Earth Networks®

Real-Time Severe Weather Nowcasting and Alerting for Aviation with Total Lightning Detection

Convective events pose significant risk to aircraft, crew and passengers while in flight as well as during approach, arrival and departure; and this risk extends to ground operations.

Detecting areas of convective weather at an early stage is critical to improving situational awareness and safety. The detection of in-cloud lighting is important not only for in flight safety, but as a precursor of severe weather such as thunderstorms, wind shear, downbursts and dangerous cloud-to-ground lightning.

Value of Total Lightning Information

Total Lightning Network is the largest total lightning network providing long-range detection of both in-cloud (IC) and cloud-to-ground (CG) lightning. Total lightning data from the network is utilized in the Earth Networks Aviation Safety Solution to provide monitoring and warning of in-cloud lightning, as well as to aid in the monitoring of severe weather activity in the air and on the ground providing aviation stakeholders with critical information for improved safety and operational continuity.
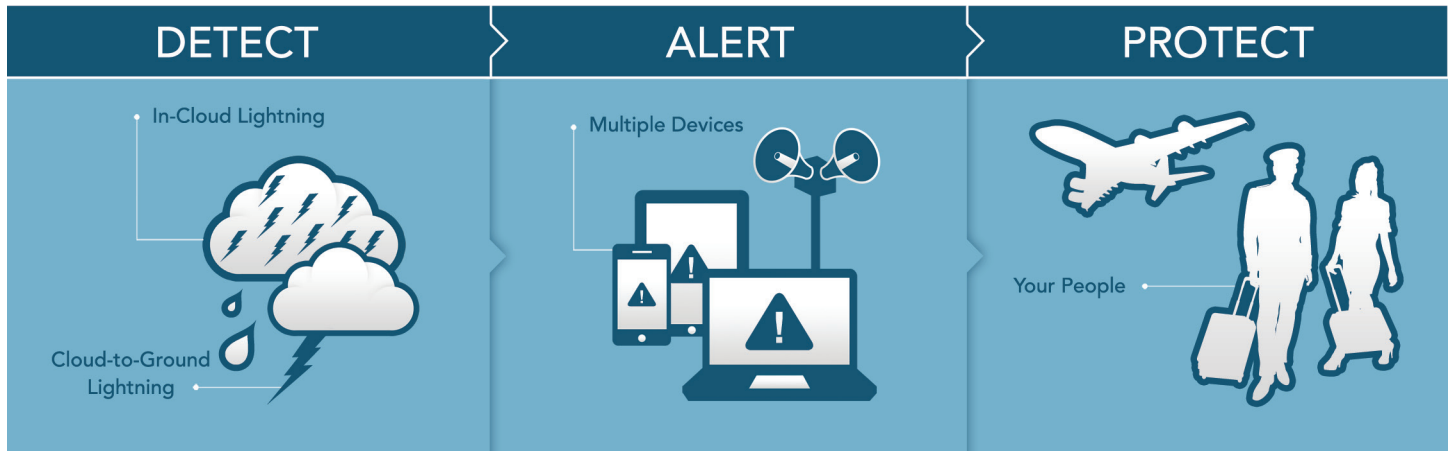
Sensor and outdoor alerting technologies | Dangerous Thunderstorm Alerts and cell tracking
Lightning proximity alerting | Mobile alerts | Indoor alerting

Reducing Weather Related Risks

Earth Networks Aviation Solution flexible integrated options meet the varying needs of aviation stakeholders to ensure safety in the air and on the ground.

Stakeholder	Need	Earth Networks Solution
Air traffic controllers: tower operators	Current weather and lightning information for approach, landing and take-off of aircraft	TLN proximity alerts, DTAs, PulseRad
In-flight/cockpit/air navigation systems	Improved routing and global situational awareness; crew and passenger safety; asset protection (turbulence/strikes)	TLN proximity alerts, DTAs
Ground operations	Protection for crew, passengers and assets	TLN proximity alerts, DTAs, outdoor alerting
Air carrier operations	In-flight routing and situational awareness; ground operations	TLN proximity alerts, DTAs, outdoor alerting

Earth Networks improves lightning safety – *How it works*

DETECT	ALERT	PROTECT

In-Cloud Lightning

Cloud-to-Ground Lightning

Multiple Devices

Your People

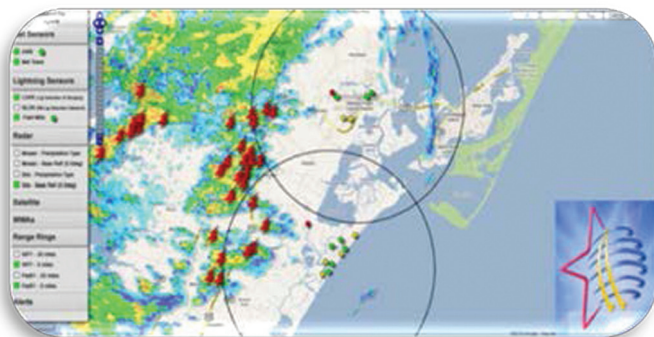## Correlating Total Lightning to Severe Weather

Total lightning correlates well with storm dynamics. Case studies and statistical analyses suggest that an increase, or jump, in total lightning indicates the presence or increased likelihood of hazards such as hail, icing and turbulence

Total Lightning Network provides long-range detection of in-cloud (IC) and cloud-to-ground (CG) lighting on a continental scale powering real-time severe weather nowcasting and alerting.

Enhancing Aviation Support Applications

TLN data is easily integrated into aviation support applications delivered in an API data feed. Earth Networks provides MeteoStar with global lightning information for integration into its LEADS product.

The integration of total lightning data into LEADS enables enhanced visibility into dangerous lightning and severe storm events for improved situational awareness.

MeteoStar LEADS System with TLN data integration

TLN provides continental scale total lightning detection over land and sea