ATFM
In the
Asia/Pacific Region

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Topics ....

- The Challenge
- APAC Regional ATFM Concept of Operations
- APAC Regional Framework for Collaborative ATFM
- Current Regional Status and Activities
- Future Developments
The Challenge
• The ICAO Asia/Pacific Region
  – 38 States
  – 2 Special Administrative Regions of China
  – 2 States accredited to other Regional Offices
    • USA (Oakland Oceanic FIR)
    • France (French Polynesia)
  – 50 FIRS
• World’s largest ICAO Region
  – Geographically
  – Passengers
  – Traffic movements
**Traffic Demand and Capacity Constraints**

- **East Asia and Northeast Asia**
  - China, Japan, Republic of Korea
  - Very high rate of traffic growth in China
    - Mainly LCC using narrow-body jets
- **South East Asia**
  - Also very high rates of traffic growth
  - Many high density FIRs and city pairs
    - High density traffic operating in narrow corridors
      - Archipelagos (Indonesia, Philippines)
- **South Asia and inter-regional**
• Traffic Demand and Capacity Constraints

  – Many small FIRs with short transit times
  – Large volumes of Special Use Airspace
    • Little civil-military cooperation
  – Some domestic ATFM implementation
  – Little effective ATC Centre-to-Centre automation
  – No network management facility
• Traffic Demand and Capacity Constraints

  – Overly conservative ATC separations and procedures
  – ATM automation systems not fully implemented
    • E.g. paper strips, no AIDC, automated coordination/handoff not fully implemented
  – Special Use Airspace/lack of civil-military cooperation
  – Runway and airport capacity limitations

“Increased capacity is the primary and central method for management of increasing demand.”

Asia/Pacific Regional Framework for Collaborative ATFM – Collaborative ATFM Principles.
APAC Regional ATFM Concept of Operations
Regional ATFM Concept of Operations

- Initially developed by CAA Singapore
  - Collaboration with Industry and Research partners
- Adapted by APAC ATFM/SG
- Supports the Regional ATFM Framework
- Adopted by APANPIRG/26
  - September 2015
Key Concepts

Distributed multi-nodal ATFM network
Key Concepts

Distributed multi-nodal ATFM network

“A virtual ATFM platform of interconnected States and or sub-Regional groups operating an ATFM network”

No central network management
Key Concepts

**Delay absorption intent**
- Distributes delay through various phases of flight

Delay intent fields
- Ground (gate) delay intent
- Airport surface delay intent
- Airborne delay intent
### Major: TGW
12 Flights Affected

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• Other Concepts
• Maximum Delay
• Slot swapping
• Compliance
• Post-Operations Analysis
• A-CDM interoperability
• Regional ATFM Concept of Operations

• Available on the ICAO Asia/Pacific Regional Office eDocuments web-page

• ICAO APAC eDocuments web-page

• APAC ATFM Concept of Operations
APAC Framework for Collaborative ATFM
• APANPIRG/24 (June 2013)

  – Considered ATFM needs in APAC Region
    • A centralized ATFM approach for APAC? - **Impracticable**
    • More pragmatic to support sub-regional multi-State programs
    • Adopted several ATFM related conclusions
• APANPIRG/24 (June 2013)

  – **Conclusion 24/13**: Air Traffic Flow Management Capacity Assessments  
    • (urging States to establish capacity assessment and adjustment mechanisms and report to Regional Office by 1 May 2014)

  – **Conclusion 24/14**: Air Traffic Flow Management Information Sharing  
    • (urging States to share capacity assessments and factors affecting capacity, traffic demand information, and ATFM Daily Plan)
• APANPIRG/24 (June 2013)

  Conclusion 24/15: Asia/Pacific ATFM Steering Group

  That, States participate in, and support the Asia/Pacific ATFM Steering Group to **develop a common Regional ATFM framework**, which addresses ATFM implementation and ATFM operational issues in the Asia/Pacific region
Asia/Pacific Framework for Collaborative ATFM

