

Joint ICAO/ACI workshop on certification of aerodromes



ICAO

Certification Principles and Procedures

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Overview

- **Introduction**
- **Principles**
- **Filter**
- **Steps of the certification process**
- **Aerodrome Manual and SMS**
- **Summary**

Introduction (1)

- ➔ **Practical aspect**
 - **Verify and document conformance with requirements**
- ➔ **Legal aspect**
 - **The certificated: Both a prerequisite to do business, i.e. to pilot an aircraft or to operate an airline or an aerodrome. It can also be used to gain access to markets abroad, i.e. act as a basis for validation or acceptance by another country.**

Introduction (2)

➔ Legal aspect (cont)

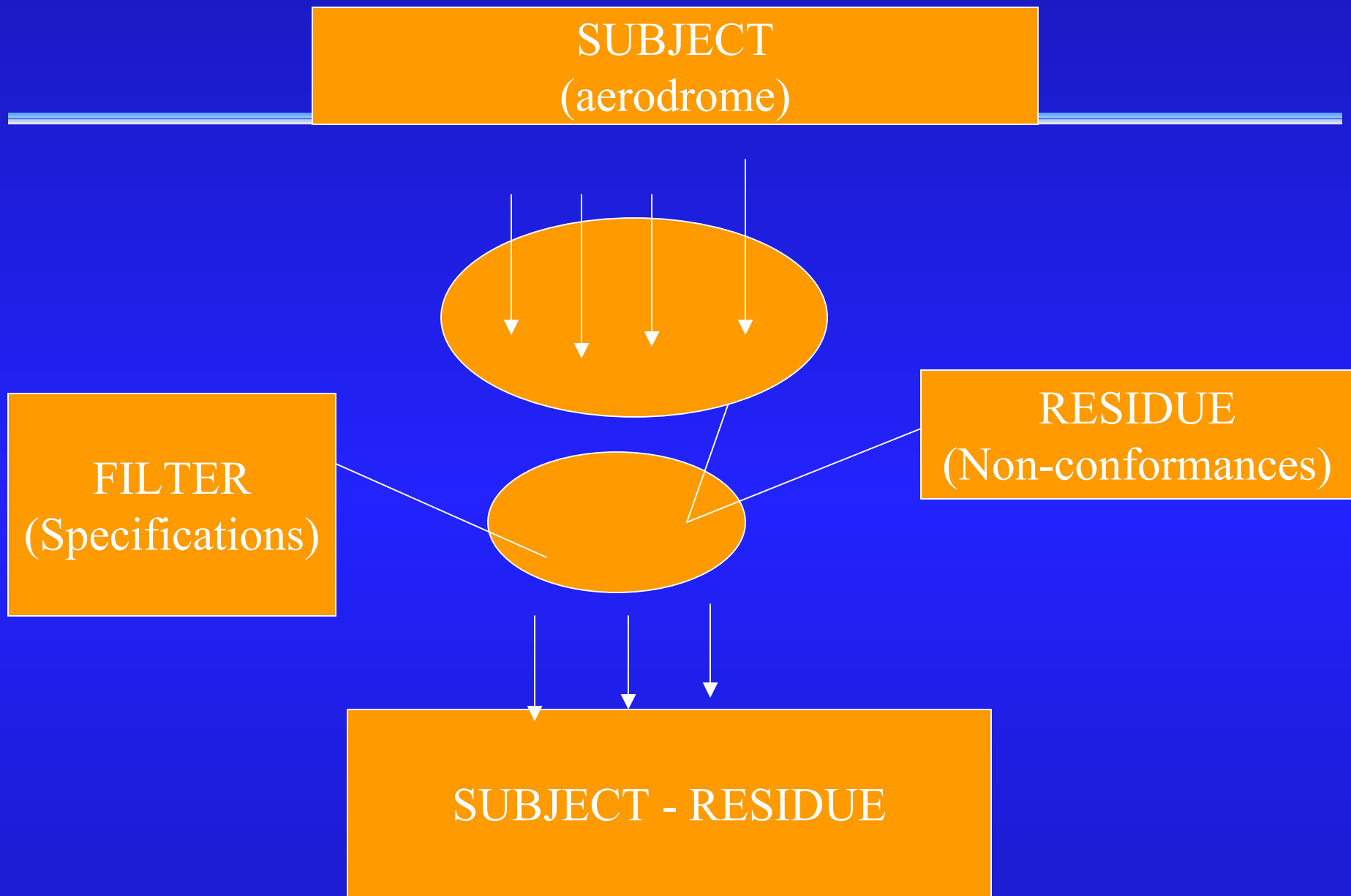
- CAA:

A certificate can be revoked, suspended or varied if the subject no longer conforms fully or partially to requirements.

