NARAHG

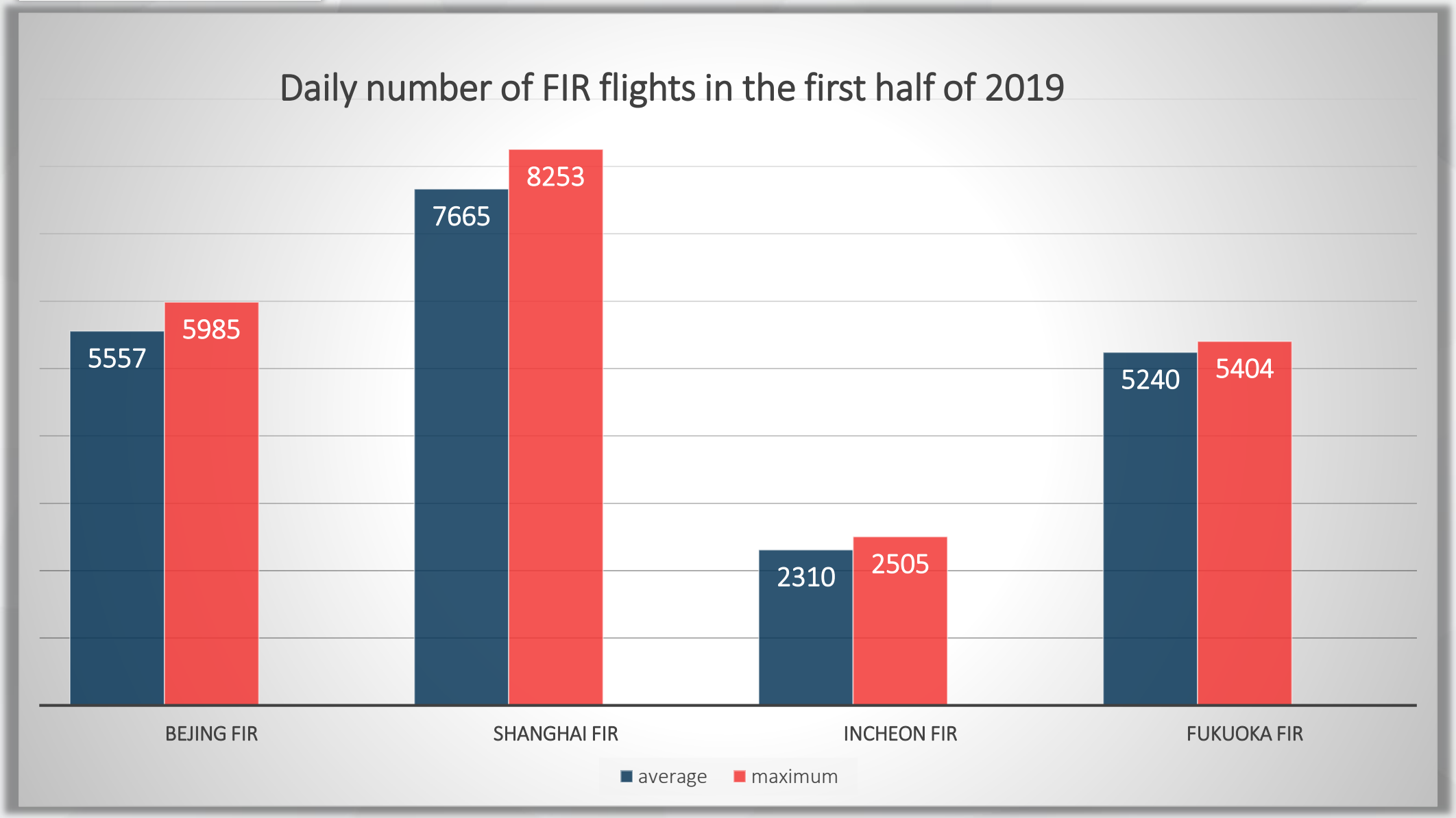
Seamless Cross Border ATFM

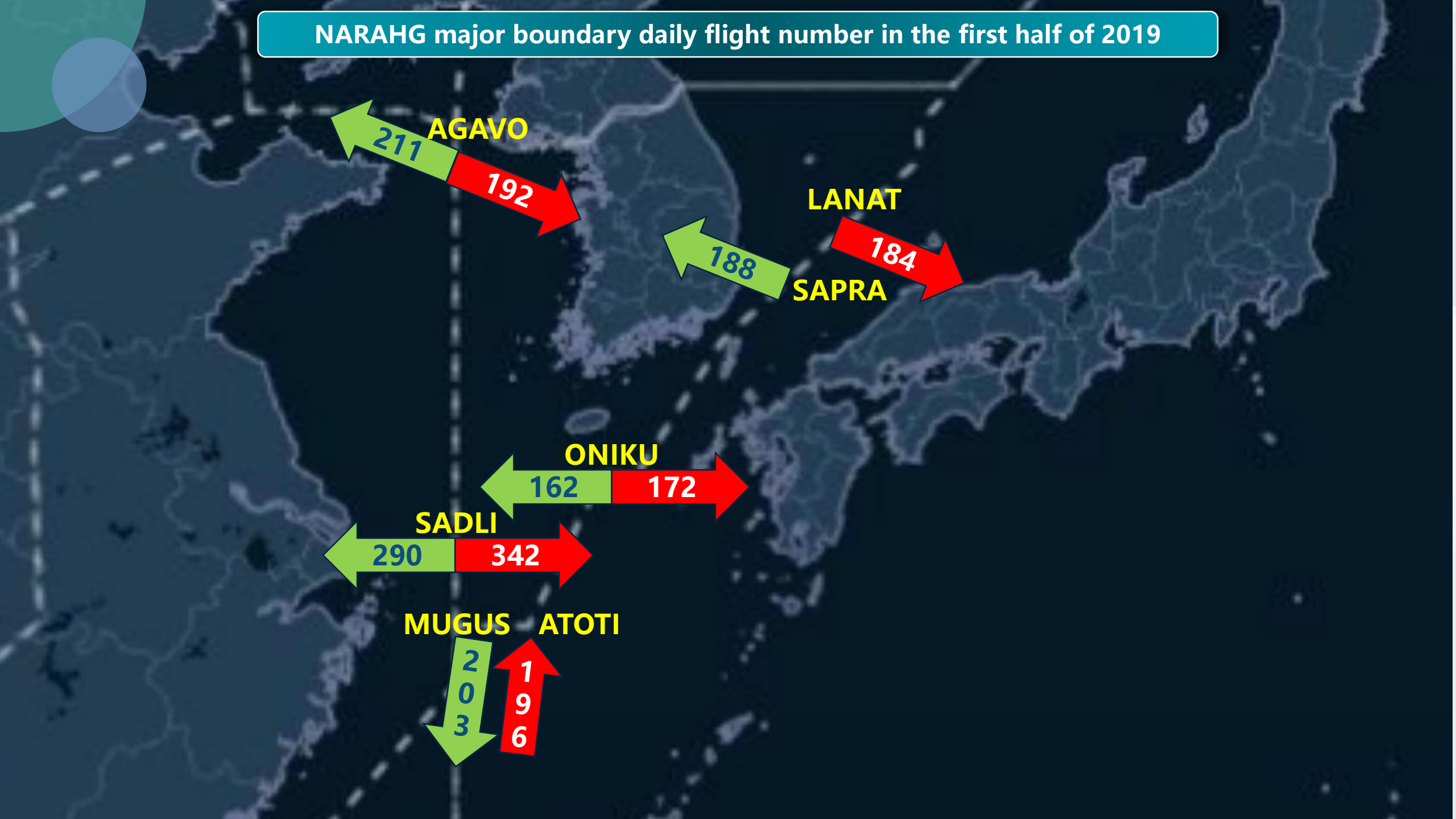
NARAHG UPDATE

ATFM/SG/11 Meeting

2th -6th August 2021

NARAHG
Seamless Cross Border ATFM

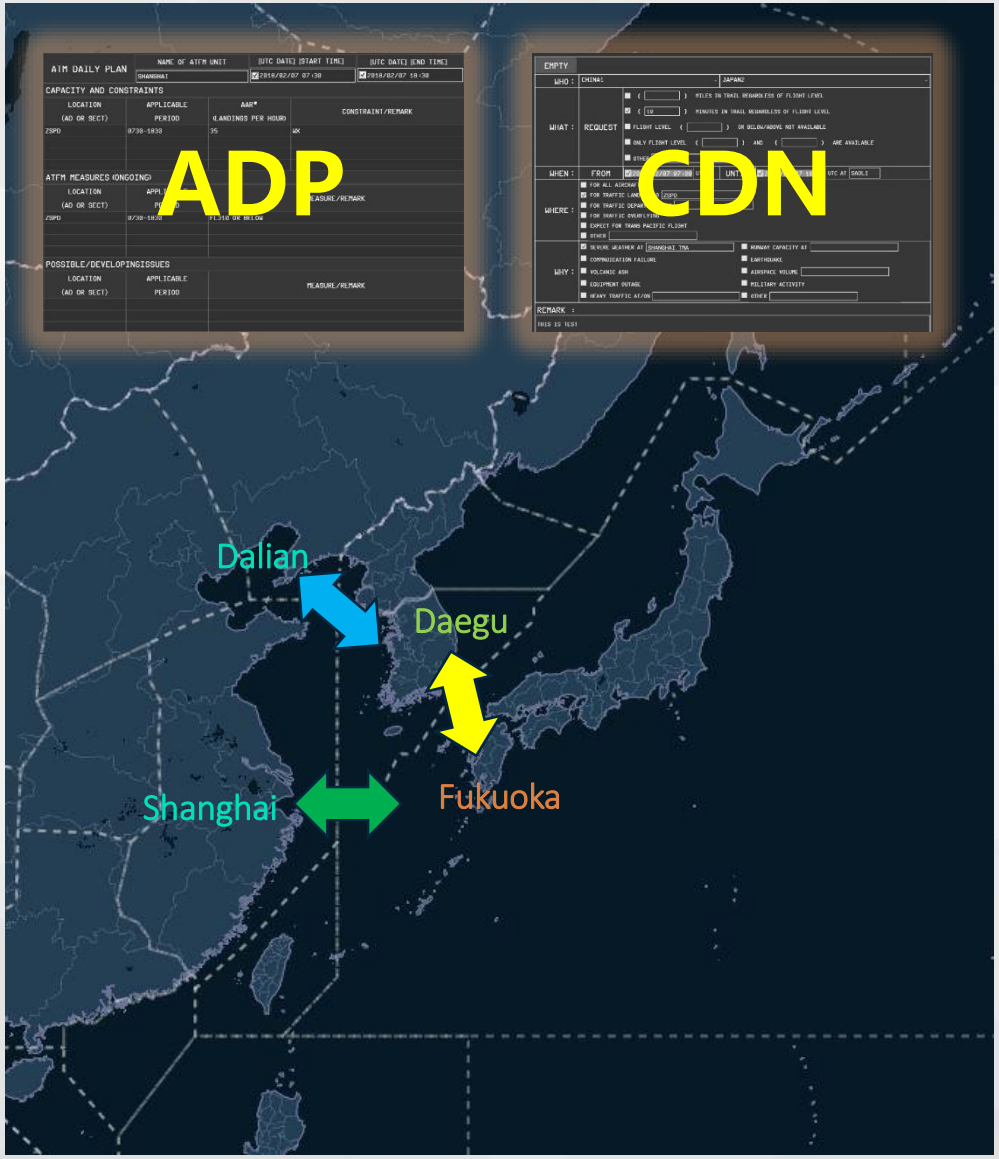



NARAHG major boundary daily flight number in the first half of 2019
AGAVO
211
192
LANAT
184
188
SAPRA
ONIKU
162
172
SADLI
290
342
MUGUS
ATOTI
203
196

ADP exchange among China, Japan and ROK in 4 ATFM units
CDN function has been test by China and Japan