Developed by APAC Air Traffic Flow Management Steering Group (ATFM/SG)

Adopted by APANPIRG/26 – September 2015
Asia/Pacific Framework for Collaborative ATFM

References the ATFM Concept of Operations

• Asia/Pacific Framework for Collaborative ATFM
• Includes *inter alia*:
  – Background information and guidance
  – **Performance Improvement Plan for Regional ATFM Capability**
    • Phase IA expected implementation 12 November 2015
    • Phase IB expected implementation 25 May 2017
    • Phase II expected implementation 8 November 2018
• Asia/Pacific Framework for Collaborative ATFM
• **Performance Improvement Plan**
  – Each phase has objectives for
    • ATFM Regulations
    • ATFM Systems
    • Strategic, Pre-Tactical ATFM or Tactical ATFM
      – Capacity/Demand Monitoring and Analysis
      – Capacity Improvement
      – ATFM Execution
      – ATFM Measures
      – Post-Operations Analysis
• Asia/Pacific Framework for Collaborative ATFM

• **Key inclusions**
  – Core concept:

  Distributed Multi-Nodal ATFM Network
Asia/Pacific Framework for Collaborative ATFM

**Key inclusions**

- ATFM terminology and communications
- Agreed Information Exchange Model (FIXM)
- Tiered participation levels (example for trials)
- MET information for ATFM
- ATFM Daily Plan template
- ATFM Training Requirements
• Asia/Pacific Framework for Collaborative ATFM
• Available on the ICAO Asia/Pacific Regional Office eDocuments web-page
• ICAO APAC eDocuments web-page
• APAC Regional Framework for Collaborative ATFM
Current Regional Status and Activities
• Current Regional Status and Activities

  – Bay of Bengal Cooperative Air Traffic Flow Management System (BOBCAT)
    • AEROTHAI and participating ANSPS/Airlines

  – Multi-Nodal ATFM Trial
    • Australia, China, Hong Kong China, Indonesia, Malaysia, Singapore, Thailand, CANSO, IATA

  – North Asia Region ATFM Harmonization Group (NARAHG)
    • China, Japan, Republic of Korea
• Current Regional Status and Activities

  – Other activities
    • Mini-Global Trial (Singapore/Thailand)
    • Collaborative miles-in-trail conversion program (China/Thailand)
    • Combined ATFM Measures
      – Multi-nodal trial partners
Current Regional Status and Activities

- APAC Meteorological Requirements Working Group (MET/R WG)
  - Developing guidance for MET information for ATM
  - Joint working sessions with ATFM/SG
- APAC A-CDM Task Force (APA-CDM/TF)
  - First meeting April 2017 (tentative)
- APAC Common Aeronautical VPN Task Force/Operations Group (CRV/TF ➔ CRV OG)
  - Implementation of a common virtual private network for aeronautical communications
• **Current Regional Status and Activities**

  – More information available on the APAC Regional Office website:

  – [ICAO APAC Meetings Web-page](#)
Future Developments in APAC ATFM
• Future Developments in APAC ATFM

• Operational Requirements Document/Interface Control Document (ORD/ICD)
  – ATFM/SG project
  – Information exchange: what, who, where, when and how
  – Early stage of development
  – Using Multi-Nodal ATFM Trial experience

• Major input from Trial Technical Sub-Group
• Future Developments in APAC ATFM

• Collaborative ATFM Concept Developments
  – Delay absorption intent
  – ATFM for long-range flights
  – Interoperability of ATM, ATFM, AMAN/DMAN and A-CDM systems
  – Collaborative Trajectory Options
• Future Developments in APAC ATFM

• Network Collaborative Decision-Making
  – Executive flow management decisions in the event of competing stakeholder priorities
  – Network-suitable automated decision support tools/business rules
  – Operational experience to identify potential challenges, formulate and test strategies
QUESTIONS?
Aviation is safe because it has the culture to learn and react.

http://www.icao.int/safety/globaltracking