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ASSEMBLY – 35TH SESSION

EXECUTIVE COMMITTEE

Agenda Item 15: Environmental protection

AIR TRAFFIC MANAGEMENT'S CONTRIBUTION TO AVIATION ENVIRONMENTAL PROTECTION

(Presented by 41 Contracting States², Members of the European Civil Aviation Conference)

SUMMARY

ATM can deliver considerable environmental performance improvements, while ensuring that safety is not compromised.

The most recent demonstration of the potential for ATM to mitigate aviation's environmental impact derives from the introduction of Reduced Vertical Separation Minima (RVSM) in 41 States (ECAC plus associated transition area), which has had the effect of reducing fuel burn and emissions by up to 5% in the upper atmosphere.

This paper describes a number of developing pan-European environmental activities under way whose applicability at the global level would merit consideration.

The paper has been elaborated and coordinated by EUROCONTROL

ACTION BY THE ASSEMBLY

Action by the Assembly is in paragraph 4.

¹ English, French, Spanish and Russian versions provided by ECAC.

² Albania, Armenia, Austria*, Azerbaijan, Belgium*, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus*, Czech Republic*, Denmark*, Estonia*, Finland*, France*, Germany*, Greece*, Hungary*, Iceland, Ireland*, Italy*, Latvia*, Lithuania*, Luxembourg*, Malta*, Moldova, Monaco, Netherlands*, Norway, Poland*, Portugal*, Romania, Serbia and Montenegro, Slovakia*, Slovenia*, Spain*, Sweden*, Switzerland, The former Yugoslav Republic of Macedonia, Turkey, Ukraine, United Kingdom*.

* Member States of the European Union are indicated with an asterisk in the above list.

1. INTRODUCTION

1.1 At its 32nd Assembly ICAO recognised that ATM could contribute to alleviating air transport's environmental impacts and initiated efforts through its Committee on Aviation Environmental Protection (CAEP) to attempt to quantify the environmentally related benefits from CNS/ATM (Consolidated Statement on Environmental protection A32/8).

1.2 At the 33rd ICAO Assembly EUROCONTROL, for the first time, identified several areas in which ATM could contribute to alleviating aviation's environmental impact (A33-WP/58) and in its Consolidated Statement on Environmental Protection (A33/7) ICAO drew attention to the wider role that ATM could play in mitigating both climate change and airport noise effects of air traffic.

1.3 The most recent demonstration of the potential for ATM to mitigate aviation's environmental impact derives from the implementation of Reduced Vertical Separation Minima (RVSM) in 41 States (ECAC plus associated transition area) on 24 January 2002, which has had the effect of reducing fuel burn and gaseous emissions by up to 5% in the upper atmosphere, thanks to the introduction of six new flight levels providing for a safer and more efficient distribution of air traffic.

1.4 The implementation of RVSM in other regions of the world would be an opportunity to carry out an overall environmental impact analysis of the potential environmental benefits.

2. EXAMPLES OF PAN-EUROPEAN ACTIVITIES

2.1 Background on initiatives

2.1.1 EUROCONTROL's environmental activities in recent years were concentrated on supporting international policy-making and fostering related research and development capabilities. In this respect, EUROCONTROL has focussed in particular on: developing measures to alleviate aviation's environmental and social impact at and around airports; developing tools and methodologies to model fuel burn and emissions along flight profiles, air quality at airports, and the development of aircraft condensation trails; and refining its aircraft fuel consumption data collections so as to improve the monitoring of aviation's environmental performance.

2.2 International co-operation

2.2.1 ICAO is a key partner for EUROCONTROL's work, especially through the ICAO Committee on Aviation Environmental Protection (CAEP). Contributions to CAEP include the development, jointly with the FAA, of a model capable of estimating global emissions and fuel usage; evaluating the impact of various CNS/ATM enhancements; input to the recently published ICAO Circular 303 on Operational Opportunities to reduce fuel aviation fuel use and emissions; and support to the market based measures initiatives.

2.2.2 EUROCONTROL is working with ECAC on the recent update of a study into challenges to growth in European air traffic and is also contributing to ECAC's wider environmental activities, covering noise, emissions and economic issues.

2.2.3 In addition, EUROCONTROL works closely with the relevant Directorates General of the European Commission and the European Environmental Agency in support of the European Climate Change programme, and will clearly take into account the Sustainable Development Strategy adopted at the Gothenburg European Council.

