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FOR THE SAFETY OF AIR NAVIGATION

EUROCONTROL

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In addition to reporting to the PC on specific issues, such as ESARRs, the SRC has inaugurated a system of annual safety reporting. Each annual report, submitted to the Provisional Council in the autumn of each year, deals with measured safety performance, status of ESARRs implementation in ECAC, SRC achievements and areas of focus for the forthcoming year. This document presents the 2003 Annual Safety Report.		
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Contact Person(s) :	**Tel :**	**Unit :**
Martine Blaize	+32 2 729 51 64	DGOF/SRU

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F.3 DOCUMENT APPROVAL

The following table identifies all management authorities who have approved this document.

AUTHORITY	NAME AND SIGNATURE*	DATE
Quality Control (SRU)	***Signed by Daniel Hartin*** (Daniel HARTIN)	26-Nov-03
Head Safety Regulation Unit (SRU)	***Signed by Peter Stastny*** (Peter STASTNY)	27-Nov-03
Chairman Strategy and Policy Group (SPG)	***Signed by Tom Regan*** (Tom REGAN)	27-Nov-03
Chairman Safety Regulation Commission (SRC)	***Signed by Martin Radusch*** (Martin RADUSCH)	03-Dec-03

* In order to reduce the size of files, all documents placed on the SRC Website do not contain signatures. However, please note that all management authorities have signed the master copy held by the SRU. Requests for copies of master documents should be emailed to: sru@eurocontrol.int.

F.4 DOCUMENT CHANGE RECORD

The following table records the complete history of this document.

EDITION NUMBER	EDITION DATE	REASON FOR CHANGE	PAGES AFFECTED
0.01	08-Apr-03	SRC Document 31 created by SRU as a Working Draft input to SPG1.	All
0.02	02-Jul-03	Initial text developed by SRU for sections – Working Draft submitted to SPG3.	All
0.03	16-Jul-03	Comments from SPG3 incorporated- Working Draft circulated to SPG for development of further sections.	All
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0.10	15-Sep-03	Changes related to quality control. Proposed Issue to SRC18.	All
0.2	08-Oct-03	Changes related to SRC18 comments and amendments to data in Appendix 2.	Section 5.4 & Appendices
1.0	10-Oct-03	Document formally issued as a working paper to PC18.	All
2.0	07-Nov-03	Document released to General Public distribution. Minor typographical changes.	All

F.5 CONTENTS

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F.6 EXECUTIVE SUMMARY

(i) This document presents the 2003 Annual Safety Report of the Safety Regulation Commission. The work and future plans of the Safety Regulation Commission (SRC) have taken account of the outcomes of the Action Group for Aviation Safety (AGAS) as presented in the Strategic Safety Action Plan (SSAP) approved by the Provisional Council in April 2003.

(ii) The 2003 SRC Annual Safety Report:

- Summarises the main achievements of the Safety Regulation Commission since January 2002;
- Reports back European Civil Aviation Conference (ECAC)-wide Safety Indicators up until 2002, as measured by the SRC based on safety statistics provided by a number of States, while highlighting the inherent limitations of those findings;
- Reports back the level of EUROCONTROL Safety Regulatory Requirements (ESARRs) implementation across ECAC as determined through the ESARRs Implementation Monitoring and Support (ESIMS) Programme so far;
- Submits to the Provisional Council the current SRC membership for approval;
- Provides the SRC's main objectives for the forthcoming calendar year;
- Analyses a number of issues that bear safety significance high enough to justify the development of recommendations to the Provisional Council.

(iii) The timing of the SRC's report reflects the availability of mature data and analysed outcomes of the occurrence reporting arrangements relating to the previous year;

(iv) During 2002 and 2003, the SRC has further progressed the development of an Air Traffic Management (ATM) Safety Regulatory Framework to be implemented by States. This included the development of EUROCONTROL Safety Regulatory Requirements and a significant number of ESARRs Advisory Material (EAM), together with the assessment of a number of Proposed Means of Compliance (PMC) to ESARRs;

(v) The ESIMS Programme was designed and formally accepted at the end of 2002, with fourteen States visited by the end of July 2003. The main conclusions so far indicate that, even though progress is being made in a significant number of States, the incorporation of ESARRs into national regulatory arrangements faces delays of up to two years after the target date for implementation. Overall, ESARRs implementation clearly suffers from a lack of resources, especially in safety oversight and at the time of the SRU visits, very few States were in an adequate position to verify the implementation by national Air Navigation Service Providers (ANSPs) of the provisions of ESARRs;

(vi) The Safety Measurement and Improvement Programme was further progressed with the collection of national safety statistics received from States and the analysis of Safety Performance Indicators related to a number of Key Risk Areas, in co-ordination with the EUROCONTROL Agency and other Stakeholders. More specifically, the SRC has been involved in the analysis of runway safety issues, prolonged loss of communications (PLOC), level busts as well as unauthorised penetration of airspace where further work is still needed. Within this Programme the SRC has, in the reporting period, provided significant levels of support to Member States in the form of training in occurrence reporting and assessment methodologies as well as supporting tools;

(vii) Due to a lack of wide-scale implementation of ESARR 2, the SRC cannot yet develop comprehensive conclusions on current achieved ATM safety levels; however, high numbers or increasing trends with regard to a number of specific ATM occurrences have confirmed that ”collisions on the ground”, “near Controlled Flight Into Terrain (CFIT)”, “unauthorised penetration of airspace”, “incidents involving mixed Operational Air Traffic / General Air Traffic (OAT/GAT traffic)” and, to a lesser degree, “level busts” should be classified as “Key Risk Areas” and as such need to be further analysed and/or acted upon;

(viii) The future activities of the SRC aim at addressing not only the key AGAS actions bearing on the SRC, but also the main impediments to ESARRs implementation identified so far, and at further improving achieved levels of safety in ATM. Specific attention will be placed on ensuring overall consistency with the principles of the European Community’s (EC’s) Single European Sky (SES) Regulations; and

(ix) The SRC’s principal conclusions and recommendations are presented in Chapters 6 and 7 respectively.

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Safety Regulation Commission

Annual Safety Report 2003

1. STATUS REPORT ON SRC ACTIVITIES

1.1 This Chapter reports on the main achievements of the Safety Regulation Commission (SRC) since January 2002. Where activities are still on-going and will require significant work in the near future, these are highlighted in Chapter 2, as part of the SRC's planned activities for 2004.

1.2 Within the EUROCONTROL Organisation, the SRC is responsible for the harmonisation of ATM Safety Regulation. This objective is being realised through the development of a harmonised ATM safety regulatory framework, to be implemented by Member States.

ESARRs and Associated Development Activities

1.3 The core of this framework is a set of EUROCONTROL Safety Regulatory Requirements (ESARRs). A number are now in place (ESARR 2, ESARR 3, ESARR 4 and ESARR 5), and 2002 saw the extension of the provisions on ATM personnel in **ESARR 5** to cover engineering and technical personnel having operational safety related duties. These provisions will come into force in April 2005.

1.4 Meanwhile, further development work has also been undertaken on the requirement for a harmonised ATM safety regulatory framework, with an initial agreement within SRC in February 2002 through the publication of SRC Policy Document 3, and since then through significant work on **ESARR 1**. Although ESARR 1 has already reached a mature stage, its submission to the EUROCONTROL Commission for approval may require further work to cater for the regulatory principles embedded within the Single European Sky (SES) regulations.

1.5 A harmonised requirement on Software in ATM has also make significant progress in 2002 and 2003 (**ESARR 6**) and is now being submitted to PC18 for approval.

1.6 As a follow-up to the workshops conducted in 2000 and 2001, a number of **ESARRs Awareness Workshops** have been successfully run by the Safety Regulation Unit (SRU), with attendance by representatives from both safety regulatory bodies and Air Navigation Service Providers (ANSPs).

a) Further to the 2001 workshops, one additional ESARR 3 workshop was held in 2002 in Brussels with two regional workshops held in Romania and France, with significant interest and participation.

b) Following the custom of previous ESARRs, workshops for ESARR 4 were launched for the first time in 2002, and run by SRU in 2002 and 2003, again with high interest and participation.

c) Similarly, the SRU together with the Institute of Air Navigation Services (IANS) and the EUROCONTROL Air Traffic Management Programme's (EATMP) Human Factors Management (HUM) business unit successfully ran two "ESARR 5 and ATCO Licensing" workshops in 2002 and 2003.

1.7 The SRC has further developed its harmonised Safety Regulatory framework through a number of **ESARRs Advisory Material (EAM)**.

a) Those EAMs aim at providing guidance to national ATM safety regulators. They provide explanatory material on the rationale for ESARRs provisions, guidance on how to conduct safety oversight activities in those areas covered by the ESARRs, and clarify how the implementation of ESARRs is usually more than sufficient to meet the provisions of the International Civil Aviation Organisation (ICAO) in associated areas (or exceptionally, how to file differences with some ICAO provisions).

b) Advisory Material was released to provide explanations about ESARR 2, as well as a mapping between the EUROCONTROL Severity Classification Scheme and the ICAO Airprox Severity Scheme. Development work also took place to provide guidance on how to:

(i) determine the severity of safety occurrences;

(ii) implement a "Just Culture"; and

(iii) implement a safety oversight function in the area of ESARR 2.

c) Advisory Material was released to provide guidance on the regulatory aspects of the implementation of ESARR 3 in small organisations and on how to implement a safety oversight function in the areas of ESARRs 3 and 4;

d) Advisory Material was released to provide explanatory material on ESARR 4. EAMs have also been initiated in 2003 to provide guidance on how to derive:

i) National Risk Classification Scheme; and

ii) National Target Level of Safety.

e) Advisory Material was initiated to provide explanatory material on ESARR 5, as well as guidance on how to implement a safety oversight function in the area of ESARR 5;

f) Similarly, the SRC has started to develop explanatory material on ESARR 6;

g) EAM / ICAO documentation was released in 2003 stating how the implementation of ESARRs 3, 4 and 5 meet the provisions of ICAO in associated areas and in the case of ESARR 5 how to file differences with ICAO Annex 1.

h) Of specific importance was the release by SRC in early 2003 of SRC Policy Document 2 dealing with the use of **Safety Nets** in risk assessment and mitigation in ATM.

Also to be noted was the release in 2002 of SRC Document 6 describing, at a high level, the process by which the **SRC interfaces with the EUROCONTROL EATM Programme** when developing common safety regulatory views on EATM safety deliverables and acceptability of related multi-national ATM developments.

j) The SRC Web pages provide an overview of all SRC deliverables with their current development status.

1.8 The SRC also developed and operated its formal process for the assessment of **Acceptable Means of Compliance (AMC)** with ESARRs[1]. A number of proposed means of compliance (PMCs) to ESARRs were formally assessed and the SRC stated to what extent ANSPs could use these as acceptable means of compliance with ESARRs.

a) This included an assessment of the EATMP "European Manual of Personnel Licensing – Air Traffic Controllers". The terms and conditions of its acceptability as an AMC with ESARR 5 are included in EAM 5 / AMC. That work was also supported by the development of SRC Document 13.

b) This also included an assessment of the European Class 3 Medical Certification for Air Traffic Controllers. The terms and conditions of its acceptability as an AMC with ESARR 5 are included in EAM 5 / AMC. That work was also supported by the development of SRC Document 28.

c) In February 2002, the EATMP Safety Policy (Edition 1.1) and its associated Implementation Guidance Material (Edition 1.2) were recognised by SRC as an AMC to meet ESARR 3 under the terms and conditions included in EAM 3 / AMC. That work was also supported by the development of SRC Document 11.

d) In 2002, the EATMP Air Navigation System Safety Assessment Methodology (Functional Hazard Assessment (FHA)), (Edition 1.0) and The European Organisation for Civil Aviation Equipment (EUROCAE) ED 78 were recognised by SRC as AMC to meet ESARR 4 under the terms and conditions included in EAM 4 / AMC. That work was also supported by the development of SRC Documents 12 and 20.

e) More recently, the SRC has initiated the assessment of the Netheralands Air Navigation Service Provider's document 'Luchtverkeersleiding Nederland (LVNL) Safety Criteria' as a Means of Compliance with ESARR 4 and will document its findings in SRC Document 33.

[1] *Documented in SRC Document 9 "Process for Establishing Acceptable Means of Compliance with ESARRs".*

ESARRs Implementation

1.9 The SRC has increasingly shifted its focus onto the early phase of ESARRs implementation, with initiatives aimed at not only monitoring their implementation into the national safety regulatory framework of EUROCONTROL Member States, but also at supporting such implementation. Indeed, ESARRs implementation has reached a crucial stage in many States.

1.10 Difficulties had been experienced in monitoring the exact status of ESARRs implementation at national level and in particular the nature of implementation problems. To address this, and to enable the support applied by EUROCONTROL to be targeted more effectively, the SRC decided in Spring 2002 to embark upon an **ESARRs Implementation Monitoring and Support Programme (ESIMS)**.

a) Significant efforts were dedicated to the development of the basis against which the Programme was to be conducted, in co-ordination with the former Agency EATMP Support to States. SRU continuously kept the ICAO Safety Oversight Unit informed of those developments to ensure, so far as was practicable, consistency between the EUROCONTROL ESIMS Programme and the extension of the ICAO Universal Safety Oversight Audit Programme (IUSOAP) to Annexes 11, 13 and 14;

b) The SRU conducted three validation visits in September and October 2002 with the ESIMS Programme being formally approved by the EUROCONTROL Commission in November 2002 (refer to Decision No. 92);

c) This initiative has so far resulted in fact-finding visits to nine Member States in 2002, with twenty-two more programmed for 2003 (by PC18, sixteen will have been conducted in 2003 by SRU staff supported by national secondments). Each visit culminated in an SRU report to the national safety regulatory authority, collating all related findings and recommendations.

d) User requirements and technical specifications for a SRU database to collate these findings, analyse them and support the monitoring of follow up actions are also ready to support the strengthening of the ESIMS Programme as recommended by AGAS. Early ESIMS results have already identified a number of areas for increased support from SRC/SRU. These are further developed in Chapter 2.

1.11 One such area identified is training for ATM safety regulators. In response to this need, and in addition to SRU's participation in the delivery of a limited number of IANS EATM related courses, SRC has planned a modular training programme on ATM safety regulation. The first module in auditing process techniques was designed in 2002 and initially delivered in December 2002. Further courses are planned throughout 2003, 2004 and subsequent years. The positive feedback received so far confirms the success of this SRC initiative.

1.12 Due to resource limitations, the SRU could not fully respond to the numerous requests for assistance received from EUROCONTROL Member States.

a) Only on one occasion was the SRU heavily and directly involved in the development of a **National ESARR Implementation Plan**. The task included an assessment of the existing situation and the identification of a full range of actions intended to develop an ATM safety regulatory function, implement a Safety Management System and meet ESARRs 2, 3 and 5. This initiative allowed the SRU to gain further experience in implementation issues for the benefit of all States.

b) The SRU also contributed to a number of initiatives launched by the former EATMP Support To States Unit, including participation in regional workshops covering multi-national areas, with a special focus on Member States who had recently joined EUROCONTROL or the European Civil Aviation Conference (ECAC).

EUROCONTROL Safety Measurement and Improvement Programme

1.13 The safety regulatory aspects of the EUROCONTROL ATM Safety Measurement and Improvement Programme have continued to progress well in 2002 and 2003.

a) In 2002 and 2003 the SRC/SRU collected safety statistics from States, relying on a continuously improved Annual Summary Template (AST). These were analysed in order to populate a number of safety indicators, assess safety trends and identify key risk areas. The analysis of the safety data reported by States and related conclusions have been documented by the SRC in a set of SRC Documents[2].

b) A very small year-on-year increase was recorded in the number of States applying ESARR 2, and further work is clearly needed to continue this in future years. A slight improvement in the quality and consistency of the data received by a number of States took place, enabling a number of **safety indicators** to be populated and further safety conclusions to be drawn from this important source. National resources and expertise however continue to be key issues, as well as the need to implement a "just culture"[3] in all States as per the recommendations developed by the SRC[4].

c) Chapter 3 and Attachment 2 provide a number of safety indicators, based on the ASTs returns from States, including a limited number of key safety indicators in a way which, due to lack of reliability of the data provided in some areas, only responds partially to the request made by the Commission at its 14th meeting[5].

