



ATFM/IR/SWG/2 Meeting




REVIEW AND OUTLOOK OF CRACP PROJECT

Presented by NARAHG

29th – 30th November 2018

As the rapid grows of flights in Northeast Asia Region China Japan and ROK start the cooperation in the framework of NARAHG








MEMORANDUM OF COOPERATION
between
CHINA
and
JAPAN
and
REPUBLIC OF KOREA
relating to the
**NORTHEAST-ASIA REGIONAL
AIR TRAFFIC FLOW MANAGEMENT (ATFM)
HARMONIZATION GROUP
(NARAHG)**

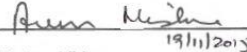
Witnessed by
**International Civil Aviation Organization
Asia and Pacific Office**

**China Japan and ROK signed the ATFM MOC
Witnessed By ICAO Asia and Pacific Office
On NARAHG/3**

Article VII - Confidentiality
All agreements for confidentiality of data sharing remain valid.

In witness whereof, the undersigned Parties have proceeded to sign this MOC accordingly.

		
Mr. Zhan Jianming Director (Air Traffic Control) Air Traffic Management Bureau Civil Aviation Authority of China	Mr. Takeshi Imagome Director (Air Traffic Control) Japan Civil Aviation Bureau	Mr. Jung Eui-hun Director (Air Traffic Management) Korea Office of Civil Aviation

Witnessed by:

Mr. Arun Mishra
Regional Director, Asia and Pacific Office
International Civil Aviation Organization

CRACP → Cross Region ATFM Collaborative Platform



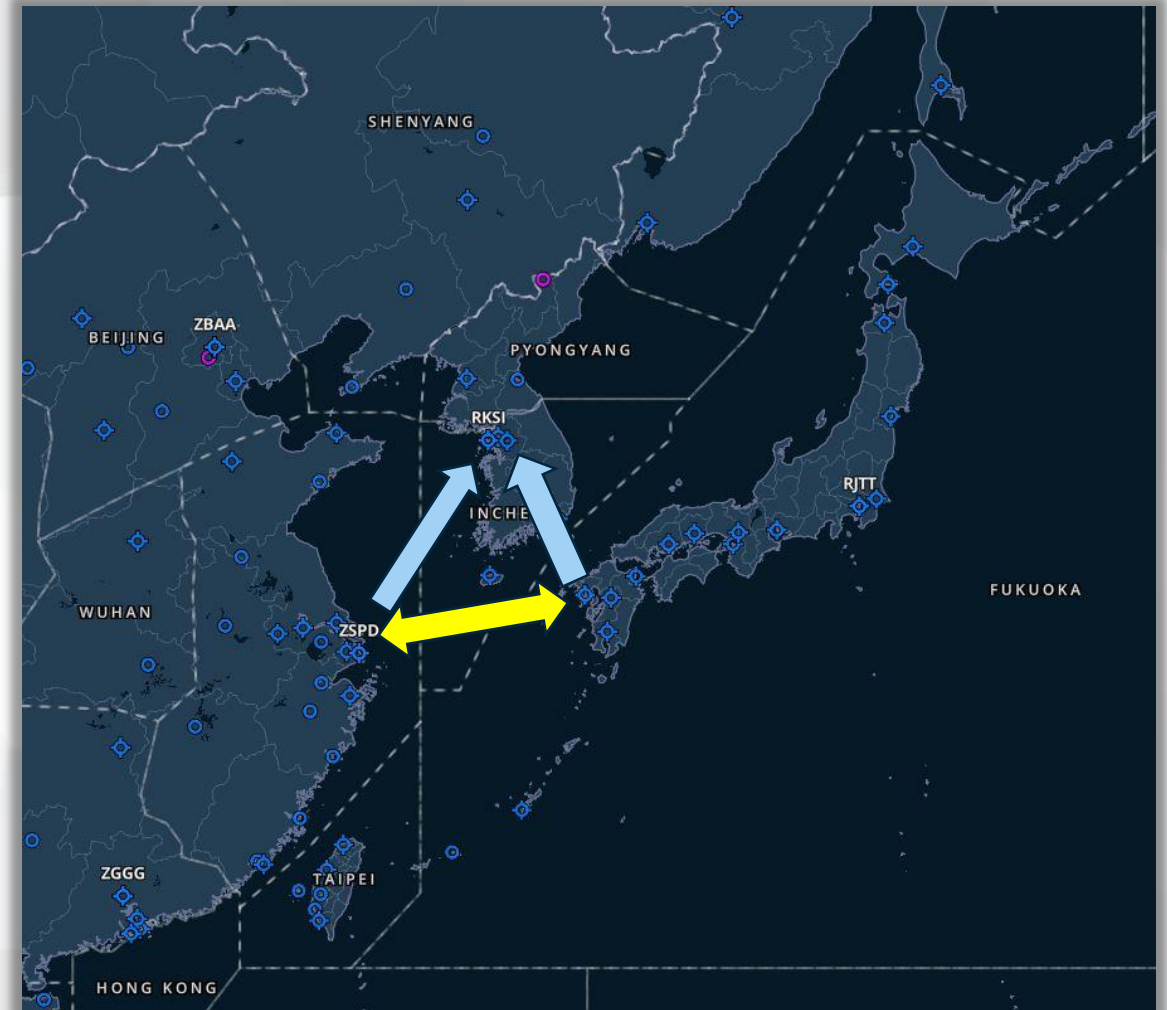
First mentioned on NARAHG/3 in 2015 by China

