



# EASA Operational Issues in Icing

Eric Duvivier,  
EASA Certification Specialist  
Flight in Icing

Seville, September 24-27, 2007



# Content

---

**EASA**

**ICING: Recent & On going Rule Making**

**FUTURE Plans**



European Aviation Safety Agency

# The EASA

Based in:

COLOGNE /  
GERMANY





# The EASA

---

- **Mission:**
  - ★ **Set & Maintain the highest common safety & Environmental standards**
- **Centrepiece of European aviation safety system**
- **Started in 2003, based on EU law**



# The EASA

---

## ➤ Why a European Agency?

- ★ Legally binding rules
- ★ Higher common safety standards
- ★ Type-certificates valid across EU
- ★ Cooperation with Foreign Airworthiness Authorities



# The EASA

---

## ➤ Main tasks

- ★ Rulemaking
- ★ Standardisation & inspections
- ★ Type-certification & Approvals
- ★ Safety Analysis



# The EASA



## ➤ A European “system”

## The Agency

Regulations at European level  
Product certification & DOA approval  
Standardisation

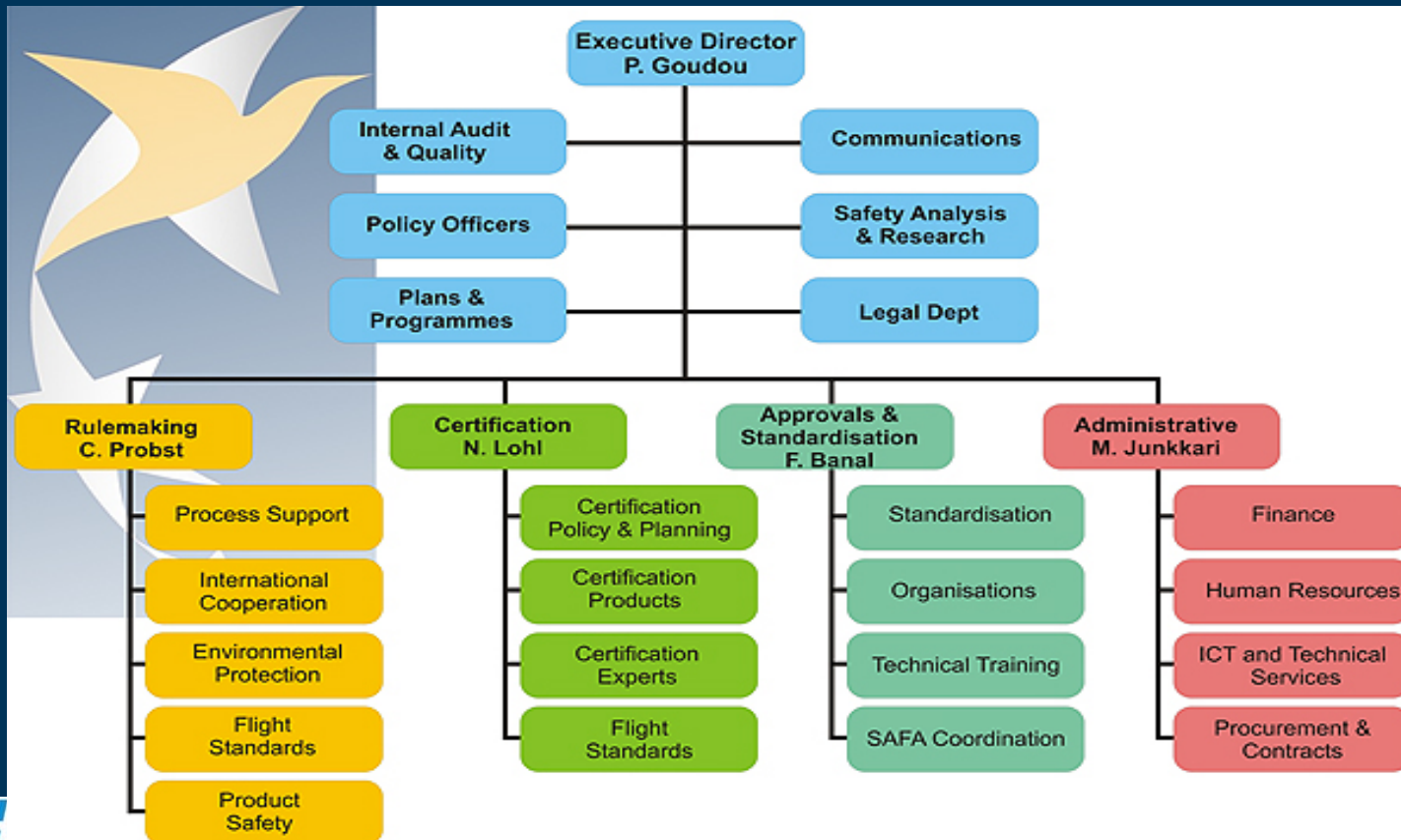
## National authorities

Implementation of EU rules at national level  
Individual airworthiness certificates  
Approvals of national organisations + personnel



# The EASA

## ➤ Management organization





# The EASA

---

## ➤ Growth of staff

★ **2006: 120+**

→ specialists and administrators recruited

★ **Today: 330**

★ **2010 forecast: 500+**



# The EASA

---

## ➤ New activities in 2007

- ★ Transfer of JAA rulemaking tasks
- ★ Management of SAFA database
- ★ Permit to Fly – approval of Flight Conditions
- ★ End of transition period – new scope of EASA certification tasks



# The EASA

---

## *Extension of remit:*

### ★ **New responsibilities proposed by EU Commission:**

- Operations
- Pilot Licensing
- Oversight of non-EU operators

### ★ **New tasks expected end of 2008**

- ATM (2012)
- Airport (2011)



EASA

# ICING: Recent & On going Rulemaking FUTURE Plans



# ICING: Recent & On going

---

 Ground  
In-Flight



# Ground Icing

---

## 2 main TASKS

### EASA Safety Information Notice

★ Ref 2006 – 09

A-NPA N° 2007-11

★ Residue that can result from  
application of de /anti-ICING FLUIDS



# EASA SIN 2006 – 09

---