Dalian ACC FMP

Shanghai ATCC



Daegu ATCC

Fukuoka ATMC

China and Japan made 1st data connection test in July 2020

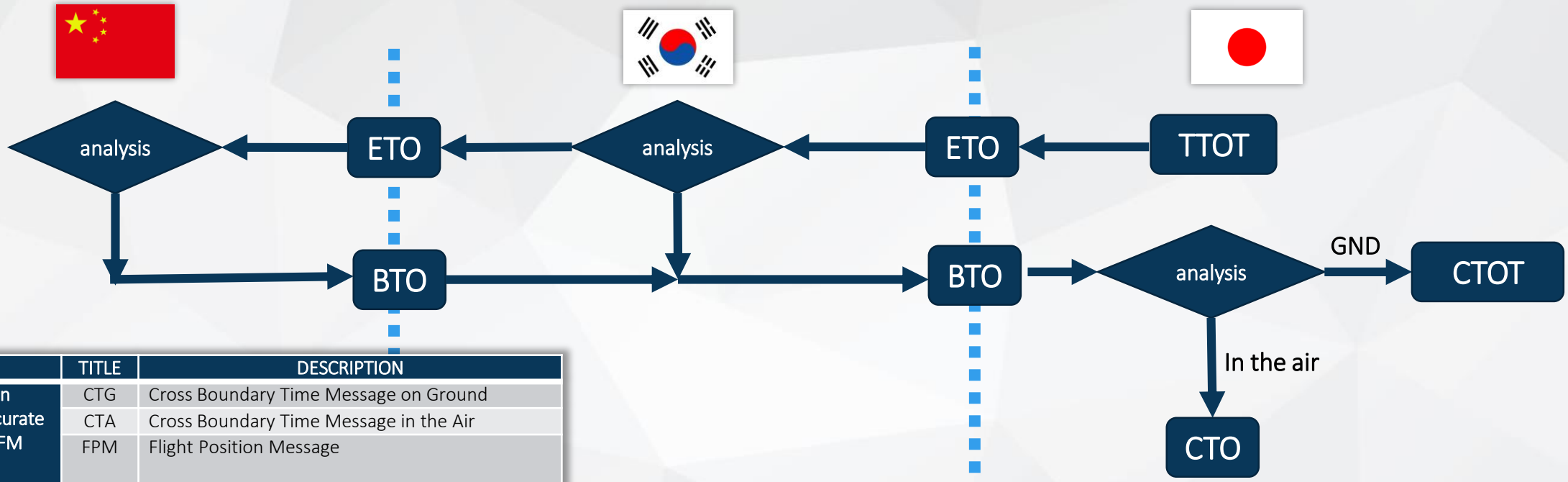
Shanghai ATCC

Data docking test

Fukuoka ATMC

- ✓ #1 Normal Operation：Open，Send Msg, Heartbeat Check, Close ✓
- ✓ #2 Open retry after session failure，Heartbeat Timeout ✓
- ✓ #3 Open retry-Not receive connection response ✓
- ✓ #4 Not receive open notice message (SMsg) ✓
- ✓ #5 Receive unintentional message ✓
- ✓ #6 Message reception on a side of receiving SMsg ✓
- ✓ #7 Message reception on a side of sending SMsg ✓
- ✓ #8 Close timeout ✓
- ✓ #9 Message required reaching guarantee without Rcving RMsg ✓

China, Japan and ROK will use special designed ICD to exchange data



CATEGORY	TITLE	DESCRIPTION
Aircraft Position Information for accurate cross-border ATFM	CTG	Cross Boundary Time Message on Ground
	CTA	Cross Boundary Time Message in the Air
	FPM	Flight Position Message
Coordination on ATFM Measures	ADP	ATFM Daily Plan Message
	TFC	Tactical Flow Coordination Message
	TFR	Tactical Flow Coordination Reply Message
	TFM	Tactical Flow Management Message
	PTV	Predict Traffic Volume Message
Flow Management Cooperated with Multiple Facilities	ACT	Assigned Coordination Time Request Message
	ACR	Assigned Coordination Time Reply Message
	ACC	Assigned Coordination Time Cancel Message
Others	FTM	Free Text Message

TITLE	TRIGGER
CTG	When 6 hours before EOBT of each flight When changed element “Flight Status” of each flight. Send when updated element “Calculated Crossing Time” at defined Common Gate Fix more than X minute(s) of each flight.
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FPM	Every 1minute interval of each flight during detected into own FIR.

China, Japan and ROK submitted NARAHG CONOPS in ATFM/SG/10

NARAHG
Seamless Cross Border ATFM

Northeast-Asia Regional ATFM Harmonization Group (NARAHG)
Concept of Operations (CONOPS)

Version 1.0 (Working Draft)
Published by NARAHG Small Working Group (SWG)

DOCUMENT CHARACTERISTICS

TITLE			
NARAHG Concept of Operations			
Version Number	1.0	Version Validity Date	xxxx 2020

Abstract
This NARAHG Concept of Operations has been developing in line with the content and direction of NARAHG strategy plan. This version will be drafted in NARAHG SWG and approved by NARAHG members through discussion. Subsequently, it will be released as Version 1.0 by XX of XX 2020.

Keywords			
ATFM/CDM	CROSS-REGION	HARMONIZATION	SEAMLESS
CRACP	DATA	AUTOMATION	POST-OPS ANALYSIS
INTEROPERABILITY	SWIM	FF-ICE	ADP
COORDINATION			

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STATUS, AUDIENCE, AND ACCESSIBILITY					
Status		Intended for		Accessible via	
Working Draft	☑	General Public	☐	Intranet	☑
Draft	☐	NARAHG Stakeholders	☑	Extranet	☐
Proposed Issue	☐	Restricted Audience	☐	Internet	☐
Released Issue	☐				

when implementing the demand and capacity balancing domestically. Continuous improvement is achieved not by a linear process, but by a cyclic process. The figure below describes a brief general concept and the operation in NARAHG for each of the key elements of the ATM phase. Through cooperative operation using the system connection, CDM in all phases can be performed efficiently and effectively with transparency.

