Southwest Airlines Lightning Procedures

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Rick Curtis

rick.curtis@wnco.com

SWA Lightning Detection

- Sources:
  - Airport Authority
  - WSI Lightning Feed

- Communication methods:
  - Sparky
  - Pop-up Messages
  - Graphical Displays

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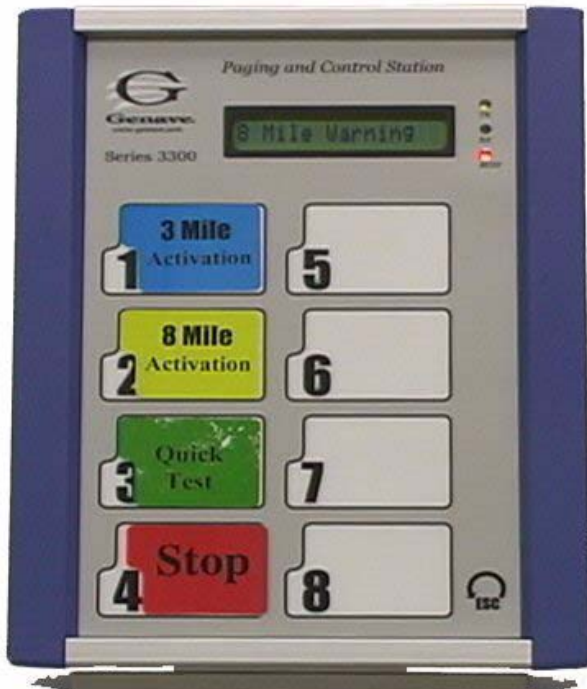# SWA Lightning Procedures Overview

- Storms containing lightning within 15 miles of a station are monitored.

- Ramp preparation begins when lightning is within 8 miles of a station (code yellow).

- Fueling is ceased when lightning is within 5 miles of a station (code yellow).

- All ramp operations cease when lightning is within 3 miles of a station (code red).

- 6 minutes must pass from the last lightning strike in order to resume operations (code green).

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Lightning Communication System - Sparky

- SWA adheres to the local airport authority's policy regarding lightning detection/ramp closure, and in addition, utilizes the Sparky system as an added Safety measure.

- Not all airports have a local lightning policy or procedures in place, therefore Sparky is essential.

- An airport's policy may be more stringent than SWA's - therefore the airport policy is followed.

- Sparky consists of audible and visual alarms that help notify all Employees of approaching lightning.

- Sparky is used in conjunction with either airport authority "warnings" or the WSI lightning feed for alerting station personnel.

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Sparky

Once a lightning message is received via the airport authority or WSI a handheld and base unit is used to notify Employees of lightning within the area – operated by Station Leadership.