Principles

- ✈ **Take a filter**
- ✈ **Pour the subject through**
- ✈ **See what remains in the filter.**

- ✈ **If nothing, OK**
- ✈ **Residue are non-conformances**
- ✈ **Non-conformances must be handled**



The filter (1)

- ➔ **The filter is the set of design and operational regulations applicable to that specific aerodrome.**
- ➔ **How to design the filter?**
- ➔ **Annex 14?**

The filter (2)

- ➔ **At least 2 runways (usually 4+)**
- ➔ **Several taxiways**
- ➔ **Several stands**

- ➔ **Low visibility Ops?**

- ➔ **One spec for each RW, TWY, STAND**

The filter (3)

- ➔ **Ref Code No (1 – 4)**
- ➔ **Ref Code letter (A – F)**
- ➔ **3rd element**
 - ➔ **Take-off**
 - ➔ **Non-instrument**
 - ➔ **Non-Precision**
 - ➔ **Precision Cat 1**
 - ➔ **Precision Cat II/III**

Ref Code No

✈ **Aeroplane Reference Field Length?**

✈ **Physical length?**

✈ **TORA?**

✈ **ASDA?**

✈ **TODA?**

✈ **LDA?**

Ref Code Letter

- ✈ **Aeroplane property?**
- ✈ **Aerodrome properties?**

3rd element

- ✈ **Take-off**
- ✈ **Non-instrument**
- ✈ **Non-Precision**
- ✈ **Precision Cat 1**
- ✈ **Precision Cat II/III**

Conclusion so far

Having done this exercise for all runways, taxiways and stands, the technical specifications for the aerodrome as far as Annex 14 Chapter 3 and 4 are also established.

Example

✈	RWY 17	4E - Precision
✈	RWY 35	4E - Precision
✈	TWY A, D, E, F, G and Y	E
✈	TWY B, C and ZN	C
✈	TWY ZS	D
✈	STAND 40, 41, 42 and 43	B
✈	STAND 04, 21, 23, 25, 26	C
✈	STAND 03, 22 and 27	D
✈	STAND 02 and 24	E
✈	STAND for Helicopter 50, 51	D= 22,2 m

Annex 14 ex chapter 3 &4

- ➔ **Technical specifications for visual aids**
- ➔ **Operational requirements for services**
- ➔ **Will the aerodrome be used during darkness or several levels of reduced visibility?**
- ➔ **The Manual on Surface Movement Guidance and Control Systems give additional advice on this part.**
- ➔ **To determine the level of Rescue and Fire-Fighting services, traffic data must be considered.**

Conclusion so far

What I have tried to show is that the selection of the correct technical specification for an aerodrome is both an important and a non-trivial exercise.

It is a necessary step in any certification process.

The certification process

- ➔ **Dealing with the expression of interest by an intending applicant for the aerodrome certificate**
- ➔ **Assessing the formal application, including evaluation of the aerodrome manual**
- ➔ **Assessing the aerodrome facilities and equipment**

The certification process

- ➔ **Issuing or refusing an aerodrome certificate**
- ➔ **Promulgating the certified status of an aerodrome and the required details in the AIP**

Expression of interest

- ➔ **Early contact with CAA important**
 - **Points of contact**
 - **CAA planning purposes**
 - **Agree on tech and ops regs applicable**
 - **Flight Ops assessment**

Assessing the formal application

OBJECTIVE:

**To get convinced that the aerodrome
complies with all applicable regulations**

Safety First



Tools

- ➔ **An assessment of the aerodrome manual.**
- ➔ **A site visit**

Manual assessment (1)

- ➔ Does the Manual fulfil formal requirements?
- ➔ Does the table of content conform with Doc 9774 Appendix 1?
- ➔ What sections are not applicable (ex Cat II/III operations)
- ➔ Is the management properly described?
- ➔ Are all systems described in a convincing way?
- ➔ Are safety related procedures described convincingly?

