

# CNS/ATM Implementation in Chinese Taipei



Civil Aeronautics Administration,  
MOTC, Chinese Taipei

2015/5/27

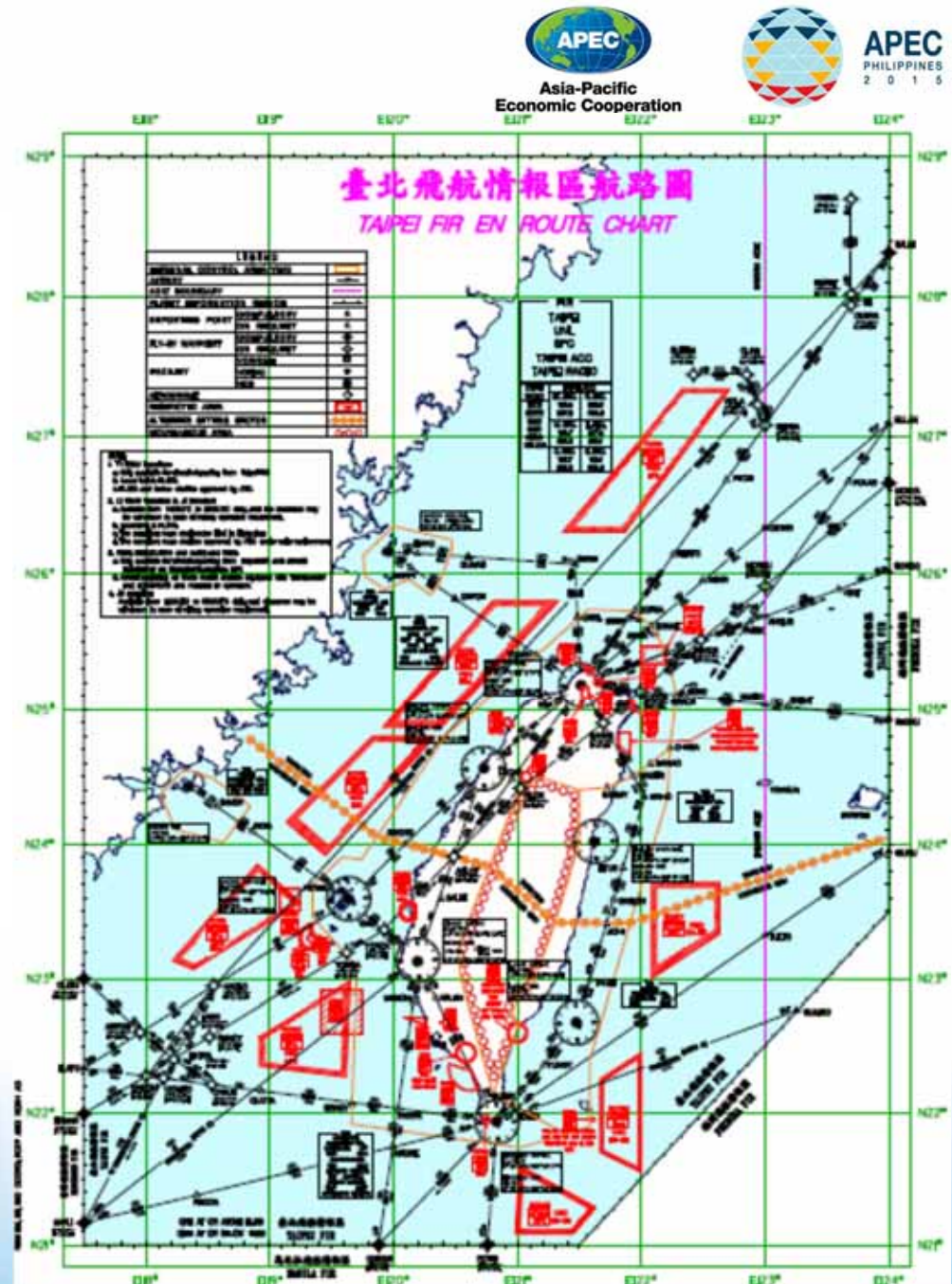
# APEC TPT-WG41

TRANSPORTATION WORKING GROUP MEETING 41

26-29 MAY 2015

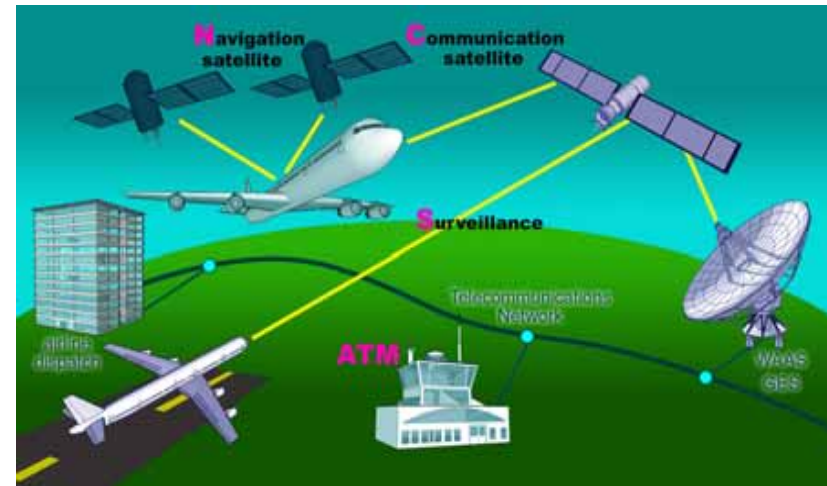
