

## Aerodrome Adverse Weather Considerations

Sofema Online (SOL) [www.sofemaonline.com](http://www.sofemaonline.com) considers key elements of the Aerodrome Adverse Weather Practices & Procedures.

### Introduction

Adverse weather can significantly impact aerodrome operations and given the safety-critical nature of aerodrome operations, consider the following detailed guidelines and requirements for managing and mitigating risks associated with adverse weather conditions.

**Types of Adverse Weather Conditions** - Adverse weather conditions include a wide range of meteorological phenomena that can negatively affect aerodrome operations. These include:

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- **Low visibility (fog, heavy rain, snow):** According to **EASA AMC1 ADR.OPS.B.025** and **GM1 ADR.OPS.B.025**, specific low-visibility procedures (LVP) must be implemented when visibility is below the operational minima.
  - Implementing procedures to manage operations safely when visibility drops below specified thresholds. This involves special coordination between air traffic control (ATC), ground operations, and aircraft crews.
- **Strong winds or crosswinds: EASA ADR.OPS.A.020(b)** emphasizes the need for aerodromes to ensure that wind measurement and reporting systems are operational, particularly in adverse conditions.
  - Accurate and timely reporting of runway conditions is crucial, especially during snow, ice, or rain events. EASA requires the use of standardized methods, such as the Runway Condition Assessment Matrix (RCAM), to report conditions.
  - Strong winds, especially crosswinds, can significantly affect takeoff and landing operations. Aerodromes must ensure that wind limits are adhered to and that runways are assigned accordingly.
- **Thunderstorms: AMC1 ADR.OPS.B.025** addresses procedures for managing thunderstorms and lightning, ensuring that personnel and equipment are safeguarded.

- **Icing conditions (freezing rain, snow, or ice on surfaces):** **ADR.OPS.B.035** requires aerodromes to monitor and report runway conditions in icing scenarios, utilizing standardized methodologies.
  - Ensuring that aircraft are free from ice and snow is essential for safe operations. EASA mandates the use of approved methods and fluids for de-icing/anti-icing operations.
- **Extreme temperatures (heatwaves or cold spells):** While not directly addressed in specific EASA regulations, the need for appropriate infrastructure and procedures is implied in **ADR.OPS.A.010**.
  - Aerodromes must have systems in place to receive and disseminate severe weather alerts, such as SIGMETs (Significant Meteorological Information), to all relevant stakeholders.

## Infrastructure and Equipment

EASA emphasizes the importance of appropriate infrastructure and equipment to manage adverse weather. The relevant regulatory references are as follows:

- **Runway and Taxiway Maintenance:**
  - EASA ADR.OPS.B.035 (Maintenance of Movement Areas and Related Facilities): This regulation mandates that aerodromes ensure runways, taxiways, and aprons are maintained and treated for snow, ice, and water accumulation. It specifies that adequate facilities and equipment, such as snow plows and de-icing trucks, must be available to manage adverse weather conditions effectively.
  - GM1 ADR.OPS.B.035 (Guidance Material for Maintenance of Movement Areas and Related Facilities): This guidance material further details the use of friction measurement devices and the assessment of runway conditions in various weather scenarios.
- **Lighting Systems:**
  - EASA ADR.OPS.B.025 (Low Visibility Procedures - LVPs): This regulation requires aerodromes to provide and maintain high-intensity runway lighting, approach lighting systems, and other visual aids during low visibility or severe weather conditions to ensure safe operations.
  - AMC1 ADR.OPS.B.025 (Acceptable Means of Compliance for Low Visibility Procedures): This provides detailed specifications for lighting systems and visual aids to be used in low visibility operations.

- **Weather Monitoring Systems:**

- EASA ADR.OPS.B.015 (Aerodrome Meteorological Equipment): This regulation requires aerodromes to have accurate and reliable weather monitoring systems, including automated weather stations, wind sensors, and lightning detection systems. The systems must be capable of providing real-time meteorological data essential for operational decision-making during adverse weather conditions.
- GM1 ADR.OPS.B.015 (Guidance Material for Aerodrome Meteorological Equipment): This guidance material explains the types of weather monitoring equipment that should be used and the importance of accurate weather data in ensuring the safety of aerodrome operations.

### **Contingency Planning and Training**

Contingency planning and training are integral to maintaining safe and efficient aerodrome operations during adverse weather conditions.

Reference :

- ADR.OPS.B.035 for infrastructure maintenance,
- ADR.OPS.B.025 for low visibility procedures, and
- ADR.OPS.A.035 for personnel training,

### **Emergency Procedures**

Aerodromes should develop and implement robust emergency procedures to address a wide range of scenarios that may occur due to adverse weather.