Manual assessment (2)

- ➔ **Does the procedures reflect both the infrastructure and the competence of personnel?**
- ➔ **Are competence requirements and training plans described?**
- ➔ **Is it likely that the Aerodrome is capable to operate according to the manual?**

Site visit (Inspection)

- ✈ **Doc 9774, Chap 4.4.4**
 - **Hardware**

- ✈ **Doc 9774, Chap 5.5.4**
 - **Systems and Operation**

Doc 9774 Chapter 4.4.4

✈ On-site verification of aerodrome data

The checking of aerodrome facilities and equipment, which should include:

Dimensions and surface conditions of:

- **runway(s)**
- **runway shoulders**
- **runway strip(s)**
- **runway end safety areas**
- **stopway(s) and clearways**
- **taxiway(s)**
- **taxiway shoulders**
- **taxiway strips**
- **aprons**

Obstacles

The presence of obstacles in obstacle limitation surfaces at and in the vicinity of the aerodrome



Snelkoppeling naar HINDER~1.Ink



Snelkoppeling naar HOOGTE~1.Ink

Aeronautical ground lights

- ➔ **runway and taxiway lighting;**
- ➔ **approach lights;**
- ➔ **PAPI/APAPI or T-VASIS/AT-VASIS;**
- ➔ **apron floodlighting;**
- ➔ **obstacle lighting;**
- ➔ **pilot-activated lighting, if applicable; and**
- ➔ **visual docking guidance systems;**
- ➔ **flight check records where applicable**
- ➔ **checking and maintenance procedures**

Useful questions

- ➔ **Are there established lights to support the intended operation?**
- ➔ **Are the lights of the correct design and in the correct locations?**
- ➔ **Are there established the necessary control systems for the lights?**
- ➔ **Checking and maintenance procedures?**
- ➔ **Are Aerodrome Manual and AIP in conformance with reality?**

Questions for standby power systems

- ➔ **Are all relevant systems connected to standby power?**
- ➔ **Is the switch-over time compatible with the intended operating conditions of the aerodrome?**
- ➔ **Is the actual switch-over time within limits?**
- ➔ **Is the switch-over time published in the AIP?**
- ➔ **Maintenance and testing procedures and records?**

Markings

- ➔ **Wind direction indicator(s)**
 - **Illumination of the wind direction indicator(s)**

- ➔ **Aerodrome markings and markers**

Useful questions for marking

- ➔ Is everything marked that should be marked?
- ➔ Are the markings of the correct design and in the correct locations?
- ➔ Are the markings visible, also during rain/snow, at night and under low visibility conditions?
- ➔ Checking and maintenance procedures?
- ➔ Are Aerodrome Manual and AIP in conformance with reality?

