EUROPEAN ORGANISATION
FOR THE SAFETY OF AIR NAVIGATION

EUROCONTROL

EUROCONTROL SAFETY REGULATORY REQUIREMENT (ESARR)

ESARR 2

REPORTING AND ASSESSMENT OF SAFETY OCCURRENCES IN ATM

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Abstract

This EUROCONTROL Safety Regulatory Requirement has been prepared by the Safety Regulation Commission, in co-ordination with the Agency. This requirement covers the implementation by States of an Occurrence Reporting and Assessment Scheme for Air Traffic Management (ATM) Safety.

It defines a list of ATM-related occurrences which shall, as a minimum, be reported and assessed by States (Appendix A), defines the minimum appropriate safety data which shall be collated and reported to EUROCONTROL by States, expressed in terms of high-level safety indicators (Appendix B) and includes a glossary of terms with harmonised definitions (Appendix C).

Keywords

Accident	Incident	ATM specific occurrence
Reporting	Assessment	Investigation
Causes	ATM	safety

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F.3 DOCUMENT APPROVAL

EUROPEAN ORGANISATION FOR THE SAFETY OF AIR NAVIGATION

"EUROCONTROL"

- Decisions of the Permanent Commission -

DECISION No. 115

approving the EUROCONTROL Safety Regulatory Requirement – ESARR 2, Edition 3.0 – entitled "Reporting and Assessment of Safety Occurrences in ATM"

THE PERMANENT COMMISSION FOR THE SAFETY OF AIR NAVIGATION,

Having regard to the EUROCONTROL International Convention relating to Co-operation for the Safety of Air Navigation, amended by the Protocol signed at Brussels on 12 February 1981, and in particular Articles 1(c), 2.1(j), 6.1 and 7.1 thereof;

Having regard to the Protocol consolidating the EUROCONTROL International Convention relating to Co-operation for the Safety of Air Navigation, which was opened for signature on 27 June 1997, and in particular Article 2.1(R) of the consolidated version of the Convention annexed thereto;

Having regard to Decisions No. 71 and No. 72 of 9 December 1997 on early implementation of certain provisions in the revised Convention, and in particular paragraph 5 of Decision No. 72;

On the proposal of the Provisional Council,

HEREBY TAKES THE FOLLOWING DECISION:

The Commission approves, for incorporation and implementation in ATM regulatory frameworks of EUROCONTROL Contracting Parties, the EUROCONTROL Safety Regulatory Requirement – ESARR 2, Edition 3.0 – entitled "Reporting and Assessment of Safety Occurrences in ATM ", as attached.

The present Decision will come into effect on the day of its signature.

Done at Brussels on 02.12.2009

For the President of the Commission,

Mr Kamen KITCHEV
Vice-President of the Commission

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F.4 AMENDMENT RECORD

The following table records the complete history of this document.

Edition No.	Date	Reason for Change	Pages Affected
0.01	23-Apr-99	Creation - Working Draft A from SRU to EATMP/SISG/HEIDI.	All
0.02	04-May-99	Working Draft B incorporating initial HEIDI inputs.	All
0.03	04-May-99	Working Draft C taking account of comparison of the safety regulatory requirement and HEIDI respective scopes.	Appendices A and B
0.04	20-May-99	Working Draft D incorporating draft HEIDI structure for glossary (HEIDI/5).	Appendices A and C
0.05	27-May-99	Working Draft E taking account of draft definitions from SRU.	Appendix C
0.06	27-May-99	Working Draft E1 taking account of draft definitions from SQS.	Appendix C
0.07	28-May-99	Working Draft F taking account of further draft definitions from SRU/SQS.	All
0.08	14-Jun-99	Draft G with glossary of terms complete with draft definitions. For SRC and EUROCONTROL-wide consultation.	All
0.09	06-Jul-99	Working Draft H after HEIDI/6 review of draft definitions. For HEIDI review.	Appendix C
0.10	30-Aug-99	Working Draft I taking account of SRC and EUROCONTROL comments on Draft G.	Sections 2/5. Appendix C
0.11	28-May-99	Working Draft taking account of HEIDI/7 final review of definitions.	Appendix C
0.12	10-Sep-99	Draft submitted to the Safety Regulation Commission after English editorial review.	All
0.13	08-Oct-99	Proposed Issue to the Provisional Council. Term 'Factor' replaced by 'Cause' to ensure consistency with ICAO AIG99 decision. Definitions of OAT and GAT modified.	Sections 4/5 - Appendices A/C
1.0	12-Nov-99	Released Issue after approval by Provisional Council and EUROCONTROL Commission.	All
1.1	30-Mar-00	Addition of a sub-section to para.3 after CMIC agreement.	Section 3
2.0	03-Nov-00	Released Issue following Approval by Correspondence by EUROCONTROL Commission.	All
2.01	08-Oct-09	New version as a result of the incorporation of altitude deviation data in the Annual Summary Template.	Appendix B, B-5
3.0	02-Dec-09	Released Issue after approval by Provisional Council and EUROCONTROL Commission.	-

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F.6 EXECUTIVE SUMMARY

This document has been prepared by the Safety Regulation Commission.

This Requirement covers the implementation by States of an Occurrence Reporting and Assessment Scheme for Air Traffic Management (ATM) Safety:

- It defines, in Appendix A, a list of ATM-related occurrences which shall, as a minimum, be reported and assessed by States;
- It defines, in Appendix B, the minimum appropriate safety data which shall be collated and reported to EUROCONTROL by States, expressed in terms if high level safety indicators;
- It includes, in Appendix C, a glossary of terms with harmonised definitions.

States shall implement this Safety Regulatory Requirement in a phased manner, starting collecting the safety data related to accidents and incidents-near collisions as from the 1st January 2000.

It is left to each State to decide the best national approach to be adopted to successfully implement this Safety Regulatory Requirement.

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1. SCOPE

1.1 This requirement covers the implementation by States of an Occurrence Reporting and Assessment Scheme for Air Traffic Management (ATM) safety.

2. RATIONALE

2.1 The implementation of consistent high levels of aviation safety and the management of safety in ATM within the ECAC area require, as a priority, the successful implementation of harmonised occurrence reporting and assessment schemes. Such schemes will lead to more systematic visibility of safety occurrences and their causes, and will allow identification of appropriate corrective actions as well as areas where flight safety could be improved by changes to the ATM system.

2.2 Analysis of safety performance at the European level has yielded the conclusion (referenced in the EUROCONTROL ATM Performance Report for 1998) that "*Across the ECAC area, significant variations exist in the scope, depth, consistency and availability of ATM safety data*".

2.3 Safety regulatory action is therefore considered necessary to promote more consistent and systematic reporting and assessment of safety occurrences within the ATM system. Such reporting and assessment, which must be in a non-punitive environment, has the potential to act as an effective contribution to accident and serious incident prevention.

3. APPLICABILITY

3.1 This requirement applies to Member States of EUROCONTROL. ECAC States who are not Members of EUROCONTROL are also encouraged to apply this requirement.

3.2 In turn, Member States determine the national or international institutional arrangements necessary to enable the provisions of this requirement to be met. These provisions have been structured in such a way that, within national regulatory frameworks, part of, or the entire, Requirement may be placed by National Administrations upon constituent organisations or others, or individuals within States.

