International Civil Aviation Organization

INFORMATION PAPER

Twenty-fifth Meeting of the Meteorology Sub-group (MET SG/25)

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Agenda Item 5: Research, development and other initiatives

NARAE-WEATHER R&D PROJECT OF THE REPUBLIC OF KOREA

(Presented by the Republic of Korea)

SUMMARY

The Republic of Korea has established "NARAE plan" to respond to ICAO GANP (ASBU). The Aviation Meteorological Office (AMO) plans to promote NARAE-Weather to implement the GANP (ASBU) AMET sector and intends to share the relevant information here.

1. INTRODUCTION

1.1 Before the COVID-19 pandemic, with a continued increased in global air traffic volume, ICAO has established a GANP (ASBU) plan to promote the transition to the next-generation air traffic management system.

1.2 The Republic of Korea established NARAE plan in 2015 to reflect ICAO GANP (ASBU) and respond to changes in air traffic around the world. In addition, it revised NARAE 2.0 to reflect the latest trends such as GANP-2019. NARAE is a comprehensive national plan to safely and efficiently control air traffic in the Republic of Korea.

1.3 The Aviation Meteorological Office (AMO) will develop the next-generation air traffic-enabled aeronautical meteorological technology, also known as NARAE-Weather, to provide weather information necessary for trajectory-based operation in accordance with ICAO GANP's AMET BLOCK 1 and NARAE's "data-based scientific air traffic management".

2. DISCUSSION

R&D Purpose

2.1 The purpose of NARAE-Weather (by the AMO of the Republic of Korea) is to contribute to the realization of trajectory-based operations by laying the foundation for providing the next-

generation aeronautical meteorological services that support air operation decisions with detailed/four-dimensional/automated weather information.

R&D Content

2.2 The project will be carried out in a total of three major fields, for a total of five years from 2022 to 2026, with various professional researchers from related universities and industries in Korea.

2.3 First, in the field of data processing and convergence, we plan to develop a 4D integrated aviation weather platform, a system that integrates weather and navigation information in three dimensions and analyzes/provides related information to provide real-time and latest customized information on aircraft trajectories.

2.4 Second, in the field of aviation weather prediction, we intend to develop high-resolution numerical model-based spatio-temporal detailing, statistical model-based airport forecast guidance, and ensemble-based aeronautical meteorological probability prediction technology, to provide customized information for each flight operation stage.

2.5 Third, in the field of aeronautical meteorological services, four-dimensional /detailed/probabilistic numerical aeronautical meteorological information will be converted into impact information that can be used for each consumer's decision-making. Service technology will be developed to provide weather information optimized for aircraft in real time.

Future Plans

2.6 Currently, the national budget for 2022 has been secured to promote this project. With the analysis and design of requirements for technologies to be developed starting from 2022, the original technologies will be developed by 2024 and the technology implementation and pilot operation will be completed by 2026. All these plans will be carried out in connection with ICAO GANP (ASBU).

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