ADP



ATFM Daily Plan

ATFM Daily Plan		[Name of ATFM Unit]	[UTC DATE] [APPLICABLE TIME]
CAPACITY and CONSTRAINTS			
Location (AD or SECT)	Applicable Period	AAR* (landings per hour)	CONSTRAINT / REMARK
*AD only			
MEASURE / REMARKS			
Location (AD or SECT)	Applicable Period	MEASURE / REMARKS	
POSSIBLE / DEVELOPING ISSUES			
Location (AD or SECT)	Applicable Period	MEASURE / REMARKS	

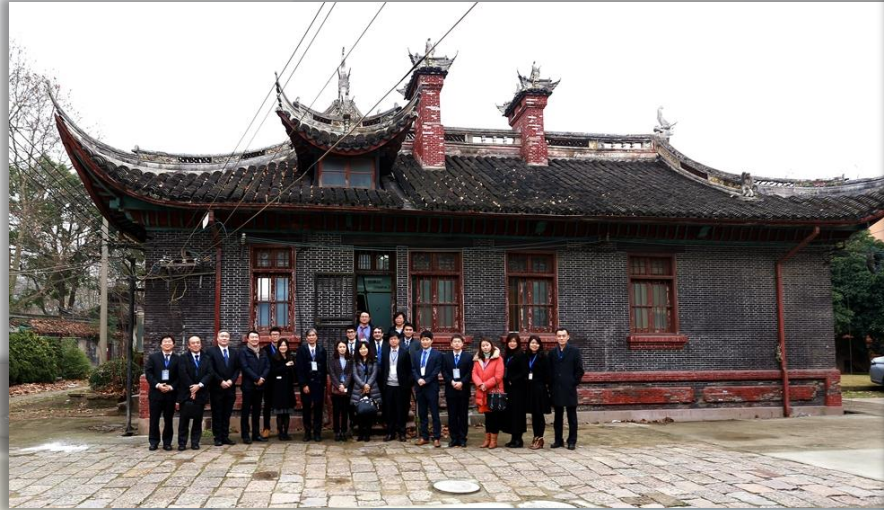


Email: twice a day between Shanghai and Fukuoka

Shanghai and Fukuoka make a copy to Incheon

China and Japan started ADP exchange from 2016

CRACP HITL TEST in 2017



China Japan and ROK joint made human in the loop test for cross region operation during NARAHG/5

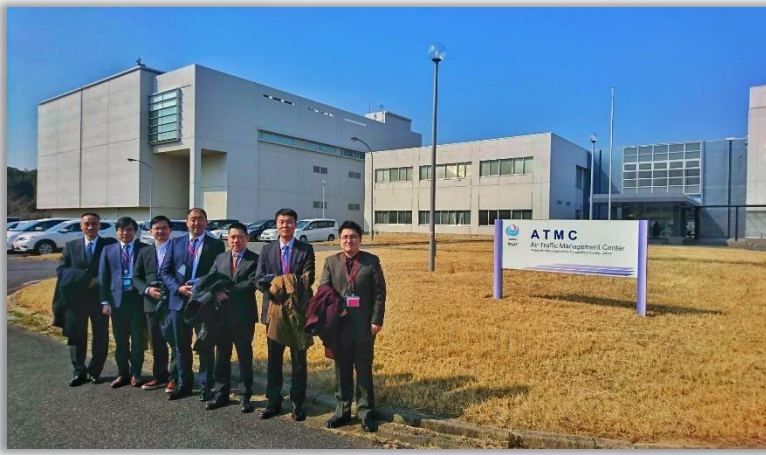
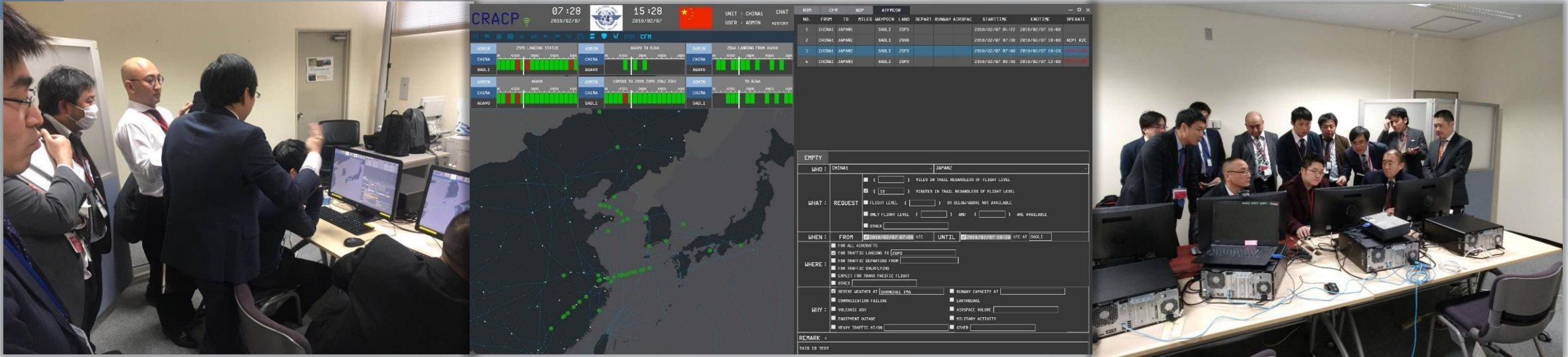
The 5th meeting of Northeast Asia Region ATFM Harmonization Group