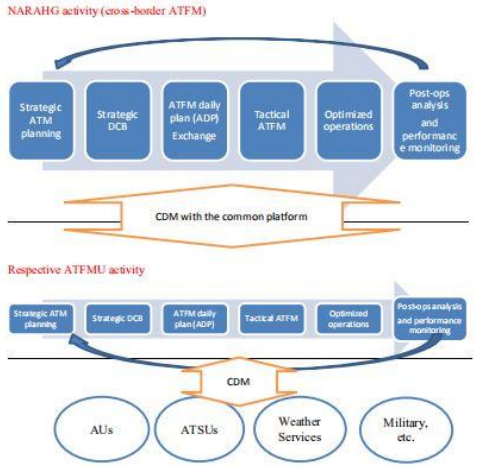

Figure 3 Image of domestic and international CDM links in each ATFM phase

ADP Exchange

4.5 ADP should be a proposed set of ATFM solutions prepared by the ATFMU with input from all stakeholders and published as an outcome of daily CDM conferences. It describes the necessary capacity of resources, the ATFM measures of implementation, or the possibility of implementation. ADP is developed collaboratively and aims to optimize efficiency while balancing demand and capacity. The objective is to develop strategic and tactical outlooks for given airspace or airport that can be used by stakeholders as a planning forecast.

APPENDIX 3 INTER-SYSTEM CONNECTION ICD

NARAHG developed a set of standard ICDs for CRACP, which is aligned with the format of the XML base, for future feasibility. These ICDs are roughly divided into three categories. The first category is the aircraft position information exchange, which is an essential element for achieving seamless cross-border ATFM. The second is for ATFM coordination, which includes not only flow control messages but information of ATFM Daily Plan and Predict Traffic Volume message (PTV). PTV shows traffic volume prediction of major airports, and so on. The last category is the ICDs for implementing CROSS-BORDER ATFM. These are used in cross-border ATFM measures mentioned in Chapter 4. FTM is a general-purpose ICD by a text-based message.

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Table 3 Message Title List

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Table 4 ICD for Position Information Exchange

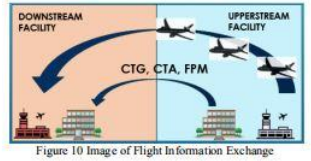
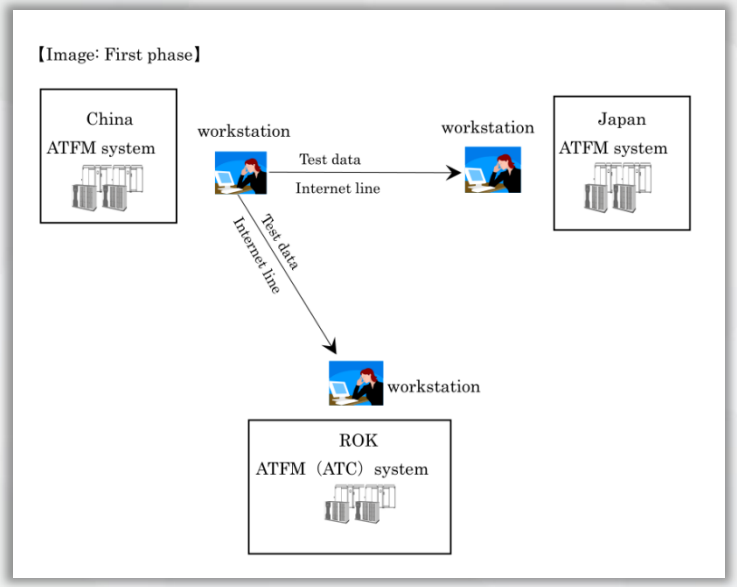


