Noise Certification Workshop

Session 5: ICAO/CAEP Current Activities on Noise Certification

Current activities and new challenges

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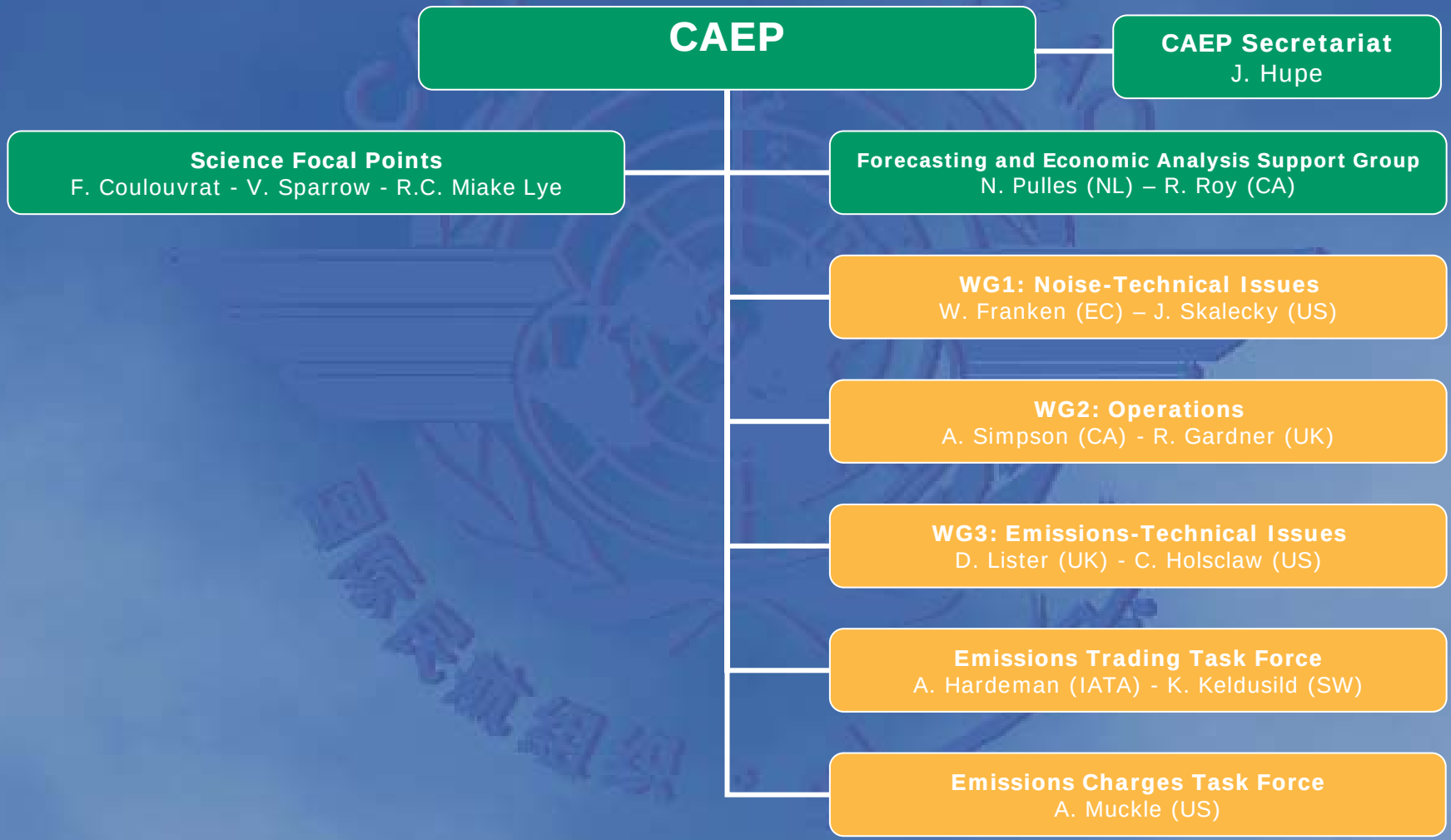
Structure Leading to the 7th Meeting of the ICAO Committee on Aviation Environmental Protection (CAEP/7)



Role of CAEP Working Group 1

"The main aim of the Working Group 1 (WG1) under the Committee on Aviation Environmental Protection (CAEP) is to keep the ICAO noise certification standards up-to-date and effective, whilst ensuring that certification procedures are as simple and inexpensive as is practical."