2017/01/18 SHANGHAI, CHINA



CRACP project approved by China Japan and ROK after NARAHG/5

Shanghai ATCC and Fukuoka ATMC CRACP test



China and Japan start CRACP stage 1 via internet in 7th February 2018

NARAHG/6 MEETING



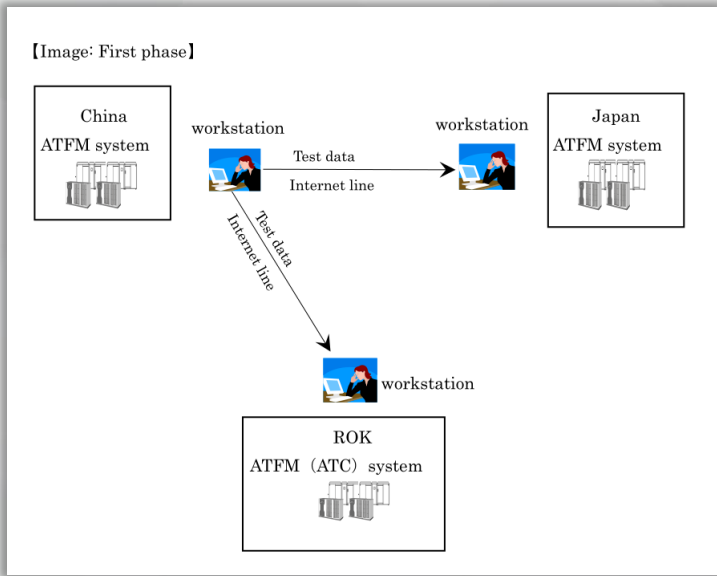
NARAHG/6 MEETING, SEOUL, ROK



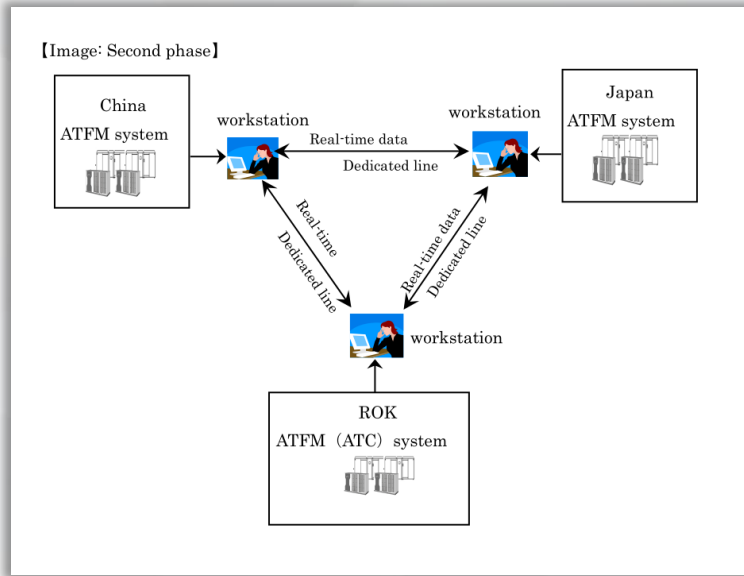
ROK setup CRACP clients in Daegu ATCC after NARAHG/6 meeting in April 2018

