

ELEVENTH AIR NAVIGATION CONFERENCE

Montreal, 22 September to 3 October 2003

Agenda Item 2: Safety and security in air traffic management (ATM)
2.1: Safety management systems and programmes

EUROCONTROL'S STRATEGIC SAFETY ACTION PLAN TO ENHANCE EUROPEAN ATM SAFETY

(Presented by European Organisation for the Safety of Air Navigation
(EUROCONTROL) on behalf of its Member States and those of ECAC¹)

SUMMARY

This paper presents the findings of an ECAC Member State-wide safety survey and of a High-level Group on ATM Safety (AGAS) established by the EUROCONTROL Organisation.

A brief summary is also given of the Action Plan that has been developed by AGAS.

The Action Plan, "*One Safe Sky for Europe - A Strategic Safety Action Plan for Enhanced ATM Safety in a Single Pan-European Sky*", presents a detailed assessment of what needs to be done to improve European ATM safety in the short to medium-term. It also sets out indicative timescales for the successful completion of each action. A synopsis of the Action Plan will be made available at the Conference.

The paper concludes by identifying relevant issues for appropriate consideration at ICAO level.

Suggested action by the conference is in paragraph 9.

¹ **English, French, Spanish and Russian only*** The ECAC Member States are: **Albania**, Armenia, **Austria**, Azerbaijan, **Belgium**, Bosnia and Herzegovina, **Bulgaria**, **Croatia**, **Cyprus**, **the Czech Republic**, **Denmark**, Estonia, **Finland**, **France**, **Germany**, **Greece**, **Hungary**, Iceland, **Ireland**, **Italy**, Latvia, Lithuania, **Luxembourg**, **Malta**, **Moldova**, **Monaco**, **the Netherlands**, **Norway**, Poland, **Portugal**, **Romania**, Serbia and Montenegro, **the Slovak Republic**, **Slovenia**, **Spain**, **Sweden**, **Switzerland**, **The former Yugoslav Republic of Macedonia**, **Turkey**, Ukraine and **the United Kingdom**).

The 31 Member States of EUROCONTROL appear in **bold**.

*French, Spanish and Russian versions provided by EUROCONTROL.

1. INTRODUCTION

1.1 The mid-air collision over Überlingen in Germany on 1 July 2002 highlighted the need for the EUROCONTROL Organisation to re-double its efforts to enhance ATM safety performance. A High-level Group on ATM Safety (AGAS) was established by the EUROCONTROL Organisation to examine existing procedures and standards with a view to improving ATM safety. Senior safety experts from States, Air Navigation Service Providers (ANSPs), International Organisations and aviation-related associations were invited to participate in the Group.

1.2 The Group undertook substantial work over a 6-month period including an assessment of the maturity of ATM Safety regulation and management frameworks within the States of the European Civil Aviation Conference (ECAC).

1.3 The Group's findings and the ECAC Member State-wide safety survey are summarised in this paper. A brief summary is also given of an Action Plan that was the outcome from AGAS. The Action Plan, "*One Safe Sky for Europe - A Strategic Safety Action Plan for Enhanced ATM Safety in a Single Pan-European Sky*", presents a detailed assessment of what needs to be done to improve European ATM safety in the short to medium-term. It also sets out indicative timescales for the successful completion of each action. The actions proposed in this Action Plan complement the ICAO Global Aviation Safety Plan (GASP). A synopsis of the Action Plan will be made available at the Conference.

2. AIRBORNE COLLISION AVOIDANCE SYSTEMS (ACAS)

2.1 AGAS noted that as a result of ACAS II implementation in Europe and in other regions, ACAS (TCAS II) now plays a central role in the resolution of encounters between aircraft where there is a risk of collision. However, the effectiveness of ACAS II in assisting pilots in the avoidance of potential collisions is dependent on the correct response to Resolution Advisories (RA) by pilots. This is underlined by recent ACAS safety studies, and by operational experience. The group considered that it is essential for actions to be taken to maximise the safety benefit available from ACAS II. The actions taken by ICAO as notified in recent State Letters were noted. The group concluded that the EUROCONTROL Organisation should:

