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ICAO: UNITING AVIATION ON CLIMATE CHANGE

ICAO Colloquium on Aviation and Climate Change

Operational Measures to Reduce Aviation Emissions



New Zealand Initiatives

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Civil Aviation Authority of New Zealand





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The New Zealand Context



Data SIO, NOAA, U.S. Navy, NGA, GEBCO

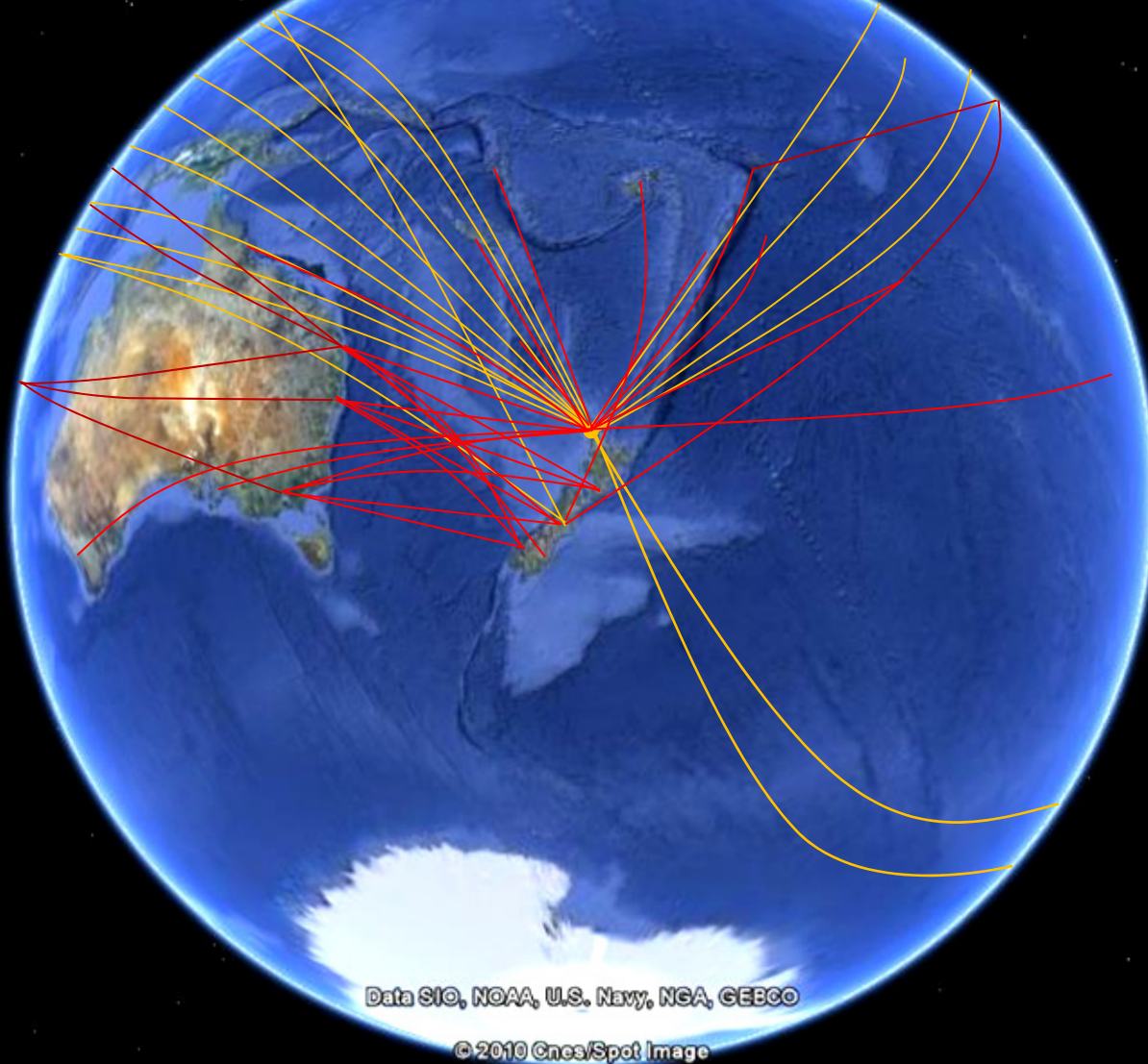
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Eye alt 12636.83 km