## Taipei FIR

- Adjoining FIR
  - Fukuoka
  - Manila
  - Hong Kong
  - Guangzhou
  - Shanghai



## CNS/ATM Project

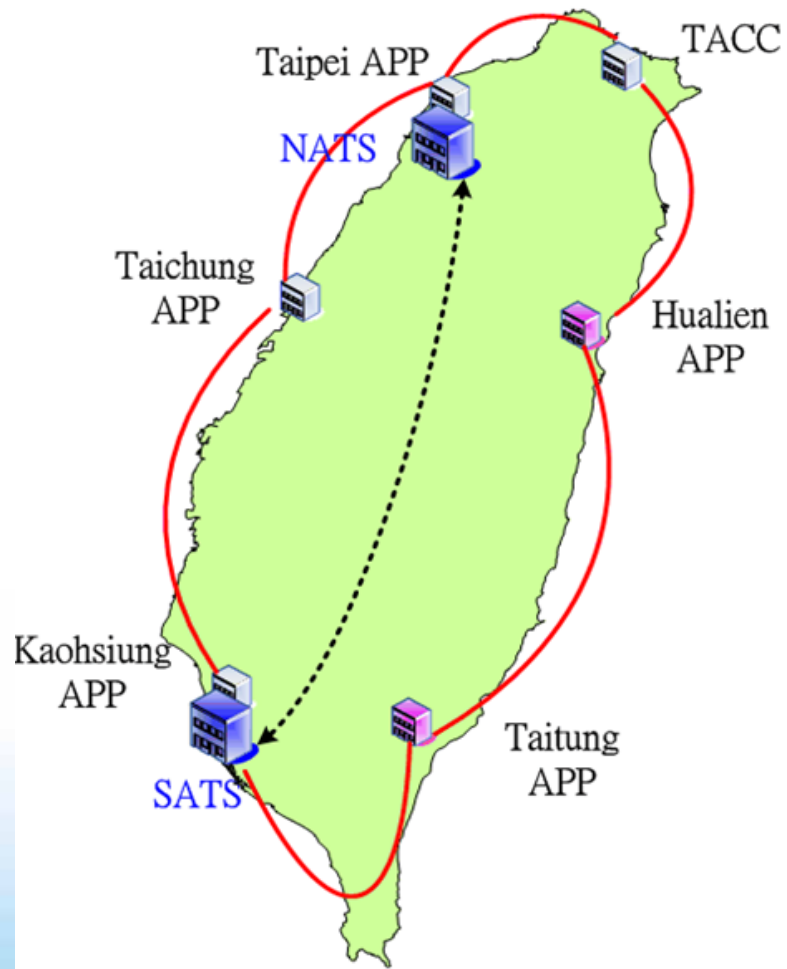
- Schedule
  - 2002~2011
- Goal
  - Improve ATS
  - Enhance Safety, Capacity and Efficiency
  - Meet ICAO Global Harmonization Plan