Project plan for CRACP by China Japan and ROK

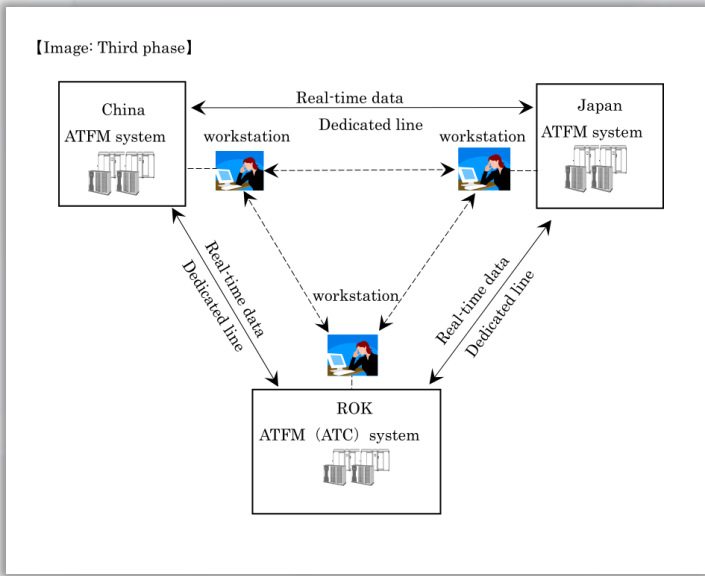
Stage 1



Stage 2



Stage 3



2018

2020

To be determined

SWIM

- Internet
- Laboratory
- Simulation
- Client

- Security Line
- ATFM Unit
- Real Operation (portion)
- Client

- Security Line
- ATFM Unit
- Real Operation
- ATFM SYSTEM

The concept of CRACP can be referred to as

Share

the cross region flights 24 hours via secure link by same ICD

All ATFM units

Evaluate

the situation by these data in their own systems

Related ATFM units carry out same

Action

after agreed by all states

All operation units jointly conduct regular and irregular

Learning

by POA

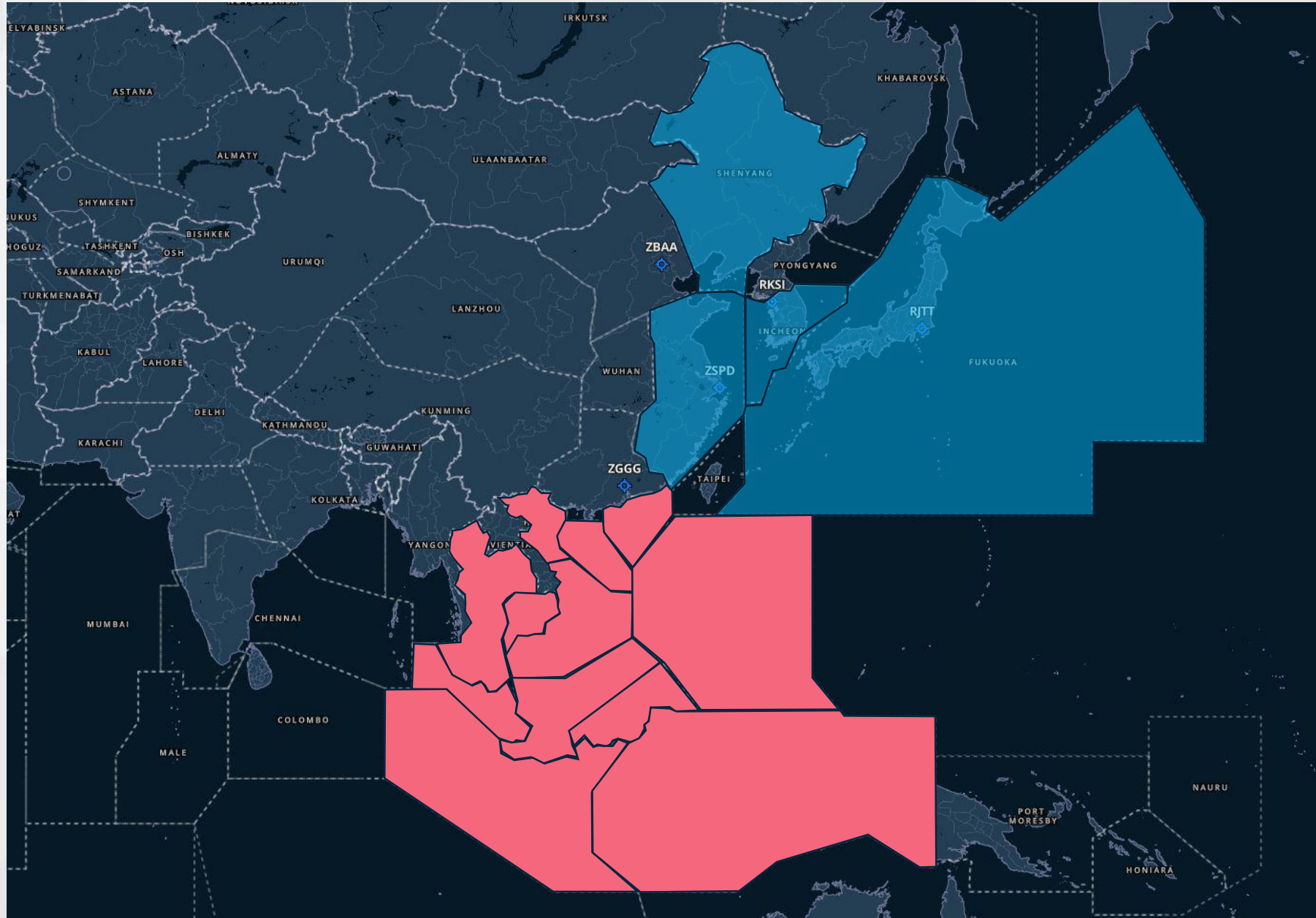
S

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L

CRACP can exchange data with other platform



CRACP ATFM coordination function will be put into use soon

WHAT

WHEN

WHERE

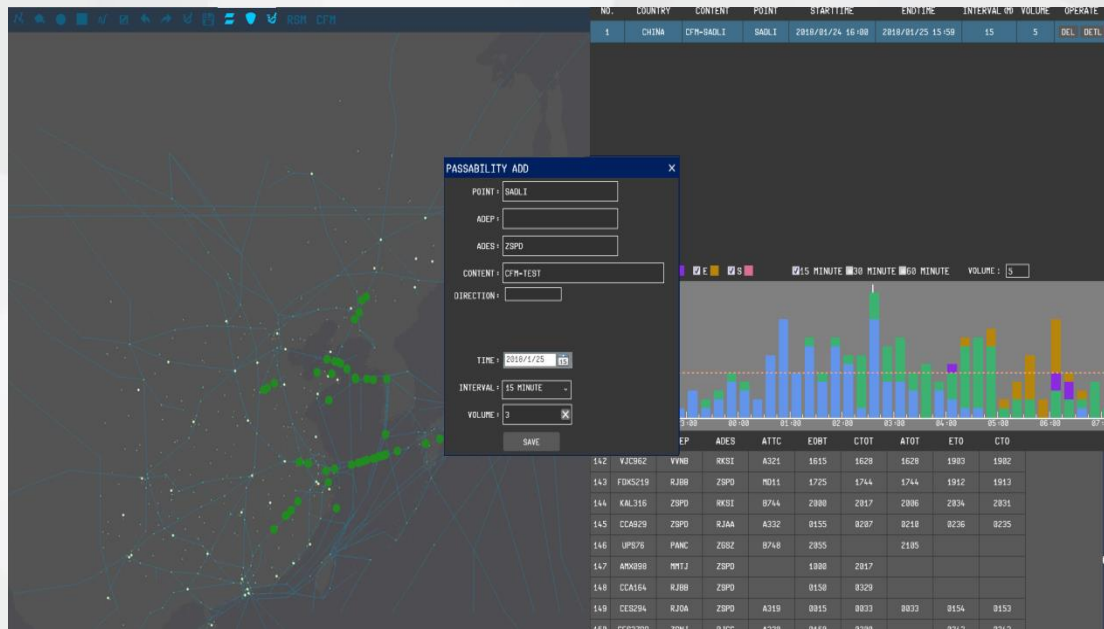
WHY

WHO

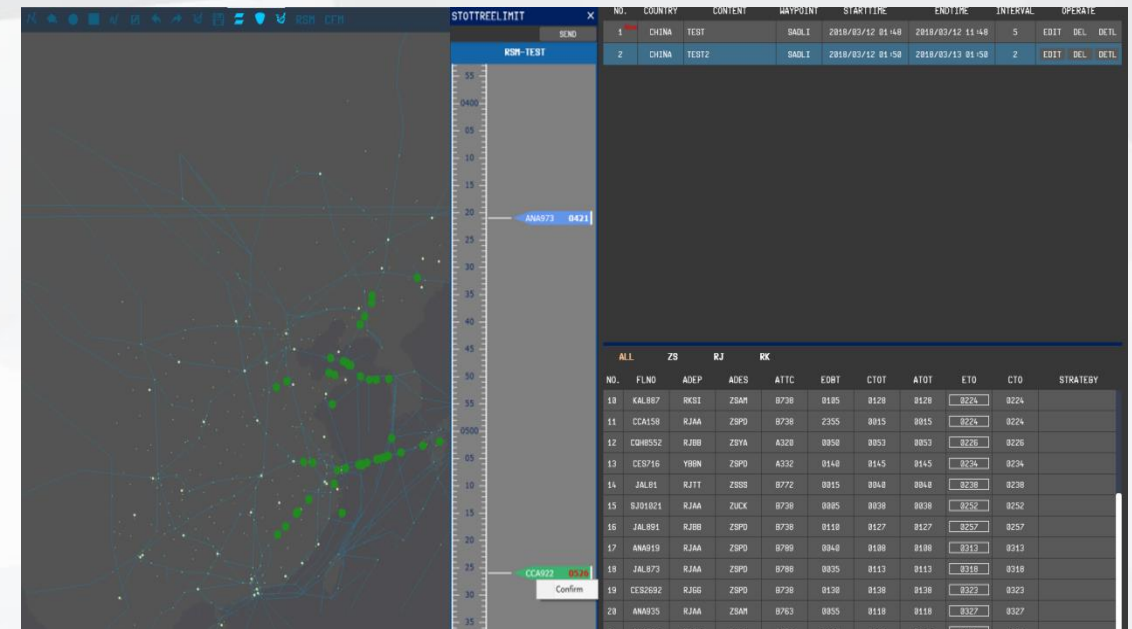
