



International Civil Aviation Organization

**Eight Meeting of the Communications/Navigation/Surveillance and
Meteorology Sub-Group (CNS/MET SG/8) of APANPIRG**

Bangkok, Thailand, 12-16 July 2004

Agenda Item 8: Review the Implementation of WAFS

**PROTOCOLS FOR THE TRANSMISSION OF
ADS METEOROLOGICAL DATA TO WAFCS**

(Presented by New Zealand)

SUMMARY

This paper briefly outlines New Zealand's experience with the transmission of down linked meteorological data to the World Area Forecast Centres and suggests some direction for the development of protocols for the transmission of that data.

1. INTRODUCTION

1.1 Increasing technological capability has enabled the development of Automatic Dependent Surveillance systems (ADS) for air traffic management purposes and the reporting of aircraft engineering and environmental data via satellite and VHF ground stations. These ADS systems provide information on the prevailing meteorological conditions being experienced by suitably equipped aircraft.

1.2 The routine provision of such aircraft meteorological observations is prescribed in Annex 3 with a certain frequency of reporting required during the different phases of each flight. In high-density traffic situations the frequency of reporting is determined by the regional air navigation agreement.

1.3 Meteorological information from these data streams is currently forwarded by a number of countries, including New Zealand (since 1999) to the World Area Forecast Centres and other interested parties. This information is expected to have benefits for numerical weather prediction and consequently improve the forecast products from the centres.

2. PRACTICE AND EXPERIENCE

2.1 In the absence of a published standard, the form of the ADS messages transmitted to MetService is the AIREP code. In New Zealand, MetService successfully uses this information in its continuing Meteorological Watch Office support of international air navigation.

2.2 MetService forward meteorological information from the ADS and manual aircraft reports in the same routine hourly bulletins to the World Area Forecast Centres via the WMO Global Telecommunications System, GTS.

2.3 For assimilation into NWP models the ADS derived reports cannot be distinguished from manual AIREPs. This distinction is important as the manual AIREPs can have quite different error characteristics to the ADS derived reports, since most of them come via voice communications and can have transcription errors at various stages. Conversely ADS reports are completely automatic and, in theory, should be more accurate. They will not, for example, have location problems such as the common longitude errors found in manual AIREPs.

3. DEVELOPMENT OF AUTOMATED REPORTS AND BULLETINS

3.1 From MetService's perspective in the initial use of the information and preparation of the AIREP bulletins, it would be useful for the ADS reports to somehow include a tail number or other identification of the aircraft. This information could be used for quality control purposes to identify aircraft which may have significant biases or errors in their reporting – for some form of temporary calibration of their data and feed-back to the airline concerned for remedial action.

3.2 To realise the full benefits of the ADS derived reports, and considering the increasing volume of the reports, there appears to be a need to distinguish them, and any compiled bulletins, from the conventional manual AIREPs with the inclusion of independent header information, report protocols and QA procedures.

3.3 Such development requires the technical guidance of the World Area Forecast Centres and WMO, and consultation with other countries currently handling ADS meteorological information.

4. ACTION BY THE MEETING

4.1 The meeting is invited to

- (a) Note the content, and
- (b) Exchange views on the various matters discussed in this paper.

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