The New Zealand Context



Data SIO, NOAA, U.S. Navy, NGA, GEBCO

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Eye alt 12636.83 km



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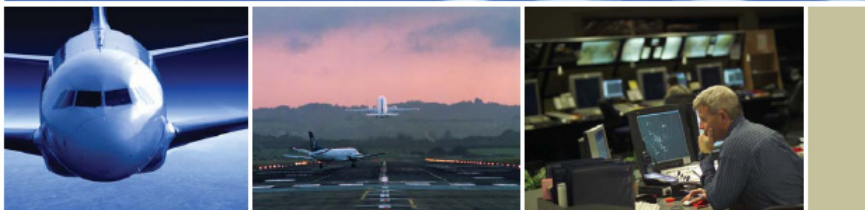
**A Strategic Vision of Air Traffic Management
in New Zealand to 2015 and beyond**

Second Edition, May 2009



Air Traffic Management: Airways Corporation of New Zealand & *Vision 2015*

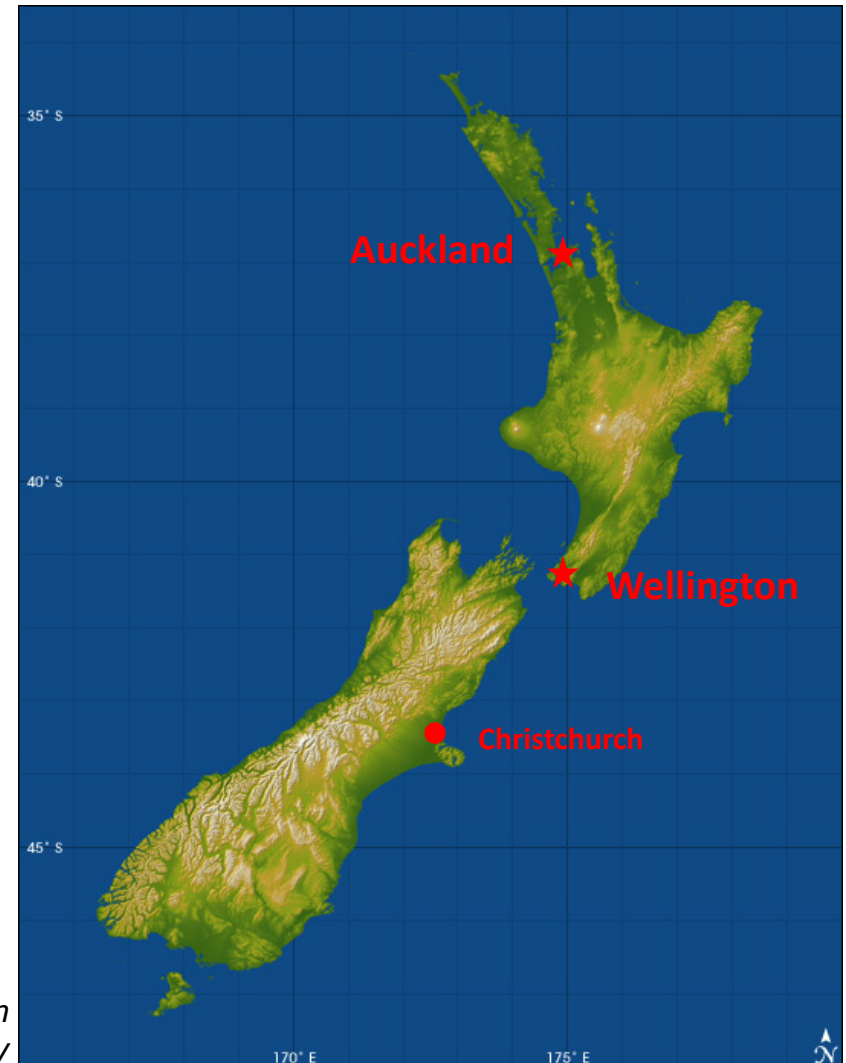
www.airways.co.nz





Collaborative Flow Manager (CFM)

