UC Davis Annual Symposium on Aviation Noise & Air Quality

March 1-4, 2009
Overview

- Conference Focus
  - 50% Aircraft Noise
  - 40% Air Quality
  - 10% Sustainability (Green Airports)

- “60’s” Theme
  - Revolution in Aviation
Supersonic Flight

- Civilian supersonic flight over US territory is banned
  - Current aircraft designs have a Sonic Boom has a 60 mile wide path

- Corporate aircraft looking into supersonic business jets
  - Sonic boom is a function of aircraft weight and speed, which gives business jets an advantage over larger commercial aircraft
  - Gulfstream has been looking into supersonic flight for over 25 years
  - Travel between 1.5 Mach to 1.8 Mach

- NASA Research
  - "Aircraft Shaping" has shown up to a 35 dBC(a) decrease in noise
    - Reduce "Sonic Boom" to "Sonic Puff"
    - Make no more noise than current subsonic aircraft
Presentations

- Part 150 - Noise & Land Use Compatibility Plan
  - Steve Alverson, ESA Airports

- Part 161 – Approval of Airport Access and Noise Restrictions
  - Ted Baldwin, HMMH

- National Environmental Policy Act (NEPA)
  - Rob Adams, Landrum & Brown
  - Federal Environmental Regulations
    - CAT-Ex = Categorical Exclusion
    - EA = Environmental Assessment
    - EIA = Environmental Impact Statement
    - FONIS – Finding of No Significant Impact
Presentations

• Virgin American Going Green
  – New A319/A320 aircraft, Full GPS/Next Gen Navigation
  – Single engine taxi operations
  – Minimal APU operation, get power at gate
  – Carbon brakes, less use of reverse thrust
  – 90% of food packaging is biodegradable
  – Headquarters within walking distance of BART Station
  – “At Home Call Center” – Allow people to work from home
  – Creature Comforts
    • Can select food from menu on in seat TV screen
    • Laptop and IPod power at each seat
Presentations

- Pratt & Whitney "Geared Turbo Fan"
  - Ultra high bypass engine design
  - 12% to 15% fuel burn improvement
  - Co2 emissions reduced by 3000 tonnes per aircraft per year
  - 20 dB below current Stage 4 noise requirements
    - 77% reduction in noise footprint
    - If you turn engine off during approach, won’t hear difference in noise
  - Tested on 747SP & A340 aircraft

- Pratt & Whitney Engine Washing
  - Reduces fuel burn up to 1.2%
  - Delay engine overhaul by 6 to 12 months
Presentations

• Burbank 161 Study
  – Transfer late night Burbank operations to Van Nuys and LAX
    • Close Burbank Airport at night
  – Economic study showed it is cheaper to transfer aircraft to other airport than to soundproof Burbank homes
  – FAA has given them lots of “Feedback”, but yet they continue with study

• New Sound Metrics
  – Supplemental metrics to DNL
    • NA Metric = Number of events above a defined noise threshold
    • TA Metric = Amount of time a noise event is above a defined noise threshold
Presentations

• Australia Noise Issues
  – 79% of noise complaints from outside 55 DNL
  – Use to have a small number of very loud aircraft, but now have large number of aircraft with a lower noise, but over a greater period of time