This enables the lightning detection display/audible located on the Ramp. Units are located on light poles or other highly visible structures at the airport.
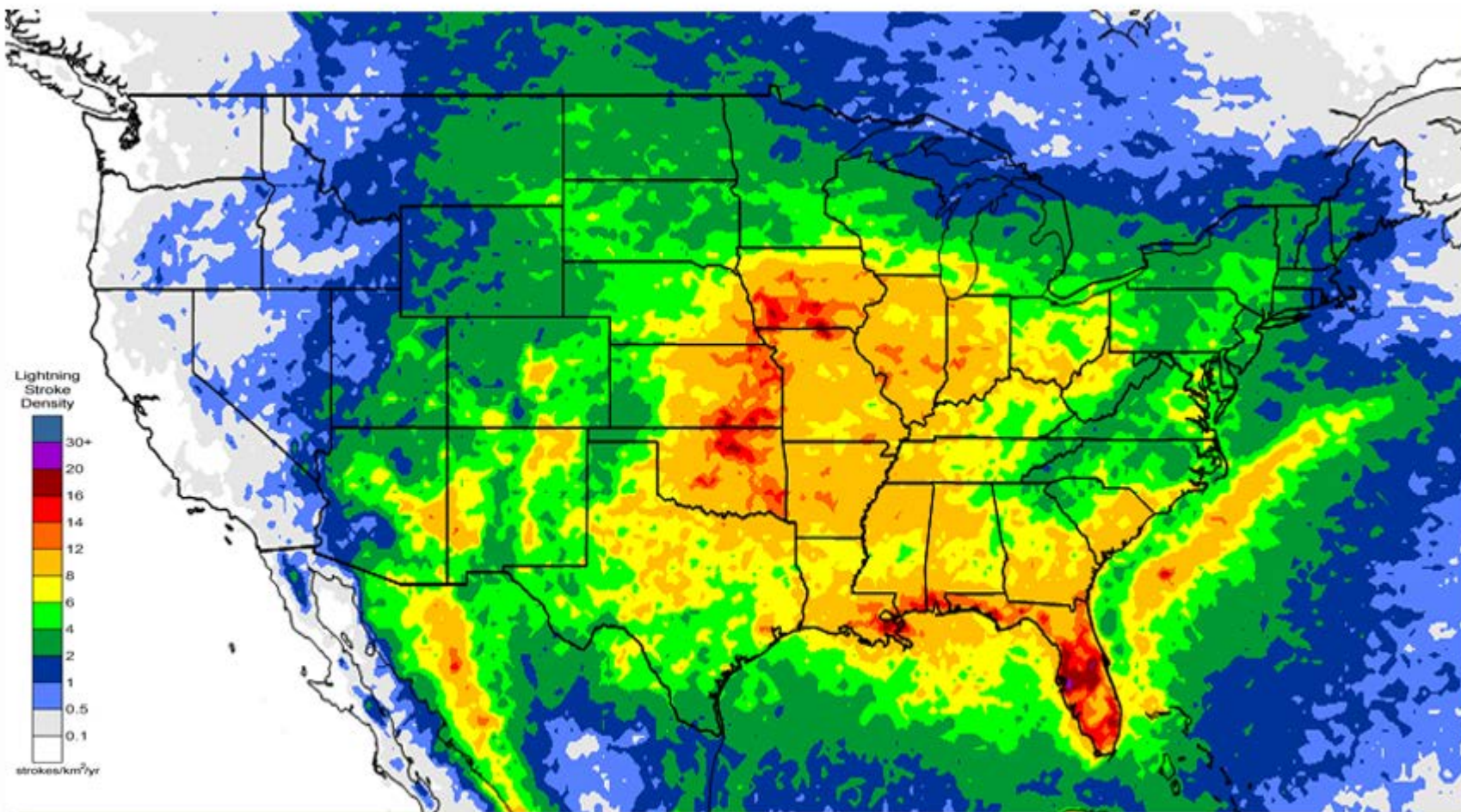
Considerations and Location Selection

- An internal study conducted in 2007-2008 determined which stations would receive Sparky to help increase our lightning Safety.
- Determination factors included:
  - Frequency of lightning at a station
  - Layout of the station
  - Communication capabilities at the station

United States Precision Lightning Network™ (USPLN™)
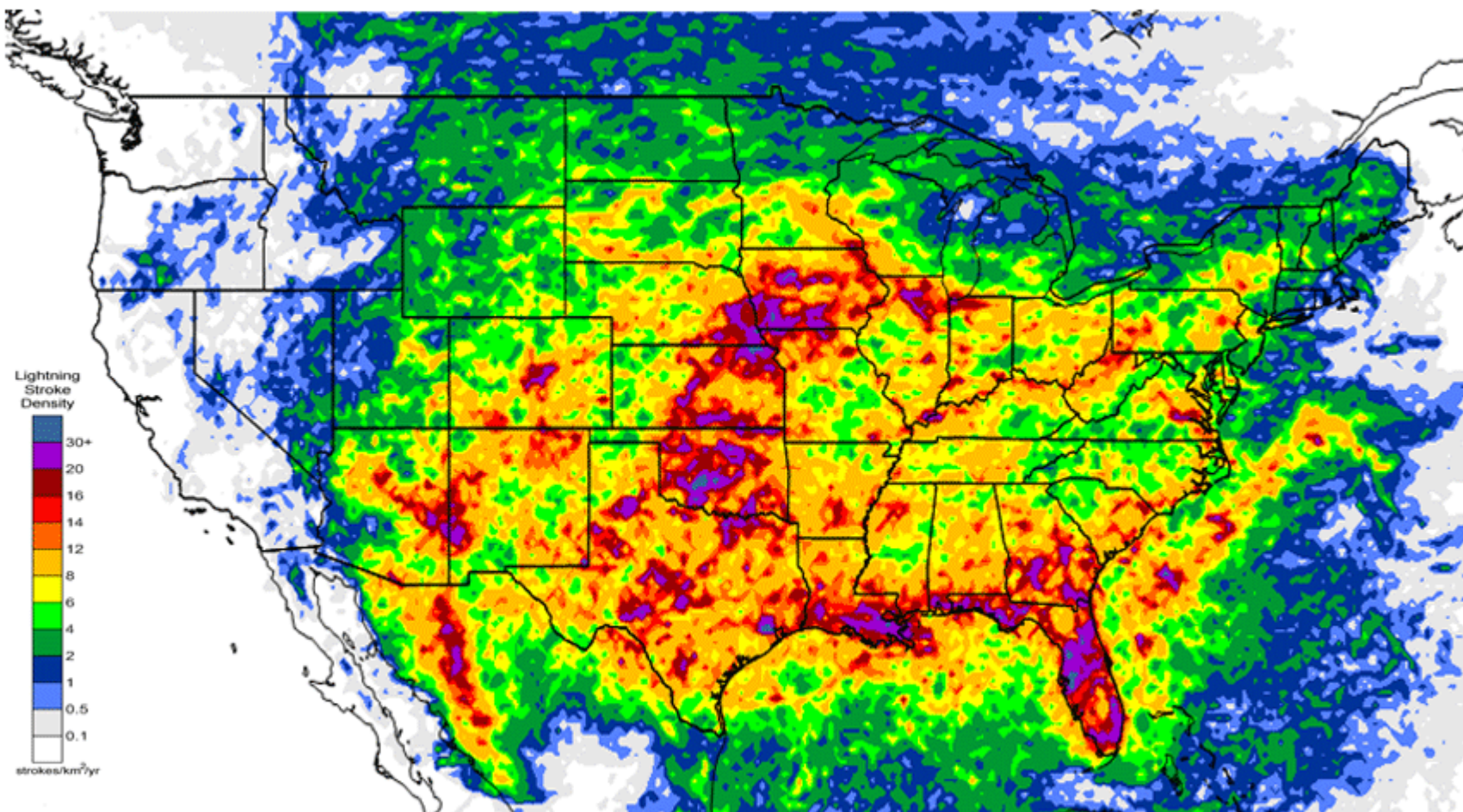Cloud-to-Ground Lightning Stroke Density 2007- 2011