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[2] *SRC Documents 16, 17 & 18 (Safety Data Collection for years 1999, 2000 & 2001).*

[3] *In order to implement ESARR2, it is necessary to engineer a "reporting culture", i.e. an organisational climate in which staff are prepared to report their errors and near misses. What is needed is a "just culture" - an atmosphere of trust in which people are encouraged, even rewarded, for providing essential safety-related information – but in which it is also clear about where the line must be drawn between acceptable and unacceptable behaviour.*

[4] *Refer to EAM 2 / GUI 6.*

[5] *PC14 "requested the Safety Regulation Commission to propose adequate ECAC-level safety performance indicators before July 2003, and associated targets at an appropriate juncture, for approval by the Commission through the Provisional Council and invited it to include corresponding indicators in its regular safety reports to the Provisional Council".*

1.14 The SRU, supported by the Agency EATM, further developed supporting tools such as TOKAI (Tool Kit for ATM Occurrence Investigation, encompassing a taxonomy consistent with ESARR 2 and allowing automatic population of the Annual Summary Template) and has been continuously involved in providing associated training and support to States to increase the reliability of the safety data reported by States on an annual basis.

a) Throughout 2002, **four Member States**[6] **detached staff to SRU** for familiarisation and training in the occurrence reporting and assessment methodology. The same year saw three ESARR 2 / TOKAI specialised workshops run by SRU in Spain, Czech Republic and Romania. TOKAI demonstrations were also run by the SRU, on behalf of the Agency, at a number of conferences (e.g. the International Air Transport Association Regional Conference in 2002, Global Aviation Information Network (GAIN) Conference) and two TOKAI workshops were held in IANS.

b) Since January 2003, the SRC has again been working bilaterally with States. The SRU has hosted staff on detachment from four additional Member States for training on the ESARR 2 occurrence reporting and assessment system[7], with an additional one scheduled before the end of the year[8].

1.15 In addition to AST returns, the SRU undertook its usual annual review, update and analysis of historical safety data, aircraft accident/incident and ATM contribution (as made publicly available by the International Civil Aviation Organisation (ICAO), World-wide Aircraft Accident Summary (WAAS), International Air Transport Association (IATA), and the Flight Safety Foundation (FSF)) and accordingly issued **SRC Document 2, Edition 3.0**.

1.16 The SRC and SRU participated and contributed to wider EUROCONTROL and Joint Aviation Authorities (JAA) initiatives aimed at proposing remedial actions to identified **Key Risk Areas**:

a) SRC and SRU contributed to the **Runway Safety Initiative** and to the development of the final document “European Action Plan for the Prevention of Runway Incursions”. SRC has now started to monitor the implementation of related actions bearing on national safety regulatory authorities.

b) SRC and SRU contributed to investigating further the causes leading to **Prolonged Loss of Communication (PLOC)** and work, led by the EUROCONTROL Agency, is still on-going.

c) SRC and SRU have started to investigate the causes behind the high number of **unauthorised penetrations of airspace,** but further work is subject to the availability of national data on the exact underlying causes.

[6] *Czech Republic, Italy, Portugal and Switzerland.*

[7] *Slovak Republic, Romania, Cyprus and Greece.*

[8] *Malta.*

[11] *Refer to SRC Document 6 and EATMP Management Handbook.*

d) SRC contributed to an Agency led initiative, where significant inputs were provided by the UK CAA, in order to address **level busts**, their causes and remedies; work is still on going.

e) The SRC has launched its '**lessons not learned'** initiative; going through the causes of a number of accidents and serious incidents which occurred in the past. The SRC has started a process to demonstrate that if States had learned from these occurrences, more recent accidents and incidents may not have happened.

f) The SRU has also participated to the **JAA Strategic Safety Initiative (JSSI)** and has established a working relationship with **IATA** in order to support a total system aviation approach to the identification and resolution of key risk areas.

High Level European Action Group (AGAS)

1.17 A fundamentally important activity in 2002 and 2003 was the Action Group for ATM Safety (AGAS), co-chaired by the Chairman SRC and Director-General EUROCONTROL. Arising from the mid-air collision at Überlingen, AGAS undertook a wholesale assessment of safety in ATM from many different viewpoints.

a) SRC took an active part in the working structures of **AGAS**, and in the development of its **Strategic Safety Action Plan**, approved by the EUROCONTROL Commission in April 2003.

b) SRU has also actively contributed, on behalf of SRC, to the **AGAS Implementation Co-ordination Group (AGAS ICG)** set up in order to ensure the consistency and co-ordination between the Agency and SRC in respect of the implementation of the AGAS recommendations.

c) The SRC has been revisiting its **Work Programme** over Summer 2003 and is ensuring that the AGAS ICG discussions and results being submitted to the Provisional Council at its 18th session are consistent will the prioritisation process used by the SRC to set up target dates for most of its short and mid-term actions.

Multi-National ATM Developments

1.18 The SRC has operated its formal process[11] for the assessment of a number of multi-national developments from a safety regulatory perspective, such as Link 2000+, Mode S (Use of Selective Altitude), 8.33 kHz, and Reduced Vertical Separation Minima (RVSM) post-implementation.

a) This has already led to the development of **Requirements Application Documents (RAD)** for the Link 2000+ and 8·33 kHz programmes.

b) An interface has also been established with the EATM Precision Area Navigation (P-RNAV) project.

c) The SRU has also developed, and is updating, EATM Programme fact sheets as a management tool to monitor the status of the safety regulatory interface between the EATM Programmes and the SRC.

1.19 The SRC has identified a decrease in activities within the interface with EATM and wonders whether or not this reflects the limited level of implementation of safety regulatory interfaces at national level with regard to changes in ATM, and/or the level of safety management practices being conducted within EATM programmes.

Specialist Technical Areas

1.20 SRU co-chaired with the JAA the EUROCONTROL-JAA group, now finalising an UAV operational concept which will be proposed as inputs to related ICAO developments. The **European Unmanned Vehicle Systems Association (EURO UVS)** gave an award to both the JAA and EUROCONTROL.

1.21 SRU also co-chaired one group of the GAIN Conference in order to promote at international level the safety principles developed within the SRC.

Research & Development in ATM Safety (R&D)

1.22 Even though R&D does not represent a high priority in the overall SRC agenda, the SRC decided to undertake a limited number of activities in an attempt to ensure that R&D activities related to ATM safety regulation be co-ordinated at a pan-European level and associated outcomes were shared throughout the ATM safety regulatory community.

a) The SRC published a report identifying those projects and studies, mainly collated within the Analysis of Research and Development in EUROCONTROL Programmes (ARDEP) database, which would bear a direct or indirect relevance to the SRC Work Programme and more widely, to ATM safety. Those findings will now lead to a number of SRC initiatives, such as the potential identification of new R&D activities to support the uniform implementation of ESARRs, or presentation of awareness material to R&D projects in ATM to ensure due consideration is given to applicable ATM safety regulatory requirements.

b) The SRC also put forward a proposal in Summer 2003 for a formal interface between EATM and SRC in order to ensure that any R&D objectives related to ATM safety regulation can be fed into the EUROCONTROL internal R&D organisation.

1.23 Over the last two years, the SRU has contributed safety regulatory views to a limited number of R&D projects conducted by the EUROCONTROL Experimental Centre (EEC). The objective was to contribute to the added value of R&D, when validating from a safety perspective new operational concepts and underlying infrastructure as well as when developing methods to show compliance with safety regulation.

Interfaces

1.24 Close working relationships have been maintained with the Safety Management, Human Resource, European Convergence Implementation Plan (ECIP) and Stakeholder Implementation Services[12] activities of the **EUROCONTROL Agency**, especially in the fields of EATM Programmes, development of ECIP objectives, Local Convergence Implementation Plan (LCIP) annual exercises, runway safety, software requirements development (e.g. TOKAI, ATCO licensing database, Sequentially Outlining and Follow-up Integrated Analysis (SOFIA), Human Error in ATM (HERA) and safety data analysis. In all cases, the complementary approach has worked well, and has ensured that EUROCONTROL's support in safety can be delivered effectively to all Stakeholders at national level. In addition, the SRU has been involved in the Agency's initiatives dealing with **Cross Border Regulations**.

1.25 Throughout 2002 and 2003, the SRC and SRU have contributed comments to the **European Commission** through the EUROCONTROL Agency, on the successive drafts of the **Single European Sky (SES) regulations**. Equally, the SRU has also been involved, through the Agency, in the development of a Memorandum of Co-operation between EUROCONTROL and the EC, as well as in a number of EC studies launched to support the SES regulations (e.g. 'Review of ATC training with a view to reinforcing harmonisation and increasing', 'Common requirements for the provision of air navigation services', 'Interoperability road map for ATM/CNS').

1.26 Within the constraints of their limited resources, the SRC and SRU have maintained working interfaces with the **Joint Aviation Authorities**, mainly through its Regulatory Sectorial Team, the JAA CNS/ATM Steering Committee and the JSSI activities.

1.27 Equally, the SRU has provided a number of inputs to the **ICAO Safety Oversight Unit** and to the **ICAO Safety Indicator Sub-Group (SISG)** activities established by ICAO as a result of a recommendation of the ICAO AIG Divisional Meeting in 1999. The SRC and SRU have also contributed four EUROCONTROL Action and Information Papers to be tabled at the **ICAO Air Navigation Conference** held in September 2003 (**ANC/11**).

SRC and SRU Working Arrangements

1.28 In order to improve the overall efficiency of the SRC and SRU working arrangements, to standardise the way in which both the SRC and SRU fulfil their Terms of Reference and to comply with the principles of the **EUROCONTROL Regulatory and Advisory Framework (ERAF)**, the SRC and SRU have initiated a number of procedures (e.g. development of formal publications, consultation & external relations).

1.29 The SRC and SRU also took initiatives to improve its promotion of SRC activities and deliverables. In addition to a number of ESARR 2, 4 and 5 CD-ROMs, the SRC designed a **Multimedia CD-ROM** to reproduce in an interactive manner the presentations, discussions and exercises delivered in the series of ESARR 3 workshops.

[12] *Formerly Support To States.*

1.30 The SRU is updating on a monthly basis and developing further the **SRC Website** in a manner which contributes to and builds on related developments within the EUROCONTROL Agency (e.g. Extranet Project).

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2. ESARRS IMPLEMENTATION STATUS

ESARRs Implementation Monitoring & Support Programme

2.1 The ESIMS Programme was approved by the EUROCONTROL Commission in November 2002 and aims at ensuring a uniform implementation of ESARRs.

2.2 Considering the current level of implementation of ESARRs at national level, the general *Programme Objectives* of the SRC in undertaking the ESARR Implementation Monitoring and Support Programme, as summarised below, are being met through the current visits:

- Ensure the uniform implementation of EUROCONTROL Safety Regulatory Requirements (ESARRs) across the ECAC area[13], with minimal national deviations and ensuring consistent interpretations,
- Monitor the timely implementation of ESARRs across the ECAC area, through Stakeholder's feedback,
- Promote continuous improvement of ESARRs and related ESARRs Advisory Material (EAM), through Stakeholder's feedback,
- Support States in their implementation of international commitments (ESARRs implementation),
- Support States' preparation for the expansion of the ICAO Universal Safety Oversight Audit Programme (IUSOAP) to ATS and airports[14].

2.3 Representatives from the SRU carried out fourteen visits between August 2002 and July 2003. This Chapter contains, in a dis-identified manner, related key findings and conclusions (Attachment 1 also provides for a number of statistical results).

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[13] *ESARRs are binding on EUROCONTROL Member States and other ECAC States are also encouraged to implement ESARRs.*

[14] *As of 2004 onwards.*

Target Dates for ESARRs Implementation

2.4 The required implementation dates for national implementations of approved ESARRs are:

ESARR	TITLE	IMPLEMENTATION DATE
ESARR 2	Reporting and assessment of safety occurrences in ATM	01-Jan-00 (Phase 1) 01-Jan-01 (Phase 2) 01-Jan-02 (Phase 3)
ESARR 3	Use of Safety Management System by ATM service providers	13-Jul-03
ESARR 4	Risk Assessment and Mitigation in ATM	05-Apr-04
ESARR 5	ATM Services' Personnel	10-Nov-03 (ATCO[15] + General) 11-Apr-05 (ATSEP[16])

ESARRs Implementation Status

ESARR 2 – Reporting and Assessment of Safety Occurrences in ATM

2.5 The SRC annually solicits States on the level of implementation of ESARR 2, through their responses to the SRC Annual Summary Template (AST). The results of these inputs show:

- Phase 1 – implementation due Jan 2000 – 30 statements of compliance[17],
- Phase 2 – implementation due Jan 2001 - 28 statements of compliance[18],
- Phase 3 – implementation due Jan 2002 - 17 statements of compliance[19].

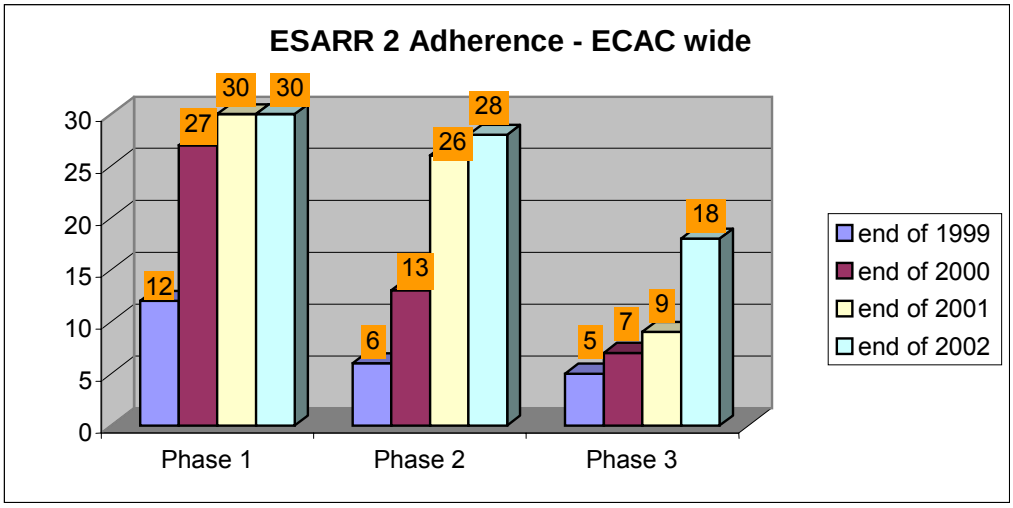
[15] *Air Traffic Control Officer*

[16] *Air Traffic Services Engineering Personnel.*

[17] *30 Statements = 27 EUROCONTROL States + 2 ECAC non-EUROCONTROL Member States + 1 multinational ANSP.*

[18] *28 Statements = 26 EUROCONTROL States + 1 ECAC non-EUROCONTROL Member States + 1 multinational ANSP.*

[19] *18 Statements = 17 EUROCONTROL States + 1 multinational ANSP.*



(Fig 1 – Current ESARR 2 adherence according to AST reports)

2.6 Fig 1 covers all (41) ECAC States and 1 multi-national service provider[20]. Since the 2002 SRC Annual Safety Report issued in November 2002, four new States[21] have become members of ECAC, however they cannot be expected to have ESARR 2 in place yet.

2.7 It should be stressed that the reporting of Annual Summary Templates to EUROCONTROL, as per ESARR 2 requirement 5.2, does not necessarily mean that those States have implemented a national reporting and analysis scheme of safety occurrences in ATM fully compliant with ESARR 2, requirement 5.1.

2.8 The identified level of phased implementation of ESARR 2, as identified by SRU through fourteen visits conducted in the framework of the ESARRs Implementation Monitoring and Support Programme, shows:

- In all States visited, only an adjustment to existing national rules was necessary to make them fully compliant with ESARR 2,
- Eight States are late in promulgating a national rule compliant with ESARR 2. Amongst them, six took actions which should allow for implementation to be promulgated at national level by the end of 2003 at the latest and one in 2004 (for the one remaining, no firm date has been set),
- At the time of the visits, two States had no plans to promulgate a rule compliant with ESARR 2, even if current national arrangements were insufficient,
- In the majority of cases, States have a safety regulatory process in place to verify compliance with ESARR 2, but is at best based solely upon the monitoring of the actual safety performance of the service provider (i.e. incident reports and/or related statistics) and very rarely based upon the auditing of the reporting and assessment processes,

[20] *Based on AST returns as of 12-Aug-03.*

[21] *Bosnia & Herzegovina, Yugoslavia (Serbia & Montenegro), Albania and Azerbaijan.*

- Written procedures stating how ESARR 2 safety oversight is, or will be, conducted seldom exist and most States visited so far still lack the necessary resources to undertake safety oversight. As such, currently very few regulators have formally verified that national ANSPs have implemented ESARR 2,

- Very few States are in a position to claim that they have established a non-punitive environment to the reporting of safety occurrences in ATM.