- a) develop an ACAS training syllabus standard for controllers. ATS providers' ACAS training syllabuses and training should be subject to regulatory oversight and included within EUROCONTROL Safety Regulations;
- b) progress appropriate actions, as rapidly as possible, stemming from the recent positive result from the Review of the potential operational benefit of ACAS II Resolution Advisory information downlinked to the controllers' working positions;
- c) progress the EUROCONTROL ACAS Programme work to address ACAS logic performance issues;
- d) propose that ACAS operational monitoring should be maintained and included within an overall pan-European safety monitoring system; and

- e) recommend that ACAS II RA ‘hot-spots’ in the European area, identified through current ACAS operational monitoring, should be examined by CAAs/ANSPs to ascertain whether this indicates a potential safety issue relating to airspace design or procedures.

3. **GROUND-BASED SAFETY NETS**

3.1 AGAS considered the issues in respect of ground-based safety nets (Short Term Conflict Alert (STCA), Minimum Safe Altitude Warning (MSAW) and Area Proximity Warning (APW)) and concluded that the following actions were required by EUROCONTROL Organisation:

- a) identify “Best Practice” in regard to ground-based safety nets;
- b) elaborate and, where necessary, validate a safety case for the systematic introduction of ground-based safety nets;
- c) review existing specifications and guidance material and amend as appropriate;
- d) assess specifications and guidance material to establish regulation requirements;
- e) produce a full set of specifications and guidance material, supported by appropriate elements of safety, risk and cost/benefit assessments;
- f) establish the rules for operations with and without ground-based safety nets;
- g) make a case to ICAO for a concept of Minimum Equipment List (MEL) for ground-based ATM equipment, if appropriate; and
- h) consider whether a requirement for independent Certification of ground-based safety nets is relevant.

3.2 It was considered that these measures should reduce, in particular, the risk of Mid Air Collision (MAC) and Controlled Flight Into Terrain (CFIT).

4. **INCIDENT/ACCIDENT DATA SHARING**

4.1 AGAS undertook a comprehensive assessment of the current situation in regard to data collection, analysis and sharing within ECAC Member States. The group identified the following two major actions for improvement:

- a) allocate the resources necessary to implement a harmonised industry-wide safety occurrence data collection, analysis, sharing and dissemination mechanism to support continuous safety improvement; and
- b) implement the principles of “just culture” in safety occurrence reporting and initiate an industry-wide awareness and education campaign for all stakeholders, underlining the safety benefits of a good reporting culture.

5. HUMAN FACTORS ISSUES

- 5.1 Within the area of human factors, AGAS concluded that the following actions were required:
- a) ANSPs should increase their efforts and investments to reduce and eliminate staff shortage of ATCOs;
 - b) all stakeholders should provide adequate numbers of human resources in safety regulation and safety management;
 - c) national ATM safety regulators and ANSPs should ensure that they allocate sufficient trained human resources to enable the implementation and conduct of safety-related training of all operational staff as a matter of priority;
 - d) national ATM safety regulators and ANSPs should ensure safety awareness, establishment of a safety culture, safety attitude and behaviour amongst ATCOs (individuals and teams) through the implementation of regular emergency, refresher, competency and team resource management (TRM) training in line with EUROCONTROL Safety Regulatory Requirements (ESARR);
 - e) ANSPs should implement Critical Incident Stress Management (CISM) as an integrated element of their safety management system; and
 - f) ANSPs should verify that adequate arrangements are in place to develop guidelines for the staffing of controller working positions so as to ensure safe operations during system outages, maintenance phases and transition phases to new systems.

6. AGAS OVERVIEW OF ATM SAFETY FRAMEWORK DEVELOPMENT IN ECAC STATES

6.1 After analysis of the results of the ATM safety overview study, AGAS concluded that two issues stand out from the study, to such an extent, that other conclusions are in some way subsidiary to them. These two major issues are Leadership and Resources. It is probable that, until these issues have been resolved, little substantial progress can be made on other issues. The main conclusions were:

- a) the leadership in safety within ECAC Member States, both at the national and international level, needs to be strengthened;
- b) there is a lack of properly qualified safety experts in many ECAC Member States; and
- c) there are insufficient opportunities for safety-related training within Europe.