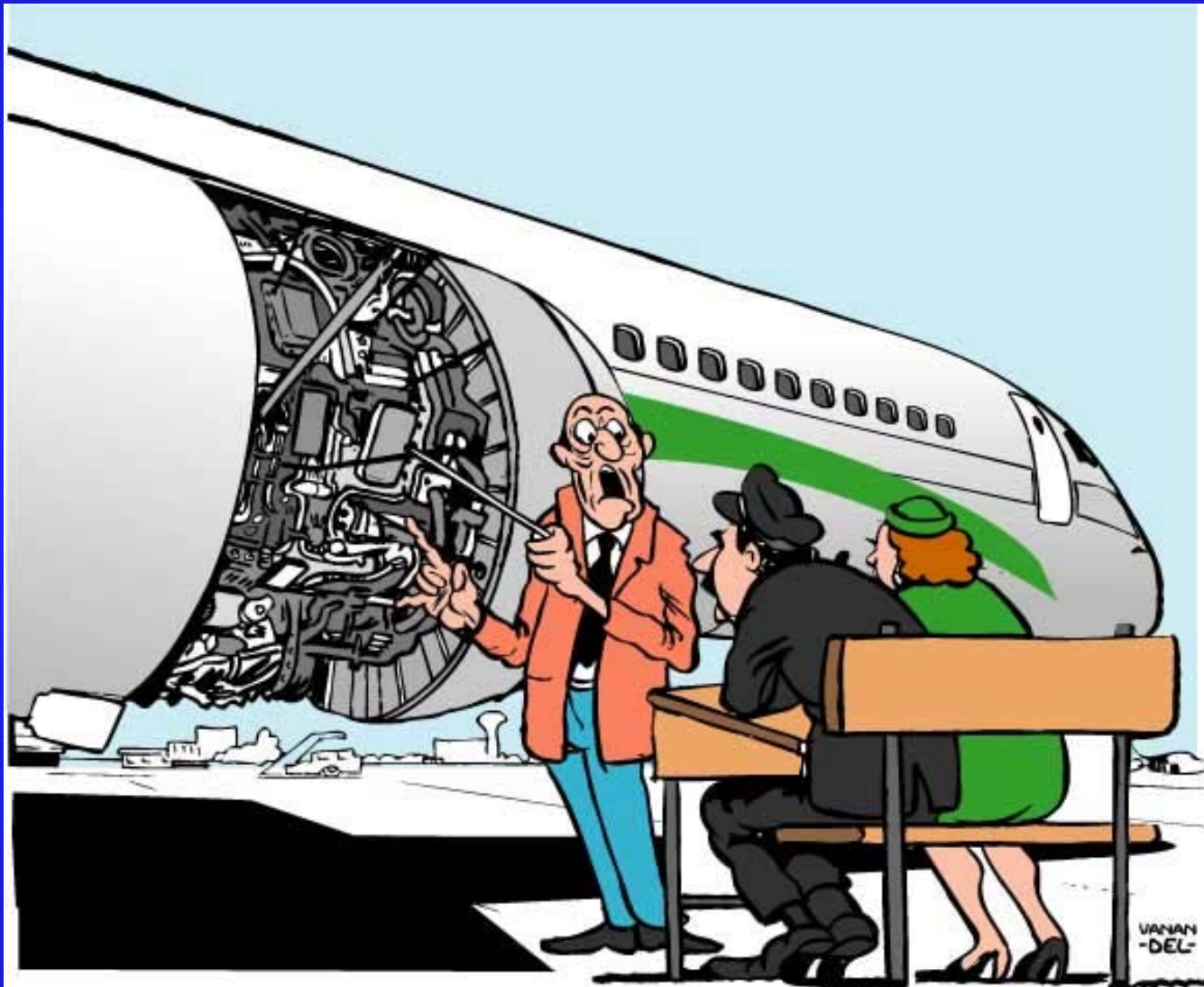
Signs

- ➔ **Are all mandatory instruction signs established, ref Annex 14 chap 5.4.2?**
- ➔ **Are information signs established where there exists an operational need, ref Annex 14 chap 5.4.3**
- ➔ **Review the term operational need.**
- ➔ **The signs, are they of the correct type, in the correct locations and sufficiently visible during all operational conditions?**
- ➔ **Checking and maintenance procedures?**
- ➔ **Are Aerodrome Manual and AIP in conformance with reality?**

RFES

- ➔ **Rescue and fire-fighting equipment and installations**
- ➔ **Procedures**
- ➔ **Competency**
- ➔ **Training (picture)**