ESARR 3 – Use of Safety Management System by ATM Service Providers

2.9 The identified level of implementation of ESARR 3, as identified by SRU through fourteen visits conducted in the framework of the ESARRs Implementation Monitoring and Support Programme, shows:

- Only four States had an existing national rule (or recommendation) in the area of safety management system,

- Five States are late in promulgating a national rule compliant with ESARR 3. Four of them have actions in place which should allow for promulgation at national level by the end of 2003 or by early 2004 at the latest,

- At the time of the visit, two States had no plans to promulgate a national rule compliant with ESARR 3, even if required,

- Written procedures stating how to perform ESARR 3 safety oversight do not always exist and most States still lack the necessary resources to undertake safety oversight. In the few States where there is a safety regulatory process in place to verify compliance with current national safety management requirements[22], there is often still a need to revisit the processes of initial and on-going compliance to ensure their adequacy when national safety regulatory requirements fully comply with ESARR 3,

- At the time of this report, very few States are in a position to verify that their national ANSPs meet the provisions of ESARR 3.

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[22] *Usually based on audits and/or inspections, sometimes compliant with ISO 9000.*

ESARR 4 – Risk Assessment and Mitigation in ATM

2.10 The identified level of implementation of ESARR 4, as identified by SRU through fourteen visits conducted in the framework of the ESARRs Implementation Monitoring and Support Programme, shows:

- Only two States had an existing national rule in the area of risk assessment and mitigation in ATM,
- ESARR 4 is, in the majority of cases, treated either in a combined way or as a minimum in a consistent way, with ESARR 3,
- Four States are late in promulgating a national rule compliant with ESARR 4,
- At the time of the visits, three States had no plans to promulgate a national rule compliant with ESARR 4, even if required,
- Written procedures stating how to perform ESARR 4 safety oversight do not always exist and the large majority of the States still lack the necessary resources to undertake safety oversight. In the few States where there is a safety regulatory process in place to verify compliance with current national requirements, there is often still a need to revisit these processes of initial and on-going compliance to ensure their adequacy when national safety regulatory requirements fully comply with ESARR 4,
- At the time of this report, very few States are in a position to verify that their national ANSPs meet the provisions of ESARR 4.

ESARR 5 – ATM Services' Personnel

2.11 The identified level of implementation of ESARR 5, as identified by SRU through fourteen visits conducted in the framework of the ESARRs Implementation Monitoring and Support Programme, shows:

- All States have in place elements of Air Traffic Controller licensing (leading to the issuance of either a license or a certificate of competency), in a manner almost compliant with ICAO Annex 1,
- In all States except one, work is in progress to change (or assess the need to adjust) national arrangements in accordance with ESARR 5; this is being done in a well planned and controlled manner,
- Three States are late in promulgating a national rule compliant with ESARR 5, Edition1.0,
- At the time of the visits, one State had no plans to promulgate a national rule compliant with ESARR 5, even if required,

- Written procedures stating how to perform ESARR 5 safety oversight do not always exist and half of the States claim they lack the necessary resources to undertake safety oversight,
- At the time of this report, few States are in a position to verify that their national ANSPs meet the provisions of ESARR 5.

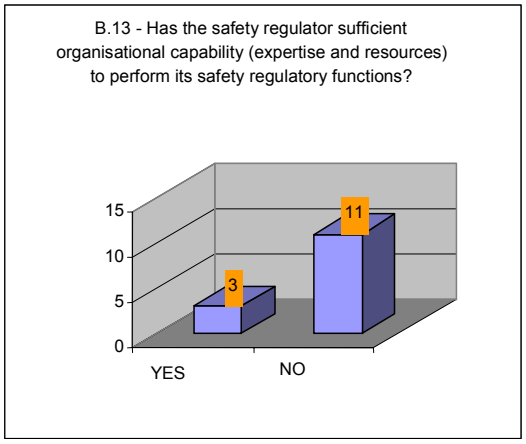
Main Impediments to ESARRs Implementation

2.12 Although the legal basis to undertake ATM safety regulation usually appears to enable the regulator to discharge its current functions and responsibilities in a satisfactory manner, a significant number of States are only now embarking upon establishing their ATM safety regulatory arrangements, mainly due to a lack of resources and expertise.

a) If most States appear to have a sound legal basis for the establishment of an ATM safety regulatory framework at national level, at least functionally independent to service provision, there seems to be in a number of States a lack of political commitment to what was agreed at MATSE V in 1997, i.e. the actual implementation of a national ATM safety regulatory function.

b) Even when States have implemented a form of rule making function at national level, there is a lack of awareness, or at least of commitment and investment, to implement any effective supervisory/oversight function.

c) As a direct consequence, there is a clear lack of competent resources in the large majority of the States visited, especially in the supervision/oversight area. The recruitment and training of safety regulatory staff are critical impediments to the implementation of ESARRs.



d) Discussions held during the ESIMS visits tended to suggest safety regulatory staff were often paid less than ANSP staff, and that there were insufficient incentives to recruit experts with the necessary ATM background. Furthermore, safety regulatory staff may not always be given the same opportunities as ANSPs staff in attending EUROCONTROL meetings and training courses, mainly due to resource limitations.

2.13 This situation, if not acted upon, may lead to the establishment of a weak, non-credible and administrative type of safety regulatory role in a number of EUROCONTROL Member States. With safety in mind, and in the light of the Single European Sky regulations, this is clearly unacceptable.

2.14 There are sometimes complex national arrangements in place, where clarifications with regard to the civil and military institutional arrangements and to the various national responsibilities in safety reporting and assessment appear needed, at least with regard to ESARRs enforcement.

2.15 A number of States have complained about the difficulties in reconciling at national level the enforcement of safety regulatory requirements being developed and approved within EUROCONTROL, the EC and to a lesser degree ICAO (e.g. ESARR 5, EC study on "Review of ATC training with a view to reinforcing harmonisation and increasing mobility", ICAO Annex 1). Indeed, when these mandatory provisions vary in terms of purpose, scope, detailed contents and implementation timescales, they can be considered as impediments to the national implementation of safety provisions.

2.16 In addition, States face specific difficulties which should not only be addressed at national level but also within the SRC and the Agency, as follows:

- The level of expectation from small organisations is still unclear and there is a related lack of guidance to service providers,
- States often appear to undertake (or have undertaken) the implementation of ESARR 2 on an ad-hoc basis, and have showed a lack of timely initiation of activities. This may be due to the fact that States had the initial perception that the national rule in place was sufficient to address ESARR 2 whereas with experience, this proved not to be true,
- States have difficulties in clarifying the actual competence of the authorities or organisations as well as related interfaces and working arrangements with regard to accident, incident investigation, severity/risk assessment, actual analysis of safety occurrences, safety performance monitoring and national reporting to ICAO and EUROCONTROL,
- Guidance in the use of the severity/risk classification scheme provided in ESARR2 is needed to ensure uniform classification of ATM safety occurrences,
- The level of detail and new terminology in ESARR 2 means that time is needed before these new elements can be considered normal practice,
- There are difficulties to implement a "non-punitive environment", with the possibility of changes to non-aviation related legislation,
- In some States, there is a safety regulatory process in place to verify compliance with current national safety management requirements, which is usually based on audits or/and inspections, sometimes compliant with ISO 9000. However, within the ATM community there often appears to be a lack of exposure and understanding of the basic principles of management systems,

- States find it difficult to set national ATM Safety Minima or Target Level of Safety,

- Equally, the principles of ESARR 4 are new to the majority of States and ANSPs; more specifically, there is a lack of widely accepted methods to derive quantitative safety objectives for hazard tolerable probability of occurrences (based on the severity of their effects on aircraft operations),

- The requirement 5.2.1.15 of ESARR 5 on psychoactive substances is not compatible with some national non-aviation legislative arrangements,

- Issues also raised relate to the licensing of military controllers against ESARR 5 when they move from civilian to military platforms, and

- There is a lack of harmonised guidance and common understanding on how to implement ESARR 5, Edition 2.0 for technical and engineering staff involved in safety related tasks.

Main ESIMS Conclusions

2.17 In the majority of States, ESARRs are, or will be, transposed into national rules either on time or up to two years after the specified applicability dates. However, in some States, the transposition of ESARRs into national regulations will still be subject to a ***political decision*** as well as to the availability of ***competent safety regulatory staff***.

2.18 The lack of competent resources is clearly a common issue across States, with some critical and acute problems identified in some States, especially with regard to ESARR 3 and ESARR 4. ***Lack of safety oversight staff*** is more acute than lack of rule making staff.

a) Recruitment and training in ATM safety regulation is obviously a major priority.

b) In particular, States having more than one ANSP will face acute resource issues in order to find sufficient competent staff to carry out initial safety oversight of all ANSPs against ESARRs.

2.19 ***Concurrent international and European rulemaking initiatives*** in similar or adjacent domains/areas are stated to clearly impact upon (and delay) the national implementation of safety regulatory provisions.

2.20 The National ATM safety regulatory frameworks of most of the States visited will clearly need to be modified and consolidated in a significant and consistent manner in the context of the Single European Sky (SES) regulations.

a) Some States may still not be in a position to resource their national safety regulatory/supervisory function,

b) The approval schemes which exist today, differ somewhat across States and do not allow for a straightforward implementation of the SES regulations (and ESARR 1) in a sound and consistent manner from a safety perspective,

c) Considering the future design(s) of the European airspace with Functional Blocks of Airspace (FBAs), there may be a need to confirm that the scope of the national safety regulatory function includes all of ATM safety regulation (i.e. not only including Air Traffic Services but also Airspace Management and Air Traffic Flow Management).

2.21 The interface with the military authorities would often benefit from additional clarifications with regard to the implementation of ATM safety regulation.

2.22 It is of the utmost importance that ESARR 2 be in force across the ECAC region and its implementation should be given the highest priority.

a) The overall consistency and reliability of the ECAC safety indicators being developed through AST returns and monitored by the SRC can still be challenged.

b) Without more visibility of the main precursors to accidents and achieved levels of safety, States are not in a position to manage their ATM operations in a way that ensures that their decisions give due consideration to ATM safety.

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3. ATM SAFETY PERFORMANCE

Safety Measurement and Improvement Programme

3.1 Approval by the Commission of the EUROCONTROL Safety Measurement and Improvement Programme was given in November 1999 (refer to Decision No. 80).

3.2 Within this Programme, ESARR 2 requires States to have in place national means for the reporting and assessment of ATM safety occurrences (ESARR 2, requirement 5.1), and to annually report summary data to EUROCONTROL (ESARR 2, requirement 5.2). This latter requirement is performed using the Annual Summary Template (AST) system, containing a comprehensive set of ATM safety indicators, allowing the collection of categories of safety occurrences in terms of:

- Total accidents and Total accidents with ATM contribution;
- ATM related Incidents; and
- ATM specific occurrences.

and their sub-classification for *inter alia* type of operations, phase of flight, flight rules and class of airspace.

3.3 In order to facilitate data collection, the SRU asked States to nominate a focal point at national level, called the 'AST Focal Point', to send national statistics to EUROCONTROL. Until now, AST Focal Points have been established in twenty-eight (28) of the **ECAC States (27 States and 1 multi-national service provider). However, no AST Focal Points have been nominated by fourteen (14) States, six (6) of them being EUROCONTROL Member States to which Decision No. 80 applies.**

3.4 Usually when no AST Focal Point has been nominated by a State, the SRC/SRU does not receive annual safety statistics from that State. However, having nominated an AST Focal Point does not necessarily mean that the State will always send national statistics. The second major issue is the continuity of the AST Focal Points. They change very often without a replacement being notified to SRU. The newly appointed AST Focal Points are receiving virtually no training and they have very little time to understand what is to be reported and by when.

3.5 As at the end of August 2003, twenty six (26) AST reports (1 multi-national Service Provider and 25 States) had been received by SRU with one additional having notified SRU that it would send a late submission at the end of the year. Unfortunately, this indicates that the trend of "levelling off" in the implementation of ECAC Safety Measurement and Improvement Programme identified last year is now confirmed and the level of resources available to collect, collate and exchange safety data is still extremely low.

3.6 A large number of ASTs are still received by SRU with extensive delays; the quality of the AST returns received continues to increase in a number of States, but the returns still lack some vital information, especially on accident/incident causes, which would significantly improve their value.

3.7 Significant variations still exist in the scope, depth, consistency and availability of ATM safety data.

Safety Performance Indicators

3.8 Through the mechanism of the AST returns, the SRC has constructed a system of safety performance indicators, which is based on data collected along the following categories:

- ***Accidents***

  A1 Accidents (total number of accidents);

  and five further sub-divisions of this overall number, namely:

  A2 Mid-Air Collisions;

  A3 Controlled Flights Into Terrain – CFITs;

  A4 Collisions on the ground between Aircraft;

  A5 Collisions between an airborne Aircraft and Vehicle /another Aircraft on the Ground;

  A6 Collisions on the ground between Aircraft and Vehicle/ Person(s) / Obstructions(s).

  Further more, In each of the sections A1 to A6, the following issues are captured:

  - Total "accident type" statistics
  - Total "accident type" statistics with aircraft destroyed or substantially damaged
  - Total "accident type" statistics in which ATM has had a DIRECT contribution
  - Total "accident type" statistics in which ATM has had an INDIRECT contribution
  - Total FATAL "accident type" statistics
  - Total FATAL injuries (including details per crew, passengers and third parties)
  - Total FATAL "accident type" statistics with aircraft destroyed or substantially damaged
  - Total FATAL "accident type" statistics in which ATM has had a DIRECT contribution
  - Total FATAL "accident type" statistics in which ATM has had an INDIRECT contribution

- ***Incidents and number of reports***
  - Airprox reports
  - Total number of Incidents
  - Near CFIT
  - Runway Incursions (total numbers)
  - Separation Minima Infringement
  - Unauthorised Penetration of Airspace
  - Aircraft Deviation from Applicable ATM Regulation
  - Aircraft Deviation from Air Trafic Control Clearance

  Note:- other types of incidents are not yet reliable for tracking

- ***ATM Specific Occurrences***
  - Total number of ATM Specific Occurrences
  - Inability to provide ATS Services
  - Inability to provide Airspace Management Services
  - Inability to provide Air Traffic Flow Management Services
  - Failure of Communication Function
  - Failure of Surveillance Function
  - Failure of Navigation Function
  - Failure of Data Processing and Distribution Function

3.9 The 14th meeting of the Provisional Council (PC14) requested the Safety Regulation Commission to propose adequate ECAC-level safety performance indicators before July 2003, for approval by the Commission through the Provisional Council and invited it to include corresponding indicators in its regular safety reports to the Provisional Council.

a) The current indicator structure used by EUROCONTROL is considered as sufficiently comprehensive and detailed at this stage to monitor achieved safety levels, identify safety significant trends, and detect unwanted degradation of safety levels, permitting corrective actions to be identified.

b) As Safety Indicators can also be used to assess to what extent political, strategic, regulatory and industry safety targets are being met, the usual structure used by the SRC is now being augmented by a limited set of high-level indicators, also relying on the AST returns, to better monitor compliance with EUROCONTROL's strategic safety objectives.

c) However, the lack of reliable data collected from States prevents the SRC in providing a full set of populated high level indicators in this report. Furthermore, work is still required with the Performance Review Commission (PRC) to confirm that those high-level safety indicators sufficiently respond to their expectations.

3.10 The structure of indicators is populated by aggregation of the annual submissions from States, when these are considered reliable enough. Indeed, the population by States of the EUROCONTROL indicator system with reliable, consistent and high quality data is not progressing well, and presents EUROCONTROL with a significant challenge in its safety as well as strategic work. A key factor is the availability of adequate resources at national level to support the occurrence reporting and assessment process.

a) As not all indicators can be currently populated in a reliable manner, the trends over the past years have a high level of uncertainty. More specifically, as it is still the very early days for ESARR 2, Phase 3 reporting to EUROCONTROL, not all AST reports contains data on ATM Specific occurrences.

b) Attachment 2 provides for a populated set of safety indicators, based on the AST returns so far and taking into account of the reliability of the data provided.

Main Conclusions on Safety Measurement

3.11 One year after the target date for implementing all phases of ESARR 2, only 58% of EUROCONTROL Member States are reporting that they fully comply with ESARR 2.

a) Eleven ECAC States (out of which 5 EUROCONTROL) reported that they have still not yet fully implemented Phase 1 of ESARR 2 and this is clearly shown with accidents not being classified according to ESARR 2.

b) Data reported on ATM specific occurrences (ESARR 2, Phase 3) and causes to accidents, and incidents are neither complete nor reliable; this limitation often prevents conclusions to be drawn and remedial actions to be investigated at European level.

3.12 The total number of accidents[23] has remained fairly constant since 1999, with an ATM direct contribution to accidents (either fatal or not) remaining low.

a) This however needs to be confirmed as not all accident investigations have been completed yet. The ATM indirect contribution to non-fatal accidents is however increasing, most probably reflecting a more systematic investigation of all contributors to accidents.

b) Of the twelve (12) MID-AIR Collisions reported[24] in 2002, there is only one IFR/VFR instance indicated.

c) The number of reported collisions on the ground between aircraft and vehicle(s) / person(s) / obstruction(s) is still significant and has increased from 2001 to 2002, representing a higher percentage of accidents compared with CFIT and MID-AIR in 2002. It is fortunate that these types of accidents do not usually lead to a large number of fatalities.