6.2 AGAS concluded that with the forecast increase in air traffic, there is a need to halve the current rate of accidents, with a direct ATM cause, by 2020. That requirement, coupled with the current uneven implementation of a safety framework within ECAC Member States, means that there is an urgent need to improve ATM safety if forecast traffic demand is to be successfully accommodated. The cost for implementing such safety improvements needs to be fully acknowledged by all stakeholders, so that confidence in the industry

continues to be fully assured and its growth is not constrained. To achieve this required improvement, safety must be pro-actively managed and form an integral part of both planning and operations. Improvements will:

- a) be needed at the strategic level as well as the operational level;
- b) need to be underpinned by clear and unambiguous procedures backed by training for all those involved;
- c) require safety management and monitoring processes to be strengthened and applied consistently throughout the ATM network; and
- d) need clear lines of accountability to be shown at both the national and international level.

7. STRATEGIC SAFETY ACTION PLAN FOR ENHANCED ATM SAFETY IN A SINGLE PAN-EUROPEAN SKY

7.1 The AGAS Action Plan for enhancing ATM Safety entitled “*One Safe Sky For Europe – A Strategic Safety Action Plan for Enhanced ATM Safety in a Single Pan-European Sky*” describes the current scene in European ATM Safety and then sets out concrete actions for implementation. AGAS concluded that the greatest benefit to safety would be achieved by giving priority to the eight following areas:

- a) safety related human resources in ATM;
- b) incident reporting and data sharing;
- c) ACAS;
- d) ground-based safety nets;
- e) runway safety;
- f) enforcement of EUROCONTROL Safety Regulatory Requirements and the monitoring of their implementation;
- g) awareness of safety matters; and
- h) safety and human factors research & development (R&D).

7.2 The Plan concentrates on those issues that are considered to be of prime importance. Each recommended action contains a description of the current situation, the actions required, who is required to take action, any financial implications and the timescale within which the recommendation should be implemented. A methodology for implementing the Action Plan is set out.

7.3 The AGAS Action Plan provides a unique opportunity for ECAC Member States to accelerate safety improvements and make a significant step forward in safety performance within a much-compressed timescale.

8. CONCLUSIONS

8.1 AGAS concluded that, if forecasts are correct and traffic in Europe doubles by 2020, a sustainable delivery of capacity will be reliant on a sustainable investment in safety. The current accident rate will need to be halved and only by investment will the accident rate be reduced to such a degree that the absolute number of accidents does not increase. The maturity level of safety regulation and safety management frameworks within Europe needs to be raised to meet these demands.

8.2 The EUROCONTROL Organisation, through AGAS, has developed an Action Plan for enhancing ATM safety in Europe. The Plan covers safety regulation, safety management and associated technical matters and will ensure that developments of safety systems within Europe are accelerated. Much as RVSM safely afforded a major increase in en-route capacity, so the work of AGAS can have an equivalent impact from the safety perspective across Europe. The actions proposed in the Plan are, however, also relevant and applicable outside the ECAC Member States area, and ICAO should consider taking appropriate action to implement them globally.

8.3 A co-ordinated global approach to ATM technical safety issues is required. In particular, there is a need to consider the applicability of the Minimum Equipment Lists (MEL) concept for ATM systems and CNS infrastructure. There is also a need to consider the need for provisions and guidance for the sharing of ATM incident/accident data between States on a global basis.

9. ACTION BY THE CONFERENCE

9.1 The Conference is invited to:

- a) note the outcome of the AGAS work on ATM safety, and the recommendations for action to be taken in order to enhance ATM safety in the ECAC Member States area;
- b) urge ICAO to consider the AGAS material for eventual global adoption and application;
- c) recommend ICAO to consider the applicability of the Minimum Equipment List (MEL) concept for ATM systems and CNS infrastructure; and
- d) recommend ICAO to develop provisions and guidance for the sharing of ATM incident/accident data between States.

— END —