3.3 This requirement shall apply in all occurrences;

- involving or affecting only civil aircraft,
- where civil ATS is providing service to civil and/or military aircraft,
- where military ATS and/or Air Defense[1] is providing service to civil aircraft.

Only in those cases which exclusively and simultaneously involve a combination of military aircraft and military ATS and/or Air Defense, reporting is not mandated. It is left to States to voluntarily report those occurrences considered necessary for the improvement of safety of air traffic.

[1] *Note: Depending on national concepts.*

4. SAFETY OBJECTIVE

The overall safety objectives are to ensure that, at national and ECAC levels, formal means exist to:

4.1 Assess safety performance and related trends over time;

4.2 Identify key risk areas where the ATM system could contribute to safety improvement, and to take appropriate actions;

4.3 Investigate, assess and draw conclusions on the extent of the ATM system contribution to the cause of all types of safety occurrences and to take corrective measures, whether regulatory or not;

4.4 Draw conclusions on how the ATM system could improve safety even in areas where it is not involved in accidents or incidents;

4.5 Assess and monitor over time whether technical and operational changes introduced to the ATM system meet their predetermined safety requirements, and take appropriate actions.

5. SAFETY REQUIREMENT

5.1 Requirements for Safety Occurrence Reporting and Assessment at National Level.

Each State shall ensure that:

5.1.1 A formal means of safety occurrence reporting and assessment is implemented for all ATM-related occurrences that pose an actual or potential threat to flight safety, or can compromise the provision of safe ATM services, which as a minimum complies with the list of ATM-related occurrences as defined in Appendix A[2];

5.1.2 Provisions exist for any person or organisation in the aviation industry to report any such occurrence or situation in which he or she was involved, or witnessed, and which he or she believes posed a potential threat to flight safety or compromised the ability to provide safe ATM services. Such provisions shall not be restricted to the reporting of aircraft accidents or serious incidents, since other types of occurrences could reveal the same types of hazards as accidents or serious incidents;

5.1.3 ATM personnel and third parties are encouraged by every means to systematically and consistently report such occurrences;

5.1.4 All relevant data that would aid understanding of the circumstances surrounding such occurrences are adequately identified, with the data being secured, recorded and stored in a manner which ensures their quality and confidentiality as well as permitting subsequent collation and assessment;

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2 *Attachment A also contains minimum contextual/factual data to be collected and, for those occurrences subject to detailed analysis, typical main results of the assessment or investigation, such as categories of causes, level of severity and safety recommendations/interventions.*

5.1.5 Investigation or assessment, by a team with the necessary expertise, of those occurrences that are considered to have significant[3] implications on flight safety and/or on the ability to provide safe ATM services, takes place immediately, and any necessary remedial action taken;

5.1.6 The severity of each such occurrence[4] is determined, the risk posed by each such occurrence classified, and the results recorded;

5.1.7 The causes of such occurrences are analysed, to the utmost degree of objectivity, to identify the extent to which the ATM system helped, or could have helped, to reduce the risk incurred, with the results recorded;

5.1.8 Safety recommendations, interventions and corrective actions are developed, recorded where necessary, and their implementation monitored;

5.1.9 To the extent possible, safety experience, based upon collected safety occurrence data and assessment, is exchanged between States in order to develop a more representative and common awareness of typical hazards and related causes, as well as safety trends and areas where changes to the ATM system could improve safety.

5.2 Requirements for reporting safety information to EUROCONTROL.

5.2.1 Each State shall ensure that all appropriate safety data are collated and reported to EUROCONTROL in terms of high level safety indicators, which as a minimum comply with Appendix B.

6. IMPLEMENTATION

6.1 It is left to each State to decide the best national approach to be adopted to successfully implement this Safety Regulatory Requirement, to encourage a good level of reporting, and to produce reliable safety data. In particular, each State will decide upon the implementation, or not, of a national mandatory and/or voluntary scheme.

6.2 States shall start collecting the safety data related to *accidents* and *incidents-near collisions* as from the 1st January 2000 (refer to Appendix A, Sections 1.1 and 1.2.1). States shall then report on an annual basis, and to EUROCONTROL, national safety indicators related to those categories of occurrences by the 30th March 2001[5] (refer to Appendix B).

6.3 States shall start collecting the safety data related to *incidents with a potential to become collisions or near collisions*, as from the 1st January 2001 (refer to Appendix A, Section 1.2.2). States shall then report on an annual basis, and to EUROCONTROL, national safety indicators related to those incidents, by the 30th March 2002 (refer to Appendix B).

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3 *i.e. Severity C or above, as defined in EUROCONTROL Guidance Material "Severity-Classification scheme for safety occurrences in ATM", Released Issue 1.0.*

4 *Refer to EUROCONTROL Guidance Material "Severity-Classification scheme for safety occurrences in ATM", Released Issue 1.0.*

5 *Annual reports will only include statistics for those occurrences whose assessment or investigation have been completed by the end of March of the year following the occurrence.*

6.4 States shall start collecting the safety data related to *ATM specific occurrences* having an impact on the ability to provide safe ATM services, as from the 1st January 2002 (refer to Appendix A, Section 1.3). States shall then report on an annual basis, and to EUROCONTROL, national safety indicators related to those occurrences by the 30th March 2003 (refer to Appendix B).

7. EXEMPTIONS

None.

8. ADDITIONAL MATERIAL

8.1 The EUROCONTROL Agency, as part of its activities in HEIDI (Harmonisation of European Incident Definitions Initiative for ATM), intends to finalise a harmonised set of definitions for ATM related occurrences by the end of 1999. Occurrence reporting schemes with a compatible set of definitions are considered to be compliant with relevant parts of this Safety Regulatory Requirement. The quality and consistency of implementation of this Safety Regulatory Requirement is seen as highly dependent upon the completion and implementation of the HEIDI taxonomy and definitions.

8.2 EUROCONTROL SRC has developed Guidance Material that includes classification schemes of occurrences according to their severity (ref. “Severity Classification Scheme for Safety Occurrences in ATM”, Edition 1.0, Released Issue).

8.3 The EUROCONTROL Agency intends to develop a Guidance Material to harmonise, between EUROCONTROL ATM service providers, the processes and criteria for the reporting and assessment of occurrences, including classification according to severity levels.

8.4 The ICAO ADREP Manual[6] is to be revised in early 2000 and national schemes compatible with ADREP 2000 are considered as compliant with relevant parts of this Safety Regulatory Requirement. It should be noted that the data base developed by the Joint Research Centre (JRC) for the European Commission, called ECCAIRS, is to be upgraded to implement ADREP 2000 during the year 2000.

8.5 EUROCONTROL is standardising automatic monitoring tools (such as Minimum Safe Altitude Warning, Short Term Conflict Alert, Area Proximity Warning, Surface Movement Guidance and Control Systems) to be included as Convergence Implementation Plan objectives. These tools can be considered as systematic alerting devices to detect occurrences or potential occurrences.

8.6 This safety requirement is compatible with:

8.6.1 ICAO definitions (in particular Annex 13);

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6 *A companion document to ICAO Annex 13, that includes a taxonomy for accident and serious incidents, to be updated in its 2000 version to include, among other things, ATM occurrences.*

8.6.2 EUROCONTROL Agency (i.e. EATMP/Safety Group) definitions;

8.6.3 Occurrence Reporting Requirements in all JARs[7] (JAA Joint Aviation Requirements);

8.6.4 The Proposed Community Council Directive establishing a co-ordinated system on national mandatory occurrence reporting systems in civil aviation[8].