[23] *Based on published reports only.*

[24] *The Überlingen accident is not classified due to the fact that no final report is yet published.*

3.13 The total number of incident reports has increased significantly, indicating in particular, clear improvement on the level of reporting of ATM incidents other than Air Proximity (AIRPROX) and Airborne Collision Avoidance System (ACAS) Reports.

a) **The ratio (investigated reports/reported reports) has decreased from 18% in 2001 to 14% in 2002**, most probably due to a clear lack of competent resources dedicated to the investigation of reported incidents. That ratio has however increased for ACAS reports, showing a priority interest in those events.

b) The number of incident reports involving mixed OAT/GAT traffic is maintained proportionally higher that the normal traffic ratio between the two categories of operations.

3.14 The total number of reports investigated has however increased and confirms the need to monitor specific types of occurrences and their causes.

a) While the trend in "separation infringements" seems to indicate a slight decrease, **the number of "near CFIT" occurrences has again dramatically increased** to levels higher than those reported in 1998 (this needs to be investigated further and could be explained by the relative decrease in actual CFIT).

b) The trend in "runway incursions" appears to be starting to level off, but it still confirms the need to focus efforts on already identified mitigation measures.

c) Both "unauthorised penetration of airspace" and "aircraft deviation from ATM clearance" are on a linear increasing trend. Although general aviation and civil/military interactions may represent the main areas to be investigated with regard to "unauthorised penetration of airspace", the trend appears to reflect an increase in the level of reporting of "aircraft deviation from ATM clearance".

Key Risk Areas

A number of key risks areas have been investigated over the past two years within EUROCONTROL and related findings and status of work thus far show that there is a need for further national data to be shared and analysed within EUROCONTROL, in a way which avoids duplication of efforts and builds on a synergy of all stakeholders' inputs.

Prolonged Loss Of Air/Ground Communications (PLOC)

3.15 In February 2002 SRC was requested by certain Member States to consider the need for a harmonised European safety regulatory intervention in respect of the effect known as 'Prolonged Loss of Air/Ground Communication (PLOC)'. This action was taken in the context of an emerging high-risk ATM safety matter and, since the terrorist events of 11th September 2001, as a possible safety and security issue where military interception of subject PLOC flights had been considered.

3.16 These initiatives, combined with others within the EUROCONTROL Agency, led to the establishment of an EUROCONTROL PLOC Task Team within the Agency working arrangement. The PLOC Task Team has since then investigated, identified and increased the understanding and awareness of the characteristics of the effect generically described as PLOC.

3.17 A PLOC incident database has been established and maintained by EUROCONTROL with UK support, and contains over 200 categorised PLOC event records from the period 1999-2003. Most of the inputs have been provided by a number of States. Other States are sensitised to the effects and monitoring the situation. Reporting from other source has been limited and, as a result, the visibility of the issue continues being insufficient.

3.18 In parallel, the SRU identified through its AST mechanisms a significantly high number of “failures of the communication function”, some of which may be related to PLOC occurrences.

3.19 Of significance, over half of the PLOC events registered in the PLOC database have been reported by a single European airline with a fleet equipped with transceivers sourced from a single European supplier. As a result, the radio manufacturer tested the equipment through a series of transmission/reception cycles and observed a single occurrence where one unit failed to return a normal ‘receive mode. A link with PLOC cannot be excluded, therefore a preventive equipment modification has been developed, and an Aircraft Service Bulletin (SB) to implement the modifications will be published in the near future. While the SB can be expected to reduce significantly reports from the previously affected European airline, the other causes of all PLOC events have not been fully identified.

3.20 On behalf of the PLOC Task Team, the UK CAA has conducted several test flights in specific airspace affected by PLOC, and has identified a risk of radio frequency inter-modulation product from strong signals radiated by wide-area paging networks in the UK. The received signal strength levels appear to exceed the “strong signal immunity” test parameter specified for aircraft transceivers and their operation. UK CAA is further investigating the signal rejection parameters of the airborne receiver antennae in the context of ICAO requirements for equipment Frequency Modulation (FM) immunity.

3.21 More work is required to understand all the issues at stake and to develop associated remedial measures.

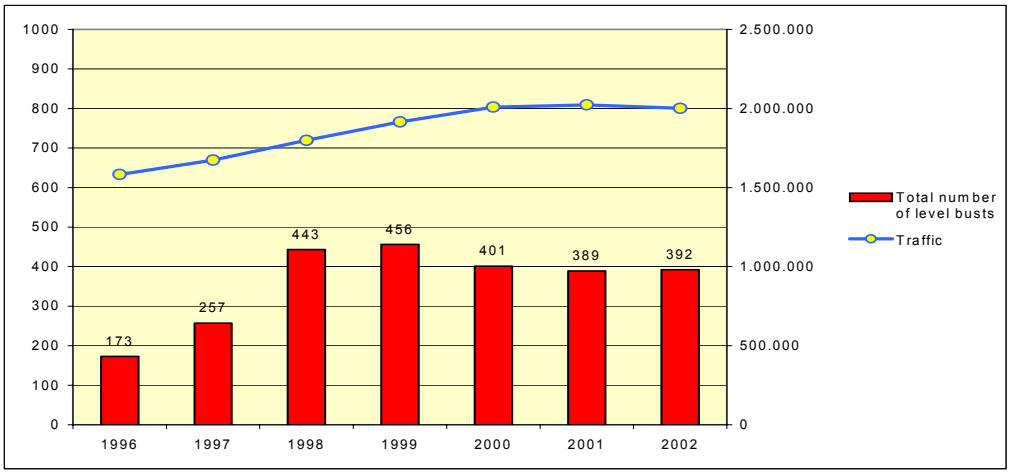
Level Busts

3.22 The SRC regards the issue of 'level busts' as a key safety risk area to be addressed through a monitoring and a stakeholder increased awareness campaign. On behalf of SRC, the SRU participates to the EUROCONTROL Agency Safety Improvement Initiatives, which have led to the organisations of workshops on level busts.

3.23 In an effort to reduce further level busts throughout Europe and elsewhere, a Level Busts Task Force was established within the EATM SAF/Safety Improvement Sub Group (SISG) and has developed a number of draft recommendations in the form of a “Level bust Prevention Action Plan” to be soon proposed to the SAF Team.

3.24 In parallel, work conducted by the SRU on the AST returns related to the separation minima infringements in 2002 tend to show a levelling off of those occurrences, which still needs to be confirmed over the years to come.

3.25 SRU conclusions are supported by the UK CAA which continued to monitor level bust events during 2002; that year saw a significant leveling out of the number of such occurrences as illustrated below:



Runway Incursions

Refer to Section 1.16 (a) in Chapter 1.

Unauthorised Penetration of Airspace

3.26 In order to investigate further the reasons why the number of unauthorised penetrations of airspace appeared as significantly high, the SRU requested in February 2003 from States additional data on the underlying causes of those events.

3.27 Unfortunately, the SRU could not collect any substantial national inputs, hence preventing the SRC from drawing firm conclusions on the causes of those occurrences and developing proposed remedial actions.

3.28 The only elements identified as needing further analysis in that regard are “general aviation” and “civil/military interactions”.

3.29 A specific focus will now be placed in further AST collection and analysis in order to identify underlying causes and develop a proposed way forward to reduce the number of such occurrences.

4. STATUS OF SRC MEMBERSHIP

SRC Commissioners

4.1 The Permanent Commission approved the initial establishment of the SRC on the 9th December 1997 (Decision No. 72). The SRC's Terms of Reference were approved under the EUROCONTROL Revised Convention. In addition, the SRC Rules of Procedure were adopted by the Provisional Council at their meeting on 12/13 November 1998 (PC3) and approved by the Permanent Commission at their ad-hoc meeting on the 13th November 1998.

4.2 According to the SRC's Rules of Procedure, the SRC consists of Commissioners, Advisers and Observers. Provisional Council approval is required for all SRC Commissioners. Each Commissioner may be accompanied by nominated Advisers whilst Observers from appropriate organisations are invited to attend by SRC.

4.3 Since the original Provisional Council approval, all changes to SRC membership have been approved by the SRC itself. This is outside the SRC's Terms of Reference, which states that the Provisional Council will approve all Commissioners.

4.4 At the Safety Regulation Commission's 15th Meeting held on 24/25 September 2002, it was agreed (Decision No. D-15/11/2) to:

a) Obtain Provisional Council approval for the current membership of SRC,

b) Propose to the Provisional Council a revised membership approval process involving annual Provisional Council approval of all subsequent changes.

4.5 This revised membership approval process has been submitted to the Members of the Provisional Council for their approval.

4.6 In this process, the SRC is proposing an expeditious way to take into account the changes of SRC Commissioners as nominated by Member States, through its Annual Safety Report.

4.7 Changes to the SRC membership have taken place and continue to occur on a frequent basis. An updated list of nominated SRC Commissioners is therefore included in this report and is submitted for Provisional Council approval (refer to Attachment 3).

Relationship with ESARRs Implementation Status

4.8 Clearly, when a State has not nominated an SRC Commissioner, this entails a lack of awareness on SRC activities and related EUROCONTROL decisions in that State. Similar issues could be identified for States having only just recently nominated an SRC Commissioner and/or for States having nominated representatives to the SRC who do not attend SRC meetings on a regular basis. ESIMS visits conducted so far seem confirm that there may be a relationship between the lack of representation at SRC and the efficiency and effectiveness of ESARRs implementation in those States.

4.9 In some States, the SRC Commissioner is not from within an "organisation responsible for ATM safety regulation", as required by the SRC Rules of Procedure, but from the service provider organisation. This usually also contributes to a lack of awareness on SRC activities and related EUROCONTROL decisions within the Administrations which are legally responsible for ATM safety regulation.

4.10 The SRC recently held three SRC Closed Sessions where SRC Commissioners reported on the level of implementation of ESARRs within their State and shared difficulties encountered as well as lessons learned. A number of States did not contribute to those Closed Sessions. Based on the ESIMS visits conducted so far, there is a clear relationship between the lack of contribution to the SRC Closed Sessions and the level of implementation of ESARRs in those States.

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5. PLANNED SRC ACTIVITIES

5.1 The SRC has now revisited its Work Programme in the light of the high level European Action Group (AGAS) Strategic Safety Action Plan (SSAP) as approved by the EUROCONTROL Commission in April 2003, the related European Action Plan for the Prevention of Runway Incursions, the outcome of the ESARRs Implementation Support and Monitoring (ESIMS) Programme till the end of July 2003 and of the results of SRC Closed sessions[25]. In order to cater for the limited human and financial resources available within the SRU, as well as within national safety regulatory bodies, a formal prioritisation process has also been conducted over the 2003 summer period to allow for feasible target dates to be set for the completion of SRC actions.

5.2 The AGAS Strategic Safety Action Plan being produced in a co-ordinated manner between the SRC and the Agency is yielding a more detailed master plan in which SRC work items are identified and incorporated in a manner consistent with the revised SRC Work Programme.

5.3 The SRC intends to focus its activities so that it contributes to a robust, sound and uniform implementation of ESARRs at national level, in a way which is consistent with the principles of the Single European Sky (SES) regulations.

a) The SRC intends to establish a robust interface with the European Commission to ensure consistency of approaches and synergy of activities.

b) The SRC intends to initiate, in full co-ordination with the EC, a review of all ESARRs to ensure that they can be easily transposable into EC law, as planned in Article 4 of the SES regulations of the European Parliament and of the Council on the provision of air navigation services in the Single European Sky.

c) The SRC also intends to focus its development activities around ESARR 1 and associated Advisory Material to provide States with the necessary requirements and guidance to establish sound and robust safety regulatory functions, with a view to ensuring that in the safety area, a harmonised scheme exists across States to meet the Single European Sky ‘s requirement for national supervisory authorities.

d) To support EC Member States in implementing ESARRs in a manner consistent with the principles of the SES regulations, the SRC will contribute to the recently established RU/SRU Task Force dealing with best practices to the assessment of conformity of ATM/CNS systems against applicable requirements. Related outcomes will be essentially used in the development of ESARR 1 Advisory Material (EAM 1).

e) To support ECAC States in ensuring that the Air Traffic Management (ATM) services provided meet minimum levels of safety in the public interest, SRC and AGAS have both identified a need for a robust training programme in ATM Safety.

[25] *Where SRC Commissioners have reported on and shared their experience of implementing ESARRs.*

(i) On a short term basis and for the calendar year 2004, the Safety Regulation Unit (SRU) will deliver the SRC's ATM Safety Regulatory training audit module it has developed, with logistic support from IANS, and will agree ways in which the provision of the audit module could be progressively transferred to IANS.

(ii) The SRC also intends to progress further, in co-ordination with the Agency, the development of requirements for its ATM Safety Regulatory Training Programme. IANS will then be allocated the task of developing and delivering the ATM Safety Regulatory training module in accordance with SRC requirements.

(iii) A high priority will be given to the development of a training module related to ESARR 2 and TOKAI, in co-ordination with the Agency.

f) In addition to the follow up activities of the ESIMS visits conducted in 2002 and 2003, the SRC will further formalise and strengthen the ESARRs Implementation Monitoring and Support (ESIMS) Programme, in a way which ensures an optimum synergy with the extended IUSOAP and avoids duplication of activities at regional and national levels, as follows:

(i) The SRC intends to establish a more formal interface with ICAO in order to co-ordinate the ESIMS and IUSOAP objectives, approaches, audit baselines and timescales.

(ii) In early 2004, the SRC will refine the basis for conducting the ESIMS Programme, considering the AGAS recommendations and will submit related proposals to the Provisional Council in the second half of 2004 for approval.

(iii) In order to support the ESIMS Programme, and subject to the availability of financial resources, the SRU will develop a database to collate all findings from its visits to States and support follow-up monitoring.

(iv) The SRC will then plan and prepare the implementation of an enhanced ESIMS Programme to start in 2005.

5.4 Though the focus of the SRC will be placed on ESARRs implementation issues, some ESARR Advisory Material will continue to be developed in order to address urgent needs so far identified.

5.5 In particular, priorities will be given to ESARR 2 Advisory Material as well as to ESARR 3 and ESARR 4 Advisory Material with regard to 'small organisations', and to the development of quantified safety minima and objectives.

5.6 Pursuing its objective to avoid duplication of efforts and inconsistencies of approaches across national safety regulators, the SRC will continue developing harmonised ATM safety regulatory views on the acceptability of multi-national developments co-ordinated by the Agency. However, due to resource limitations, and giving due consideration to the safety significance of planned ATM developments as well as their anticipated implementation time scales, the SRC would intend to focus its efforts on a limited number of EATM programmes whilst still addressing the national regulatory needs which have been expressed by SRC Commissioners.

5.7 Feedback from the monitoring of ATM safety performance across ECAC and the ESIMS Programme has led the SRC to believe that it should implement its Terms of Reference in a way which more systematically considers the interface of ATM with aerodromes (e.g. runway safety issues) as well as the civil/military interface (e.g. unauthorised penetration of airspace; implementation of ESARR 5). More generally, the SRC intends to establish effective interfaces within the EUROCONTROL Organisation (e.g. CMIC, RC, PRC and Agency), with the EC (DG TREN SES Unit, EASA) and with ICAO.

5.8 In order to give more visibility to SRC deliverables, the SRU will develop a formal publications binder with all extant deliverables for communication to a selected list of key Stakeholders.

5.9 Due to resource limitations at European and national level, the SRC is proposing to postpone to a later date further activities in the following areas:

- Development of new ESARRs;
- Development of ESARR Advisory Material (EAMs) where no urgent needs have been reported by AGAS, through the ESIMS Programme or SRC Closed sessions.

5.10 Within the EUROCONTROL Safety Measurement and Improvement Programme, a major work area for the SRC and confirmed by AGAS conclusions, will be the continued development of support for national systems for the reporting and assessment of ATM occurrences, in accordance with ESARR 2. This will involve a considerable extension to the current range of ESARR Advisory Material, further development of support tools, and enhancement of the network of national focal points.

5.11 To build on this work, the SRC also intends to further formalise and improve the process for the identification of key risk areas in ATM. This action will, for the most part, be dependent on corresponding improvements in national reporting and assessment system, but also on key interfaces with the other bodies in this field, in particular EATM SAF.

5.12 A comprehensive range of detailed Safety Performance indicators has been developed by SRC as part of ESARR 2 implementation. The feasibility of extending this range to include a small number of high-level indicators[26] will be further investigated, in conjunction with the Performance Review Commission.

[26] *The SRC has already identified a number of possible high level indicators but these cannot be populated yet due to lack of national reliable safety data.*

6. CONCLUSIONS

A number of last year's SRC recommendations to PC have not yet been fully implemented.