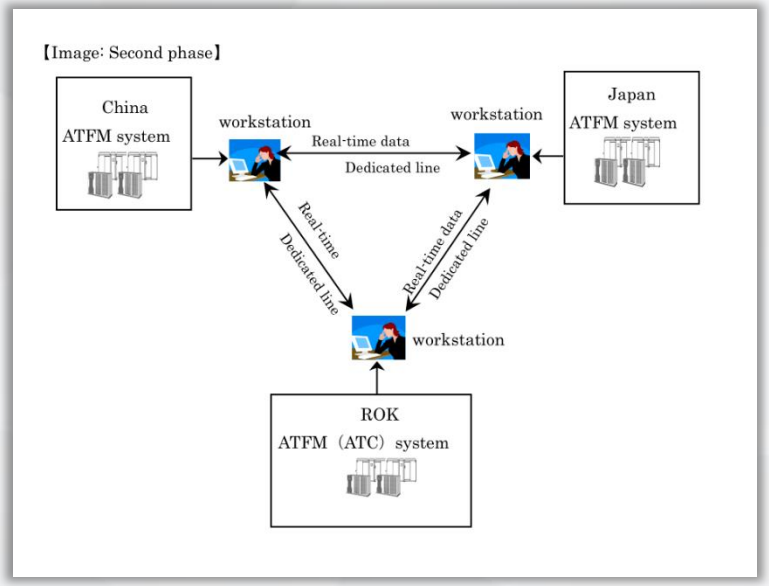
Figure 10 Image of Flight Information Exchange