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[7] *The JAA are currently reviewing all safety occurrence reporting requirements throughout all JARs in order to achieve consistency. During this process, both Organisations are co-ordinating their positions in order to ensure compatibility of terminology.*

[8] *The European Commission, on behalf of the European Community, is preparing a Draft Council Directive for "the establishment of a co-ordinated system of national mandatory occurence reporting schemes in civil aviation". During the development of this Directive both Organisations will co-ordinate their positions in order to ensure compatibility of rule, process and procedures.*

APPENDIX A – ATM-RELATED SAFETY OCCURRENCES TO BE REPORTED AND ANALYSED

This appendix contains the list of ATM-related occurrences which, as a minimum, shall be reported and assessed. It also provides the minimum contextual/factual data to be collected and recorded for each occurrence and, for those occurrences subjected to detailed analysis[1], typical main results of the assessment or investigation, such as categories of causes, level of severity and safety recommendations/interventions.

Note: Appendix C provides definitions for most of the terms listed in this appendix.

A-1 ATM-related Safety Occurrences to be Reported and Analysed

The following categories of ATM-related occurrences shall be reported and assessed.

Note: This shall not preclude the reporting of any occurrence, situation or condition which, if repeated in different but likely circumstances or allowed to continue uncorrected, could create a hazard to aircraft safety.

In addition, other safety occurrences identified as part of the monitoring requirements of specific programmes shall be added (e.g. monitoring requirements as identified in the RVSM Programme).

A-1.1 Accidents: In particular the following types of accidents, of specific interest to the ATM-community:

- Mid Air collision,
- Controlled Flight Into Terrain (CFIT),
- Collision on the ground between aircraft,
- Collision between an airborne aircraft and vehicle/another aircraft on the ground,
- Collision on the ground between aircraft and vehicle/person/obstruction(s),
- Other accidents of special interest would include “losses of control in flight”, due to VORTEX or meteorological conditions.

A-1.2 Incidents: In particular the following types of incidents, of specific interest to the ATM community:

A-1.2.1 Near collision (encompassing specific situations where one aircraft and another aircraft/the ground/a vehicle/person or object is perceived to be too close to each other):

- Separation minima infringement,
- Inadequate separation,
- Near Controlled Flight Into Terrain (Near CFIT),
- Runway incursion where avoiding action was necessary.

A-1.2.2 Potential for collision or near collision (encompassing specific situations having the potential to be an accident or a near collision, **if** another aircraft is in the vicinity):

- Runway incursion where no avoiding action is necessary,
- Runway excursion by aircraft,
- Aircraft deviation from ATC clearance,
- Aircraft deviation from applicable ATM regulation:
  - Aircraft deviation from applicable published ATM procedures,
  - Unauthorised penetration of airspace,
  - Deviation from aircraft ATM-related equipment carriage and operations, as mandated in applicable regulation(s).

A-1.3 ATM-specific occurrences (encompassing those situations where the ability to provide safe ATM services is affected, including situations where, by chance, the safe operations of aircraft has not been jeopardised). This shall include the following occurrences:

- Inability to provide Air Traffic Management Services:
  - Inability to provide Air Traffic 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 Data Processing and Distribution function,
- Failure of Navigation function,
- ATM system security.

A-2 Contextual/Factual Data to be Collected and Stored

The following list sets out the minimum factual data to be collected and recorded about the occurrence (who, what, when, where) so that statistics can be developed to support the production of high level safety indicators and associated trends over time.

Note: The list below details the minimum factual data to be collected when initiating and undertaking the assessment/investigation of an occurrence. This list is by no means exhaustive.

- Number of aircraft involved,
- Vehicle(s) involved (Y/N),
- Person(s) involved (Y/N),
- Animal(s) involved (Y/N),
- ATS Unit(s),
- Month of occurrence,

- Number of fatal injuries;
  - Crew member fatal injuries,
  - Passengers fatal injuries,
  - Third party fatal injuries.
- Number of serious injuries.

Data related to each aircraft:

- Damage to aircraft,
- Aircraft Type,
- Type of Flight (To identify more specifically Commercial Air Transport or General Aviation Operation),
- Type of operations (General Air Traffic and Operational Air Traffic),
- Phase of ATM operations (From Taxi to Arrival),
- Flight Rules (IFR, VFR),
- Type of Air Traffic Management service provided (Refer to list in Glossary at appendix C),
- Class of Air Traffic Services airspaces,
- Other Airspace areas (Restricted, prohibited, danger areas),
- Type of report (i.e. AIRPROX report, ACAS report, Others),
- Type of monitoring system alerts (i.e. STCA, MSAW, GPWS, APW, ACAS, S-MGCS, Others).

A-3 Results of the Assessment/Investigation to be Stored

The following list details the minimum data that should be produced and stored as results of the assessment/investigation of the occurrence.

A-3.1 The assessment/investigation of the occurrence shall enable the determination of the **level of severity of the occurrence.**

Refer to SRC Guidance Material “Severity Classification Scheme for Safety Occurrences in ATM”, Released Issue 1.0.

A-3.2 The assessment/investigation of the occurrence shall enable the determination of the **level of contribution from the ground element of the ATM system** and establish if such contribution is:

- Direct,
- Indirect,
- With no ATM involvement (to cover situations where the ground element of the ATM system had nothing to do with the occurrence).

A-3.3 The assessment/investigation of the occurrence shall enable the determination of the chain of events that led to the occurrence and enable the identification of the various reasons why each event took place, thus enabling the development of remedial measures, corrective actions and safety interventions or recommendations.

A-3.3.1 Causes that combined to result in the occurrence shall be classified according to the following high level categories:

Note: However, the assessment/investigation of the occurrence may require a significant breakdown of those categories in order to better identify the reasons why the occurrence took place and to take adequate prevention measures.

- ATM services personnel;
  - Physical/Physiological/Psychosocial,
  - Interface-Working Environment,
  - Operational tasks demand.
- ATM services personnel operating procedures and instructions;
  - Operational ATC procedures,
  - Other operational ATM service procedures,
  - Engineering and maintenance procedures.
- Interface between ATM service units;
- ATM service infrastructure/facilities/technical systems;
  - Hardware issues,
  - Software issues,
  - Integration issues.
  - Aerodrome layout and infrastructure.
- Airspace structure;
  - Route structure,
  - Capacity,
  - Sectorisation,
  - ATS airspaces.
- Company structure and Management Policy;
  - Operational Line management,
  - Safety Management System,
  - Institutional arrangements,
  - Management/personnel policy.
- Regulatory activities;
  - Regulation,
  - Approval process.

A-3.3.2 Safety recommendations, interventions and corrective actions shall be developed and recorded where necessary, and their implementation monitored. They can take various forms, including development and implementation of a Safety Regulatory Requirement, standards implementation, procedures development or improvement, changes to system architecture, revisions in the ATM training.

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APPENDIX B – ANNUAL SUMMARY REPORT MINIMUM CONTENTS

Minimum information to be included in the summary report and reported to EUROCONTROL shall include:

B-1 The State annual traffic volume, expressed in movement and flight hour numbers.