In particular and despite a multitude of requests, recommendations to the Provisional Council from the SRC, the PRC and AGAS, a number of States still fail to implement ESARR 2 and fourteen (14) States[27] have not nominated any focal point to report annual safety statistics to EUROCONTROL.

a) Safety data collected from States still does not allow meaningful conclusions to be derived at European level in terms of actual safety achievement and trends.

b) Insufficient resources are dedicated at national level to the analysis of reported safety occurrences, preventing meaningful and timely conclusions to be derived, shared and used as a basis for safety improvement measures.

The ESIMS Programme has so far enabled the SRC to confirm to a greater level of detail the main issues identified by AGAS and to identify additional ways forward to address them.

Not all States have yet nominated an SRC Commissioner and even when this is done, SRC Commissioners are not always senior executives from within the safety regulatory function, as required in the SRC's Rules of Procedure. ESIMS visits to States so far tend to demonstrate that where there is inadequate State representation at SRC, the efficiency and effectiveness of ESARRs implementation is compromised.

In the majority of States, ESARRs will be promulgated at national level on time or within two years from the agreed implementation dates. Overall, delays are being identified in the ESARRs implementation. Small ATS provider organisations are facing specific difficulties in meeting ESARR 3 and ESARR 4.

The main impediment to ESARRs implementation is the limited resources at national level for safety oversight in general. In a large number of States, there is currently no short, medium or long-term solution to this issue as its resolution goes beyond aviation and ATM.

A number of key risk areas are being analysed within EUROCONTROL in co-operation with other Stakeholders (e.g. level busts, unauthorised penetration of airspace, PLOC, etc.). Collisions on the ground, incidents involving OAT/GAT traffic and near CFIT represent additional key risk areas which deserve further analysis, together with false TCAS RA.

However, both the Agency and the SRC/SRU find it difficult to collect sufficiently reliable data from States to investigate the underlying causes of identified key risk areas in a manner which would allow safety improvement measures to be developed at European level.

Concurrent international and European rulemaking activities, when not co-ordinated and fully consistent, negatively impact on the national implementation of agreed safety regulatory provisions.

[27] *Six (6) of them being EUROCONTROL Member States to which Decision No. 80 applies.*

7. RECOMMENDATIONS

The recommendations hereunder are consistent with and support the AGAS Strategic Safety Action Plan:

a) All EUROCONTROL Member States should nominate as SRC Commissioner an executive from within an organisation responsible for ATM safety regulation and not from other Stakeholder bodies.

b) EUROCONTROL Member States which have not nominated an SRC Commissioner, are encouraged to nominate a Commissioner as soon as possible.

c) In order to fully implement ESARRs at national level, and in the context of the forthcoming Single European Sky regulations, States should increase their commitment to resource and implement national safety oversight and related functions.

d) Considering identified deficiencies in safety oversight and anticipating the implementation of the SES regulations, States should identify those organisations which have the potential to act as accredited and/or notified bodies fully recognised to support their safety oversight and more generally, their supervisory functions.

e) The EUROCONTROL Agency should develop guidance to small air navigation service provider organisations, on how to implement safety management systems in a manner at least compliant with ESARR 3 and report progress to the Provisional Council in November 2004.

f) The Provisional Council should take the necessary steps to ensure that those EUROCONTROL Member States who have not yet nominated an AST Focal Point for ESARR 2 reporting do so, and provide related Annual Summary Reports to SRU by no later than 31st March 2004. The Provisional Council should require the SRC to report to them in November 2004 the names of those States which have not; (i) nominated an AST Focal Point; and (ii) incorporated ESARR 2 into their national regulatory framework.

g) States should ensure that the level of resources dedicated to the analysis of reported safety occurrences enables meaningful and timely conclusions to be derived, shared and used as a basis for safety improvement measures in Europe.

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h) The EUROCONTROL Agency, in co-operation with SRC and other Stakeholders, should establish a robust and centralised mechanism to analyse key risk areas. Currently those key risk areas which still require further work include:

- Level busts,
- Unauthorised penetration of airspace,
- Prolonged Loss Of Communication,
- Collisions on the ground,
- Incidents involving OAT/GAT traffic,
- Near CFIT,
- False TCAS RA,
- As well as those other JSSI Focus Areas not yet addressed.

The Agency should report conclusions and recommendations to the Provisional Council in November 2004.

i) The Provisional Council should task the Safety Regulation Commission, within the context of the foreseen Memorandum of Co-operation between the EUROCONTROL Organisation and the European Commission, to establish practical arrangements with the European Commission to ensure consistency of safety regulatory material, and to report progress to the Provisional Council in April 2004.

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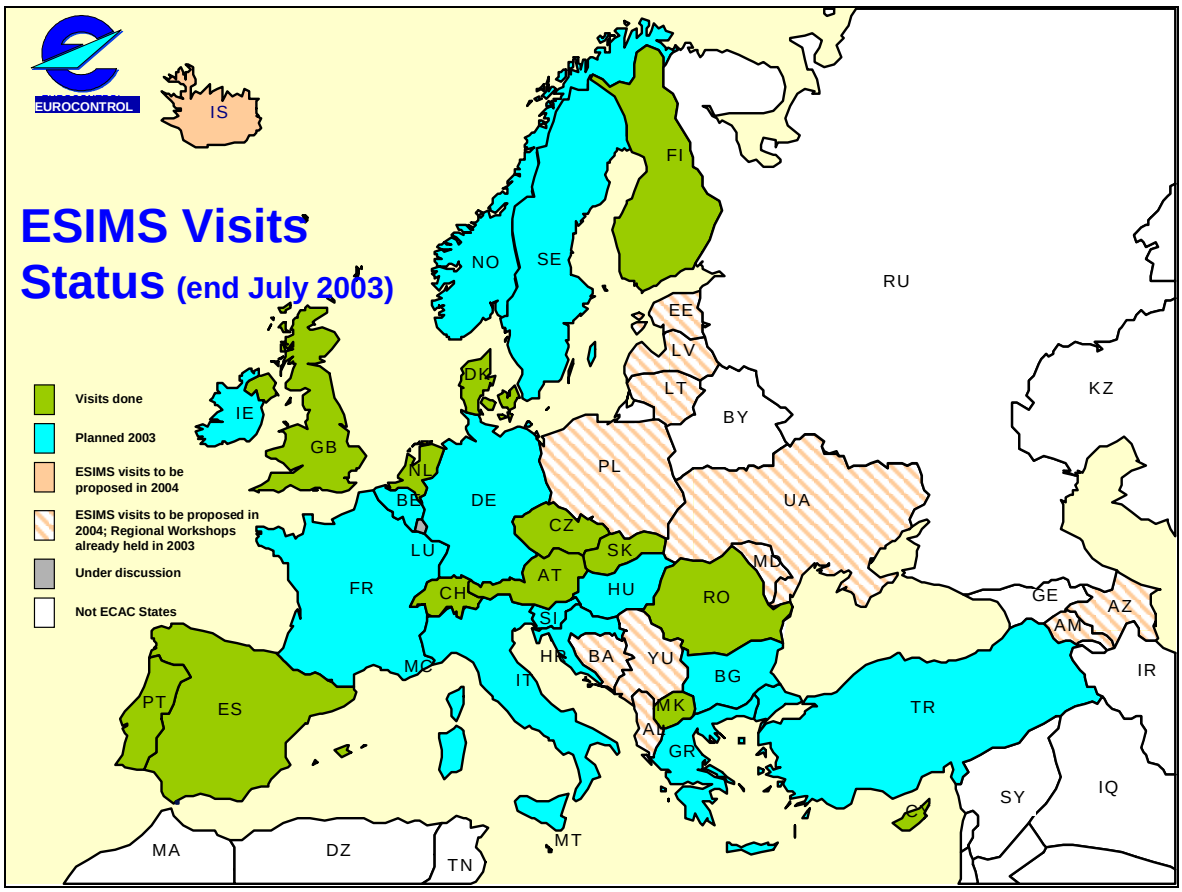
APPENDIX 1 – ESARRs IMPLEMENTATION MONITORING AND SUPPORT PROGRAMME

Introduction

Representatives from the Safety Regulation Unit (SRU) carried out fourteen visits between August 2002 and July 2003. The findings reflect the situation as it was at the time of the visits:

- one visit in August 2002 (the only visit conducted before the inception of the ESIMS),
- eight visits at the end of 2002 (October-December),
- five visits in 2003 (May-July).



By the end of 2003, all States who were members of EUROCONTROL as of early 2003, with the exception of one, will have been visited. New members to EUROCONTROL will be visited in 2004, as well as those ECAC States not members of EUROCONTROL, on a voluntary basis.

In all cases but one, the EUROCONTROL Stakeholder Implementation Service (SIS) representative for those States also conducted their annual LCIP (*Local Convergence Implementation Plan)* visit. This ensures consistency between the SRU findings and the LCIP report in related areas[28]. It should be stressed that, for the 2002 visits, the consistency is assured with the 2002 LCIP report for those States.

The conclusions of the visits do not prejudge in any way the level of ESARRs implementation (or related national safety regulation) by Air Navigation Service Providers in the States visited.

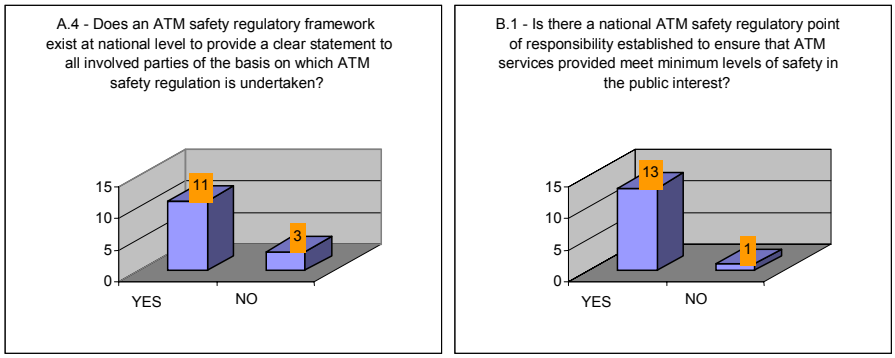
Equally, and considering the information collected so far, the ESIMS findings only address in a limited manner the safety regulatory framework of those military organisations who are subject to ESARRs, according to EUROCONTROL decisions.

The conclusions presented in this attachment are based on a relevant subset of the baseline questions against which the findings and evidences where collected during the visits (Refer to SRC DOC 21).

Legislative Arrangements & ATM Safety Regulatory Framework

In general, most States have implemented an ATM safety regulatory framework at national level which states to all parties on which basis ATM safety regulation is undertaken.

In some States, the aviation law is under going some changes to better clarify respective roles and responsibilities. With one exception, there exists a national ATM safety regulatory point of responsibility established, separated from the service provision functions, to ensure that ATM services meet minimum levels of safety.



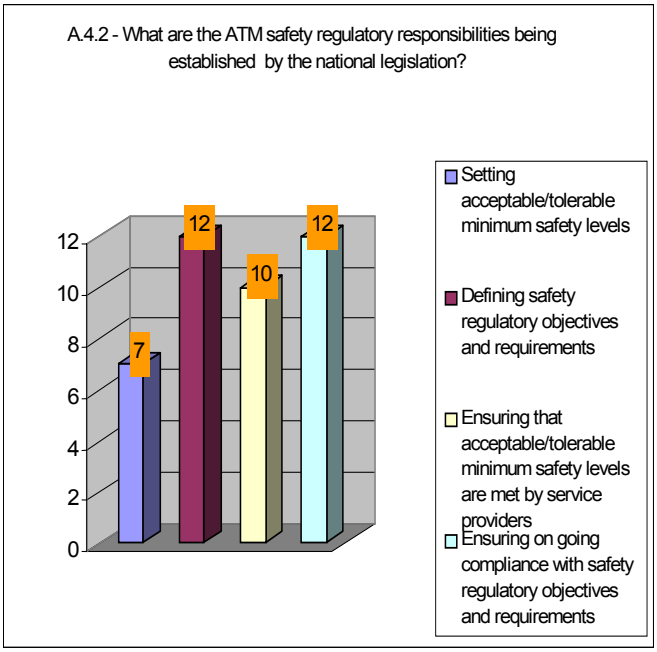
With one exception, all States have an independent safety regulator. In ten States there is a separate organisation responsible for ATM safety regulatory function, while in three States the separation is only at functional level. The only State which does not have yet a clearly established safety regulatory function appears to still have the adequate constitutional basis on which to undertake ATM safety regulation in a manner separated functionally from service provision.

[28] *ESIMS only address the actions bearing on safety regulatory authorities in the ECIP objective related to each ESARR.*

The responsibility of the ATM safety regulatory focal point generally include:

- Defining safety regulatory objectives and requirements,
- Ensuring that acceptable/tolerable safety levels are met,
- Ensuring on going compliance with safety regulatory objectives and requirements.

It should however be noted that the responsibility to set acceptable/tolerable safety levels is in seven cases not clearly and explicitly established. Furthermore, only one State have developed and set up ATM tolerable safety levels/minima so far and is therefore in a position to claim compliance with related requirement in ICAO Annex 11 section 2.26.



The scope of the ATM safety regulatory function is in a majority of cases civil only but five regulators have a joint civil and military responsibility.

In four instances, this point of responsibility lies in a Ministerial department and in ten cases in a Civil Aviation Authority (CAA) (in two States the CAA has delegated power from a Ministry department).

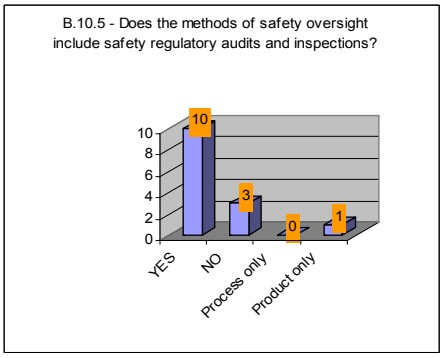
Rulemaking

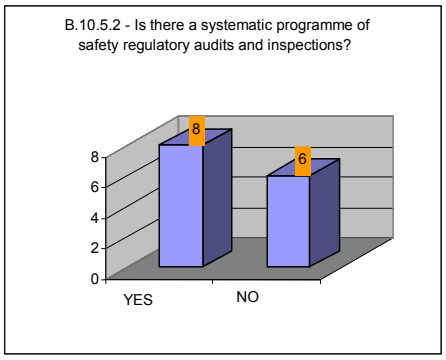
If rulemaking appears to be a well-known function, with a defined process being operated for the development of safety rules, such a process:

- Is not always documented, making it more difficult to audit against and to ensure transparency of the rule making activities; and
- Does always not address the management of ESARRs in an explicit way.

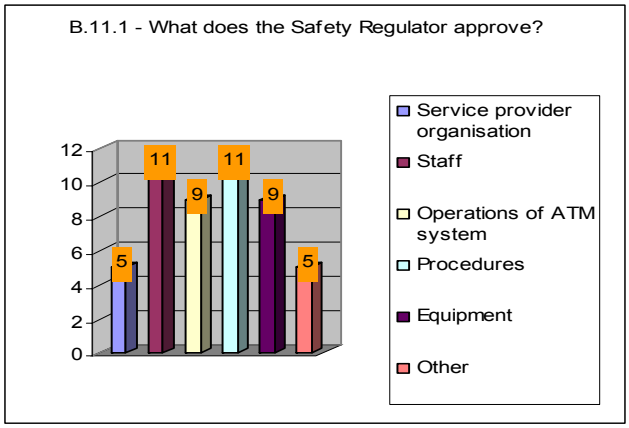
Safety Oversight

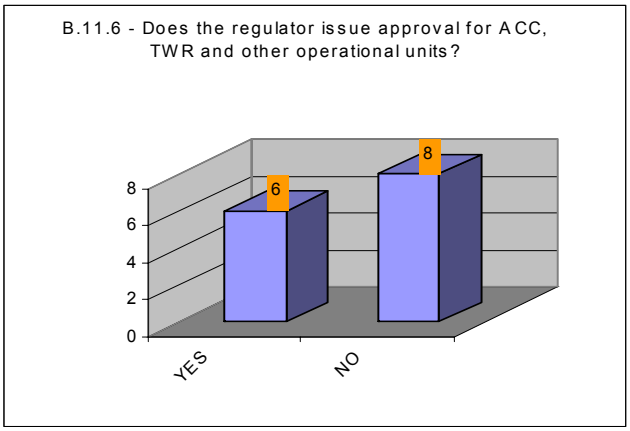
Safety oversight also appears to be a well known function even if only very recently considered for implementation in the majority of the States, with associated processes being determined relying on audits and inspections, and leading in some instances to formal approvals being issued. However, safety oversight processes are not always documented nor operated in a systematic way. Furthermore, their actual implementation and effectiveness are clearly jeopardised due to a lack of safety oversight capability (resources and expertise).