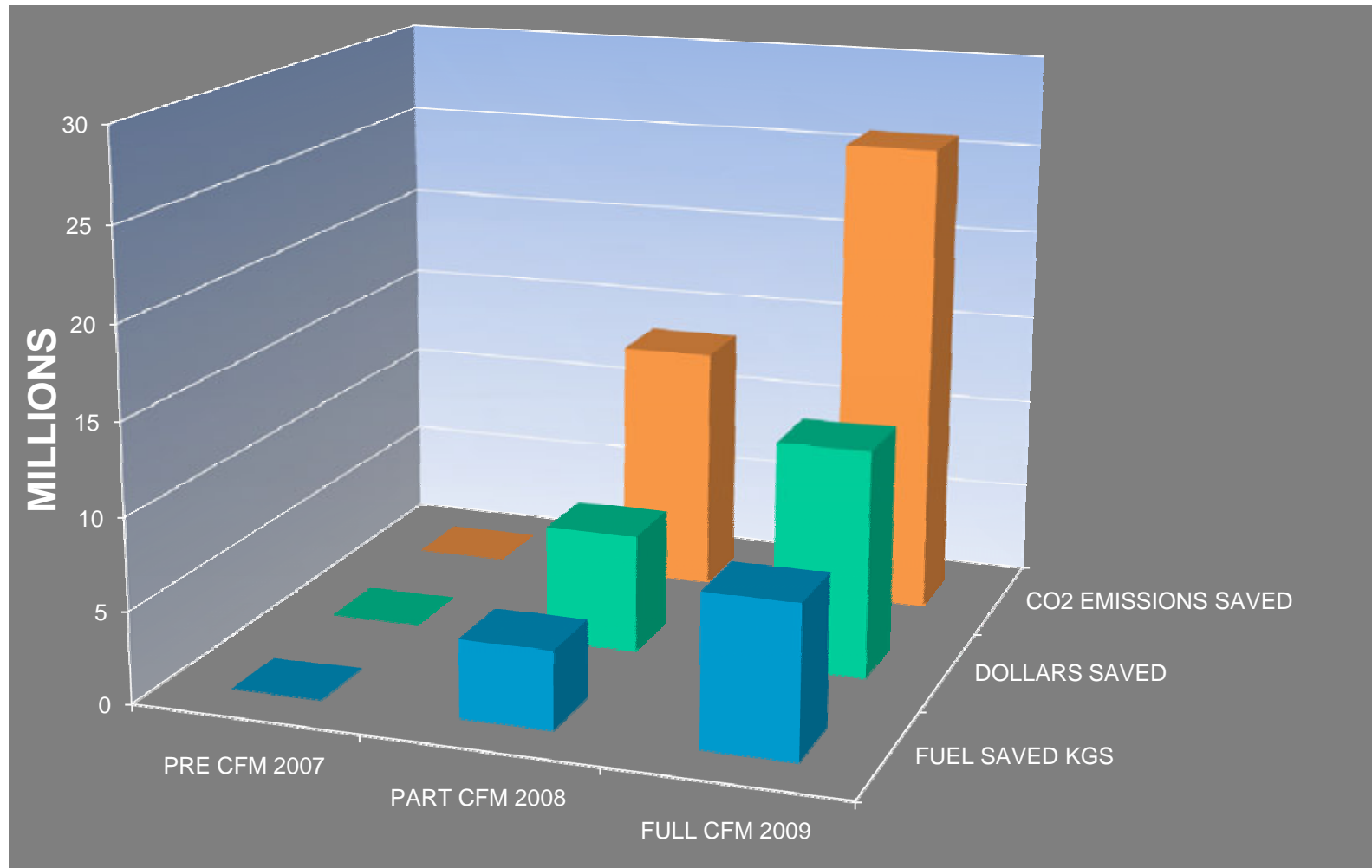
- Formerly known as Collaborative Arrivals Manager (CAM)