Current WG1 Composition

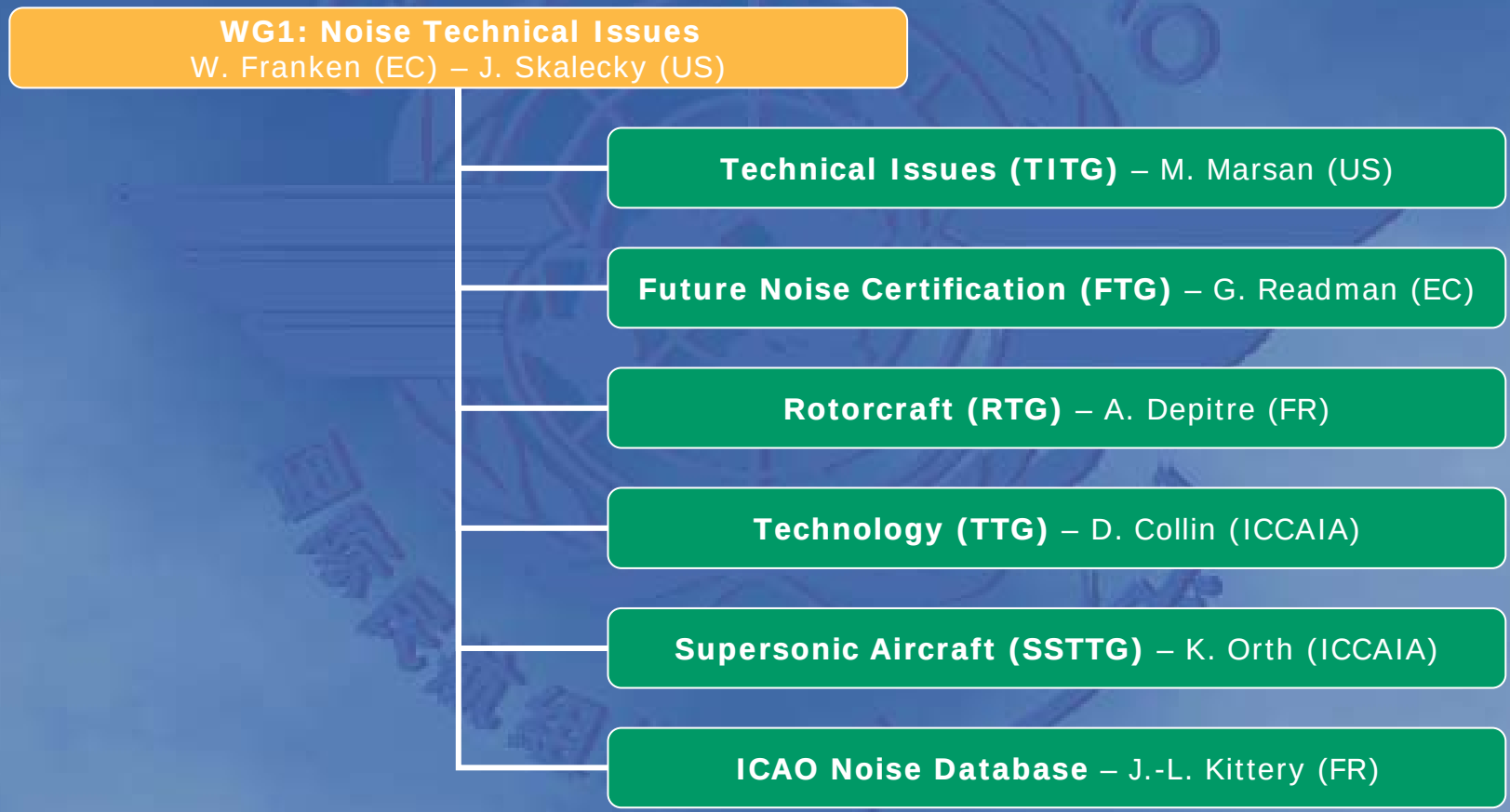
Members

- Direction Générale de l'Aviation Civile (DGAC) France
- European Aviation Safety Agency (EASA)
- Japan Civil Aviation Bureau (JCAB)
- Transport Canada
- U.K. Civil Aviation Authority (CAA)
- U.S. Federal Aviation Administration (FAA)

Observers

- Airport Council International (ACI)
- International Airport Transport Association (IATA)
- International Coordinating Council of Aerospace Industries Associations (ICCAIA)
- International Federation of Airline Pilots Associations (IFALPA)

WG1 Structure Leading to CAEP/7



Deliverables to CAEP/7

- Proposals for update of Annex 16, Volume I (Aircraft Noise) and the ICAO Environmental Technical Manual for Noise (DOC 9501)
- Demonstration scheme for both certification and land use planning for rotorcraft
- Refinement of requirements for wind speed measurements
- Clarification of applicability language and alignment with airworthiness
- Reports on technology status
- Noise – emissions interdependencies

Future Noise Certification Task Group

- Certified Noise Levels Versus Measured Noise Levels -

- Public perception that noise certification levels are not representative of operational noise levels
- Statistical Correlation analysis between day-to-day operations and certification noise levels

