

Dangerous Thunderstorm Alerts

There is mounting evidence that climate change is causing an increase in the frequency and intensity of severe weather. When it comes to protecting life and property from severe weather, minutes matter. Earth Networks total lightning detection makes it possible to deliver advanced warning of severe weather with our exclusive and patented Dangerous Thunderstorm Alerts (DTAs). DTAs provide warnings for the most dangerous of storms and are the most critical type of severe weather alert delivered by the Earth Networks Total Lightning Network®.

Studies have shown that the use of total lightning (In-cloud (IC) and Cloud-to-ground (CG)) lightning provides significantly better indication of storm severity over the Cloud-to-Ground (CG) independently. Earth Networks uses total lightning data within sophisticated algorithms to generate DTAs automatically. These severe weather alerts are used all over the world to help detect high rates of lightning, which indicate increased potential dangerous conditions such as:

- CG strikes
- Heavy rain
- Microbursts
- Tornadoes
- Hail

Detailed weather bulletins are provided as a text alert in World Meteorological Organization-compliant Common Alerting Protocol (CAP) format. DTAs are issued automatically and in real-time as an official NMHS communication to government stakeholders, industry customers and to mobile phone subscribers (i.e. the public).

DTA Delivery Modes

It is reported that over the past 30 years, more than 95% of deaths from natural disasters occurred in developing countries, many of which are lacking any sort of early warning capability. National Meteorological and Hydrological Services (NMHS) organizations in these countries are making the implementation of early warning systems with advanced alerting a top priority. Earth Networks DTA alert polygons are used issued in front of approaching severe storms, providing approximately 45 minutes of advanced warning. On average, our DTAs are **50% faster than other severe weather alerts** and are a needed resource both industrialized and developing.

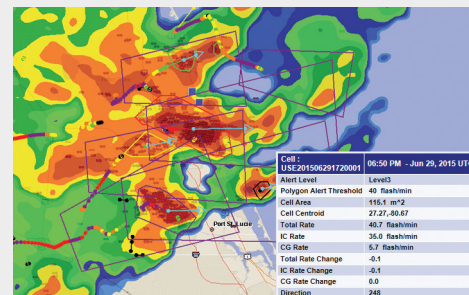
StreamerRT Visualization & Alerting Tool