The screenshot displays the ATFM HISTORY window in a dark-themed software interface. At the top, it shows the time 09:54 H, date 2018/03/12, and user information: UNIT: CHINA1, USER: ADMIN. A table lists flight details: NO. 1, FROM CHINA1, TO JAPAN1, MILES, POINT SADLI, LAND ZSPD, DEPART, RUNWAY, AIRSPAC, STARTTIME 2018/01/25 04:30, and ENDTIME 2018/01/25 10:00. The main form is divided into sections: WHAT: REQUEST, WHEN: FROM 2018/01/25 04:30 UTC UNTIL, WHERE: FOR ALL AIRCRAFTS, FOR TRAFFIC LANDING TO ZSPD, FOR TRAFFIC DEPARTING FROM, FOR TRAFFIC OVERFLYING, EXPECT FOR TRANS PACIFIC FLIGHT, OTHER, WHY: SEVERE WEATHER AT SHANGHAI TMA, COMMUNICATION FAILURE, VOLCANIC ASH, EQUIPMENT OUTAGE, HEAVY TRAFFIC AT/ON, RUNWAY CAPACITY AT, EARTHQUAKE, AIRSPACE VOLUME, MILITARY ACTIVITY, OTHER, and REMARK. A second, partially visible form at the bottom repeats these sections. On the left, five callout boxes labeled WHAT, WHEN, WHERE, WHY, and WHO point to their respective sections in the form.