China, Japan and ROK will start ATFM connection via CRV in 2021

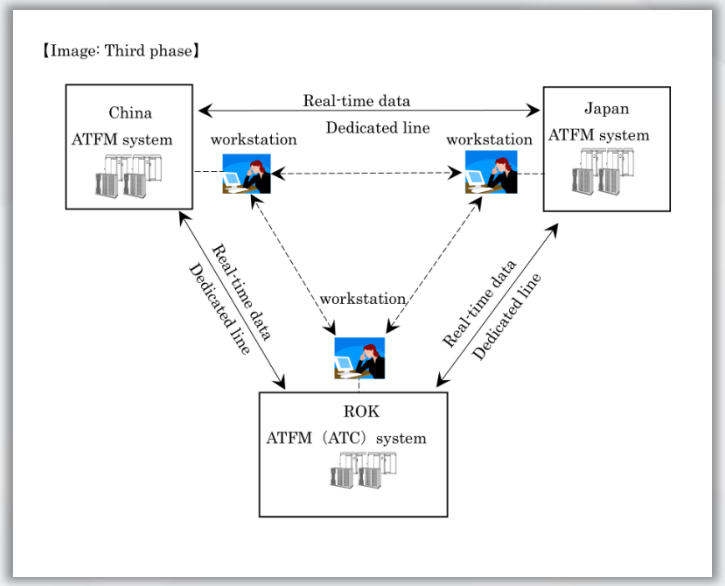
Stage 1



Stage 2



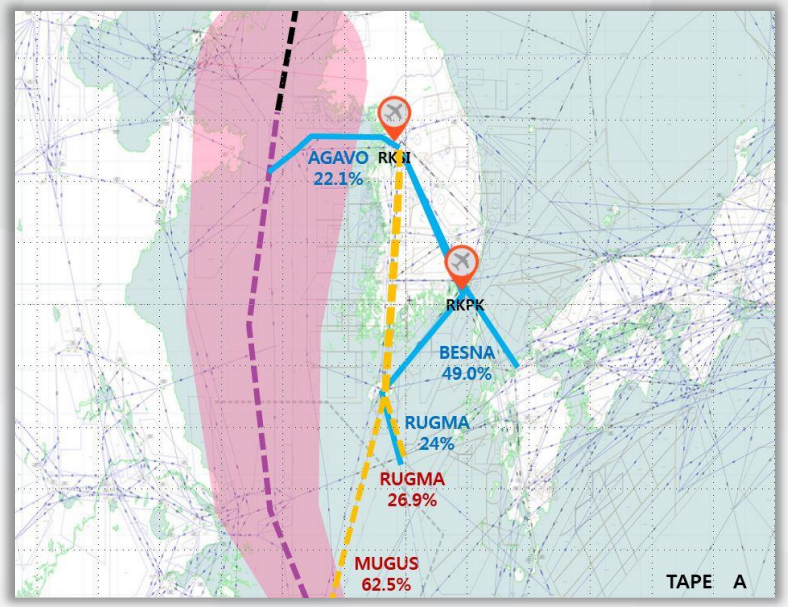
Stage 3

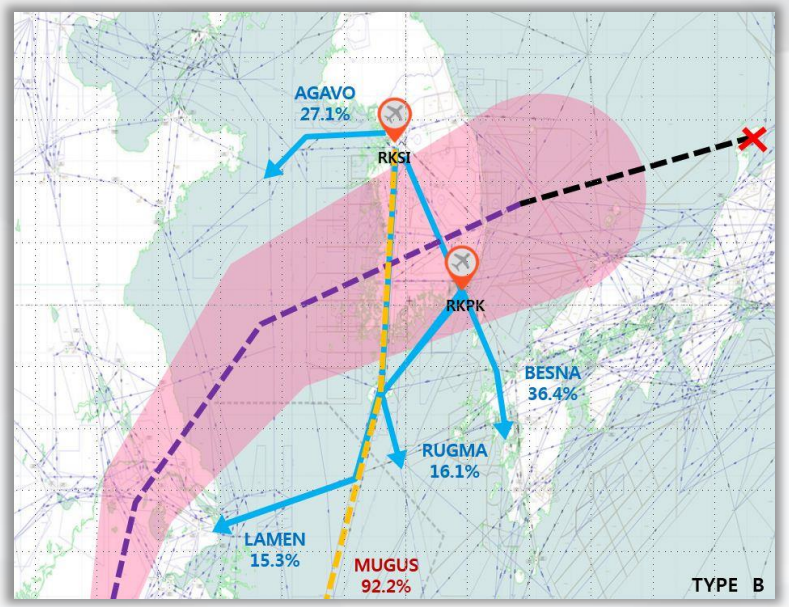


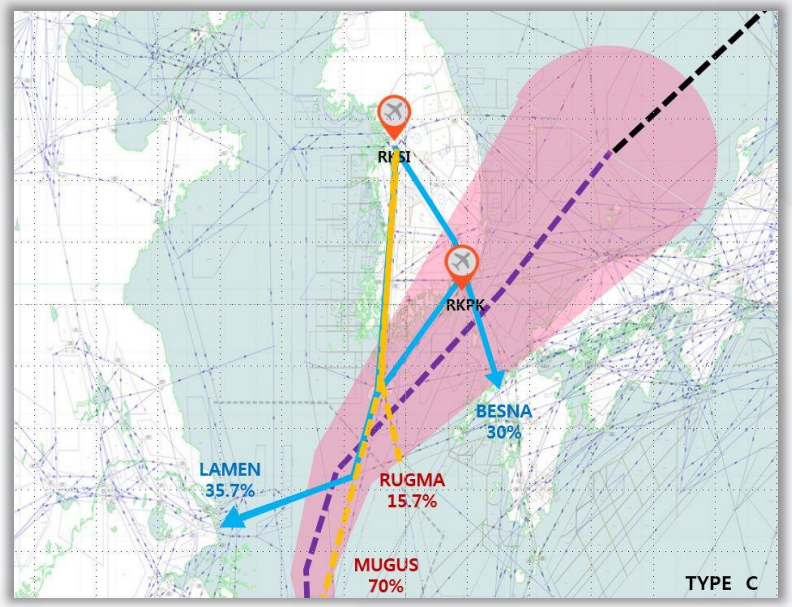
2018 | 2020 | 2021+

	2018	2020	2021+
method	CRACP Client Internet line	CRACP Client with agreed ICD Dedicated Line(CRV)	Own ATFM system Dedicated Line(CRV)
Operation	ADP exchange ATFM coordination	ADP exchange ATFM coordination	ADP exchange ATFM coordination/BTO