- Developed to draw attention and to provide Information
- Based on JAA Operational Directive
  - ★ JAA SIC No. 2&4
- Issued: 26 September 2006
- Recommendations to Operators
- Addresses: Aircraft operations
  - ★ "Extended" ground operations in Icing Conditions



# EASA SIN 2006 – 09

---

## ➤ 2 Issues:

- ★ Engine Intake & Fan blade Icing
- ★ Ground De-Icing of Aeroplanes



# EASA SIN: Intake & Fan blade

---

- Snow and Slush accumulation
  - ✦ engine intake & rear surfaces of engine compressor/ fan blades
- May detach and be ingested by the engine(s)
  - ✦ when high power settings for takeoff,
- Adverse effects on engine operation, and possible flameout
- Several accidents/Incidents due to these phenomena.



# EASA SIN: Intake & Fan blade

---

## Recommendation to operators:

- Follow manufacturers' recommendations,
  - ★ where given or
  - ★ liaise qualified entities to obtain advice,
- Take appropriate action to
  - ★ to develop suitable procedures in Operations Manuals and
  - ★ to give suitable advice, guidance and training to pilots and ground staff



# EASA SIN: Ground De-Icing

---

- Highlight the issues
  - ★ frost, ice, snow or slush on the external surfaces of an aeroplane
- Provide recommendations
  - ★ necessary Ground De-Icing procedures



# EASA SIN: Ground De-Anti-Icing

---

**Do also contain Consideration on:**

- Communications (Flight & Ground CREW)
- Holdover time
- Type of Fluids,
- Use thickened de / anti-icing fluids,
- Maintenance procedures



# Ground Icing

---

## EASA Safety Information Notice

★ Ref 2006 – 09

**A-NPA** N° 2007-11

★ **Residue that can result from application of DE/ANTI-ICING FLUIDS**



# A-NPA "Residue"

---

"Possible course of  
action

for EASA

to address the issue of  
residue that can result  
from application of  
DE-ICING / ANTI-  
ICING FLUIDS"





# A-NPA "Residue"

---

- Published 31/07/07
- End of Comment Period: 31/10/07
- Issue:
  - ★ potential safety hazards associated with the residues of fluids



# A-NPA “Residue”

---

## ➤ Why an A-NPA?

- ★ Request input on proposed EASA strategy

## ➤ Outcome of the A-NPA consultation:

- ★ used to define an EASA action plan
- ★ address recommendations from accident investigators (AAIB, BFU)