B-2 The total number of accidents in the State, with identification of the associated level of damage and number of fatal injuries. Statistical information will be classified according to the phase of flight, flight rules, type of operations and class of airspace, with indication each time of the number of cases where ATM had either a *direct* or *indirect* contribution to the accident. Similar information will be provided for specific categories of accidents, including:

- Mid Air Collision,
- Controlled Flight Into Terrain,
- Collision on the ground between aircraft,
- Collision between an airborne aircraft and vehicle/another aircraft on the ground,
- Collision on the ground between aircraft and vehicle/person obstruction(s).

B-3 The total number of incidents in the State, classified according to severity level, phase of flight, flight rules, type of operations and class of airspace, with indication each time of the number of cases where ATM had either a *direct* or *indirect* contribution to the incident. Similar information will be provided for specific categories of incidents, including:

- Separation minima infringement,
- Inadequate separation,
- Near Controlled Flight Into Terrain (Near CFIT),
- Runway incursion where avoiding action was necessary,
- Runway incursion where no avoiding action was necessary,
- Runway excursion by aircraft,
- Aircraft deviation from ATC clearance,
- Aircraft deviation from applicable ATM regulation;
  - Aircraft deviation from applicable published ATM procedures,
  - Unauthorised penetration of airspace,
  - Deviation from aircraft ATM-related equipment carriage and operations, as mandated in applicable regulation(s).

B-4 The total number of ATM specific occurrences in the State, classified according to the severity. Similar information will be provided for specific categories of ATM specific occurrences, including:

- Inability to provide Air Traffic Management Services;
  - Inability to provide Air Traffic 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 Data Processing and Distribution function,
- Failure of Navigation function,
- Failure of ATM system security.

B-5 The altitude deviation data for the purpose of monitoring the safe operations in EUR RVSM (Reduced Vertical Separation Minima) airspace, by the Regional Monitoring Agency (RMA), presently executed by EUROCONTROL to comply with ICAO provisions as specified, including:

- Date of occurrence of altitude deviation,
- Aircraft Type,
- Cleared Flight Level,
- Observed Flight Level,
- Cause of deviation,
- Other traffic if Loss of Separation occurred;
  - Minimum Vertical Separation (feet),
  - Minimum Horizontal Separation (nm).

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APPENDIX C – TERMS AND DEFINITIONS – GLOSSARY

Term	*Source Reference*	*Definition*	*Examples and/or Comments (as required)*
Occurrence		Accidents, serious incidents and incidents as well as other defects or malfunctioning of an aircraft, its equipment and any element of the Air Navigation System which is used or intended to be used for the purpose or in connection with the operation of an aircraft or with the provision of an air traffic management service or navigational aid to an aircraft.	
Accident	ICAO Annex 13	An occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, in which: a) a person is fatally or seriously injured as a result of: - being in the aircraft, or - direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or - direct exposure to jet blast, except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or b) the aircraft sustains damage or structural failure which: - adversely affect the structural strength, performance or flight characteristics of the aircraft, and - would normally require major repair or replacement of the affected component except for engine failure or damage, when the damage is limited to the engine, its cowlings or accessories; or for damages limited to propellers, wing tips, antennas, tires, brakes, fairings, small dents or puncture holes in the aircraft skin; or c) the aircraft is missing or is completely inaccessible. *Note 1: For statistical uniformity only, an injury resulting in death within thirty days of the date of the accident is classified as a fatal injury by ICAO.* *Note 2: An aircraft is considered to be missing when the official search has been terminated and the wreckage has not been located.*	
Mid-air collision	EUROCONTROL HEIDI	An event in which an aircraft comes into direct contact with another aircraft or with a flying object during flight.	Note: It is possible that the flights of one or both aircraft may be continued.
Controlled Flight Into Terrain (CFIT)	ICAO Circular 272-AN/161	Accident in which aircraft, under the control of the crew, is flown into terrain (or water) with no prior awareness on the part of the crew of the impending accident.	
Collision on the ground between aircraft	EUROCONTROL HEIDI	Aircraft coming into direct contact with each other on the ground.	Note: This includes situation where only one aircraft is on the ground.
Collision between an airborne aircraft and vehicle/another aircraft on the ground	EUROCONTROL HEIDI	Aircraft coming into direct contact with each other one being on the ground and the second being airborne.	

Term	*Source Reference*	*Definition*	*Examples and/or Comments (as required)*
Collision between an aircraft and vehicle / another Aircraft on the Ground and vehicle/person/ obstruction(s)	EUROCONTROL HEIDI	Aircraft coming into direct contact with a vehicle/person/obstruction(s) when manoeuvring on the ground.	
Incident	ICAO Annex 13 Doc 9713	An occurrence, other than an accident, associated with the operation of an aircraft, which affects or could affect the safety of operation.	Note: The type of incidents which are of main interest to the International Civil Aviation Organisation for accident prevention studies are listed in the ICAO Accident/Incident Reporting Manual.
Separation minima infringement	EUROCONTROL HEIDI	A situation in which prescribed separation minima were not maintained between aircraft.	Note: Whether or not it led to the submission of an AIRPROX report.
Inadequate separation	EUROCONTROL HEIDI	In the absence of prescribed separation minima, a situation in which aircraft were perceived to pass too close to each other for pilots to ensure safe separation.	Note: Whether or not it led to the submission of an AIRPROX report. e.g. VFR and IFR flights perceived to pass too close to each other.
Near CFIT	EUROCONTROL HEIDI	A CFIT was avoided by chance or by avoiding action	Note: Alternative term could be “CFTT: Controlled Flight To terrain”
Runway incursion where avoiding action was necessary	EUROCONTROL HEIDI	Any unauthorised presence on a runway of aircraft, vehicle, person or object where an avoiding action was required to prevent a collision with an aircraft.	Ref. Runway is understood as per ICAO Annex 14 definition of RUNWAY STRIP i.e., a defined area including the runway (i.e., a defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft) and stopway (i.e., a defined rectangular area on the ground at the end of take-off run available prepared as a suitable area in which an aircraft can be stopped in the case of an abandoned take-off) , if provided, intended to reduce the risk of damage to aircraft running off a runway and to protect aircraft flying over it during take-off or landing operations. It also includes the protection areas as implemented for specific types of operations.
Runway incursion where no avoiding action was necessary	EUROCONTROL HEIDI	Any unauthorised presence on a runway of aircraft, vehicle, person or object where no avoiding action was required to prevent a collision with an aircraft.	Ref. See Note in “Runway incursion where no avoiding action was necessary”.
Runway excursion by aircraft	EUROCONTROL HEIDI	Aircraft running off the edge of a runway or overrunning.	Ref. See Note in “Runway incursion where no avoiding action was necessary”.
Aircraft deviation from ATC clearance	EUROCONTROL HEIDI	An event in which an aircraft does not proceed under conditions specified by the controlling ATC unit or other appropriate authority.	Note: Appropriate authority as defined in ICAO Annex 2. It includes situation where: a) the non adherence by a pilot to the terms of (an) instruction(s) given by an ATC unit with reference to altitude (level burst) and/or heading and/or speed assignments and/or time restrictions and/or SSR code; or b) the execution by a pilot of a manoeuvre which requires prior ATC approval without having secured such approval.