Competence means safety



Pavement maintenance

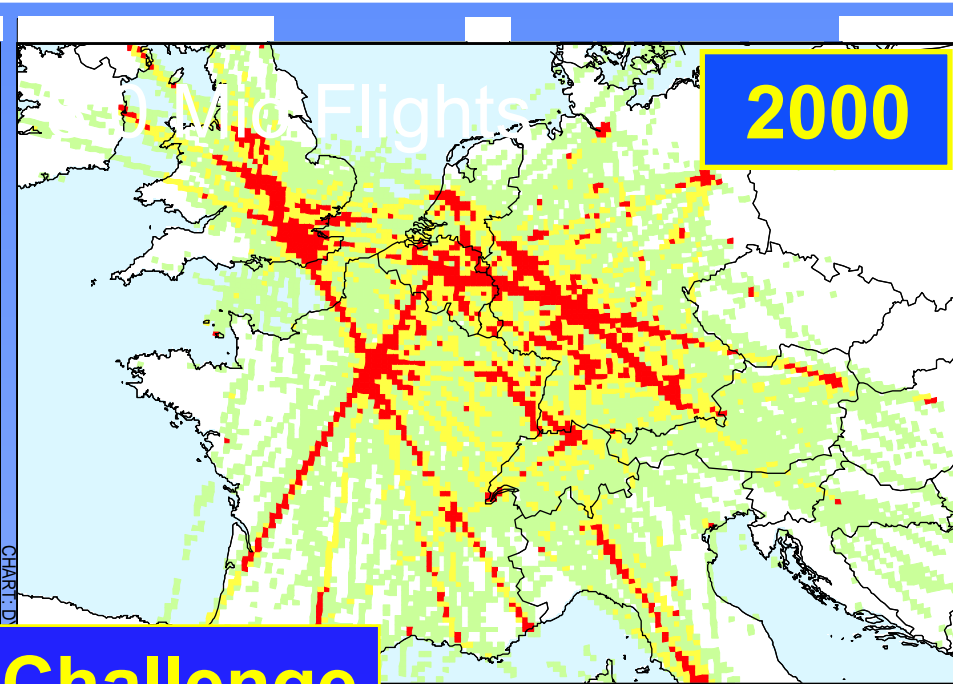
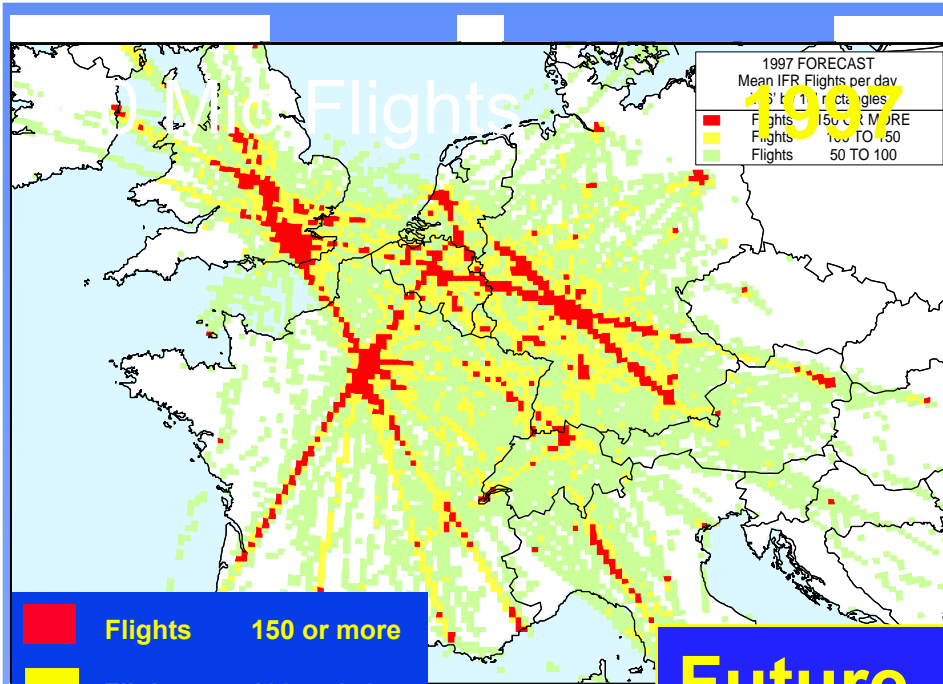
- ➔ **Aerodrome maintenance equipment, particularly for the airside facilities maintenance including runway surface friction measurement**
- ➔ **Runway sweepers and snow removal equipment**
- ➔ **Checking and maintenance procedures**
- ➔ **Snowplan**
- ➔ **Competency**