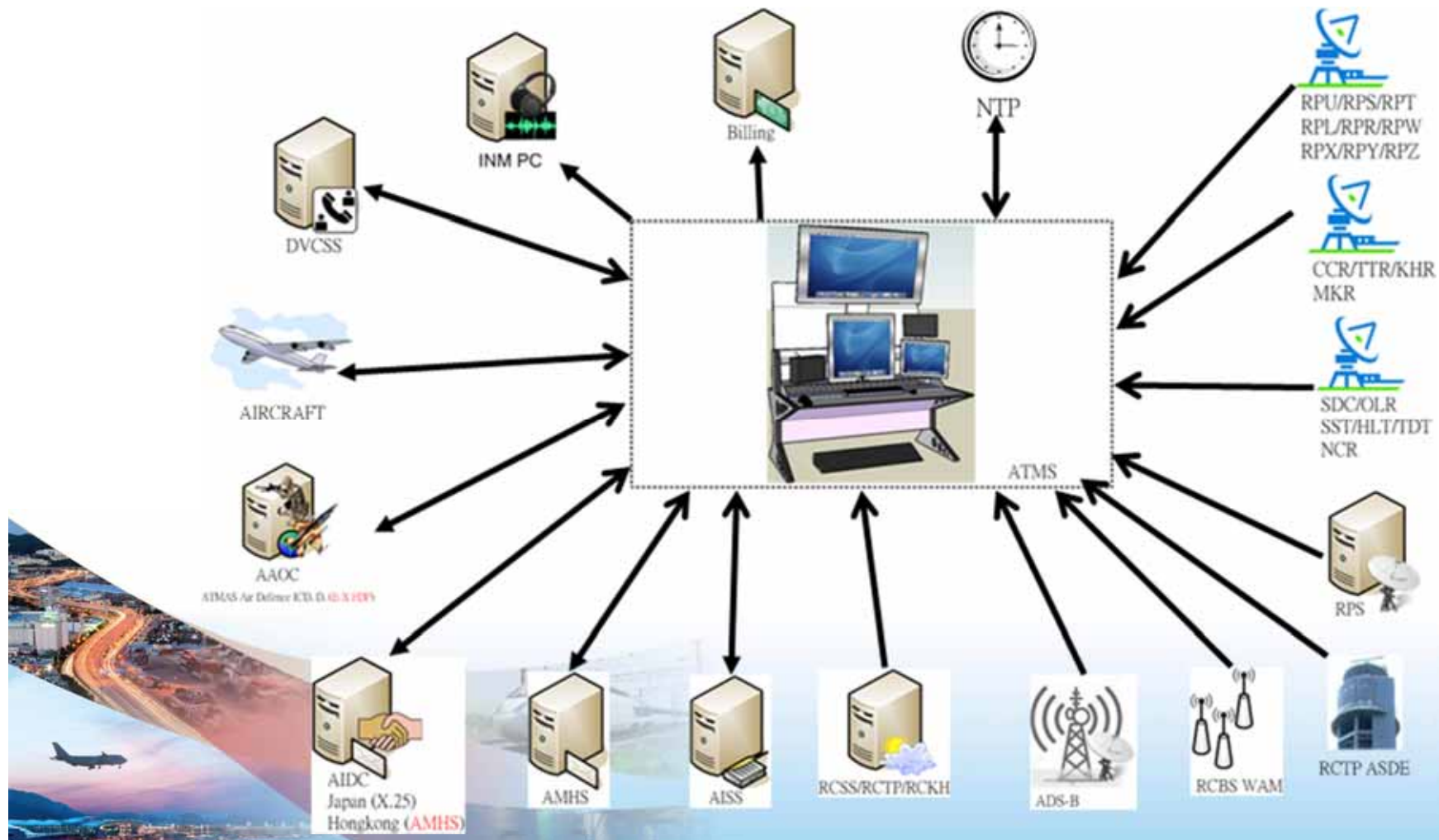
| Item                   |                                                         | Schedule | 2003 | 2004  | 2005  | 2006 | 2007       | 2008                                         | 2009         | 2010                       | 2011 |
|------------------------|---------------------------------------------------------|----------|------|-------|-------|------|------------|----------------------------------------------|--------------|----------------------------|------|
| Communication          | 1. ATS Message Handling System (AMHS)                   |          |      | [Bar] | ◆     |      |            |                                              |              |                            |      |
|                        | 2. Voice/Data Link VOLMET and ATIS                      |          |      | [Bar] | ◆     |      |            |                                              |              |                            |      |
| Navigation             | 1. APEC GNSS Test bed Project                           |          |      |       | [Bar] |      | - - - - -> |                                              |              |                            |      |
|                        | 2. RAIM Prediction System (RPS)                         |          |      |       |       |      | [Bar]      | ◆                                            |              |                            |      |
|                        | 3. Real Time RAIM System (RTRS)                         |          |      |       |       |      |            | [Bar]                                        | ◆            |                            |      |
|                        | 4. Integrity Monitor Testbed (IMT)                      |          |      |       |       |      |            |                                              | [Bar]        | ◆                          |      |
| Surveillance           | 1. ADS-B                                                |          |      |       |       |      |            | [Bar]                                        | ◆            |                            |      |
| Air Traffic Management | 1. ATC Airspace Re-structure                            |          |      |       |       |      |            | [Bar] 1 <sup>st</sup> & 2 <sup>d</sup> phase |              | [Box] 3 <sup>r</sup> phase |      |
|                        | 2. Construction of North & South ATS Parks              |          |      | [Bar] |       | ◆    |            |                                              |              |                            |      |
|                        | 3. Air Traffic Management System (ATMS)                 |          |      |       |       |      | [Bar]      |                                              |              |                            | ◆    |
|                        | 4. Digital Voice Communication Switching System (DVCSS) |          |      |       |       |      | [Bar]      |                                              |              |                            | ◆    |
|                        | 5. Aeronautical Information Service System (AISS)       |          |      |       |       |      | [Bar]      |                                              |              |                            | ◆    |
|                        | 6. Independent Back ATC System (IBAS)                   |          |      |       | [Bar] | ◆    | - - - - -> |                                              | [Add WS Box] |                            |      |