Term	*Source Reference*	*Definition*	*Examples and/or Comments (as required)*
Aircraft deviation from applicable ATM regulation	EUROCONTROL HEIDI	An event in which an aircraft does not execute a flight in compliance with the applicable ATM regulation.	e.g. as published in the Aeronautical Information Publication (AIP).
Aircraft deviation from applicable published ATM procedures	EUROCONTROL HEIDI	An event in which an aircraft does not execute a flight in compliance with the applicable published ATS procedures.	e.g. Incorrect following of published SIDs and STARs. No correct altimeter setting.
Unauthorised penetration of airspace	EUROCONTROL HEIDI	The penetration by an aircraft into a portion of airspace without prior permission of the appropriate authorities (when such prior permission is required).	Note: Appropriate authority as defined in ICAO Annex 2. e.g. an aircraft entering a published prohibited area or active danger area without permission from the appropriate authorities, or an aircraft entering controlled airspace without an ATC clearance.
Deviation from aircraft ATM related equipment carriage and operations	EUROCONTROL HEIDI	Conduct of a flight in which an aircraft does not carry the mandatory ATM related equipment (i.e., COM, NAV, SUR) or carries unserviceable ATM related equipment or a situation wherein no crew member is licensed to use such equipment aboard, both without exemption from the appropriate authorities.	Note:- Appropriate authority as defined in ICAO Annex 2- e.g. Flying RNAV routes without adequate required equipment, as published in AIP.
ATM-Specific Occurrences			
Inability to provide ATM services	EUROCONTROL HEIDI	An event in which elements in the ground ATM system performances are unserviceable, insufficient, unavailable or corrupted so that the safety of traffic, ensured through the provision of air navigation services, is impaired or prevented.	Ref. Aligned with the overall objective of the ATM 2000+ strategy. Note: The ATM system is the aggregation of organisations, people, infrastructure, equipment, procedures, rules and information used to provide ATM services in order to facilitate the safe conduct of flights and systems operations.
Inability to provide ATS services	EUROCONTROL HEIDI	An event in which elements in the ground ATS system performances are unserviceable, insufficient, unavailable or corrupted so that the safety of traffic is impaired or prevented.	Ref. Air traffic Services (ICAO Doc 4444): “A generic term meaning variously, flight information service (FIS), alerting service, air traffic advisory service, air traffic control (ATC) service (area control service, approach control service or aerodrome service)”.
Inability to provide ASM services	EUROCONTROL HEIDI	An event in which elements in the ground airspace management system performances are unserviceable, insufficient, unavailable or corrupted so that the safety of traffic is impaired or prevented.	Ref. The objective of ASM is to maximise, within a given airspace structure, the utilisation of available airspace by dynamic time-sharing, and, at times, segregation of airspace among various categories of users based on short-term needs. (EUROCONTROL IETF/DP/0043)
Inability to provide ATFM services	EUROCONTROL HEIDI	An event in which elements in the ground Air Traffic Flow Management system performances are unserviceable, insufficient, unavailable or corrupted so that the safety of traffic is impaired or prevented.	Ref. ATFM is the aggregate of organisations, people, infrastructure, equipment, procedures, rules and information used to provide Air Traffic Flow Management services to Airspace users. (EUROCONTROL IETF/DP/0043)
Failure of COMMUNICATION function	EUROCONTROL HEIDI	Situation in which communication by the ground ATM system is lost, partially lost or corrupted so that continuously required communication is prevented.	Ref. The communication function is the aggregation of organisations, people, infrastructure, equipment, procedures, rules and information used to provide communication services in order to facilitate the safe conduct of flights and systems operations. (EUROCONTROL IETF/DP/0043) e.g. Incorrect transmission of significant messages.

Term	*Source Reference*	*Definition*	*Examples and/or Comments (as required)*
Failure of SURVEILLANCE function	EUROCONTROL HEIDI	Situation in which surveillance by the ground ATM system is lost, partially lost or corrupted so that continuously required surveillance by ATS is prevented.	Ref. The surveillance function is the aggregation of organisations, people, infrastructure, equipment, procedures, rules and information used to provide surveillance services in order to facilitate the safe conduct of flights and systems operations by tracking and monitoring the progress of aircraft movements (EUROCONTROL IETF/DP/0043).
Failure of Data Processing and Distribution function	EUROCONTROL HEIDI	Situation in which Data Processing and Distribution by the ground ATM system is lost, partially lost or corrupted so that continuously required data exchange within ATS and/or between ATS and aircraft is prevented.	e.g. Loss of Flight data Processing
Failure of Support Information function	EUROCONTROL HEIDI	Situation in which support information is lost, partially lost or corrupted so that support information by ATS is prevented or incorrect.	e.g. Incorrect wind information during take off and landing, incorrect Runway Visual Range, incorrect or lack of filling of Flight Plans
Failure of NAVIGATION function	EUROCONTROL HEIDI	Situation in which navigation aids in the ground ATM system is lost, partially lost or corrupted so that continuously required navigation performance provided to the aircraft is prevented.	Ref. A navigation service for en route and/or landing purposes, provided to the Airspace User via ground or spatial based aids. (EUROCONTROL IETF/DP/0043).
ATM system security	EUROCONTROL HEIDI	Situation in which the ATM services are lost or disrupted as a result of an unforeseen major hazard.	e.g. Fire, smoke, flooding, bomb threat, explosion or sabotage.
Contextual / Factual Data			
Number of aircraft involved	EUROCONTROL HEIDI	The number of aircraft to which safety was not assured or which played a part in the occurrence.	Ref. Aircraft as defined in ICAO Annex 8.
Vehicle(s) involved	EUROCONTROL HEIDI	Yes or no	
Person(s) involved	EUROCONTROL HEIDI	Yes or no	
Animal(s) involved	EUROCONTROL HEIDI	Yes or no	Note: It includes birds.
ATS units	ICAO 9713	A generic term meaning variously, area control centre approach control office or aerodrome control tower.	Ref. As identified by the appropriate ICAO location indicator. Note: More than one ATS Unit may be involved.
Month of occurrence			
Number of fatal injuries	ICAO 9713	Number of deaths of crew, passengers or third party persons resulting from the operation of an aircraft.	Ref. For statistical uniformity only, an injury resulting in death within thirty days of the date of the accident is classified as a fatal injury by ICAO. (Ref. ICAO Annex 13) Note: This would represent the grand total of all the fatalities involved in the accident, whatever the number of aircraft.
Crew member	ICAO 9713	A person assigned by an operator to duty on an aircraft during flight time.	
Passengers		Passengers including the persons carried in an aircraft other than the aircraft's crew.	
Third parties		Third party including the persons affected by an aircraft accident or incident other than the aircraft's crew or passengers.	