Correlation Study

Worldwide cover

- 11 Airports: US, EU, AUS

Wide range of aircraft studied

- >150 aircraft engine combinations with sufficient data to draw reliable conclusions

Both take-off and approach

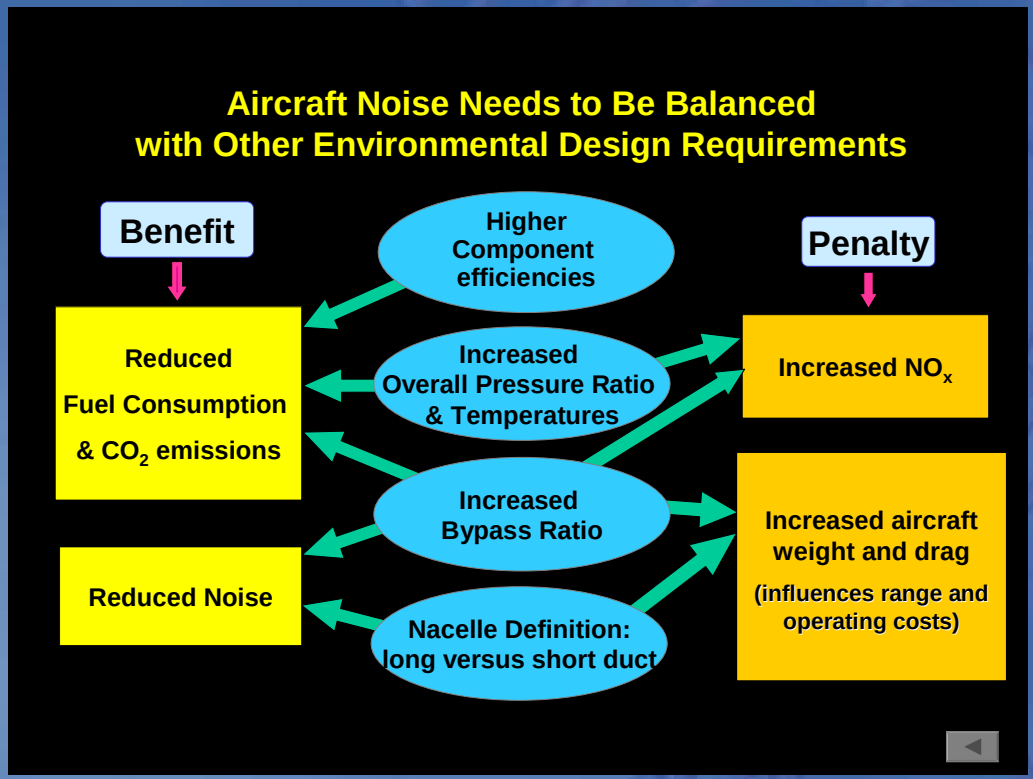
Recommendation to CAEP/7

Do not change the current scheme due to high degree of correlation

Future Work
- Main Issues -

- Technical issues
- Technology
- Noise-emissions trade-offs
- Supersonic transport

Technology / Noise-Emissions Trade-offs



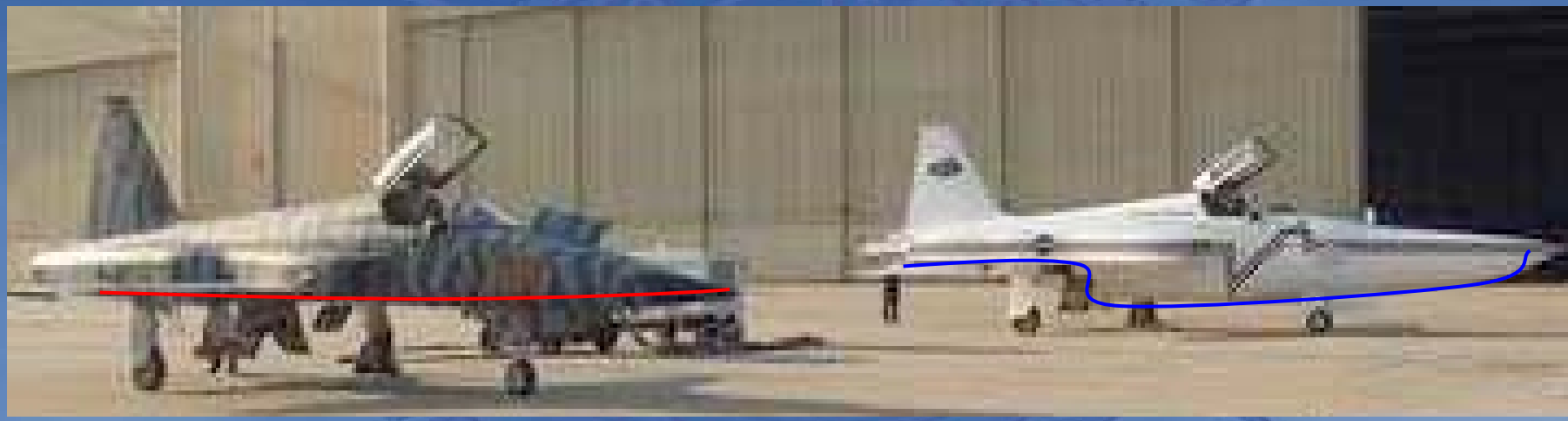
- **Technology:** Provide information and advice on mid- and long-term noise reduction technology prospects
- **Trade-offs:** Study the relationship between noise and emissions trade-offs

