Lightning Impacts on Airports – Challenges of Balancing Safety & Efficiency

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Thunderstorms and lightning pose a safety risk to personnel working outdoors, such as people maintaining airport grounds (e.g., mowing grass or repairing runway lighting) or servicing aircraft on ramps (handling baggage, food service, refueling, tugging and guiding aircraft from/to gates, etc.). Since lightning strikes can cause serious injuries or death, it is important to provide timely alerts to airport personnel so that they can get to safety when lightning is imminent.

This presentation discusses the challenges and uncertainties involved in using lightning information and stakeholder procedures to ensure safety of outdoor personnel while keeping ramp operations as efficient as possible considering thunderstorm impacts. The findings presented are based on extensive observations of airline operators under thunderstorm impacts. These observations reveal a complex picture with substantial uncertainties related to the (1) source of lightning information (e.g., sensor type, network, data processing) used to base ramp closure decisions on, (2) uncertainties involved in the safety procedures employed by various stakeholders across the aviation industry (yielding notably different rules being applied by multiple airlines even at a single airport), and (3) human factors issues related to the use of decision support tools and the implementation of safety procedures.