Joint Operation Test Mechanism by CRACP

We can use CFM and RSM to do the test based on real data



Capacity Flow Monitor



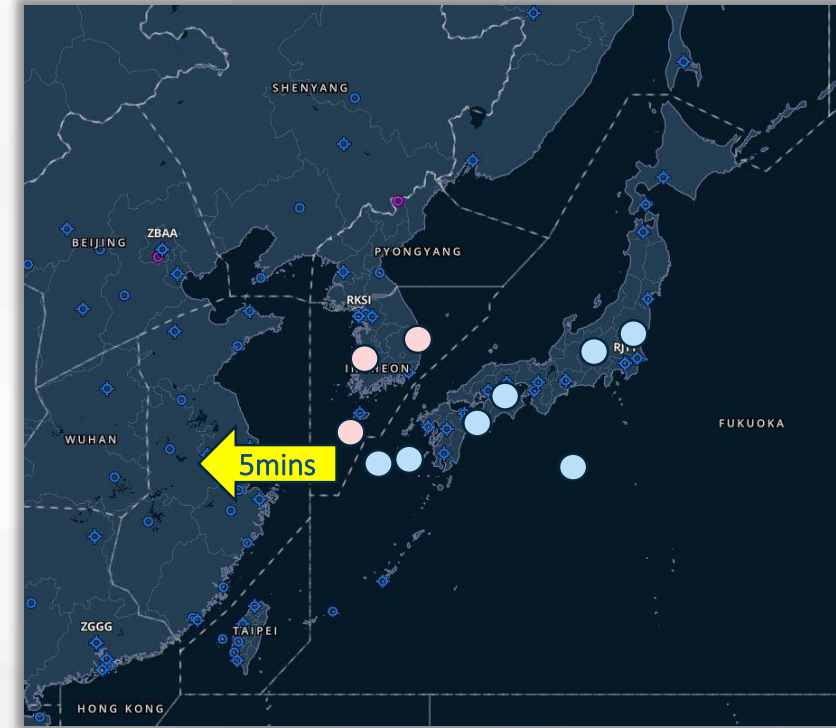
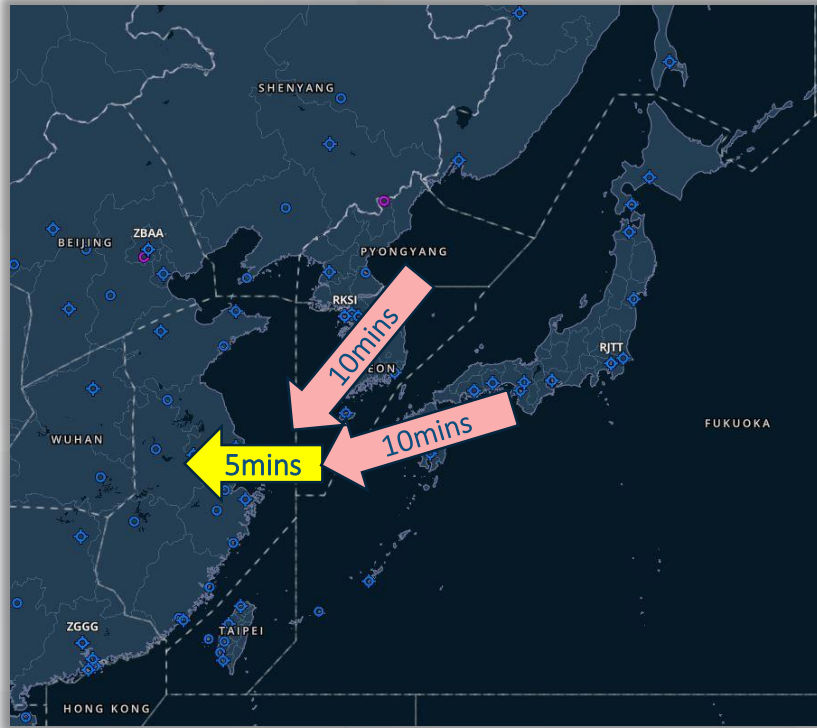
Restriction Situation Monitor

Focus on cross region operation by independent ATFM systems data exchanging.