Lightning data provided by the United States Precision Lightning Network

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United States Precision Lightning Network™ (USPLN™)
Cloud-to-Ground Lightning Stroke Density Animation - 2007

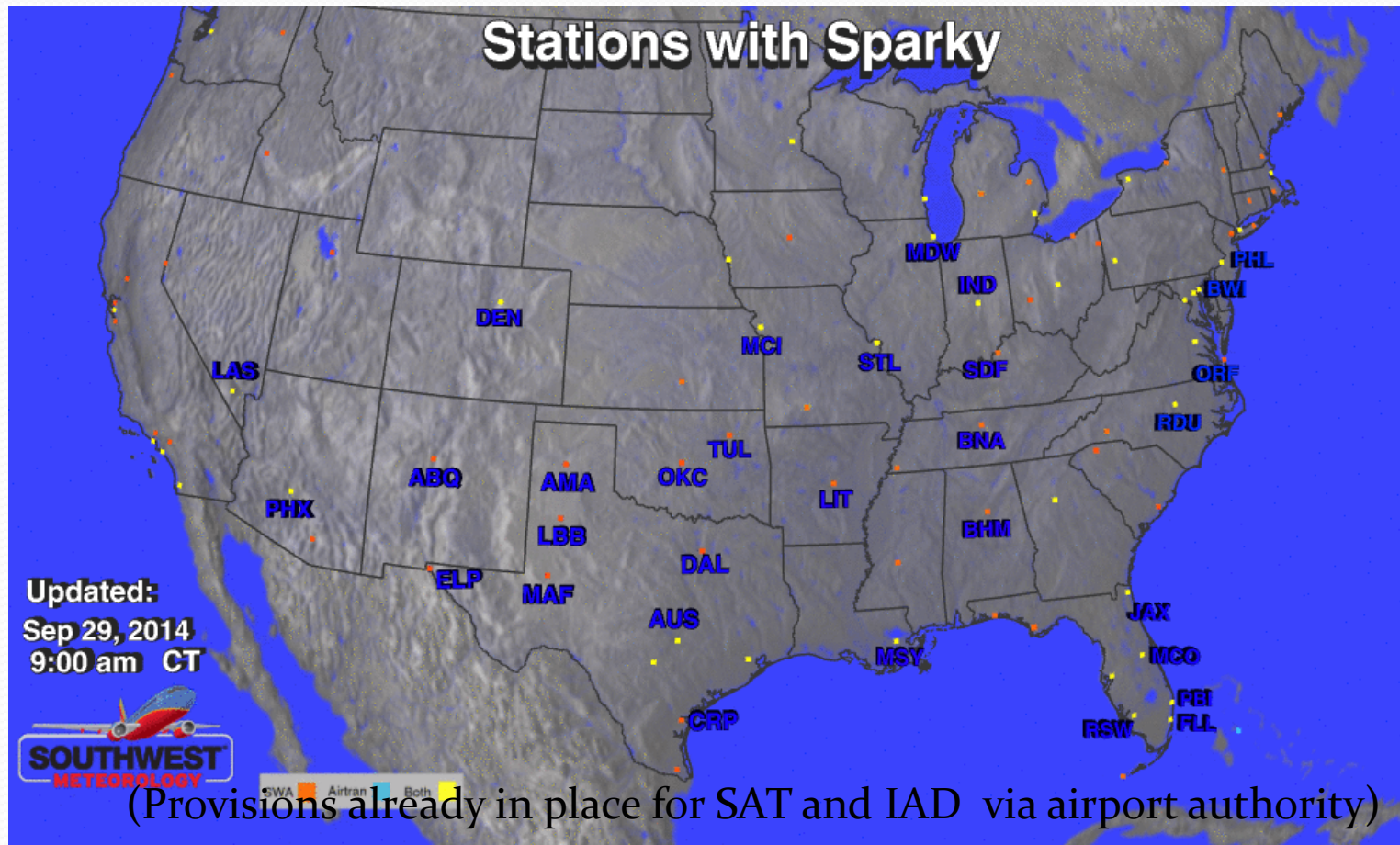Lightning data provided by the United States Precision Lightning Network