## ATC Operation Transition

- Complexity of Transition
  - Relocation of Personnel
  - Relocation of Equipment or Establishing New Links
  - Use of New ATM Systems With New Procedures and Practices



## ATM Interface



## Communication Implementation

- AIDC
  - 2012 Fukuoka & Hong Kong
  - 2013 Shanghai
  - 2014 Guangzhou
- DCL
  - 2014/11 RCTP
  - 2014/12 RCSS & RCKH
- CPDLC under Planning



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## Navigation Implementation

Short Term  
(-2012)

Mid Term  
(2013-2018)

Long Term  
(2019-)

En Route

Existing RNAV  
Route→PBN Route  
(M750→RNAV5)  
(N892→RNAV10)

Re-organize all  
routes→  
RNAV5 / RNAV2

Re-organize all  
routes→ RNP2

SID/STAR

RNAV 1 SID/STAR  
in 3 Major ADs  
(RCTP, RCKH & RCSS)

RNAV1 SID/STAR  
in high density  
ADs)

RNP 1 SID/STAR in  
high density  
ADs

Approach

Baro-VNAV APCH  
In 3 Major ADs  
(RCTP, RCKH & RCSS)

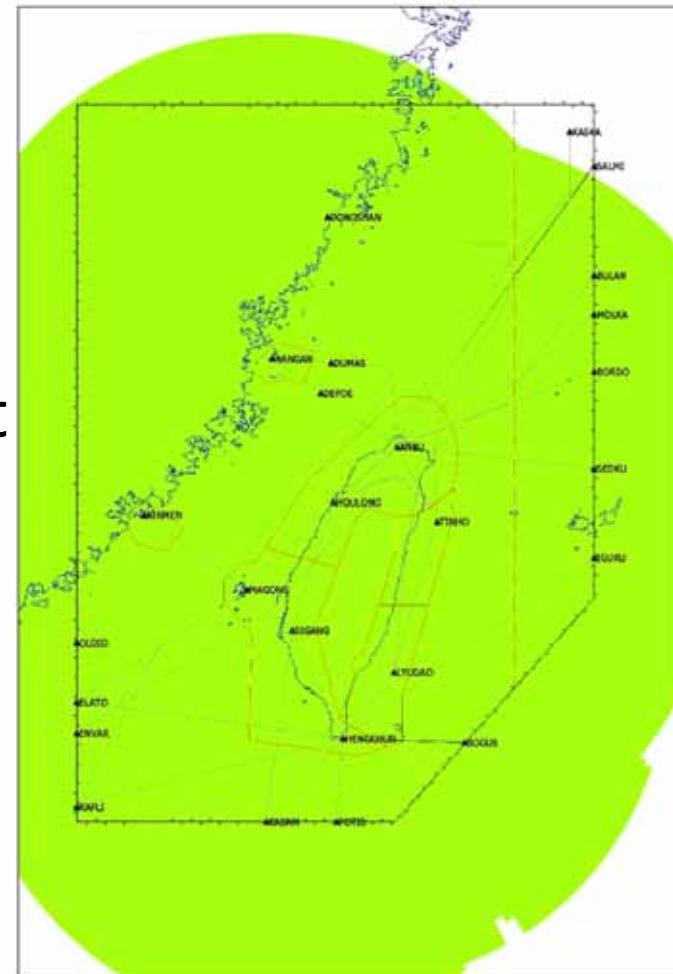
Baro-VNAV APCH  
for all instrument  
runways