Term	*Source Reference*	*Definition*	*Examples and/or Comments (as required)*
Number of serious injuries	ICAO 9713	An injury which is sustained by a person in an accident and which: - requires hospitalisation for more than 48 hours, commencing within seven days from the date the injury was received; or - results in a fracture of any bone (except simple fracture s of fingers, toes or nose); or - involves injury to any internal organ; or - involves second or third degree burns, or any burns affecting more than 5 per cent of the body surface; or - involves verified exposure to infectious substances or injurious radiations.	Note: This would represent the grand total of all the seriously injured persons involved in the accident whatever the number of aircraft.
Damage to aircraft	ICAO Annex 13	A brief statement of the damage sustained by aircraft in the accident (Destroyed, substantially damaged, slightly damaged, no damage).	
Aircraft type	EUROCONTROL HEIDI	As identified by the appropriate ICAO aircraft designator or in plain language where no ICAO designator exists.	Note:- Same procedure as flight Plan ZZZZ+ field 18 I plain language e.g. A310; F27; Glider.
Type of Flight			
Commercial air transport	ICAO 9713	The operation of an aircraft on one or more stages on a scheduled or non-scheduled basis, which is available to the public for remuneration or hire (technical stops are counted in ICAO's statistics).	
General aviation operation	ICAO 9713	An aircraft operation other than a commercial air transport operation or aerial work operation	
Aerial work	ICAO 9713	An aircraft operation in which an aircraft is used for specialised services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, aerial advertisement, etc.	
Phase of ATM Operation			
Military	Jane's Aerospace Dictionary	Aircraft operated by armed service legal or insurrectionary, no matter what aircraft type (excluding combat aircraft retired and privately owned.	
Air Taxi service	ICAO 9713	The term can have two meanings: a type of on demand service usually performed by small capacity aircraft on short notice (…) in some cases (…) operated on a scheduled basis with stops made only at points where passengers and cargo are to be picked up or discharged.	
Instruction flights		An aircraft operation in which an aircraft is used for teaching how to fly.	
Type of Operation			
GAT	EUROCONTROL (Flexible Use of Airspace handbook)	General Air Traffic: GAT encompasses all flights conducted in accordance with rules and procedures of ICAO. Note: GAT can include military flights for which ICAO rules and procedures satisfy entirely their operational requirements.	e.g. Military transport aircraft flying on a civil airway route.
OAT	EUROCONTROL (Flexible Use of Airspace handbook)	Operational Air Traffic: OAT encompasses all flights which do not comply with the provisions stated for GAT and for which rules and procedures have been specified by appropriate national authorities. Note: OAT can include civil flights such as test-flights which require some deviation from ICAO rules to satisfy their operational requirements.	e.g. Interception flights or a training flight in military airspace.

Term	*Source Reference*	*Definition*	*Examples and/or Comments (as required)*
Taxi	EUROCONTROL FCO/ET1/ST02/DEL /1.0	Includes **Departure-taxi** (From off-blocks to start-off run) and **Arrival-Taxi (**From vacation of the runway or full-stop on the runway to on-blocks).	Ref. Departure taxi aligns with ICAO ADREP: Standing- starting engine- engines operating- engine runup- rotor turning, other, and Taxiing-push back/tow, taxiing to runway, aerial taxi, other phases Ref. Arrival-taxi aligns with ICAO ADREP: Taxiing from runway, aerial taxi, other and Standing-Engines operating, Rotor turning, other phases
Departure	EUROCONTROL FCO/ET1/ST02/DEL /1.0	From start of take-off run to top-of-climb.	Ref. Aligns with ICAO ADREP: Take off-take off run, aborted take off, initial climb, climb after gear retraction, emergency/uncontrolled descent during take off, other phases
En-Route	EUROCONTROL FCO/ET1/ST02/DEL /1.0	The time between top-of-climb and top-of-descent, excluding the time spent in the Mission Phase.	Ref. Aligns with ICAO ADREP: Take-Off –Climb into traffic pattern, All En Route, All Manoeuvring, Approach- Holding, Intermediate approach, circuit downwind/base leg, aborted/interrupted approach before decision height, emergency/uncontrolled descent, other phases
Arrival	EUROCONTROL FCO/ET1/ST02/DEL /1.0	From top-of-descent to vacation of the runway of full-stop on the runway.	Ref. Aligns with ICAO ADREP: Final approach, circuit pattern/final, missed approach/go around and All landing Phases
Flight Rules			
Instrument Flight Rules, (IFR)	ICAO 9713	A set of rules governing the conduct of flight under instrument meteorological conditions.	
Visual Flight Rules, (VFR)	ICAO 9713	Visual Flight Rules.	Note: It includes Special VFR (ICAO 9713: A VFR flight cleared by Air Traffic Control to operate within a control zone in meteorological conditions below VMC) and Controlled VFR (A controlled flight conducted in accordance with the Visual Flight Rules).
Type of Air Traffic Management (ATM) service provided	ICAO Report of the 10th Air Navigation Conference, Montreal - Doc 9583 AN-CONF/10EUROCONTROL FCO/ET1/ST02/DEL /1.0	The primary component of Ground-Based ATM is Air Traffic Services (ATS), and the adjunct components are Airspace management (ASM) and Air Traffic Flow Management (ATFM).	Note: The general objective of ATM is to enable aircraft operators to meet their planned times of departure and arrival and adhere to their preferred flight profiles with minimum constraints without compromising safety. Ref. ICAO Doc 4444 definition of ATS: “A generic term meaning variously, flight information service (FIS), alerting service, air traffic advisory service, air traffic control (ATC) service (area control service, approach control service or aerodrome service)”
Air Traffic Control (ATC)	ICAO 9713	Air traffic control service A service provided for the purpose of: a) preventing collisions: 1) between aircraft and 2) on the manoeuvring area between aircraft and obstructions and b) expediting and maintaining an orderly flow of air traffic	

Term	*Source Reference*	*Definition*	*Examples and/or Comments (as required)*
Area control service	ICAO 9713	Air traffic control service for controlled flights in control areas.	Ref. ICAO 9713 - Area control centre; ACC A unit established to provide air traffic control service to controlled flights in control areas under its jurisdiction.
Approach control service	ICAO 9713	ATC service for arriving or departing controlled flights.	Ref. ICAO 9713 - Approach control office; APP A unit established to provide air traffic control service to controlled flights arriving at, or departing from, one or more aerodromes.
Aerodrome control service	ICAO 9713	Air traffic control service for aerodrome traffic.	Ref. ICAO 9713 - Aerodrome traffic. All traffic on the manoeuvring area of an aerodrome and all aircraft flying in the vicinity of an aerodrome. Note. An aircraft is in the vicinity of an aerodrome when it is in, entering or leaving an aerodrome traffic circuit.
Air Traffic Advisory Service	ICAO 9713	A service provided within advisory airspace to ensure separation, in so far as practical, between aircraft which are operating on IFR flight plans.	
Flight Information Service (FIS)	ICAO 9713	A service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights. A service provided within advisory airspace to ensure separation, in so far as practical, between aircraft that are operating on IFR flight plans.	
Alerting Service (ALRS)	ICAO 9713	A service provided to notify appropriate organisations regarding aircraft in need of search and rescue aid, and assist such organisations as required.	
Radar control	ICAO 9713	The term used to indicate that radar derived information is employed directly in the provision of an air traffic control service.	
Radar service	ICAO 9713	The term used to indicate a service provided directly by means of radar.	
Procedural service	ICAO 9713	Non-radar separation; procedural control. The separation used when an aircraft position information is derived from sources other than radar.	
Air Traffic Services airspaces	ICAO 9713	Air spaces of defined dimensions alphabetically designated, within which specific types of flights may operate and for which air traffic services and rules of operation are specified.	Ref. ICAO Annex 11 defines 7 ATS airspace classes The classification should refer to the appropriate ICAO letter, i.e. classes A, B, C, D, E, F, G or others in order to address local variations such as G+ or G* in the Scandinavian States.
Restricted area	ICAO 9713	An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is restricted in accordance with certain specified conditions.	
Prohibited area	ICAO 9713	An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is prohibited.	
Danger area	ICAO 9713	An airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specific times.	
Type of report		The source of information, whether from human or system origin, which revealed the fact of an occurrence.	
AIRPROX	ICAO (Doc 4444)	The code word used in an air traffic incident report to designate aircraft proximity.	Ref. ICAO Doc 4444- Air proximity is “A situation in which, in the opinion of a pilot or an air traffic services personnel, the distance between aircraft as well as their relative positions and speed have been such that the safety of the aircraft involved may have been compromised. An aircraft proximity is classified as follows …“ (Four levels of severity are mentioned- refer to appropriate section of this document)

