

**61ST CONFERENCE OF
DIRECTORS GENERAL OF CIVIL AVIATION
ASIA AND PACIFIC REGION**

*Kuala Lumpur, Malaysia
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AGENDA ITEM 3: AVIATION SAFETY

**ESTABLISHMENT OF A CLOUD-BASED AVIATION SAFETY
DATA INTEGRATION AND SHARING FRAMEWORK**

(Presented by the Republic of Korea)

INFORMATION PAPER

SUMMARY

This paper presents the Republic of Korea's cloud-based aviation safety data sharing framework designed to support integrated safety intelligence and data-driven oversight. The framework includes the Korea-Aviation Safety Analysis System (K-ASAS), GIS-based aviation safety risk maps and hazardous weather data sharing services. It also promotes voluntary data sharing, cooperative data governance and joint research among government, industry and academia.

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1. INTRODUCTION

1.1 This information paper highlights the need for a cloud-based framework for the integrated collection, sharing and analysis of fragmented aviation safety data to generate safety intelligence and support the implementation of national State Safety Data Collection and Processing Systems (SDCPS) under ICAO Annex 19. It also shares the Republic of Korea's experience in establishing an advanced data-driven risk management framework that strengthens coordination between the aviation authority and service providers.

2. DISCUSSION

2.1 The Republic of Korea has established a cloud-based aviation safety data sharing framework comprising three complementary components that support proactive and integrated safety management. These include the Korea-Aviation Safety Analysis System (K-ASAS) for aviation authorities, GIS-based aviation safety risk maps, and a hazardous weather data sharing system for service providers.

2.2 K-ASAS integrates the existing aviation safety reporting data analysis system operated on the government administrative network with a flight trajectory-based precursor analysis algorithm developed through a national research and development programme. The system enables stable, large-scale safety data analytics to identify hazards and precursors associated with runway incursions, runway excursions and other operational safety events, thereby supporting evidence-based safety oversight and safety risk assessment.

2.3 Aviation safety data are integrated with geospatial information and visualized through the Korea-Aviation Safety Risk Map, enabling the early identification of safety risks by airports and air routes. This capability supports risk-based decision-making and facilitates more targeted and tailored safety oversight activities.

2.4 Civil aviation weather data, including Pilot Reports (PIREPs) and Eddy Dissipation Rate (EDR) data, are securely integrated through the cloud-based platform. The system incorporates de-identification measures consistent with the principle of protecting data sources. Participating airlines receive analytical dashboards and feedback on hazardous weather trends, including turbulence, thereby strengthening the safety risk management capability of their Safety Management Systems (SMS).

2.5 The framework encourages voluntary participation by airlines through institutional incentives, including the consideration of safety data sharing in the allocation of traffic rights. The resulting data support data-driven and risk-based safety oversight while also facilitating joint research through a public-private-academic aviation weather data working group. Collectively, these initiatives strengthen collaborative safety management and promote a cooperative data governance model aligned with ICAO's data-driven safety risk management principles.

3. ACTION BY THE CONFERENCE

3.1 The Conference is invited to note the information contained in this paper.

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