Targeting the reduction of MIT/MINT double, ensuring the flow balance with capacity by Time Based Operation

Joint Operation Test Mechanism by CRACP

We can use CFM and RSM to do the test based on real data



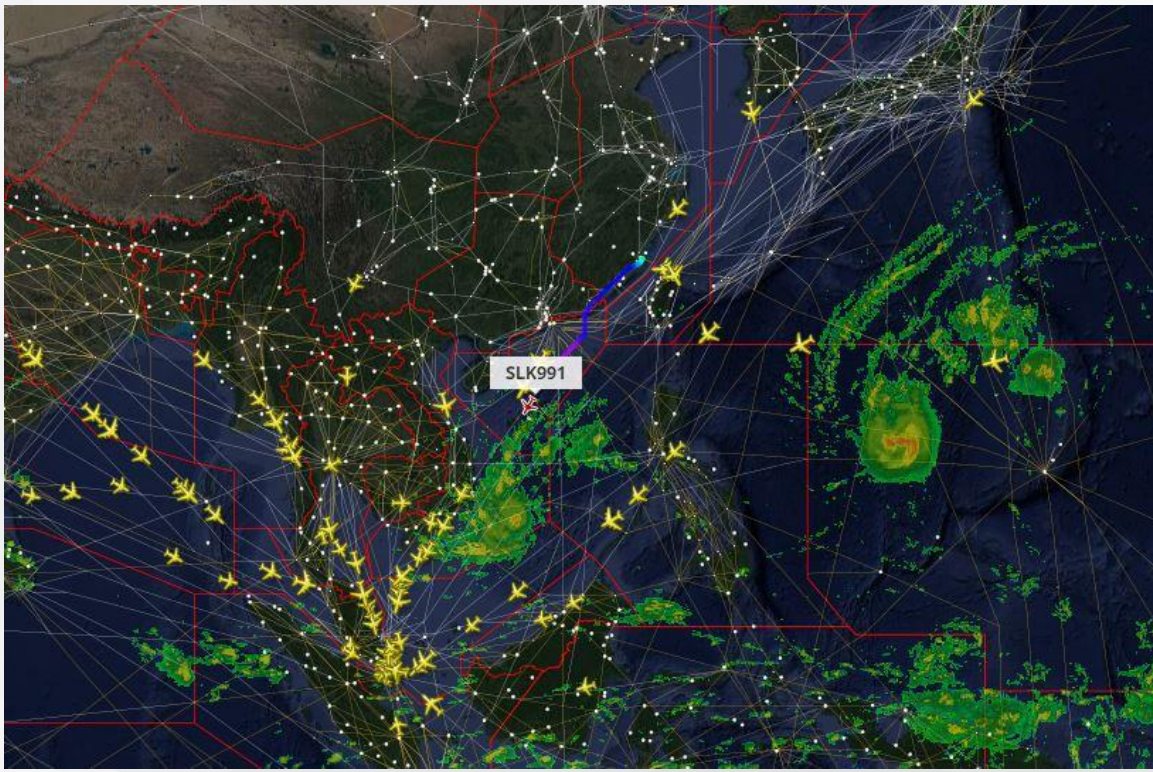
The old way: Double the MIT/MINT for two directions. (Easily to control, but delay will be larger)

Cross region way: Calculate the boundary time and use the TBO to control defined flights. (Hard to coordinate, but high efficiency)