Term	*Source Reference*	*Definition*	*Examples and/or Comments (as required)*
ACAS report		Notification and/or report by the aeroplane commander to the ATS unit concerned, and the subsequent controller report, whenever an aircraft has manoeuvred in response to an ACAS Advisory	Ref. Modifications were brought to the following definition from JAA NPA OPS-15 (Revised JAR OPS): Notification and report by the aeroplane commander to the ATS unit concerned, whenever an aircraft has manoeuvred in response to an ACAS Resolution Advisory Note: Refer to definition of ACAS below
Other occurrence reports		Notification and/or report by anybody.	e.g. Report made by a passenger.
Type of Monitoring System Alerts			Note: Equivalent to a triggering mechanism
STCA		Short Term Conflict Alert: An automated system that alerts air traffic controllers to potential conflicts between aircraft via an Air Traffic Situation Display.	Note: Current STCA includes SSR ground based systems using computerised three dimensional flight trajectory prediction to provide warnings to air traffic control personnel about actual or potential conflicts between aircraft on a short term basis, a few minutes (typically 2 to 3) before the predicted time of conflict.
MSAW	EUROCONTROL	Minimum Safe Altitude Warning : An automated system which alerts controllers in situations where an aircraft is, or is predicted to be, flying at an altitude such that there is a danger of collision with terrain/obstacles.	
APW	EUROCONTROL	Area Proximity Warning: APW is intended to alert situations where an eligible (SNET) aircraft is, or is predicted to be, flying into a region (SNET) of protected airspace.	Ref. EUROCONTROL - *APW Operational Concept* APW informs the controller when an aircraft is predicted to penetrate, or has penetrated, a region (SNET) of airspace, which has been defined as protected. The penetration may be in the lateral plane, the vertical plane or a combination of the two. Note: *Regions (SNET)* The function of regions (SNET) is to provide a means of assigning particular characteristics to volumes of airspace. Relevant characteristics could include matters such as STCA separation criteria, MSAW minimum safe altitude (SNET) or Mode A codes for aircraft permitted to enter a volume of airspace protected by APW.
GPWS	ICAO Annex 6 (Para 6.15.4)	Ground Proximity Warning System: A system which provides automatically a timely and distinctive warning to the flight crew when the aeroplane is in potentially hazardous proximity to the earth's surface.	Note: It includes Enhanced GPWS.
ACAS	ICAO 9713 Annex 10	Airborne Collision Avoidance System An aircraft system based on secondary surveillance radar (SSR) transponder signals which operates independently of ground-based equipment to provide advice to the pilot on potential conflicting aircraft that are equipped with SSR transponders. Note 1: In this context the term "independently" means that ACAS operates independently of other systems used by air traffic services except for communications with Mode S ground stations. Note 2: SSR transponders referred to above are those operating in Mode C or Mode S.	
A-SMGCS	ICAO Draft European Manual of A-SMGCS AOPG PT/2	Advanced Surface Movement Guidance and Control Systems: Systems providing routing, guidance, surveillance and control to aircraft and affected vehicles in order to maintain movement rate under all local weather conditions within the Aerodrome Visibility Operational Level (AVOL) whilst maintaining the required level of safety.	Note: Aerodrome Visibility Operational Level - (AVOL): The minimum visibility at or above which the declared movement rate can be sustained.

Term	*Source Reference*	*Definition*	*Examples and/or Comments (as required)*
Other alerting devices		Alerting devices other than STCA, MSAW, GPWS, ACAS, A-SMGCS.	
ATM System Contribution to Accident / Incident			
Direct		Where at least one ATM event or item was judged to be DIRECTLY in the causal chain of events leading to an accident or incident. Without that ATM event, it is considered that the occurrence would not have happened.	e.g. a systems failure or an omission of action.
Indirect		Where no ATM event or item was judged to be DIRECTLY in the causal chain of events leading to an accident or incident, but where at least one ATM event potentially increased the level of risk or played a role in the emergence of the occurrence encountered by the aircraft. Without such ATM event, it is considered that the accident or incident might still have happened.	e.g. Air traffic Controller did not use the phrase “avoiding action”.
No involvement		When no ATM event was judged to be either direct or indirect in the causal chain of events leading to an accident or incident.	Note: This covers situations where the ground element of the ATM system had nothing to do with the safety occurrence.
Categories of Causes			Causes may be isolated and single in nature but are often a Combination of factors. The following represents examples of categories of causes but is by no means an exhaustive list.
Cause	ICAO Annex 13	Actions, omissions, events, conditions, or a combination thereof, which led to the accident or incident	EUROCONTROL will understand “cause” in the wider sense of the term, in order to include causes to ATM specific occurrences. (i.e. ‘Actions, omissions, events, conditions, or a combination thereof, which led to the **safety occurrence’**.
ATM services Personnel	EUROCONTROL HEIDI	Persons assigned to perform operational duties directly in connection with the provision of the Air Traffic Management Services	
Physical / Physiological / Psychological / Psychosocial	EUROCONTROL HEIDI	When the personal characteristics of the staff, including the level of competence of the personnel to carry out his/her professional tasks, were inadequate.	Ref. It includes (refer to HEIDI taxonomy) Competency and proficiency deficiencies (such as experience, qualifications, recency, skill, technique, non standard technique, judgement, acquisition, learning, prioritisation/task scheduling, shedding or allocation, team skills, communications), but also physical problems (such as medical limitations, sensory limitations), physiological problems (such as illness, health, fatigue), psychological (such as slips, lapses, mistakes, mental capacity, attention, perception and monitoring, personality and attitude, mental/emotional state), and psychosocial (such as job satisfaction, cultural issues, domestic issues)
Interface-working environment	EUROCONTROL HEIDI	When the working environment was not suitable for its usage by the personnel to carry out his/her professional tasks.	Ref. It includes (refer to HEIDI taxonomy) the physical environment (such as aerodrome/landing take off site, workspace environment, ATC equipment/ergonomics), the ATM software/firmware (such as automatic defence/warnings) as well as the provision of information (such as weather information).
Operational tasks demand	EUROCONTROL HEIDI	Operational tasks demands, i.e. directly associated with the “front line” operational task itself.	Ref. It includes (refer to HEIDI taxonomy) mainly causes related to the high workload (such as unexpected demands), to emergency or unusual situations, or night curfew.
ATM service personnel operating procedures and Instructions	EUROCONTROL HEIDI	Written procedures and instructions used by ATM personnel in the pursuance of their duties directly or indirectly in connection with the provision of the ATM services.	Note: Covers both the adequacy/inadequacy of the procedures/instructions as well as the misuse or non application of the procedures. Note: The procedures and instructions can result from the outcome of a safety assessment related to the introduction of a new ATM system or a change to the existing one.