- These procedures are vital to maintaining safety and ensuring a quick and effective response in emergency situations.

### **Runway Closures Due to Snow Accumulation:**

- Under ADR.OPS.B.035, aerodromes must have procedures in place for runway closures due to snow and ice. (These procedures should detail the criteria for closing and reopening runways, the deployment of snow removal equipment, and the communication protocols with air traffic control (ATC) and airlines.

**Aircraft Accidents in Poor Weather:** ADR.OPS.B.001 (Emergency Planning and Procedures) requires aerodromes to prepare for aircraft accidents, especially in adverse weather conditions.

- This includes coordinating with emergency services, ensuring that access routes to the aircraft are clear, and managing the potential impact of weather on rescue and firefighting operations.
- Scenario-based Training and Drills - Aerodromes should conduct regular scenario-based training and drills, simulating adverse weather conditions.
  - These exercises should test the effectiveness of emergency procedures and ensure that all personnel are familiar with their roles during an actual event.

## Managing Competence

Training of personnel is crucial for effective aerodrome operations during adverse weather. Consider the need for comprehensive training programs that equip staff with the necessary skills to manage challenging weather conditions.

- **Ground Staff Training:** Ground personnel, including those responsible for snow removal, de-icing, and maintaining movement areas, must be trained in the specific procedures and equipment used during adverse weather. AMC1 ADR.OPS.A.035
- **Air Traffic Controllers (ATC) Training:** ATC personnel must be trained to manage traffic during adverse weather, including the application of low visibility procedures, coordinating with ground operations, and managing delays or diversions.
  - AMC1 ADR.OPS.A.040 (ATC Training Requirements) stresses the importance of training ATC staff in handling weather-related disruptions and ensuring safe aircraft movements.
- **Aerodrome Maintenance Crew Training:** Maintenance crews play a critical role in ensuring that aerodrome infrastructure, such as lighting systems and weather monitoring equipment, remains operational during adverse weather.
  - AMC1 ADR.OPS.B.035 provides guidance on the training requirements for maintenance personnel, emphasizing the need for proficiency in both preventative and corrective maintenance under challenging conditions.
- **Ongoing Refresher and Recurrent Training:** Aerodromes should implement ongoing refresher training programs to ensure that personnel remain up-to-date with the latest procedures and equipment.
- This is particularly important given the evolving nature of technology and best practices in adverse weather management.

## Coordination with Airlines

Effective communication and coordination with airline operators are essential to minimize disruptions and ensure that flight crews are informed about the weather conditions at the destination and alternate airports.

- **Pre-flight Briefings:** ADR.OPS.B.030 (Information to be Provided to Aircraft Operators) requires aerodromes to provide airlines with timely and accurate information about weather conditions, runway status, and any operational limitations due to adverse weather. This information is critical for flight planning and decision-making by airline crews.
- **Coordination During Disruptions:** In the event of significant weather disruptions, such as prolonged runway closures or diversions due to severe weather, aerodromes must work closely with airlines to manage the impact on passengers and operations. AMC1 ADR.OPS.B.025 highlights the need for clear communication channels and established protocols for coordinating with airline operations centers.
- **Alternate Airport Coordination:** When adverse weather affects an aerodrome, airlines may need to divert flights to alternate airports. ADR.OPS.B.001 emphasizes the importance of coordinating with nearby aerodromes to ensure that they are prepared to handle the increased traffic and that airlines are informed about the conditions at these alternate locations.
- **Passenger Information:** EASA also encourages aerodromes and airlines to coordinate on providing timely and accurate information to passengers during adverse weather events, reducing uncertainty and improving the overall passenger experience.

## **Adverse Weather**

### **Safety Management System (SMS) Integration**

Adverse weather conditions should be incorporated into the aerodrome's Safety Management System (SMS).

Continuous assessment reviews and manages the risks associated with adverse weather through their SMS. This involves:

- **Risk Assessments:** Regular risk assessments for weather-related hazards should be conducted, with mitigation strategies developed and implemented.
- **Incident Reporting and Analysis:** Any incidents or near-misses related to adverse weather should be reported and analyzed to improve safety procedures and infrastructure.

## **Regulatory Compliance and Auditing**

- Audits and inspections should ensure aerodromes comply with all regulations regarding adverse weather operations. This includes checking that aerodromes have the necessary procedures, equipment, and trained personnel to handle adverse weather scenarios.

### **Next Steps**

Sofema Aviation Services Provides Regulatory Training covering Airside Safety please see the following <https://sassofia.com/course/airside-safety-training-3-days/> for questions and comments please email [team@sassofia.com](mailto:team@sassofia.com)