RNP AR APCH  
in selected ADs

RNP AR APCH  
GLS CAT I/II  
in selected AD

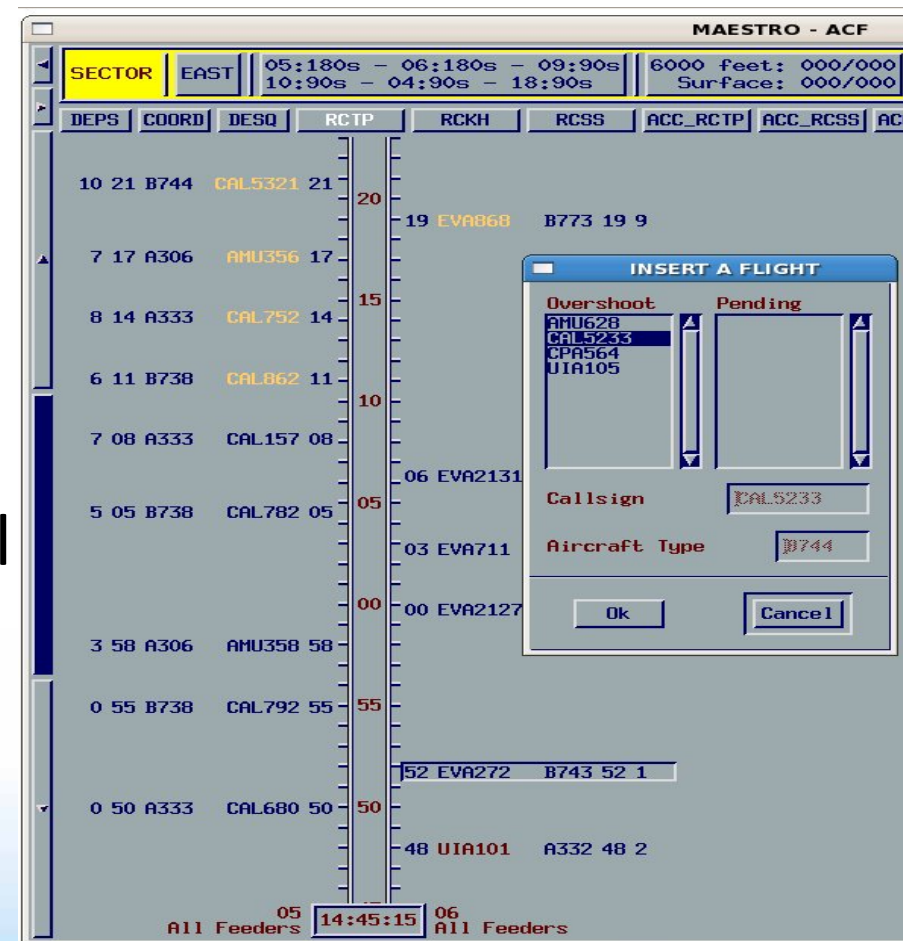
## Surveillance Implementation

- ADS-B
  - 2013/12/12
- Above 290 for 2 Routes
  - Not All Acft with ADS-B Out
  - ADS-B Out Required
    - When Radar OoS
  - 2016/12/31
    - Above 290 Within Taipei FIR



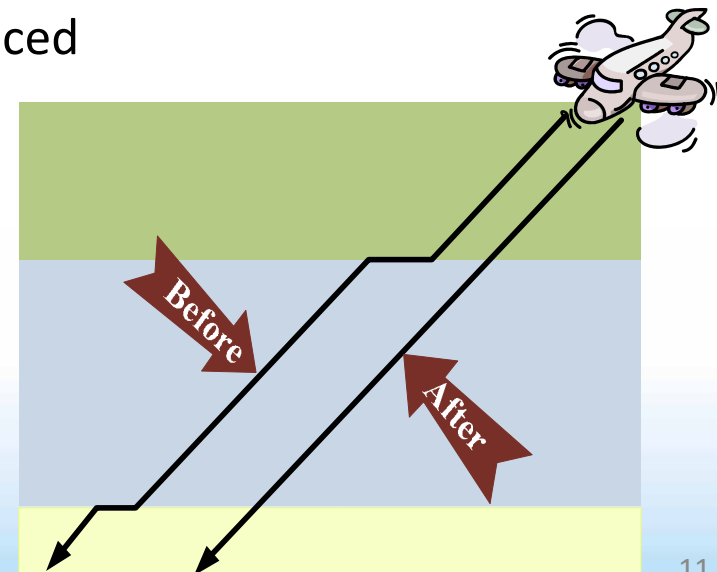
## AMAN Tool for ATMS

- MAESTRO
  - Arrival Sequence Optimisation
  - Translating Geographical Situation to Temporal View
  - Transparency Across ACC, APP and TWR



