ICAO ENVIRONMENT

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DESTINATION GREEN: THE NEXT CHAPTER

Noise Challenges for Supersonic Aircraft

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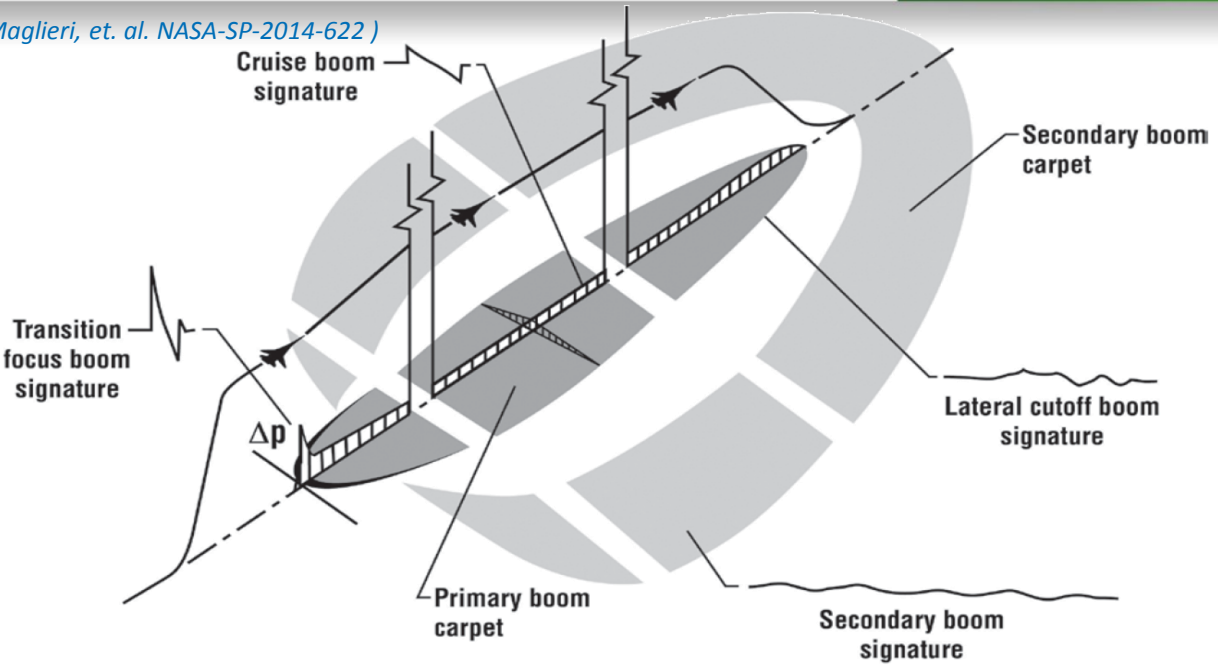
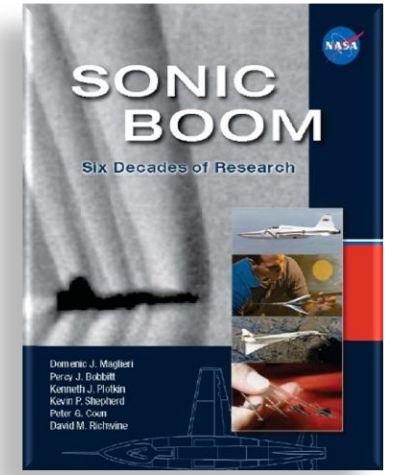
Operational Scenarios

- **Unrestricted supersonic flight** – sonic boom mitigation technology maximizes operational flexibility by enabling supersonic flight operations over land and water
- **Restricted supersonic flight** – supersonic operations over water at design Mach speeds, while cruising at slower speeds over land (subsonic or up to Mach cut-off)
  - Mach cut-off is a speed between Mach 1.0 and 1.2 where the sonic boom does not propagate to the ground

Restricted supersonic operations are anticipated to precede unrestricted operations

(Maglieri, et. al. NASA-SP-2014-622)





NASA-SP-2014-622
SONIC BOOM: Six Decades of Research
Available @ NASA Technical Reports Server (NTRS) www.ntrs.nasa.gov

Sonic boom noise footprint (primary carpet) is approximately 40 miles wide along flight path

NASA / Lockheed Martin

Contract award for development, fabrication and initial flight testing of NASA's X-59 experimental research aeroplane was provided to Lockheed in early 2018

https://www.nasa.gov/aero/x-59-quesst-overview https://www.lockheedmartin.com/en-us/products/quesst.html

For small jets, airport access is vital

Conclusion

- Industry members continue to invest in research and development of commercial supersonic aeroplanes
- Standards are needed that balance environmental design with economic and technological benefits

Environmentally responsible design is essential to the future of Supersonics

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THANK YOU