Supersonic Transport (SST)

Supersonic Transport
- Future Work -

- Not only the noise during take-off and landing has to be considered, but also the sonic boom during flight
- Key issue is the results of supersonic research, and if it provides a sufficient basis, the timely establishment of appropriate ICAO environmental standards and practices
- Even if the boom itself is barely audible, building response (rattle) might cause significant reactions from the public

Boom shaping (1)



Baseline F5E

Modified F5E

Boom shaping (2)

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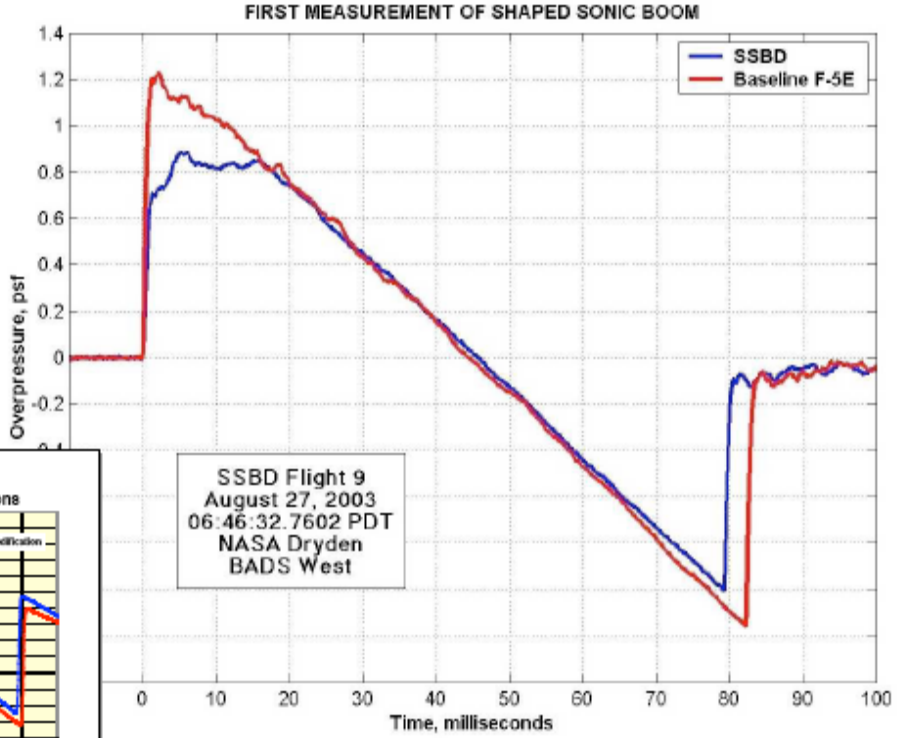
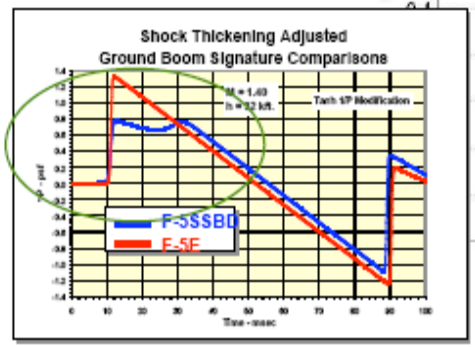
First-Ever Shaped Sonic Boom Recorded 27 August 2003

Signatures recorded during SSBD back-to-back data flights in the Edwards AFB supersonic flight corridor early morning

Flight conditions:
Mach 1.36+,
Altitude 32,000 ft

Design Mach 1.4





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Supersonic Transport
- Future Work -

- Investigate adoption of current subsonic noise rules for supersonic standards and make recommendations as appropriate
- Assess the extent of knowledge and decide if it is appropriate to consider drafting Standards for sonic boom
- Monitor and report on research to characterize, quantify and measure sonic boom signatures and their acceptability
- Monitor and report on status of SST projects and expectations for their operation (nature, frequency etc.)


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Thank you