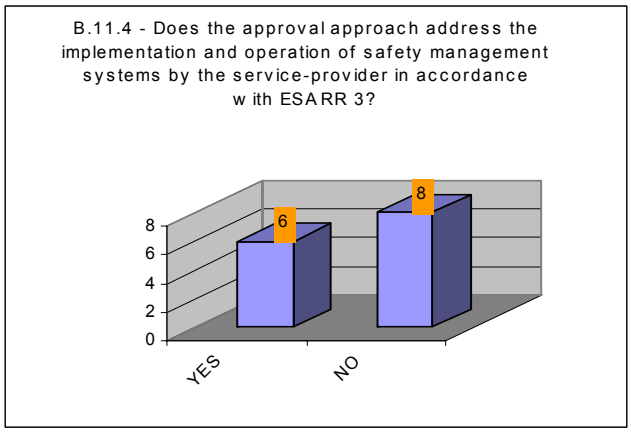


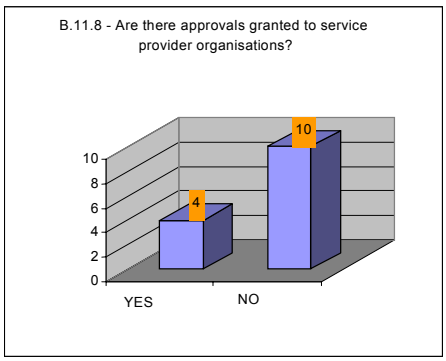
Safety regulatory approvals are more often issued to staff and procedures than to equipment and to a lesser extent to operational units and to service provider organisations.

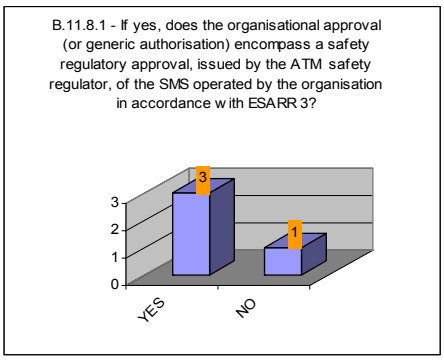




Approvals address the implementation and operation of Safety Management Systems compliant with ESARR 3 in only six cases out of fourteen. This approval process may even rely in a limited number of States essentially on an administrative process with no investigation of potential safety issues.



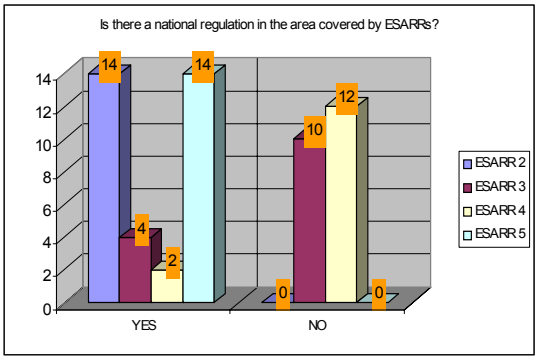


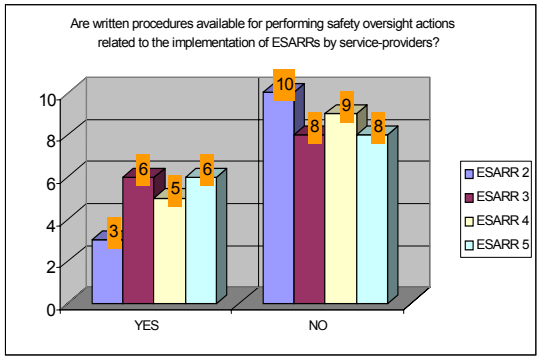


ESARRs Enforcement

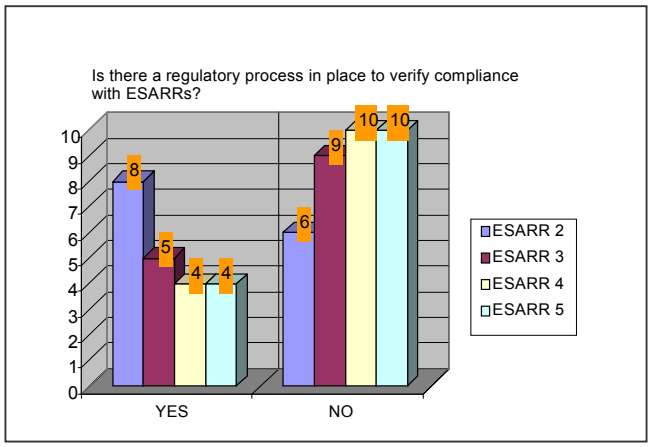
The majority of States have an established safety regulatory function in ATM with clear responsibilities. These States are in the process of enforcing ESARRs at national level by:

- an adjustment of existing rules, especially with regard to ESARR 2 and 5 where all states already have a regulation in place covering most of the requirements of ICAO Annex 13 and Annex 1 respectively; or
- enforcement of new rule (especially with regard to ESARR 3 and 4); and/or
- an assessment of the adequacy of their capabilities to carry out their safety oversight functions.

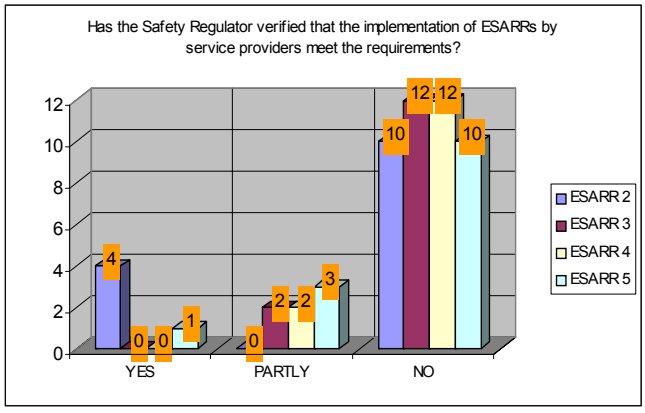




A limited number of States, despite them not having always promulgated any rule compliant with ESARRs, have already developed most of the necessary safety regulatory capabilities and interfaces to undertake their safety regulatory functions according to EUROCONTROL ESARRs related decisions.

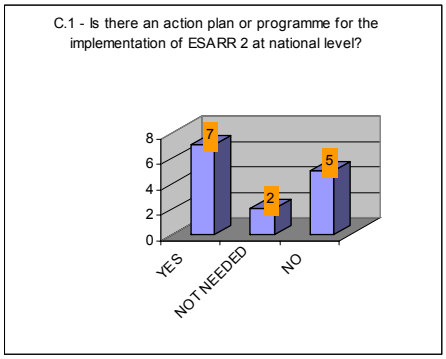


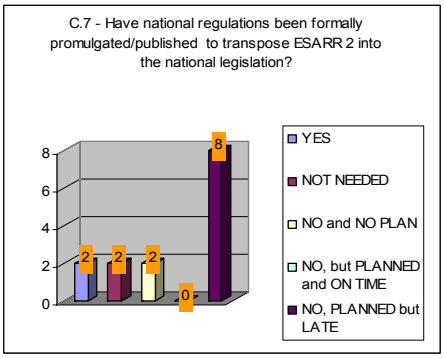
At the time of the SRU visits, in practice few states had actually verified that Service Providers had implemented ESARRs requirements. One obvious reason is that ESARRs are not yet always implemented in the national safety regulatory framework, but even where they are implemented, limited resources and expertise are available to perform it.



ESARR 2

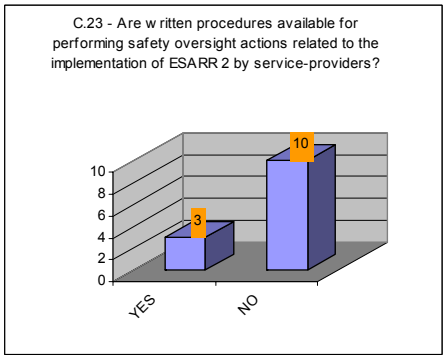
The date due for Phase 3 (the last one) of ESARR 2 Implementation is 01-Jan-2002. As a result the States have either already implemented ESARR 2 or are late. States appear often to undertake (have undertaken) the implementation of ESARR 2 on an ad hoc basis, with no clear implementation plan. When the implementation plan is stated to exist, it is not always documented.

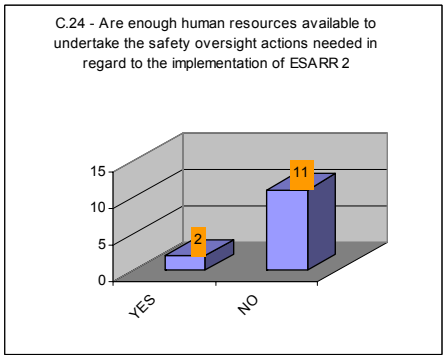




In some States, SRU found it difficult to understand clearly the actual competence of the authorities or organisations as well as related interfaces and working arrangements with regard to accident, incident investigation, severity/risk assessment, actual analysis of safety occurrences, safety performance monitoring and national reporting to ICAO and EUROCONTROL.

However, written procedures stating how ESARR 2 safety oversight is or will be conducted seldom exist and States still lack the necessary resources to undertake that safety oversight function. De facto, very few regulators have verified that national ANSPs have implemented ESARR 2.



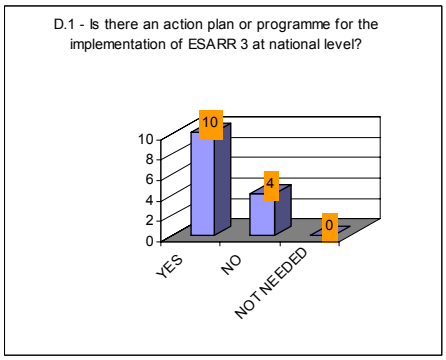


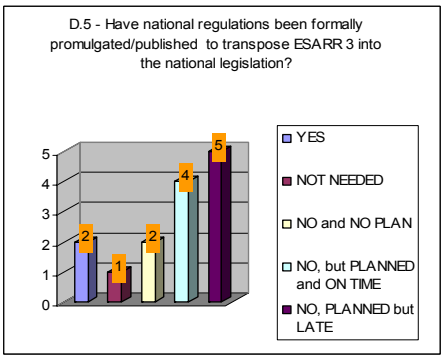
Note: In one State, contradictory statements and evidences were provided to SRU, preventing firm conclusions to be drawn.

ESARR 3

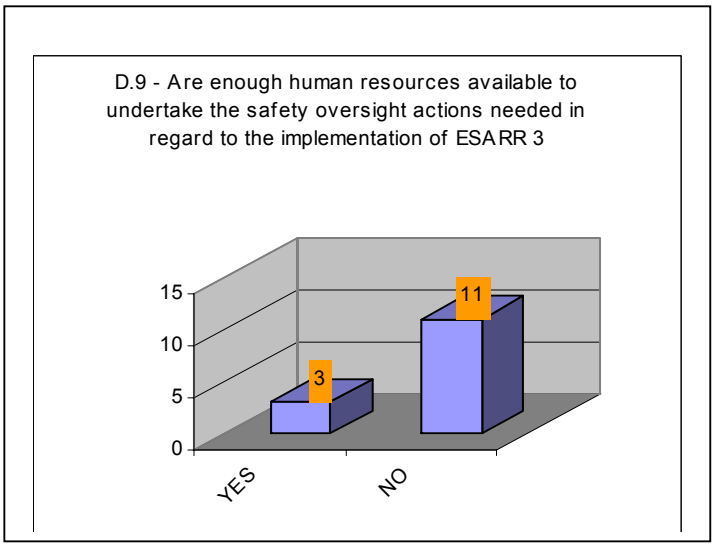
In all cases but one, the visits took place before the date due for ESARR 3 implementation (13.07.2003). States appear often to undertake the implementation of ESARR 3 relying on an implementation plan. When the implementation plan is stated to exist, it is however not always documented.

Some States having more than one ANSP and a number of small organisations are phasing the enforcement of ESARR 3; this means in some cases that promulgation of ESARR 3 at national level for these specific providers won't occur much before 2005 or even 2007.



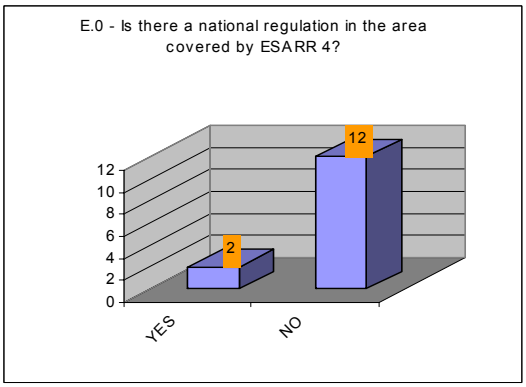


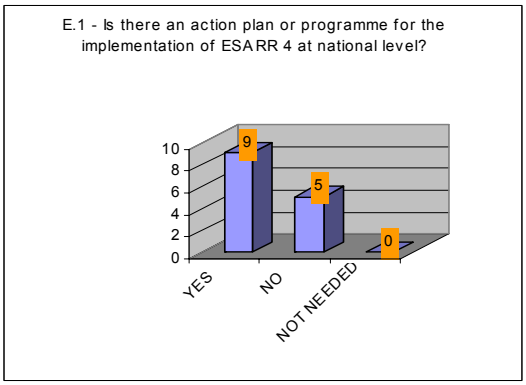
Written procedures stating how to perform ESARR 3 safety oversight do not always exist and most States still lack the necessary resources to undertake that safety oversight function. So far, and at the date of the visits, only one State with one ANSP had been in a position to verify compliance with ESARR 3 based national regulation.



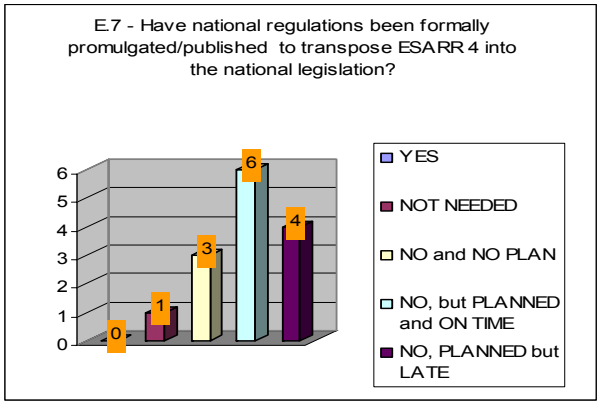
ESARR 4

In all cases the visits took place before the date due for ESARR 4 implementation (05-Apr-2004). States appear to undertake the implementation of ESARR 4 relying on an implementation plan, in conjunction with ESARR 3. When the implementation plan is stated to exist, it is however not always documented.

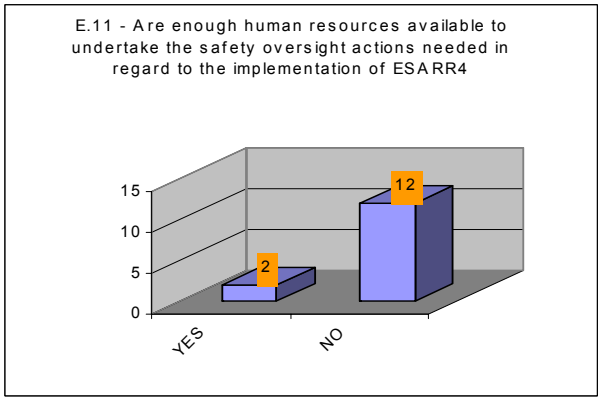




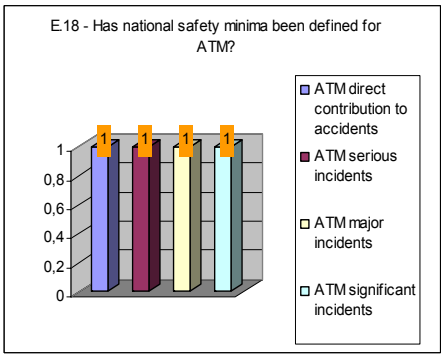
Some States having more than one ANSP and a number of small organisations are phasing the enforcement of ESARR 4; this means in some cases that promulgation of ESARR 4 at national level for these specific providers won't occur much before 2005 or even 2007.



Written procedures stating how to perform ESARR 4 safety oversight do not always exist and almost all States lack the necessary resources to undertake that safety oversight function. So far, and at the date of the visits, only one State with one ANSP had been in a position to verify compliance with ESARR 4 based national regulation.



