Session F Report
Safety and Separation Standards

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Session Statistics

• 5 papers were presented, an infinite increase for this seminar from Saclay in 1997

• Session attendance approximately 50

• 2 papers with quantitative analysis, 3 using qualitative assessment

• 3 European, 1 Euro/US, 1 US
Session Overview

• Blom et al., Human Cognition Modeling in ATM Safety Assessment
  – model based (TOPAZ), human error, subsystem performance, blunder detection
  – collision risk vs. airway spacing in controlled airspace

• Ternov, Reliability Analysis of Air Traffic Control
  – quantitative failure analysis, latent failures, insufficient safety barriers
  – procedures and responsibilities unclear or impractical
  – analysis of new ATC automation system, limited safety improvements
Session Overview (continued)

• Bonnemaison & Zeitlin, Managing Criticality of ASAS Applications
  – criticality assessment of functions, allocation to aircraft and ground elements, quantitative discussion

• Reynolds & Hansman, Analysis of Separation Minima Using a Surveillance State Vector Approach
  – surveillance accuracy and current separation standards
  – intent information and agent goals
  – quantitative assessment

• Kos et al., Probabilistic Wake Vortex Induced Accident Risk Assessment
  – model based (TOPAZ), wake vortex evolution, traffic encounter model
  – risk criteria need to be established
  – local airport/runway conditions significant
Observations and Future Needs

• Safety assessment can be a two-edged sword
  – prevent change or enable system improvements
  – analysis needed to drive consensus
• Safety assessment can support ATM operational concept exploration
  – early identification of failure conditions to improve concept and increase probability of implementation success
• More effort is required to apply safety assessment in ATM
  – TOPAZ is the only ATM computational safety model that currently represents “positive control” airspace
  – European/US cooperation planned to improve safety model (TOPAZ and MIDAS)
  – additional analysts are needed to support safety analysis need
Observations and Future Needs (continued)

• ATM safety and throughput are interlinked
  – integrated assessment needed to achieve higher performance in high-density complex airspace

• Joint European/US approach to safety of integrated air/ground operations is essential
  – build confidence in the analysis assumptions
  – ensure interoperability of systems