Term	*Source Reference*	*Definition*	*Examples and/or Comments (as required)*
Operational ATC procedures	EUROCONTROL HEIDI	Written procedures and instructions used by ATC personnel in the pursuance of their duties directly in connection with the provision of the ATM services.	Note: ATC procedures include the control and handling of traffic including transfer of control, the application of separation criteria, resolution of conflicts, methodologies for maximising traffic flows and general communication between controllers and between pilots and controllers. Also, how particular ATC tasks are executed using available equipment and action in the event of equipment failure.
Other operational ATM service procedures	EUROCONTROL HEIDI	Written procedures and instructions used by ATM personnel other than ATC in the pursuance of their duties directly or indirectly in connection with the provision of the ATM services.	Note: Other ATM procedures include interfaces with operators (Flight Plan office) or Development/usage of AIP or definition and diffusion of ATIS.
Engineering and maintenance procedures	EUROCONTROL HEIDI	Written procedures and instructions used by engineering and maintenance personnel in the pursuance of their duties in connection with the provision of the ATM services.	Note: Such procedures relate to engineering operation and control of operational equipment, including routine maintenance and repair of equipment after failure, and procedures used for the design, installation and commissioning of new equipment.
Interface between ATM service units	EUROCONTROL HEIDI	The airspace boundary between adjacent portions of two ATM systems.	Note: It includes all inter-operations across airspace boundaries and systems interface. (i.e., consistent/compatible ATM infrastructure – Co-ordination procedures- Letter of agreement, reception of data from other sources)
ATM service infrastructure/facilities/ technical systems	EUROCONTROL HEIDI	The engineered systems and sub-systems the functions of which directly support the provision of the ATM services, as well as the civil infrastructure enabling the provision of ATM services.	
Hardware issues	EUROCONTROL HEIDI	Defect or anomaly of a hardware element or of its components.	Note: Wherever in the lifecycle: Design/Commissioning/ operations/maintenance
Software issues	EUROCONTROL HEIDI	Defect or anomaly of a software element or of its components.	Note: Wherever in the lifecycle: Design/Commissioning/ operations/maintenance
Integration issues	EUROCONTROL HEIDI	Defect or anomaly in an interface between systems/equipment.	Note: It includes air-ground and ground-ground integration.
Aerodrome layout and infrastructure	EUROCONTROL HEIDI	Physical characteristics of the aerodrome and surrounding environment.	Note: It includes aerodrome layout, physical characteristics, configuration of movement areas as well as obstacle limitation surfaces to be provided for at an aerodrome, as specified in Annex 14 of ICAO.
Airspace structure	Collins Concise Dictionary	The structure or form of airspace for the specific use of Air Traffic.	
Route structure	EUROCONTROL IETF/DP/0043	The aggregate of ATS routes, itineraries defined in Terminal Areas and other airspace structure elements (e.g. holding areas) defined for the use of the navigable Airspace by aircraft operators.	Note: Definition of “Route network”.
Capacity	ICAO- Doc 9306 (For Operating Capacity)	Number of aircraft to enter into a specified portion of the airspace or to proceed to specified aerodromes within a given period of time.	Ref. EUROCONTROL IETF/DP/0043 defines a number of types of capacity (Apron, Arrival, departure, Flow, Operating, Runway, Terminal, Transfer). Note: Potential capacity causes to occurrences are to be analysed, without being restricted to the capacity figures being declared by States/ATM service providers.

Term	*Source Reference*	*Definition*	*Examples and/or Comments (as required)*
Sectorisation	EUROCONTROL HEIDI	The partition of airspace in sectors, according to pre-defined criteria, in order to handle the traffic.	Ref. Sectors as defined as per ICAO 8400/4 Note: Sectorisation here refers to the sectorisation in place at a certain time, which depends on the potential combination of sectors to be put in place for both an optimum of handling of traffic and human resource management.
ATS airspaces	ICAO 9713	Air spaces of defined dimensions, alphabetically designated, within which specific types of flights may operate and for which air traffic services and rules of operation are specified.	Note: Causes in that category would include inadequate classification of air spaces.
Company structure and Management Policy	EUROCONTROL HEIDI	Structure and policy in place in ATM system administration and ATM service providers organisation.	Note: It includes policies related to the style to run the organisation, which tend to be outside the individual's control, and which may affect the performance of safety.
Operational Line Management	EUROCONTROL HEIDI	ATM current operations and daily management of the resources according to the anticipated workload.	e.g. Causes in that category would include inadequate workload management, supervision, manning of operational positions, excessive high traffic levels.
Safety Management System	EUROCONTROL	The process used by organisations providing safety related services or products to ensure that all safety aspects of that provision have been adequately addressed.	Note: It includes : ▪ Setting of organisational safety policies and standards (which meet as a minimum the provisions of regulatory requirements) ▪ Adequate resources to support the implementation of the Safety Management System ▪ A means for measuring safety achievement, and a mechanism for the rectification of deficiencies e.g. Causes in that category would include ambiguity of operational ATC procedures, non-availability or inadequacy of operational material, inadequate assessment of risk when introducing change to ATM systems, inadequate training, failure to take remedial actions after an occurrence investigation has produced safety recommendations.
Institutional arrangements	EUROCONTROL HEIDI	The arrangement selected within one State to undertake the provision of ATM services, which may lead to pressures on the personnel.	Note: It includes consideration of the legal status of the ATM service provider organisation (i.e. public, semi-public or private sector) and the relationship between the regulator and the ATM service provider.
Management / personnel policy	EUROCONTROL HEIDI	The policy implemented within an organisation providing ATM services in order to manage the personnel	Note: It includes (refer to HEIDI taxonomy) recruitment, staff pairing, scheduling, terms and conditions, manning.
Regulatory activities	EUROCONTROL HEIDI	The setting of rules and policy and the oversight of compliance of organisations providing ATM services.	
Regulation	ATM 2000+ Strategy	The adoption, enactment and implementation of rules for the achievement of stated objectives by those to whom the regulatory process applies.	Note: Proposed ATM 2000+ definition for "regulation". Ref. Causes in that category would include (refer to HEIDI taxonomy) inadequate regulatory standards, certification standards) as well as inadequate or lack of safety regulatory requirements.
Approval process	ATM 2000+ Strategy	A process by which an authorised body, acting within a legislative framework, gives formal recognition that a product, process or service conforms to applicable safety regulatory requirements.	Note: Proposed ATM 2000+ definition for "certification". Ref. Causes in that category would include (refer to HEIDI taxonomy) inadequate regulatory procedures, inspections, monitoring, surveillance, audit and checks) as well as poor regulatory oversight and wrong application of the requirements.

Term	*Source Reference*	*Definition*	*Examples and/or Comments (as required)*
Safety recommendations	ICAO Annex 13	A proposal of the aircraft investigation authority of the State conducting the investigation, based on information derived from the investigation, made with the intention of preventing accidents or incidents.	Note: Generally applicable to aircraft accident and serious incidents and produced by Accident Investigation Authorities.
Safety Interventions		A proposal of the organisation conducting the assessment of the occurrence, based on information derived from the assessment, made with the intention of preventing accidents or incidents.	Note: Generally applicable to aircraft accident and incidents as well as ATM specific occurrences and produced by any organisation entitled to assess safety occurrences, including regulators.

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