One task force was established for severe weather reroute coordination







NARAHG/9–WP/11

The Ninth Meeting of Northeast-Asia Regional ATFM Harmonization Group (NARAHG/9)

Daegu, the Republic of Korea, 16 – 18 December 2019

Agenda Item 4: Discussion for issues and solutions of Northeast Asia ATFM

ESTABLSHING PRE-DEFINED COORDINATION PROCEDURE FOR SEVERE WEATHER

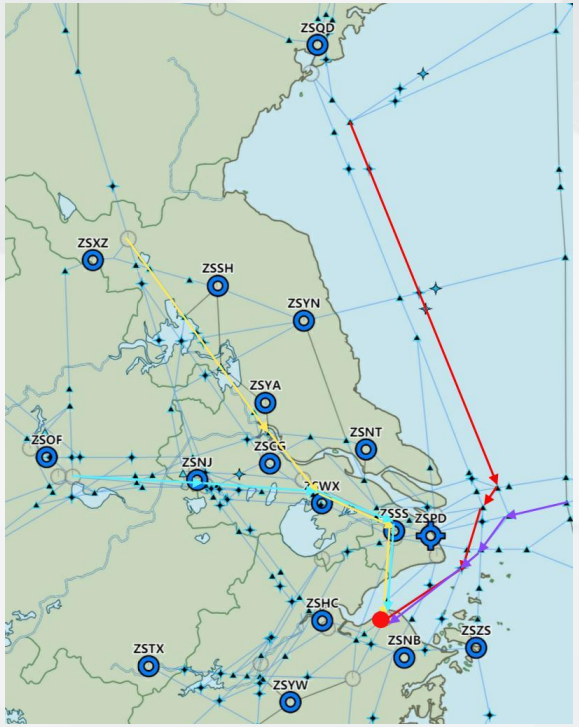
(Presented by Republic of Korea)