Miscellaneous

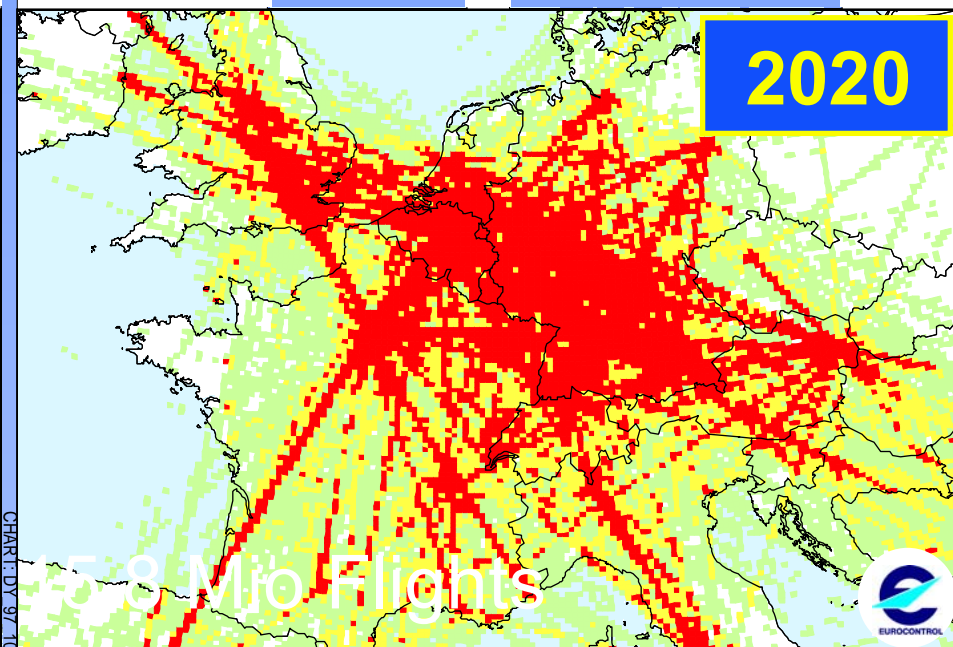
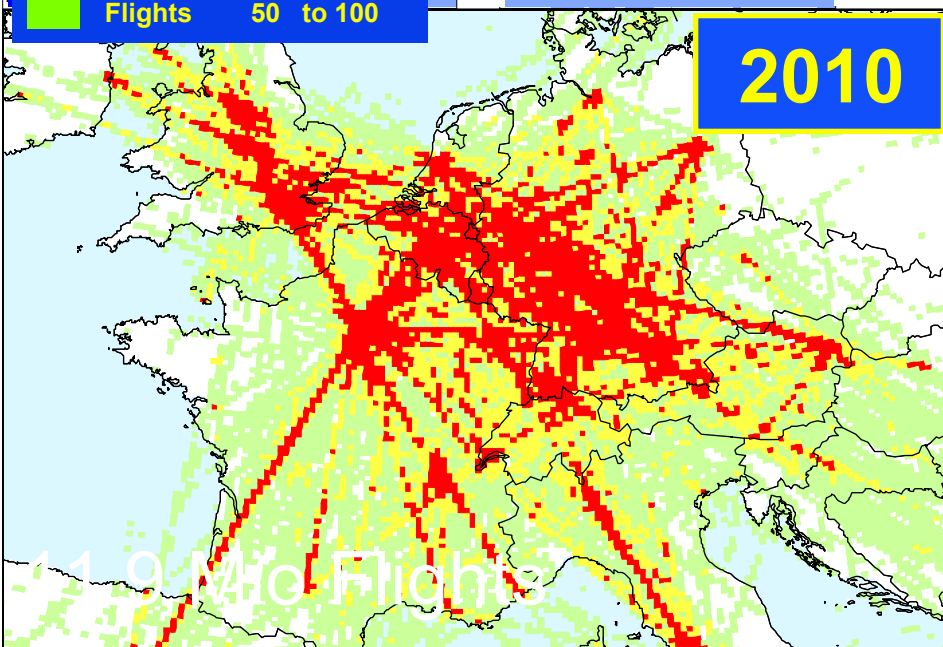
- ➔ **Disabled aircraft removal equipment**
- ➔ **Wildlife management procedures and equipment**
- ➔ **Two-way radios installed in vehicles for use by the aerodrome operator in the movement area**
- ➔ **The presence of lights that may endanger the safety of aircraft**
- ➔ **Fuelling facilities.**
- ➔ **Driver training, testing and competence**

Safety Management System (SMS)