Mobile

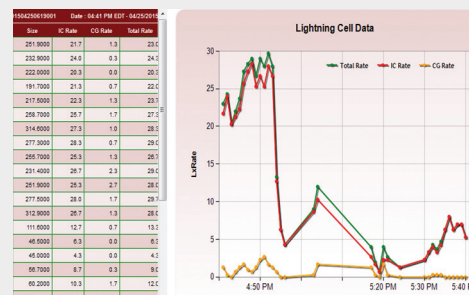
API

Using Total Lightning Flash Rate to Detect Storm Severity

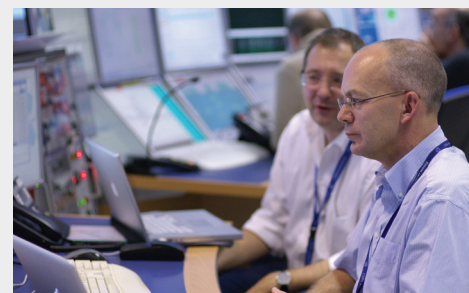
DETECT



ANALYZE

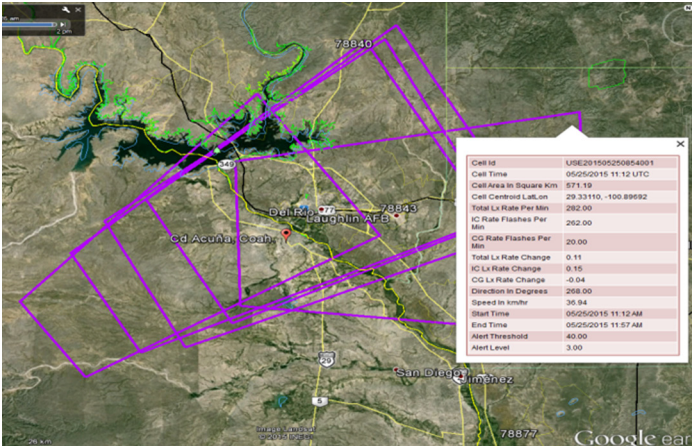


ALERT



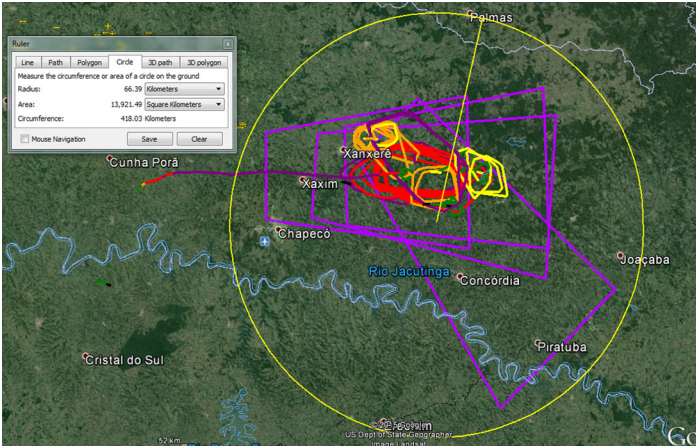
Early Warning Solutions In Action: DTAs Events Across the Globe

WHAT Tornado touched down damaging over 400 homes and causing more than 13 fatalities
WHERE Acuna, Mexico
WHEN May 25, 2015 (lightning data removed from image)



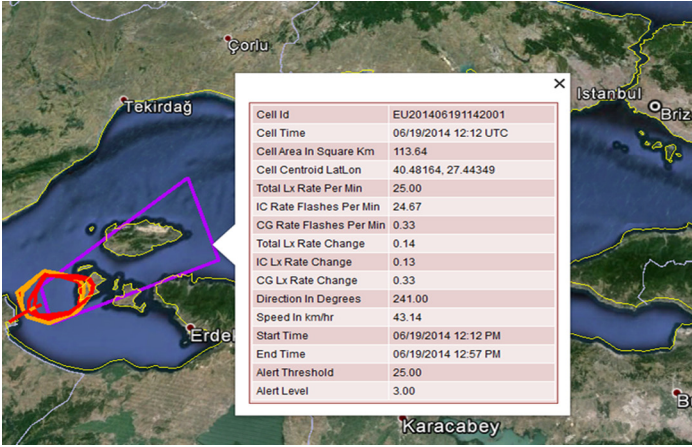
7:38 UTC – First storm cell was detected, approx. 106km of Acuna nearly 4 hours before the tornado. 6 separate DTAs were issued between 10:12 to 11:12 UTC for the Acuna region. Earth networks detected over 52,000 in-cloud/cloud-to-ground strikes between 7:30 -2:30 UTC.

WHAT Severe storms plow through Santa Catarina causing widespread damage
WHERE Santa Catarina, Brazil
WHEN April 20, 2015 (lightning data removed from image)



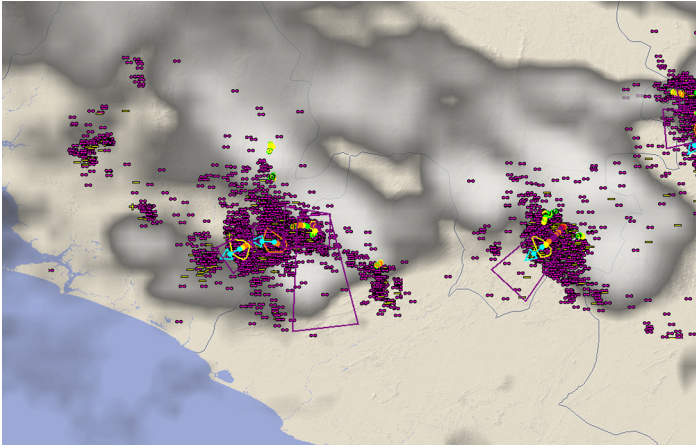
5 separate DTAs were issued between 17:01 UTC to 18:31 UTC Santa Catarina region. The detection provided more than a 47 minute early warning to the initial impact area.

WHAT Severe thunderstorm capable of producing high winds, tornado and hail
WHERE Istanbul, Turkey
WHEN June 19, 2014 (lightning data removed from image)



12:12 UTC – The first DTA issued. Severe storm cell headed NE at 43km/h towards Briza. Another DTA was issued close to the Istanbul coast. Lightning within 15km of Briza. First In-Cloud lightning activity identified ~180km SW of Istanbul at 1100, approx. 3 hours prior to storm activity reaching the coast and Briza.

WHAT Regional DTAs issued for severe weather
WHERE Guinea, Sierra Leone, Liberia (Africa)
WHEN June 26, 2015



6 regional DTAs were detected across three different west African nations. DTAs provide early warning in rural, suburban and metropolitan areas of the continent.

These events represent the tremendous value of Dangerous Thunderstorm Alerting powered by Earth Networks Total Lightning Network®. Our automated DTA alerts enabled significant early warning capabilities on quickly-forming storm cells and provide relevant storm parameter detail such as speed, direction, lightning intensity and others. Earth Networks equips critical weather personnel with turnkey solutions that constantly monitors dangerous weather conditions and issues customized alerts in real time.