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Top Ten SWA Stations with holds due to Lightning 2001-2005

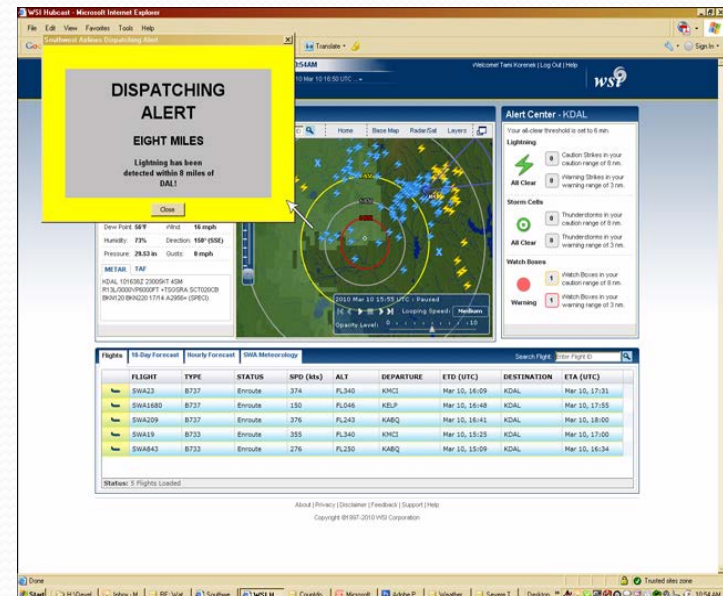| Station	# of lightning events	Airport Provided System
MCO	1326	No
HOU	944	No
TPA	915	Yes
BWI	869	No
MSY	566	No
MDW	503	No
FLL	501	No
BNA	485	No
LAS	417	No
DAL	364	No

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SWA Stations with Sparky as a result of internal study

(Provisions already in place for SAT and IAD via airport authority)

Additional Communication

- Dispatching Alerts are displayed on Operations workstations at the impacted station.
- These alerts are received at the station.
- Range rings on the display indicate 15, 8, 5, and 3 miles from the station.

Condition Red

- Lightning detected within 3 miles of the station.
- A blue light flashes until the Condition Red is canceled or changed back to Condition Yellow.
- A two-tone alarm will sound for three minutes.
- Ramp activity ceases.
- Employees remain in vehicles or more to a secure location until Condition Red is lifted.
- Employees contact Flight Crews and Dispatch to communicate ground services are suspended.

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Condition Yellow

- Lightning detected within 8 miles of the station
- Amber light flashes until the Condition Yellow is canceled or changed to Condition Red.
- A single-tone alarm will sound for 1 minute.
- Headset communication ceases and hand signals are used.
- Ramp secures all equipment and closes all aircraft doors not being worked.
- Terminating aircraft have main gear chocked and jet bridge pulled away.

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Condition Green

- The storm has moved beyond the field.

- 6 minutes from the last lightning strike must pass in order to resume operations.

- Condition Yellow or Condition Reds are replaced with Condition Green.

- Station personnel resume normal operations at the airport.

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Other Carrier Policies

- All carriers fall within a 3-10 mile range for issuing a Code Yellow.

- All carriers fall within a 2-5 mile range for issuing a Code Red.
- In order to resume operations:
  - a storm must be 3+ miles away from a station
  - And/or 6-10 minutes must pass without additional lightning strikes.

- For lightning detection, other carriers use:
  - WSI, ThorGuard, airport tower/station personnel, airline in-house meteorologists, Vaisala, and National Lightning Detection Network.

Source A4A

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Thank you!