technical expertise to deploy, operate and maintain a radar solution.

PulseRad is the first practical radar alternative capable of coverage on a national and continental scale to provide imagery that is comparable to radar and updates up to four times faster than traditional radar, with lower life cycle costs and operational requirements. With its extended range, PulseRad provides enhanced coverage over areas that traditional radar may not capture, such as mountainous and oceanic regions.

Radar Imagery from Total Lightning

PulseRad is enabled by the Earth Network Total Lightning Network, the world's largest lightning network and the only one that comprehensively measures both in-cloud (IC) and cloud-to-ground (CG) lightning. The combination of IC and CG lightning is critical to establishing an accurate correlation between lightning activity and radar reflectivity.



Lighting cell flash rate (left) with corresponding radar cells (right)

Using complex algorithms that correlate total lightning flash rates to radar reflectivity, PulseRad provides forecasters with an interactive map of convective weather, and in the future non-convective weather, in places where traditional radar coverage is often incomplete or nonexistent. Distinct algorithms for different climate zones (mountainous, tropical, subtropical) within a forecast area are seamlessly integrated into the map to ensure accuracy and reliability.

Key Features

Interactive Storm Map
Proxy radar map of convective storms; adjustable algorithms to global climate zones (mountainous, tropical, subtropical) within a forecast area

Dangerous Storm Indicator
Highlights the potential for dangerous storms that may contain damaging winds, large hail, increased lightning and tornadoes

Flood and Drought Assessment Indicator
Visual indicator of storm motion, potential flooding and drought through correlation of dBr ranging from 0-200 flashes/minute, and dBz, ranging from 0-75 decibels

Advanced Warning and Nowcasting
Continuous proxy radar coverage updating every minute enables earlier alerts and nowcasting of building storm events

Extended Range Coverage
Greatly expanded range spanning mountainous, remote and oceanic regions enabled by the Earth Networks Total Lightning Network, providing coverage independent of terrain

Flexible System Design
Leverages easily configurable lightning sensors scalable to any geography to provide gap-filling and extended range coverage, with reduced operational complexity and low lifecycle cost