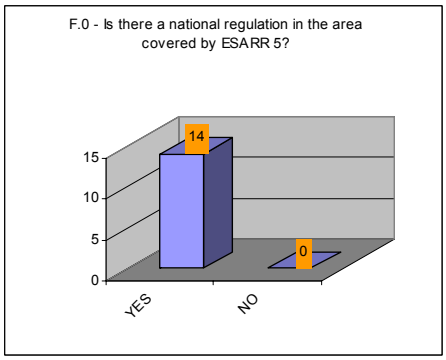
Only one State have developed and set up ATM tolerable safety levels/minima so far.

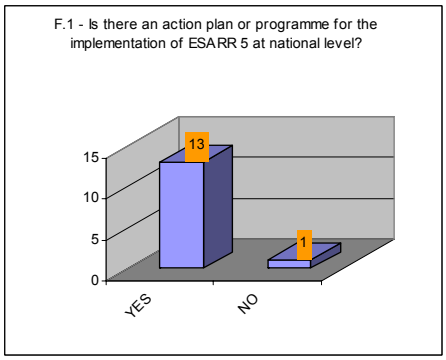


ESARR 5

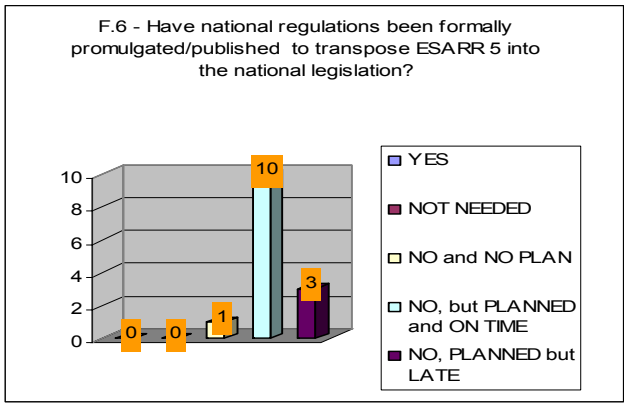
In all cases the visits took place before the date due for ESARR 5 implementation (10-Nov-2003).

In most of the States, elements of ATCO licenses or certificates of competences exist which are compliant with ICAO Annex 1. In all except one State, activities are in progress to change (or assess the need to change) national arrangements in place according to ESARR 5. In all States except one, there is an implementation plan related to the implementation of ESARR 5.

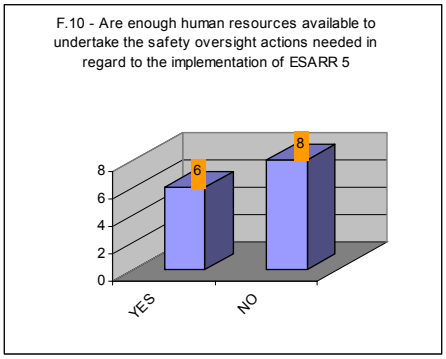




Out of the fourteen States visited so far, three are still late in promulgating a national rule compliant with ESARR 5 and one has no plan yet to do so.



However, in a lot of States, there is not yet any safety regulatory process in place to verify compliance with ESARR 5 based national regulations. Written procedures stating how to perform ESARR 5 do not always exist and more than half of the States still lack the necessary resources to undertake that safety oversight function.



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APPENDIX 2 – ECAC ATM SAFETY PERFORMANCE

EASRR 2 Adherence as reported by States via ASTs

In order to account for cultural differences across EUROPE, the SRC decided that each State would choose the best combination of reporting schemes to be implemented at national level. The objective is to implement a successful overall national reporting and assessment scheme through a:

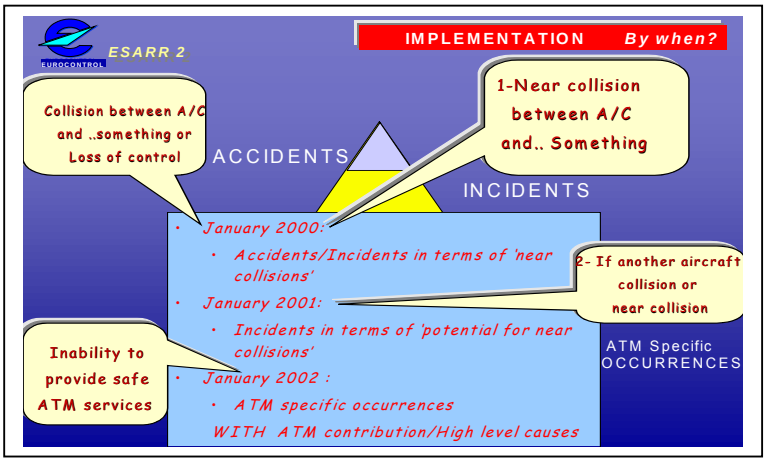
- Mandatory scheme only,
- Mandatory and Voluntary schemes combined,
- Voluntary scheme only.

The objective is to increase the level of reporting and the quality of investigations across the European region so that the aviation and ATM communities can learn from past experience and develop accident prevention strategies. In this regard, each State was considered the best suited to identify the optimum legislative, institutional and operational environment to encourage trust and reporting in order to successfully implement ESARR 2 and to appoint the appropriate focal point(s).

The implementation of ESARR 2 shall be done according to a phased approach, starting at the top of the pyramid, with a proactive approach being adopted so that the aviation community can learn not only from accidents but also from their precursors.

January 2000

ATM related accidents (e.g. collision between aircraft and something else or possibly the loss of flight control). ATM incidents are restricted to the near collisions between aircraft and something else.



(Fig1- ATM Related Incidents)

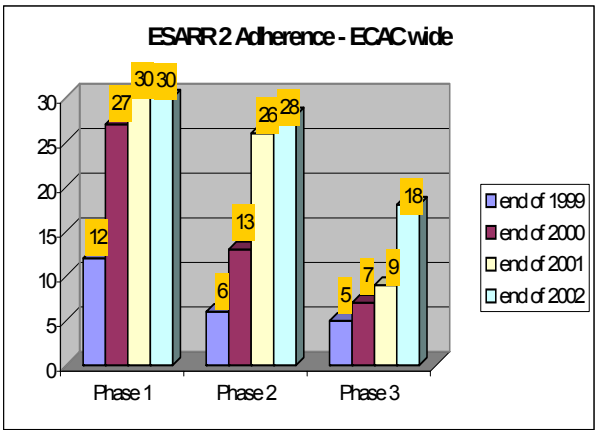
January 2001

In addition, those ATM incidents that could have led to a collision or a near collision between aircraft and something else if other traffic had been there. (e.g. level busts).

January 2002

In addition, those ATM specific occurrences which did not impact on any aircraft but had the potential to do so (e.g. loss of surveillance, loss or corrupted communication).

Annually, through the Annual Safety Template returns, States report the "depth" of the ESARR 2 implementation against the three ESARR 2 phases. *Fig. 2* represents the adherence to ESARR 2 according to the States national reports that are returned to the SRC annually. It should be noted that it not only addresses EUROCONTROL Member States but also the ECAC States who are not members of EUROCONTROL and who have decided to implement ESARRs in order to ensure a smooth safety regulatory framework across the ECAC region.



(Fig. 2 – ESARR 2 Adherence – ECAC-wide)

Fig. 2 indicates that currently, after the target implementation date for ESARR 2 phase 3, twelve States have not yet implemented Phase 1 of ESARR 2. The most difficult phase to be implemented would appear to be Phase 3 related to ATM specific occurrences (only 17 States all EUROCONTROL member States and one multinational service provider have reported the completion of implementation).

One year after the target date for implementing all phases of ESARR 2, only 58% of EUROCONTROL Member States are reporting that they are fully compliant with ESARR 2. The stated level of compliance with phases 1 & 2 is however higher with 90% of EUROCONTROL Member States reporting adherence.

ATM Safety Performance in ECAC for 2002

Key Safety Indicators

Current proposals are that the following safety indicators be considered as high-level indicators, extracted and monitored for the measurement of ATM safety performance:

- **Accidents and accidents with ATM contribution with the following sub-set:**
  - Mid-Air Accidents (MID-AIR),
  - Controlled Flight Into Terrain (CFIT), and
  - Collision on the ground between aircraft and vehicle/person/obstruction.
- **Total number of incidents with the following sub-set:**
  - Separation minima infringements,
  - Runway Incursions,
  - Unauthorised Penetration of Airspace.
- **Ratio (investigated incidents/reported incidents)**
- **Ratio of incidents per severity classification**

  to identify related trends over the year and potential increase of visibility of events of lower severity (the population of such indicators would however need a greater accuracy in the data collected).

Accidents

The types of accident used for sub-classification of data for 1999, 2000, 2001 and 2002 are shown below *(figures in (brackets) show the numbers within the accident totals which were fatal):*

TYPE OF REPORTED ACCIDENT	1999	2000	2001	2002
Total number of accidents	735 (83)	365 (56) *	766 (122)	734 (91)
Total Number of MID-AIR Collisions	14 (7)	9 (3)	9 (5)	12 (1)
Total number of CFIT	71 (21)	23 (9)	39 (20)	35 (11)
Total Number of Collisions on the ground between a/c	3 (0)	9 (0)	7 (0)	11 (0)
Total Number of Collisions on the ground between Aircraft and Vehicle /persons/ Obstruction(s)	27 (1)	107 (0)	81 (1)	132 (4)

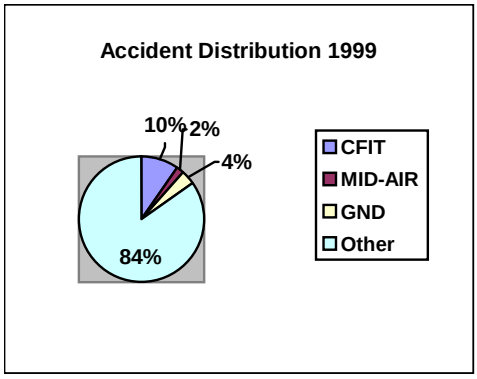
(Table 1: Accident Categorisation (includes IFR and VFR traffic))

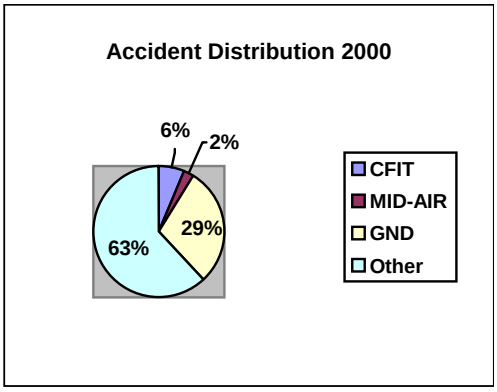
(*) Not all the States have contributed data in 2000 with data with respect to accidents and fatal accidents.

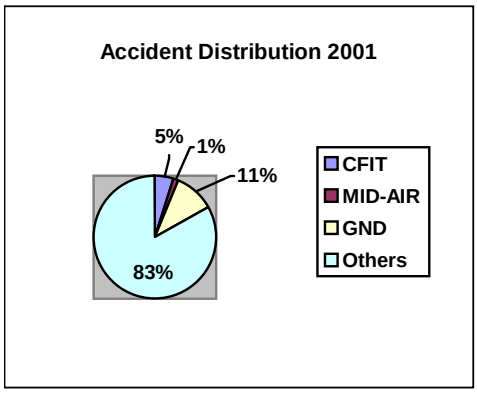
Of the reported MID-AIR[29] Collisions in 2002, there is only one IFR/VFR involvement indicated.

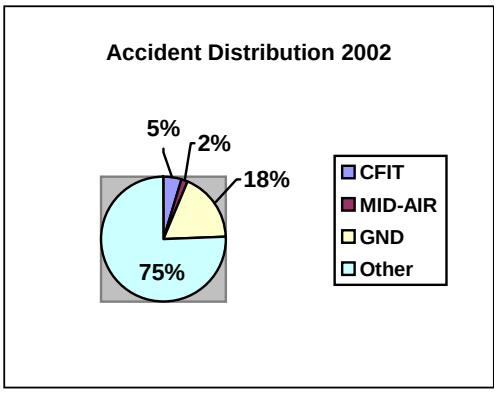
Of the reported CFIT in 2001, one fatal accident was indicated as having an IFR implication, and one fatal VFR CFIT has indicated ATM INDIRECT contribution.

The number of reported collisions on the ground between aircraft and vehicle(s)/person(s)/obstruction(s) is still significant and has increased from last year.









Conclusions:

- From the graphics above we can conclude that collision on the ground between aircraft and vehicle(s)/person(s)/obstacle(s) is now the most significant classification.
- The vast majority of accidents are still not yet classified as per ESARR 2 categories.

Notes:

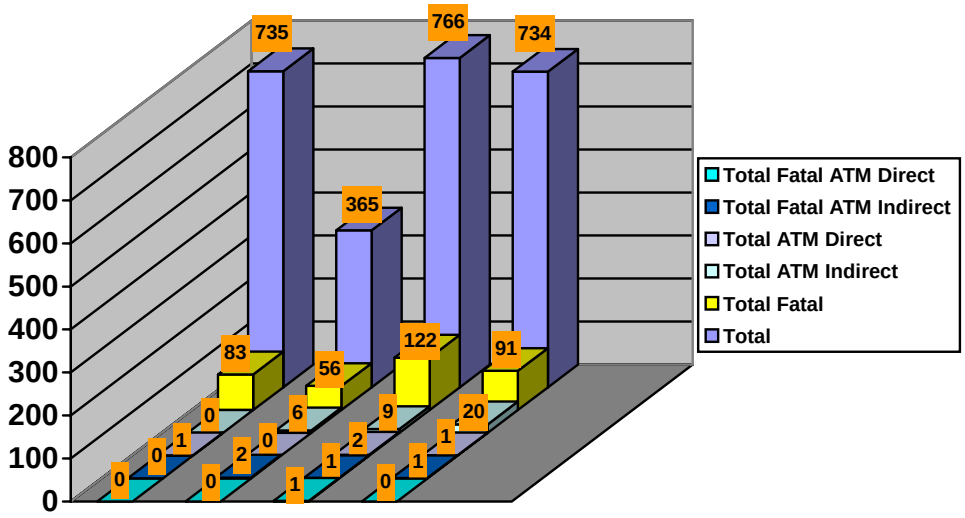
- *Includes all flights irrespective of flight rules, type of operations, type of flight, phase of flight or class of airspace.*
- *Not all accident investigations have been closed[30] and are therefore not counted.*

[29] *The Uberlingen MID-AIR is not classified due to the fact that no final report is yet published.*

[30] *e.g. the Linate accident.*

Total Number of Accidents with ATM Contribution

Not all the States have contributed data in 2000 with respect to accidents and fatal accidents



Conclusions:

- The total number of accidents has remained fairly constant since 1999 (for 2000 the data received is not accurate).
- No trend can be identified for fatal accidents. This is unsurprising as we do not currently have an accident causation model to establish a link between accidents and fatalities.
- The ATM direct contribution to both total and total fatal accidents is extremely low.
- The ATM indirect contribution has started to increase gradually for overall non-fatal accidents, due probably to a better assessment / interpretation of the meaning 'ATM INDIRECT contribution'. This is an area where the ATM safety programmes should focus on in order to minimise such contributions, and whenever possible to introduce mitigation measures, which in a systemic environment might even prevent the accident.

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Mid-Air Accidents (MID-AIRs)

	Total no. of MID-AIRs	Total no. of MID-AIRs with reported ATM DIRECT contribution	Total no. of MID-AIRs with reported ATM INDIRECT contribution	Total no. of FATAL MID-AIRs	Total no. of FATAL MID-AIRs with reported ATM DIRECT contribution	Total no. of FATAL MID-AIRs with reported ATM INDIRECT contribution
1999	14	1	0	7	0	0
2000*	9	0	0	3	0	0
2001	9	0	1	5	0	0
2002	10	0	3	1	0	0

**) Not all the States have contributed data in 2000 with respect to accidents and fatal accidents*

Conclusions:

- Not all MID-AIR investigations have been completed and therefore the ATM contribution has not yet been identified.
- No trend can be identified, although we can detect a slight increase the INDIRECT ATM contribution that matches the overall conclusion for the TOTAL number of accidents.

Controlled Flight Into Terrain (CFIT)

	Total no. of CFITs	Total no. of CFITs with reported ATM DIRECT contribution	Total no. of CFITs with reported ATM INDIRECT contribution	Total no. of FATAL CFITs	Total no. of FATAL CFITs with reported ATM DIRECT contribution	Total no. of FATAL CFITs with reported ATM INDIRECT contribution
1999	71	0	0	21	0	0
2000*	23	0	3	9	0	2
2001	39	1	1	20	1	1
2002	35	0	1	11	0	1

**) Not all the States have contributed data in 2000 with respect to accidents and fatal accidents*

Conclusions:

- There are very few CFITs having a DIRECT ATM contribution.
- In contrast to the general trend, the ATM INDIRECT contribution shows a decreasing trend, which may be attributed to the initial benefits of the Approach-and-Landing Accident Reduction (ALAR) programme.