Map: NASA Earth Observatory

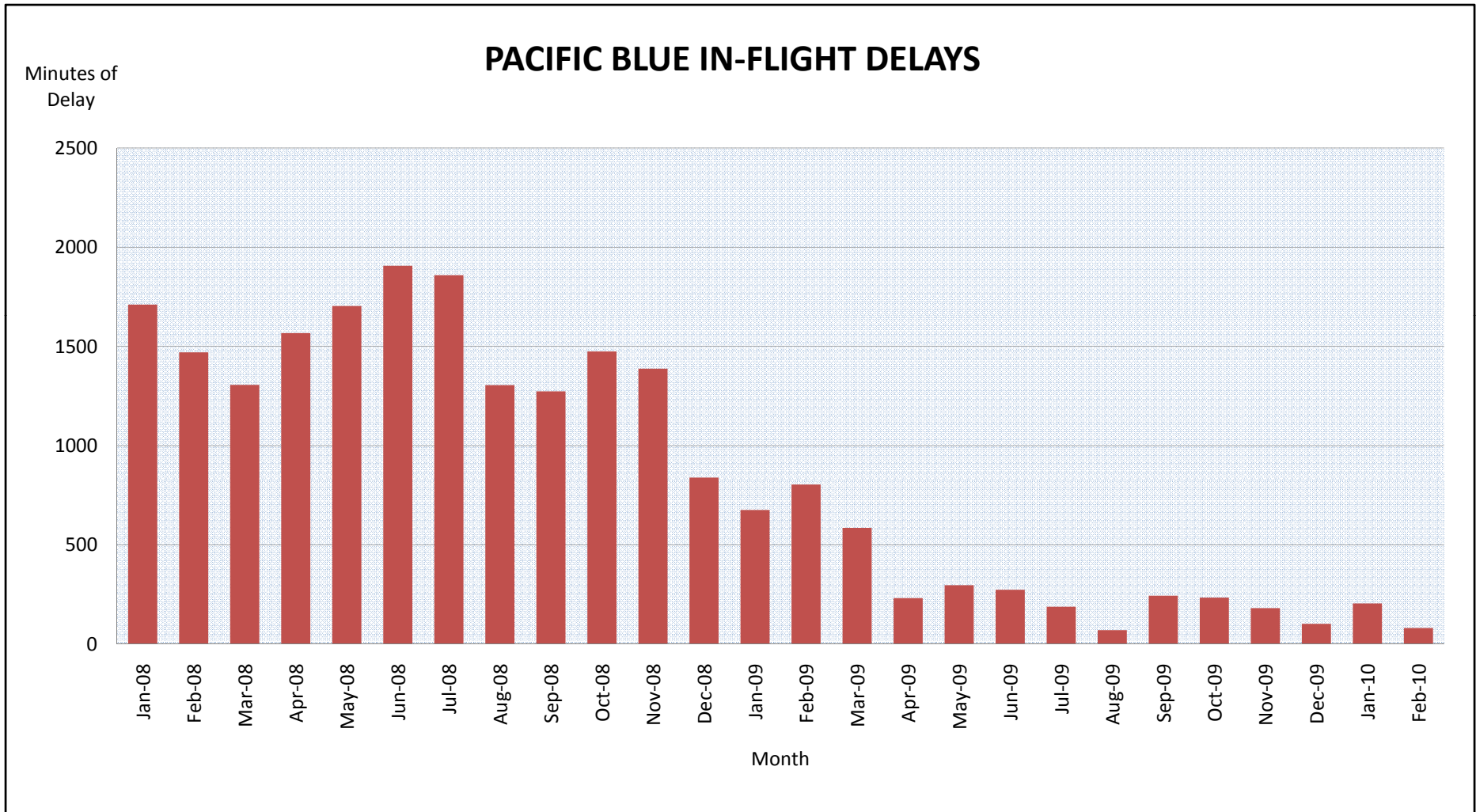


Savings from CFM

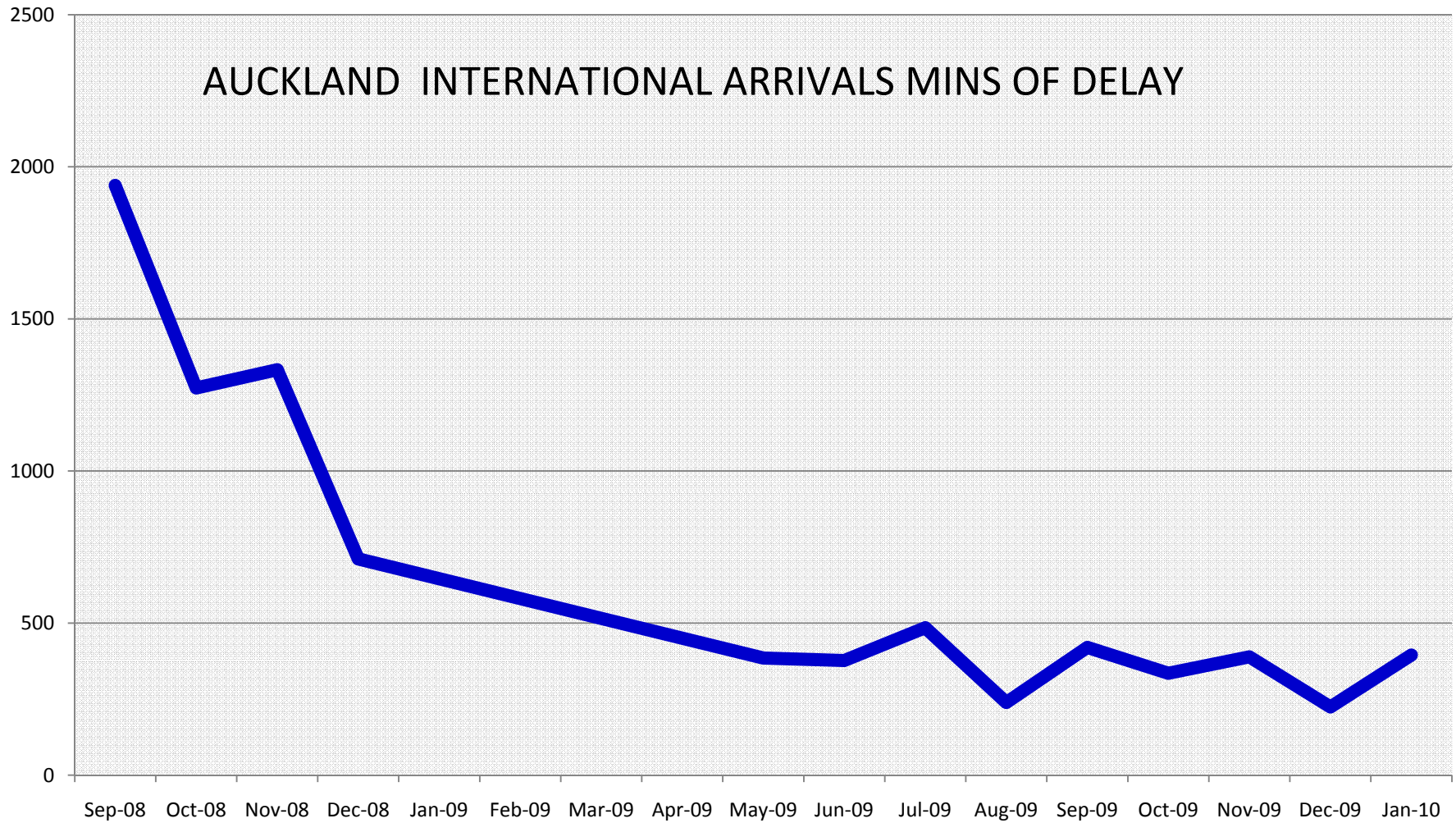


Courtesy of Airways Corporation of New Zealand

Monthly airborne delays down from 28,000 mins to 5,000 mins



Courtesy of Airways Corporation of New Zealand & Pacific Blue



Courtesy of Airways Corporation of New Zealand



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Oceanic Control System

- 30/30 separation
- Flex-Tracks
- Dynamic Airborne Reroute Procedures (DARPs)
- User Preferred Routes (UPRs)





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ASPIRE

- Air NZ demonstration flight 12 Sept 2008:
Auckland to San Francisco
- Saved 3,500 kg fuel / >11,000 kg CO₂





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Air New Zealand

- 4% fuel savings across fleet since 2004 (130,000 tonnes CO₂)
- Domestic 737-300 fleet saved 6%





Operating Techniques

- Continuous descents & tailored arrivals
- Delayed flap approaches
- Reverse idle thrust on longer runways
- Single engine taxi-in
- Flying aircraft slower
- Just-in-time fuelling





Boeing 767-300ER Blended Winglets

- Saving over 18,000 tonnes CO₂ a year

Boeing 777 Performance Improvement Package

- 1% fuel savings

Fleet Renewal

- B777-300
- A320 with *sharklets*
- B787-9



Christchurch International Airport

- 1st carbon-neutral airport in Southern Hemisphere (CarboNZero)
- Reducing emissions by:
 - Identifying and managing terminal building energy inefficiencies
 - Using groundwater cooling for air-conditioning
 - Paving runway with Coolpave system
 - Recycling asphalt during runway maintenance
 - Auditing and managing waste



Auckland International Airport

- Introducing low-emission vehicles
- Staff travel & car pooling programme
- International arrivals: 300 m² solar array, generating 49,500 kW.h per year
- Solar water heating, saving 15,000 kW.h per year





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Performance Based Navigation

- Wellington RNAV STAR saved 1,170 tonnes CO₂ in first 9 months of 2009
- Queenstown RNP AR approaches saved Air New Zealand 46 diversions and 40 flight cancellations in first 12 months of B737-300 operations



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Airspace and Air Navigation Plan

- Aiming for an accessible, integrated, safe, responsive, and *sustainable* system, with...
- High levels of efficiency, safety, security & *environmental protection*





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Conclusions

And thanks to:

- Airways Corporation of New Zealand
- Air New Zealand
- Pacific Blue
- Christchurch International Airport Limited
- Auckland International Airport Limited



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