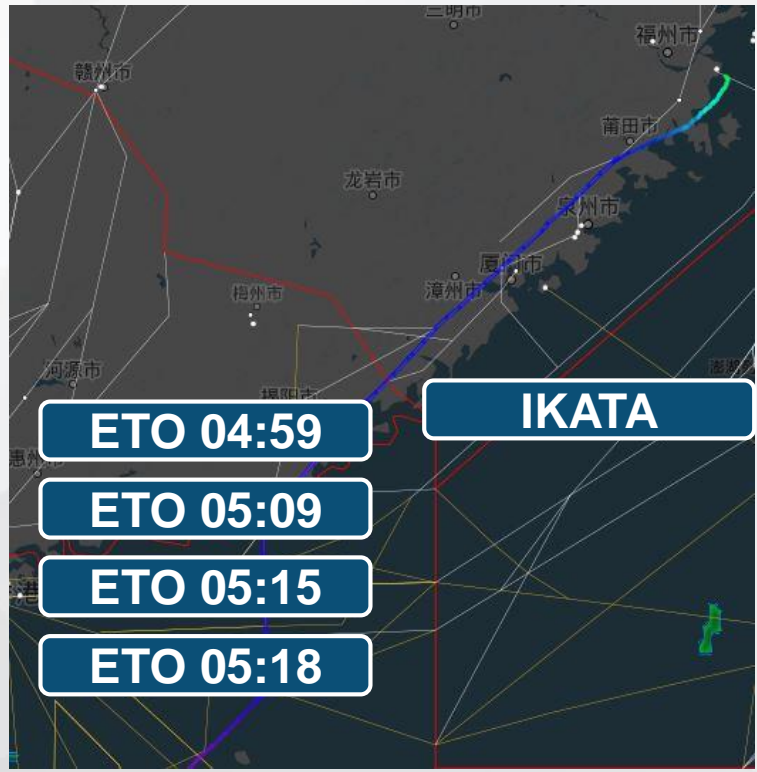
Flight Information Share Between Two Groups

Each group share outbound flights information to neighboring group.

The information including:
ACID, ADEP, ADES, TYPE, DOF, EOBT, CTOT, ATOT, Border FIX, ETO, BTO, ATO, ...



- SLK991
- ZSFZ
- WSSS
- B737
- 2018/11/23
- EOBT 04:25
- CTOT 04:35
- ATOT 04:41

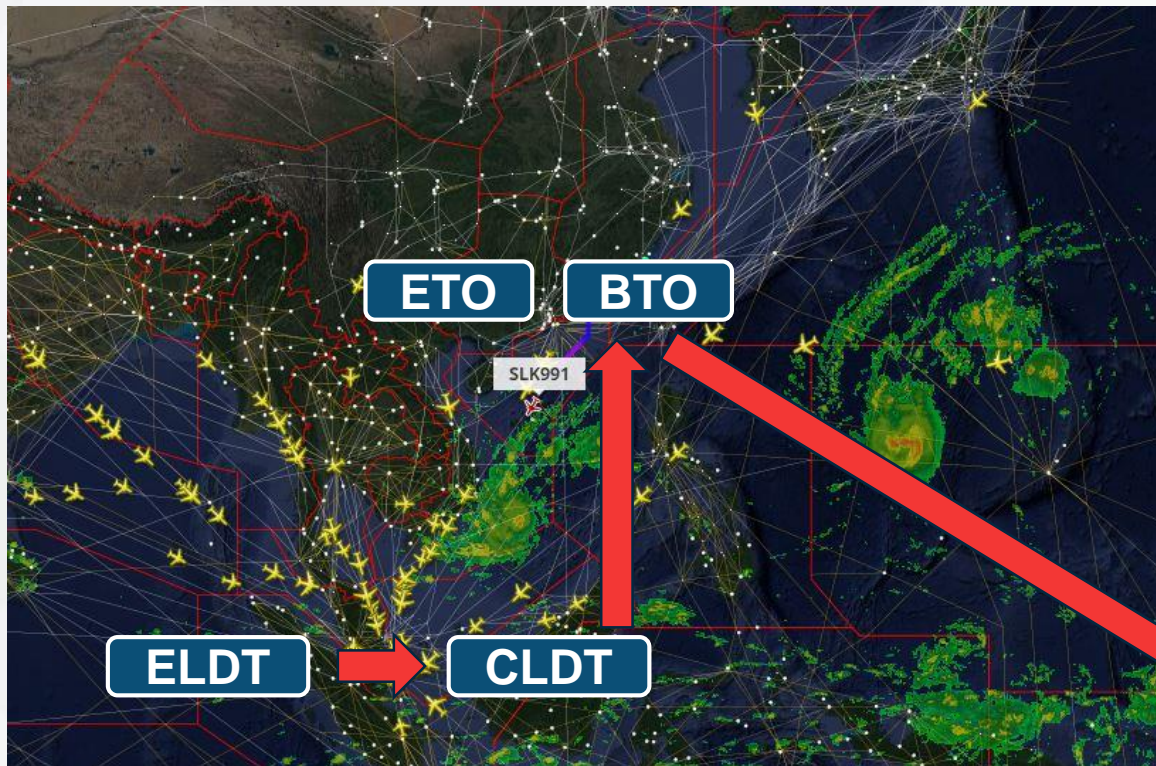


Coordination on the border FIX

Each group receive flights information from neighboring group by border FIX

For the purpose of cross border GDP, each group according to CLDT to modify the ETO to be BTO

Each group use BTO to calculate new CTOT and/or ETO, and tell the pilot the CTO



SLK991

ZSFZ

WSSS

B737

2018/11/23

EOBT 04:25

CTOT 04:35

ATOT 04:41

CTOT 04:50



We need to discuss the operation procedure from Multi-Nodal to NARAHG before design the detail ICD



Thank You