# A-NPA "Residue"

---

**Number of potential actions:**



**Design,  
Operation,  
Maintenance  
Service Providers  
Aerodromes**

**Divided: short / mid and long term actions**



# A-NPA “Residue”

---



Design,  
Operation,  
Maintenance,  
Service Providers  
Aerodromes



# A-NPA "Residue" / Design

---

## 6 Options Considered:

1. Do Nothing
2. TC holder to provide Procedures & Info to Operators
3. Change Industry Std (SAE....)
4. Formal Qualification of Fluids required
5. Change CS(s)
6. Change CS(s) & Retroactivity



# A-NPA “Residue”

---

Design,

**Operation,**

Maintenance,

Service Providers

Aerodromes



# A-NPA "Residue" / OPS

---

## 2 Options considered

1. **Do nothing**

2. **Change OPS Requirements & GM**

- assessment, oversight and management of service providers
- Ops & Maintenance programmes
- training requirements for crew



# A-NPA "Residue"

---

Design,

Operation,

**Maintenance,**

Service Providers

Aerodromes



# A-NPA "Residue" / Maintenance

---

## 2 Options considered

1. **Do nothing**
2. **Changes to the requirements and GM**
  - ★ implications on the maintenance regime for an aircraft



# A-NPA “Residue”

---

Design,

Operation,

Maintenance,

**Service Providers**

Aerodromes



# A-NPA "Residue" / Service

---

## 3 Options considered

1. Do nothing
2. Development of industry standards and industry monitoring programme
3. Regulatory approval of service providers



# A-NPA “Residue”

---

Design,

Operation,

Maintenance,

Service Providers



**Aerodromes**



# A-NPA "Residue" /Aerodromes

---

## 2 Options considered

1. **Do nothing**

2. **Rulemaking**

- ★ when the EASA is competent for aerodromes
- ★ ensure that the range of de-icing and anti-icing fluids is made available at all appropriate locations



# A-NPA "Residue" / EASA

---

## *Possible options envisaged:*

- DESIGN: combination of options 2, 3 and 5
- OPERATIONS: option 1
- MAINTENANCE: option 2
- SERVICE: option 2
- AERODROMES: option 2



## A-NPA "Residue"

---

- Exchange information and views, cooperation with various groups
  - ★ JAA De-/Anti-Icing Steering Group,
  - ★ SAE Residue Working Group,
  - ★ ERA, AEA



# ICING: Recent & On going

---

Ground

 **In-Flight**



# Recent & On Going/In-Flight

---

- CS 25 @ Amendment 3



# CS 25 @ Amendment 3

---

- Published in Sep 2007
- Effective: 19/09/07
- Amdt 3, incl. amongst other:
  - ★ Handling & Performance in Icing
  - ★ Appendix C amended
- Based on
  - ★ JAA NPA 25F219 / NPA 25BEF332
  - ★ FTHWG work
  - ★ NPA 16/2004



EASA

ICING: Recent & On going Rule Making

**FUTURE** Plans

- Ground Icing
- In-Flight Icing



# Future Plans

---

**Ground Icing**  
**In-Flight Icing**



# Future Plans/Ground Icing

---

- **Based on A-NPA "Residue" consultation**
  - ★ **when in the EASA remit, work the associated Rulemaking**



# Future Plans

---

Ground Icing

**| In-Flight Icing**



# Future Plans/ In-Flight Icing

---

- **Generate NPA on IP HWG work**
  - ★ **Task 1 to 7, and amongst other**
  - ★ **Need to require Ice detectors**
  - ★ **Environment that includes supercooled large droplets (SLD),**

**NPA / NPRM: Strong need for coordination**



# Inquiries

---

- Rulemaking general inquiries:
  - ✦ Agency's Rulemaking Activities
  - ✦ [rule@easa.europa.eu](mailto:rule@easa.europa.eu)
- Ground Icing RM:
  - ✦ Mr Herbert Meyer
  - ✦ [herbert.meyer@easa.europa.eu](mailto:herbert.meyer@easa.europa.eu)
- In-Flight Icing RM:
  - ✦ Mr Yves Morier
  - ✦ [yves.morier@easa.europa.eu](mailto:yves.morier@easa.europa.eu)
- Icing Certification
  - ✦ [eric.duvivier@easa.europa.eu](mailto:eric.duvivier@easa.europa.eu)



# ■ Questions ?



■ Questions

**Thank You**