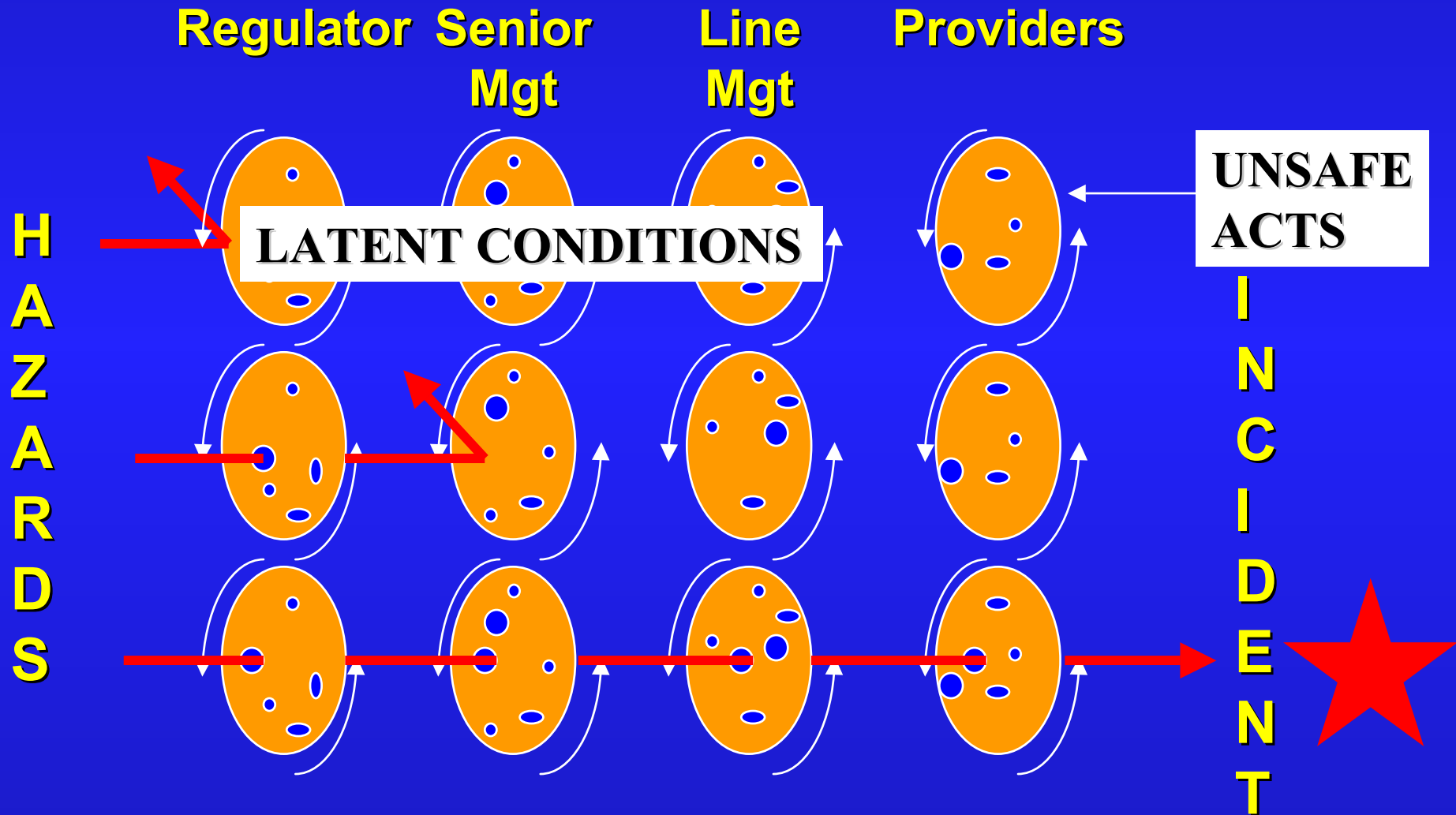
- ➔ Are all elements described?
- ➔ Safety policy?
- ➔ Procedure for management review?
- ➔ Audit program?
- ➔ Reporting system?
- ➔ Analysis and lesson dissemination?
- ➔ Is the system known throughout?
- ➔ Does it work?



Future Challenge



Reason Model



Objective

- ✈ **Verify compliance with regulations**
- ✈ **Verify conformance with the Aerodrome Manual**
- ✈ **Identify non-conformances**

Methods

- **Measurements**
- **Records**
- **Documents**
- **Interviews**
- **Observations**
- **Assessment**

Results

- **Empty filter?**
- **Residue in the filter?**
- **Non-conformances must be handled.**
 - **Corrected (within an agreed time)**
 - **Accepted as exemption on specified conditions**

Issuing or refusing an aerodrome certificate

- ➔ **Everything OK – Issue Certificate**
- ➔ **Everything NOT OK – Inform the applicant and agree on what steps must be taken.**
- ➔ **If exemptions are accepted, state conditions (restrictions)**

Promulgating in the AIP

- ➔ **The certified status of an aerodrome and the required details should be published**
- ➔ **Aerodrome responsibility**
- ➔ **CAA supervise**
- ➔ **According to Annex 14 chapter 2 (picture)**

An imago of safety means trust



Summary

- ➔ **The basic principles of certification.**
- ➔ **One of the crucial aspects of aerodrome certification which is the selection of the technical and operational regulations applicable to a particular aerodrome.**
- ➔ **The steps of aerodrome certification as described in Doc 9774 Chapter 4.**

QUESTIONS?