2.3 Operational measures alleviating environmental and social impact at and around airports

2.3.1 The key improvement to be introduced on a pan-European level from 2005, is expected to be the wider application of Continuous Descent Approach (CDA), whose immediately noticeable effect is the reduction of noise perceived on the ground. However, as recognised in ICAO Circular 303, it has the additional benefit of reducing both fuel burn and emissions.

2.3.2 The current focus is to improve the applicability of P-RNAV CDA while encouraging the parallel introduction of tactical CDA procedures, which may be easier to sustain during peak capacity situations. Such procedures are already operational in at least one State. Due to the improved efficiency of the flight profile, noise, fuel burn and emissions should decrease, thereby improving environmental protection and helping to secure future airport capacity.

2.3.3 The successful introduction of CDA procedures relies on close co-operation between the airport operator, local air traffic control and the principal air carriers. To this end, it is suggested that these stakeholders establish Collaborative Environmental Management (CEM) fora to provide a means through which all relevant parties can discharge their collective responsibility to mitigate the environmental impact of airport air traffic operations.

2.4 Mitigating aviation's impact on the climate

2.4.1 EUROCONTROL and the European Space Agency (ESA), through their Agreement of Co-operation, are sponsoring a study into the detection of contrail-induced cirrus clouds, an assessment of the associated radiative forcing, and a validation of a contrail prediction model. This study is expected to improve the scientific understanding of the contrail/cirrus issue which, because of its potential impact on flight operations, is of particular relevance to ATM.

2.4.2 Based on the findings of the Special Report on Aviation and the Global Atmosphere by the Intergovernmental Panel for Climate Change (IPCC), EUROCONTROL considers it prudent to investigate such scenarios as part of its commitment to integrating environmental improvement into its long-term strategic planning.

2.4.3 In the shorter term, pan-European ATM stakeholders are finalising the detailed planning for a major airspace improvement programme that would lead to a much more dynamic use of the pan-European ATM network. This is expected to increase flight efficiency considerably.

2.5 Monitoring environmental performance

2.5.1 ECAC has recently endorsed a methodology for emissions calculations that is based on air traffic movement data. Several ECAC Member States' environment agencies now co-operate closely with their national Air Navigation Service Providers (ANSPs) to implement this methodology for inventory reporting. Air traffic movement data can be used to refine estimates of aircraft fuel consumption and associated emissions in the development of national inventories of greenhouse gas emissions to be reported to the United Nations Framework Convention on Climate Change (UNFCCC).

2.5.2 EUROCONTROL plans to operate a new strategic service for its stakeholders before the end of 2005 capable of estimating fuel burn and aircraft emissions. It will be used for regular reporting of environmental performance over the pan-European ATM network, assessing flight efficiency, and determining historical trends based on movement data that have been archived since 1997. This new service should therefore provide the basis for setting high-level environmental targets against which performance can be assessed, and for validating several of the operational opportunities to minimise aircraft fuel use and reduce gaseous emissions, as identified in ICAO Circular 303.

2.5.3 The recently approved Memorandum of Co-operation between the European Commission and EUROCONTROL includes the exchange of air traffic and environment statistics. A joint working group has been established to identify how best to exploit such information to the benefit of both parties and their stakeholders.

3. CONCLUSION

3.1 Air traffic management has an increasingly critical role to play in aviation environmental protection. This paper has described a growing body of work targeted at delivering programmes and services that mitigate and monitor aviation's environmental impact. These activities would further benefit from increased visibility at the global level, and could also be used in the global policy-setting discussions as examples of improvements that many regions and States could introduce relatively quickly. It would add considerable force to the role that ATM has to play in environmental protection if this were recognised by the Assembly and subsequently reflected in ICAO's working arrangements.

4. ACTION BY THE ASSEMBLY

4.1 The Assembly is invited:

- a) to note the work on ATM related environmental protection and welcome EUROCONTROL's strengthened support to ICAO on relevant environmental issues;
- b) to reaffirm that ATM has a significant role to play in alleviating air transport's environmental impact and encourage the relevant ICAO bodies to include in their work the contribution of ATM; and
- c) to request ICAO to encourage States to make an environmental impact analysis an integral part of their RVSM implementation programmes.

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