SUMMARY

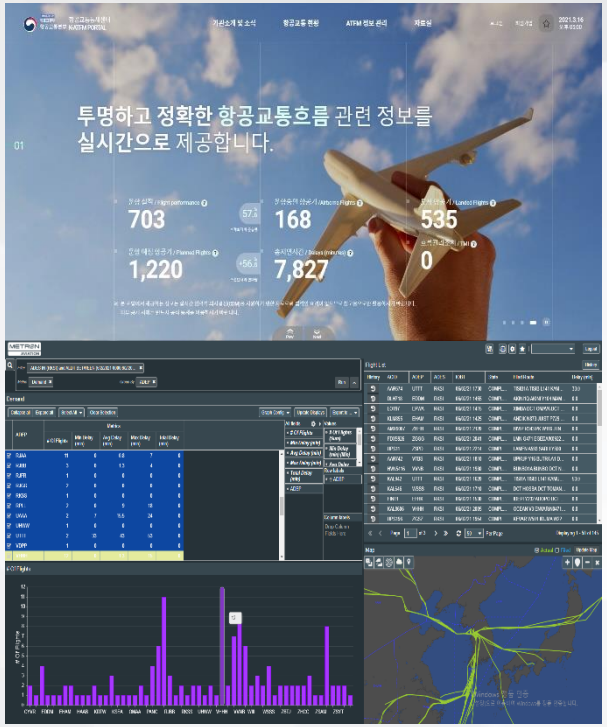
This paper suggests to establish and utilize a cooperative ATFM procedure among 3 states for efficient response in case of severe weather such as typhoon.

2020. Jan - Apr	- Establishing TF - Analyzing and Categorizing Typhoon - Research and clarify required items and values for procedure
2020 May – Aug	- Research and validate capacity and alternative route, etc. - Procedure design - Develop detailed task for procedure - Documentation
2020 Sep – Dec	- Paper trial based on typhoon in 2020 - Review and Amend Procedure - Actual Test

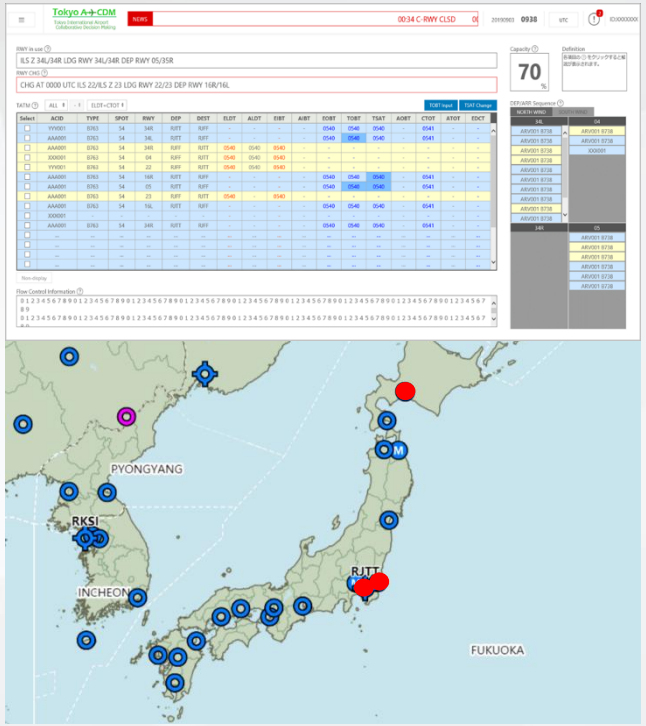
Major efforts from NARAHG in recent one year



China did the XMAN trail to gather more long-range flights TBO experience for future NARAHG cross-border operation procedure



ROK made ATFM website to share the pre-tactical, tactical and POA information.



Japan implemented A-CDM in RJTT, RJAA and RJCC. ATFM data and ground service data can be collaborative in high efficiency.

NARAHG held a SWG meeting to discuss the schedule for next phase

Thank You

谢谢

감사합니다

ありがとうございました