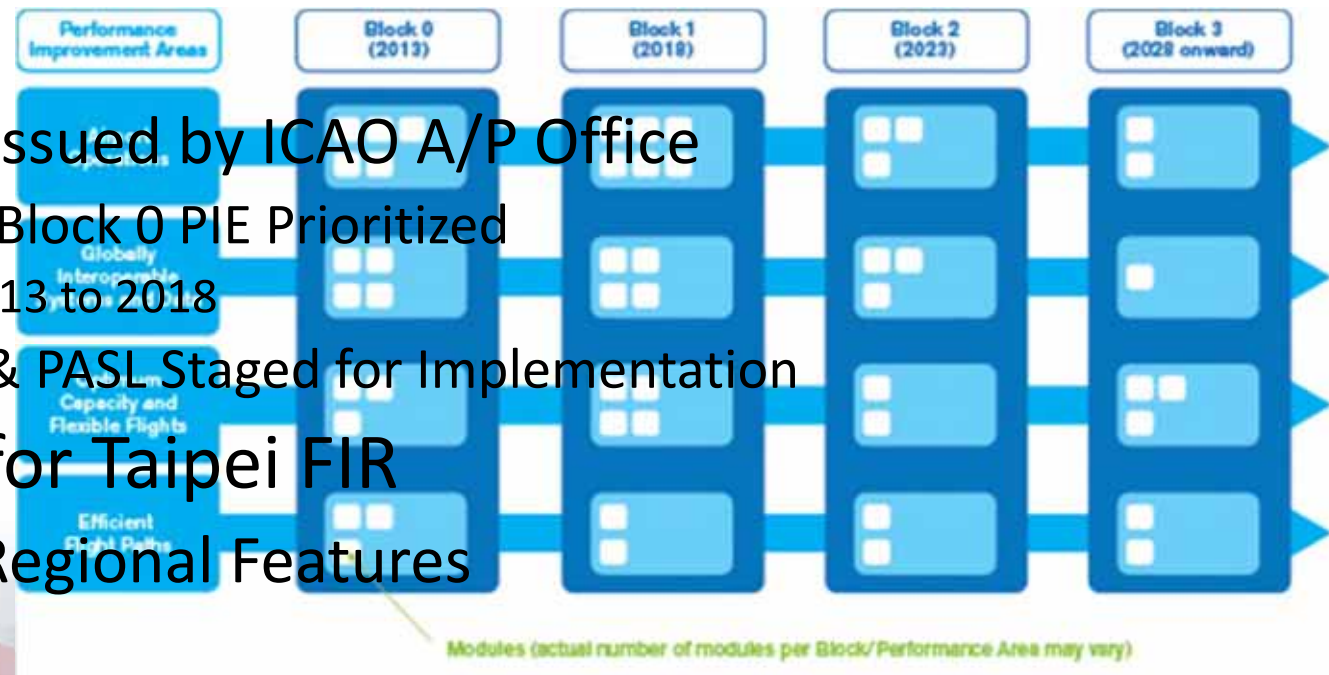
## Continuous Descent Operation (CDO)

- Trial
  - 3 Month since 2013/5 in TTIA
    - 0100~0700 Local time
  - Effect
    - 1,284,000 Pound Oil Reduced
    - 1,800 Ton Carbon Equivalent Reduced
- Formal Implementation
  - Since 2013/12/12 in TTIA
    - 0100~0700 Local time
- Future Planning
  - Expanding to 24 hours



## Aviation System Block Upgrades (ASBU)

- 4<sup>th</sup> GANP Approved
  - 2013 38<sup>th</sup> ICAO Assembly
- APSAP
  - 2013/6 Issued by ICAO A/P Office
    - ASBU Block 0 PIE Prioritized
      - 2013 to 2018
    - PARS & PASL Staged for Implementation
- Planning for Taipei FIR
  - APSAP/Regional Features



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**The End**  
**Thanks For Your Attention**

