   from P. 5: *Local procedures should be in place for a controlled and measured response to varying conditions. These procedures may result in a reduction of capacity but they should never result in a reduction of safety.*

2. NTSB May 18, 2012 Safety Recommendations.  
   from P. 1: *Because lightning detection networks operate independently of weather radar systems, their coverage areas complement each other and lightning information may indicate the presence of thunderstorms outside the range of ground-based weather radar systems.*

3. Airline Operations Center Usage of FAA Terminal Weather Information Products, by Dr. James E. Evans, MIT Lincoln Laboratory MA  
   from 3. SUMMARY: *Terminal Weather is a critical factor in airline operations.*

...ensuring staff...are warned of approaching storms...where necessary are withdrawn from activities.

...Tstorm Alert at 10 nm...Operations Shutdown at 5 nm. Back to Alert when storm passes 5 nm. Can be cancelled at 5 nm and storm is receding.

5. Email from Steve Goodman, NASA on detector operating frequencies.

NEXRAD L Band 23 cm wavelength
NLDN LF 500 kHZ ?
NMT Mapping Array VHF 60-78 MHZ
LIS and OTD optical at 777.4 nm
Vaisala SAFIR VHF 110-300 MHZ, 114 MHZ typical
Vaisala GAIL DAR II 50-120 MHZ
GAI VLF 20-57 kHZ
RDI (Stan Kris) and UK Met office 9.8 kHZ

   Role of counterpoise on protecting lightning system.


   40-50 page Power Point. Excellent !

8. Multiple Papers by Deierling/Steiner/etc et al. Widely available.

9. Journal of Air Traffic Control, Summer 2013,

   Balancing Safety and Efficiency of Airport Operations under Lightning Threat


   ...describes methods used by KNMI at Amsterdam Schiphol Airport.

A Study of thunderstorm-induced delays at Frankfurt Airport.

12. TRB Journal, Vol. 2501, Economic Impact of a Lightning Strike-Induced Outage of ATCTower, Case Study BWI.

   Sept 12, 2013 lightning struck within 300m of BWI tower causing injuries and ATC tower and airport closures.


   Discusses protection, not detection or ramp safety.


   P. 18 describes useful Risk Assessment Matrix.

15. ACRP Sept 2011, Protecting Airport Personnel from Lightning Strikes.

16. www.airlines.net/forum

   See “ground handling in thunderstorms” on search box.
   Many citations here.