International Civil Aviation Organization

SEVENTEENTH MEETING OF THE METEOROLOGY SUB-GROUP (MET SG/17) OF APANPIRG

Bangkok, Thailand, 13 – 16 May 2013

Agenda Item 10: MET support to ATM

NEW ZEALAND NATIONAL AIRSPACE AND AIR NAVIGATION PLAN

(Presented by New Zealand)

SUMMARY

This paper presents an overview of the Meteorological component of the New Zealand National Airspace and Air Navigation Plan that defines the changes to meteorological services required to support safe and efficient aircraft operations in the New Zealand aviation system.

The plan will support ICAO's Global Air Navigation Plan initiatives, for the future integration of meteorological information into air traffic management (ATM) and performance-based navigation (PBN) applications over an agreed timeframe.

The plan is currently under review by the New Zealand aviation community.

1. Introduction

1.1 Meteorological services for aviation including warnings, forecasting, observations and delivery systems, constitute an essential component of national and international air navigation and aviation operations, contributing to overall system and individual flight safety and efficiency.

1.2 The New Zealand National Airspace and Air Navigation Plan will define the future changes to meteorological services that will be required to support safe and efficient aircraft operations in the New Zealand aviation system in line with global changes.

1.3 Full integration of meteorological information into air traffic management (ATM) and performance-based navigation (PBN) applications in New Zealand Airspace, will be an essential enabler for future integration into a globally interoperable, seamless ATM system. The ultimate aim will be the efficient and safe translation of online meteorological information from meteorological data into "weather impacts" on aviation.

2. Discussion

2.1 The guiding principles of the Meteorological components of the New Zealand National Airspace and Air Navigation Plan include:

(a) The principle direction of changes to the provision of meteorological information based on the integration of meteorological and ATM information to support operational decision-making. This direction was confirmed at the ICAO 12th Air Navigation Conference in November 2012, and is outlined in the Aviation System Block Upgrade Modules relating to Improved Meteorological Information.

(b) Meteorological support provided for ATM, AIS, PBN and airspace users designed and disseminated to minimise the impact of weather on the air transport system within New Zealand's areas of responsibility, ensure that safe and efficient operations are sustained in all meteorological conditions, and provide effective mitigation of the impact of meteorological constraints on ATM and AIS.

(c) Unique meteorological products/services and guidance specified in collaboration with users of the New Zealand Aviation System, other Pacific Island States, World Meteorological Organisation (WMO) and ICAO to accommodate the needs of ATM and AIS.

(d) In the near future meteorological information integrated into Flight Management Systems, (FMS) and ATM Decision Support Tools (DSTs) to mitigate risk and support safe and more efficient flight operations. DSTs should allow end users to make structured decisions based on the impacts of meteorological conditions, rather than relying on interpretations of meteorological information.

(e) Acceptance that in future DSTs will not only use meteorological information but will merge the meteorological information with other relevant information such as aeronautical information and flight planning information to support knowledge-based decision making.

(f) Automated interpretation and translation of meteorological information. It is expected that Airline operators will require more use of probabilistic forecasts in the future to enable decision-makers to make decisions based on their own pre-determined thresholds.

(g) Meteorological services for general aviation increasingly shaped by international developments. New meteorological requirements that are adopted for airlines and ATM will flow through to flight training, smaller commercial operators and the recreational general aviation sector. However, general aviation may still require legacy products to in the short term.

2.2 Challenges being faced include:

(a) At the present time, one of the greatest challenges is that ICAO has not yet specified the meteorological services required for global ATM and PBN so any planned future services are currently at a conceptual stage. While ICAO has documented in detail the concepts for global ATM and PBN with many of these documents mentioning "weather" (meteorological services) in general terms, they do not yet specify in detail the meteorological services required for global ATM and PBN.

(b) New Zealand notes that some of the concepts being implemented in major regional and global ATM modernization programs will require a significant investment in both resources and technology. As such it will be difficult for less developed States, including some neighbouring States in the South Pacific region, to implement the required changes.

(c) The use of older text format messages by some States in the Asia-Pacific region in a progressively digital environment will likely require duplication of delivery and processing systems for meteorological information in the short to medium term.

(d) A phased, gradual approach to technology up-take and its operational implementation will be required. Users of meteorological information will vary in their ability to transition to new meteorological products and technologies, and consideration should be given to the extent to which legacy systems may need to be retained to support the transition, as well as to avoid reliance on a single technology in the longer term.

3. Action by the Meeting

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

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