Collision on the Ground Between Aircraft and Vehicle / Person / Obstructions

	Total no. of Collision on the ground between a/c and vehicle / person / obstructions	Total no. of Collision on the ground between a/c and vehicle / person / obstructions with reported ATM DIRECT contribution	Total no. of Collision on the ground between a/c and vehicle / person / obstructions with reported ATM INDIRECT contribution	Total no. of FATAL Collision on the ground between a/c and vehicle / person / obstructions	Total no. of FATAL Collision on the ground between a/c and vehicle / person / obstructions with reported ATM DIRECT contribution	Total no. of FATAL Collision on the ground between a/c and vehicle / person / obstructions with reported ATM INDIRECT contribution
1999	27	0	0	1	0	0
2000*	107	0	2	0	0	0
2001	81	0	1	1	0	0
2002	132	0	9	4	0	0

**) Not all the States have contributed in 2000 with data in respect of accidents and fatal accidents*

Conclusions:

- Collision on the ground between aircraft and vehicle/obstacle/persons is a safety indicator that needs priority attention; It is constantly increased and maintained in absolute terms at very high levels.
- The ATM INDIRECT contribution is having the greatest proportion comparing with other type of accidents. Fortunately due to the environment in which those accidents occur the number of fatalities is very low.

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ATM Related Incidents Reports

Number of Reports	Total				FLIGHT RULES												TYPE OF OPERATIONS							
					IFR / IFR				IFR / VFR				VFR / VFR				GAT / OAT				GAT / GAT			
	1999	2000	2001	2002	99	00	01	02	99	00	01	02	99	00	01	02	99	00	01	02	99	00	01	02
AIRPROX Report	652	599	723	620	339	255	349	266	147	184	133	134	36	122	187	31	78	69	151	132	443	308	505	430
ACAS Report	625	1329	999	964	129	377	469	518	11	35	95	93	0	0	1	0	11	26	102	157	127	389	515	772
ATIR/APDSG form report**	142	13199*	12047*	17520*	40	25	561	1409	44	11	102	197	14	22	233	414	35	17	154	338	93	47	722	4358
TOTAL number of reports	N/A	N/A	N/A	19100*	N/A	N/A	N/A	2300	N/A	N/A	N/A	440	N/A	N/A	432	450	N/A	N/A	N/A	639	N/A	N/A	N/A	5580

(Table 2 – ATM related incident reports within ECAC)

**) includes a number of other reports on different issues*

Number of Reports	Total				FLIGHT RULES												TYPE OF OPERATIONS							
					IFR / IFR				IFR / VFR				VFR / VFR				GAT / OAT				GAT / GAT			
	1999	2000	2001	2002	99	00	01	02	99	00	01	02	99	00	01	02	99	00	01	02	99	00	01	02
AIRPROX Report	562	527	688	578	310	235	299	226	142	159	120	126	33	120	39	31	75	62	74	133	409	253	390	417
ACAS Report	413	861	478	646	97	272	284	146	3	21	39	27	0	1	1	0	6	22	41	34	94	275	282	236
ATIR/APDSG form report**	71	105	1079	1947	32	25	477	897	43	5	79	97	11	7	76	40	34	17	75	139	48	47	559	1733
Total number of investigated reports	N/A	N/A	2443	3300	N/A	N/A	N/A	1300	N/A	N/A	N/A	250	N/A	N/A	134	136	N/A	N/A	N/A	315	N/A	N/A	N/A	2403

(Table 3 – ATM related incident reports INVESTIGATED within ECAC)

NOTE : Total number of reports is not to be compared or retrieved with/from the value obtained by summing up the values on different columns. This is another indicator in respect of the quality of the national AST returns.

**) Years 2001 and 2002 comprise all Human ATC reports

The following initial summary may however be derived from the above tables in respect of the number of reports:

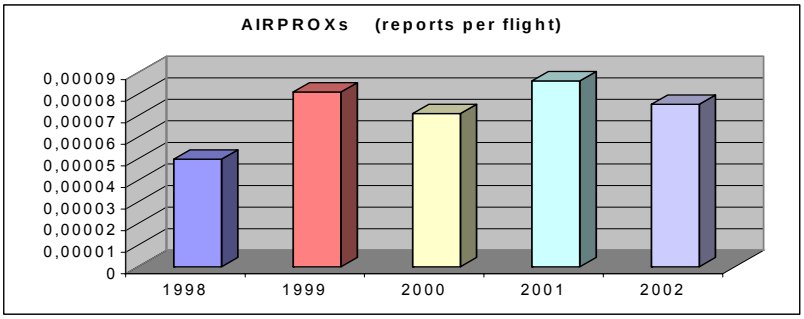
- The total number of reports has increased significantly indicating a progress in the national reporting scheme implementation. Equally, there could be a slow but increased trust in the system of safety data collection and its confidentiality.

- There is still a substantial difference between the number of reports and the number of INVESTIGATED reports (the ratio of reports to investigated reports is 14%, which is a decrease from nearly 18% last year). This confirms the lack of resources allocated for safety data assessment and investigation.

- The number of Terrain Collision Avoidance System (TCAS) reports is nearly the same in absolute numbers, however the number of reports investigated is much higher indicating a priority given to this type of reports.

- The number of incident reports involving mixed OAT/GAT traffic is maintained proportionally higher than the normal traffic ratio between the two categories of operations.

Number of AIRPROX Reports



No trend can be determined from the past 5 years. The total number of normalised AIRPROX reports has stabilised, with a small decrease for 2002. The values computed so far for 2002 are better than in the past 3 years.

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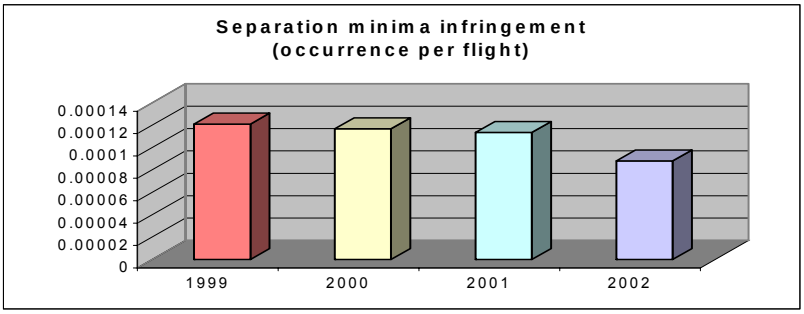
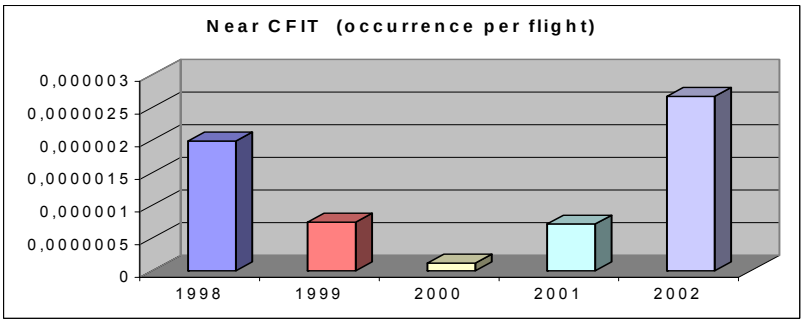
Incidents

Separation Minima Infringements



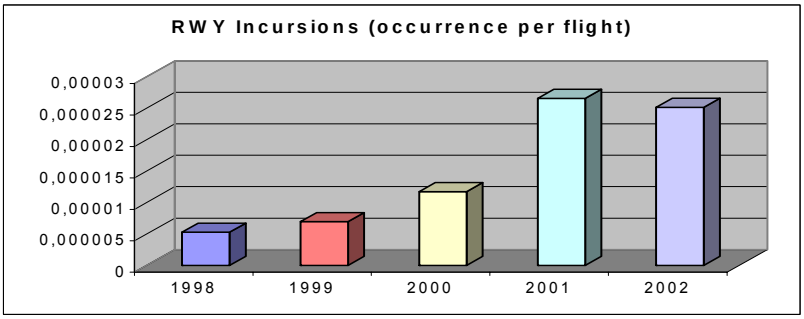
Separation Minima Infringement is a key indicator for which a decreasing trend can be confirmed in both absolute and normalised numbers.

Near Controlled Flight Into Terrain (Near CFIT)



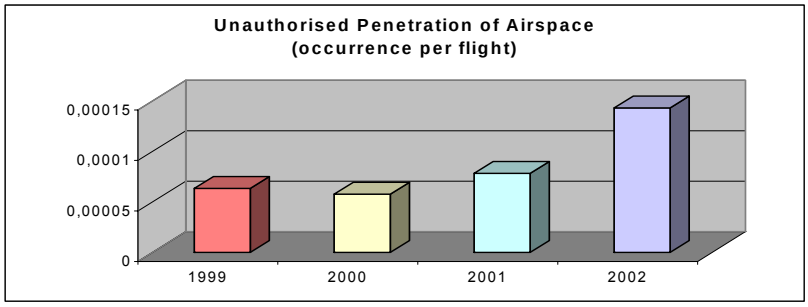
Near CFIT levels, after a quiet period during 1999 – 2001, are higher than those in 1998. It should be investigated if the increased number of Near CFIT has any link with the decreased number of CFIT accidents. It is possible that the preventive measures in the Approach and Landing Accident Reduction (ALAR) programme have reduced the severity of some occurrences from accidents to incidents.

Runway Incursions



Indications are that the number of runway incursions indicator are levelling off with a slowly decreasing trend. It is too soon to say whether or not the improvements are due to the Runway Safety Initiative.

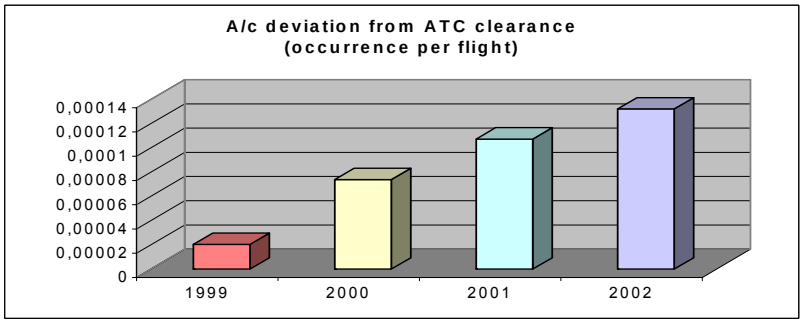
Unauthorised Penetration of Airspace



Unauthorised penetration of airspace it is now a confirmed key safety indicator. Two main areas which have been reported by States as playing an important role; general aviation (VFR flights) and civil /military interaction for military flights. Potential causes for this could be the quality of the charts used by General Aviation (GA) pilots, airspace structure, adherence to procedure, etc.

Although States have started to send more detailed data on this type of occurrence, the lack of identified causes prevents the issuance of European-wide mitigation measures.

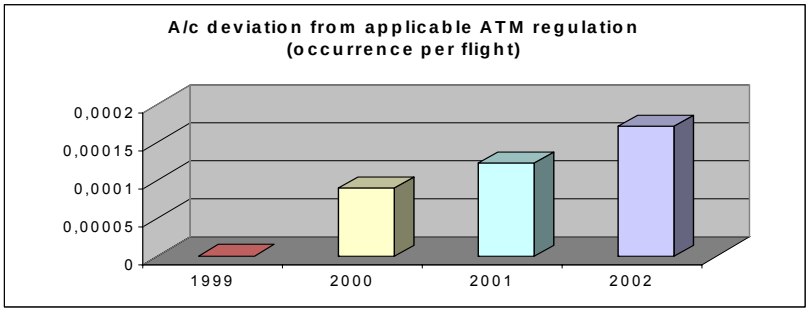
Aircraft Deviation from ATC Clearance



Aircraft deviation from ATC clearance is one key safety indicator that is on a near linear increasing trend. AST Focal Points (AST-FPs) have reported that this issue is in fact not new, but rather it is more systematically reported. Aircraft deviations from ATC clearances are occurring on a daily basis and perhaps some ATM staff perceive this as ‘routine’ occurrence which is not worth reporting. As captured in last year’s report, nineteen such occurrences have been allocated a severity A classification, whilst 42 have allocated a severity B classification.

The majority of such occurrences (aircraft deviation from ATC clearance) fall within category of ‘Not Determined’ (Class D), with 506 such events.

Aircraft Deviation from Applicable ATM Regulation



For this indicator, the interpretation of its definition changed at the end of 2000/beginning of 2001. Many of the incidents are automatically sub-classified into this category. If other indicators have a positive trend, then this indicator will automatically show a positive trend too. Caution should therefore be applied when reading the above graph.

Initial review of the ATM Specific Occurrence

The ATM specific safety data are not reliable for the year 2001. At that time, the reporting of ESARR 2, Phase 3 was not implemented by the majority of States. The situation has started to change, especially since last year when, as mentioned at the beginning of the report, 17 States and 1 multi-national service provider have reported the successful implementation of ESARR 2, Phase 3.

Therefore, the detailed findings are not included in this Report.

Causes

Very few States are sending causes for accidents, incidents and ATM specific occurrences. This makes it a very difficult task to properly identify mitigations for key risk areas.

From the data received it would appear that two principle categories can be identified as causes for incidents:

- ATM services personnel (Physical/Physiological/Psychological/Psychosocial – as per the Harmonisation of European Incident Definitions Initiative for ATM (HEIDI) Taxonomy), and
- Operational ATC procedures.

For ATM specific occurrences, it is unsurprising that the main cause is ATM services infrastructure/facilities/technical systems with the hardware, software and integration issues as the primary issue.

APPENDIX 3 – LIST OF SRC COMMISSIONERS

Albania	Mr Perparim Zuna Safety Manager National Air Traffic Agency
Austria	Mr Werner Artner Austro Control GmbH
Belgium	Mr Jacques Gerkens General Advisor Belgian Civil Aviation Authority
Bulgaria	Mr Aleksandar Yankov Secretary General Civil Aviation Administration
Croatia	Mr Ivo Jurič CAA Aerodromes & Security Department
Cyprus	Mr Savvas Theophanous Senior Air Traffic Control Officer Nicosia Area Control Centre Department of Civil Aviation
Czech Republic	Mr Jirí Kanák Head of ATM section Flight Ops Division Civil Aviation Administration
Denmark	Mr Lars Peter Jensen Second Inspection Department Chief, Air Navigation Services Civil Aviation Administration
Finland	Mr Toni Solatie Director AGA/ANS Regulations Division Flight Safety Authority Civil Aviation Administration Finland
France	Mr Jean-Claude Coulardot Chef du Bureau Réglementation Direction de la Navigation Aérienne
FYROM	Mr Simion Zdravev CAA Head of Aeronautical Standards and Regulations Unit
Germany	Mr Martin Radusch Deputy Director of Air Navigation Services Bundesministerium für Verkehr

Greece	Mr Theodoros Passas Director ATS Division Ministry of Transport and Communications Hellenic Civil Aviation Authority
Hungary	Mr Valentin Omajnikov HungaroControl
Ireland	Mr John Nolan Director, Safety Regulation Irish Aviation Authority
Italy	Ing. Renata Cecchi ENAC – ATM Safety Standard Unit - Director
Luxembourg	*Commissioner to be nominated*
Malta	*Commissioner to be nominated*
Moldova	Mr. Konstantin Somov Civil Aviation Administration ATM Department
Monaco	Mr G. Salvanhac Service de l'Aviation Civile
The Netherlands	Mr Dick Esveld Inspectie Verkeer en Waterstaat Divisie Luchtvaart Head Division Aerodromes and Airspace
Norway	Mr Torgeir Tvedt Director Airport & Licence Department Civil Aviation Authority
Portugal	Mr Artur M. Travassos Ventura Instituto Nacional de Aviação Civil
Romania	Mr Janica Poenaru Director General Romanian Civil Aeronautical Authority
Slovak Republic	Mr Peter Zázik Air Navigation Services Safety Officer
Slovenia	Mr Jožef Slana Ministry of Transport and Communications Civil Aviation Office
Spain	Mr Jose-Antonio Calvo Jefe del Area de Planes y Normas de Navegación Aérea Subdirección General de Sistemas de Navegación Aérea y Aeroportuarios

Sweden	Mr Jan Borén Senior ANS Expert Regulation Division Swedish Civil Aviation Administration Aviation Safety Authority
Switzerland	Mr Hanspeter Moser Federal Office for Civil Aviation Infrastructure Planning
Turkey	Mr Topa Bilgetin Toker Director General Ministry of Transport General Directorate of Civil Aviation
United Kingdom	Mr Ron Elder Head of Aerodromes, Air Traffic Services and Licensing Standards Division Safety Regulation Group

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