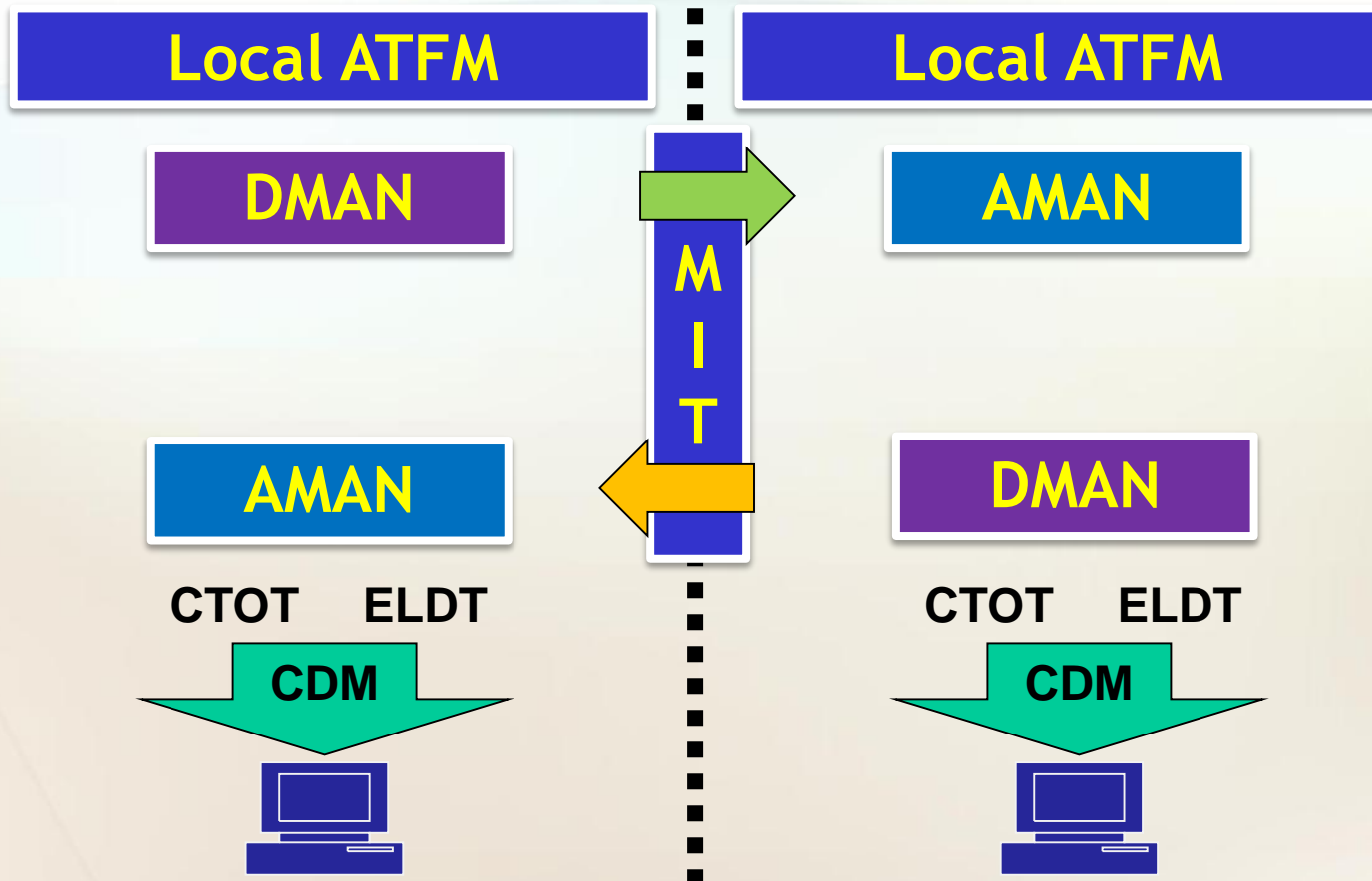




# CDM In East China

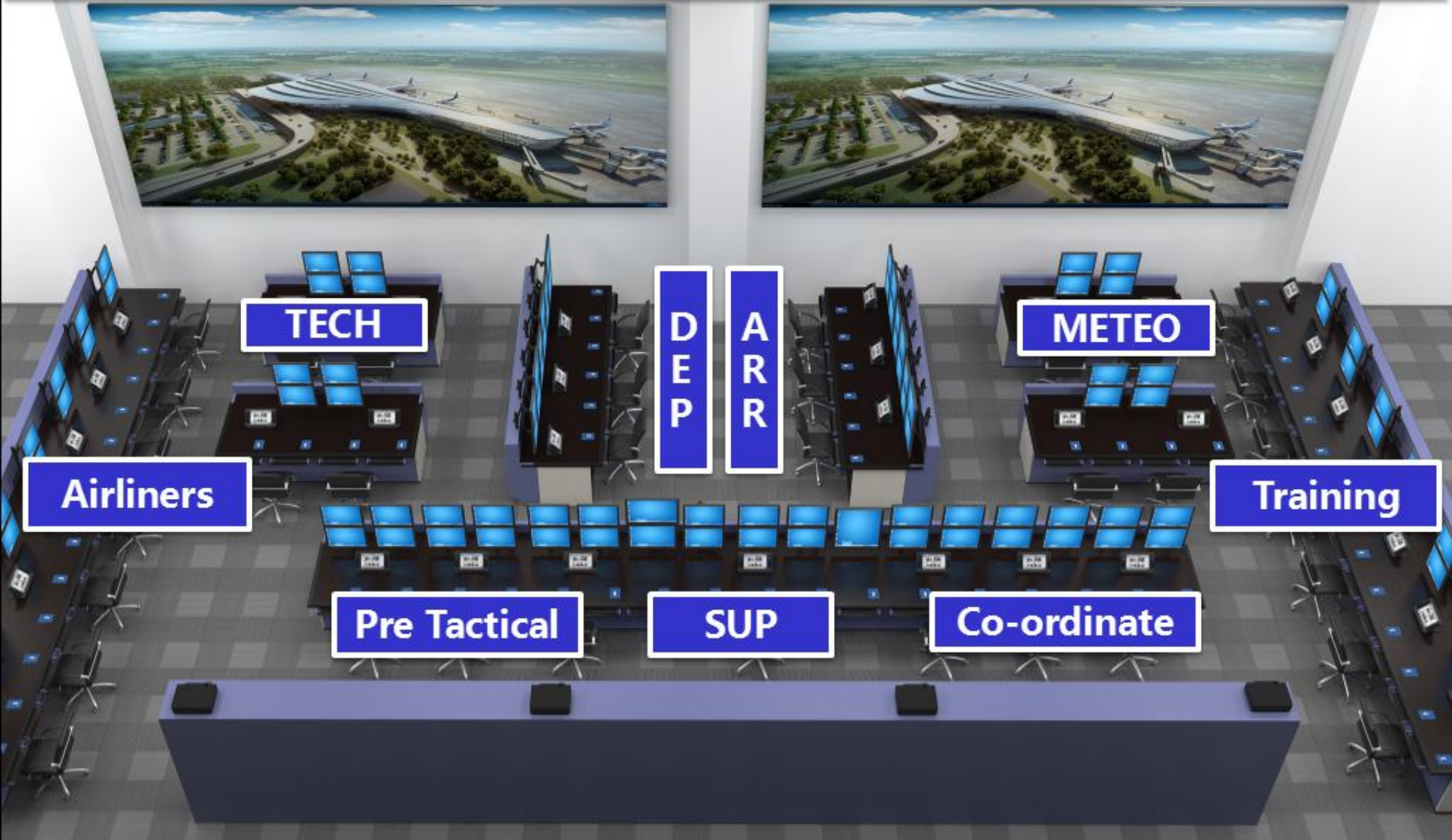
2015. 8

# Basic Concept of ATFM in East China



# What we did in East China

## ATFM Department in Shanghai Air Traffic Control Center



# What we did in East China



**Stop the MIT on the Boundary**

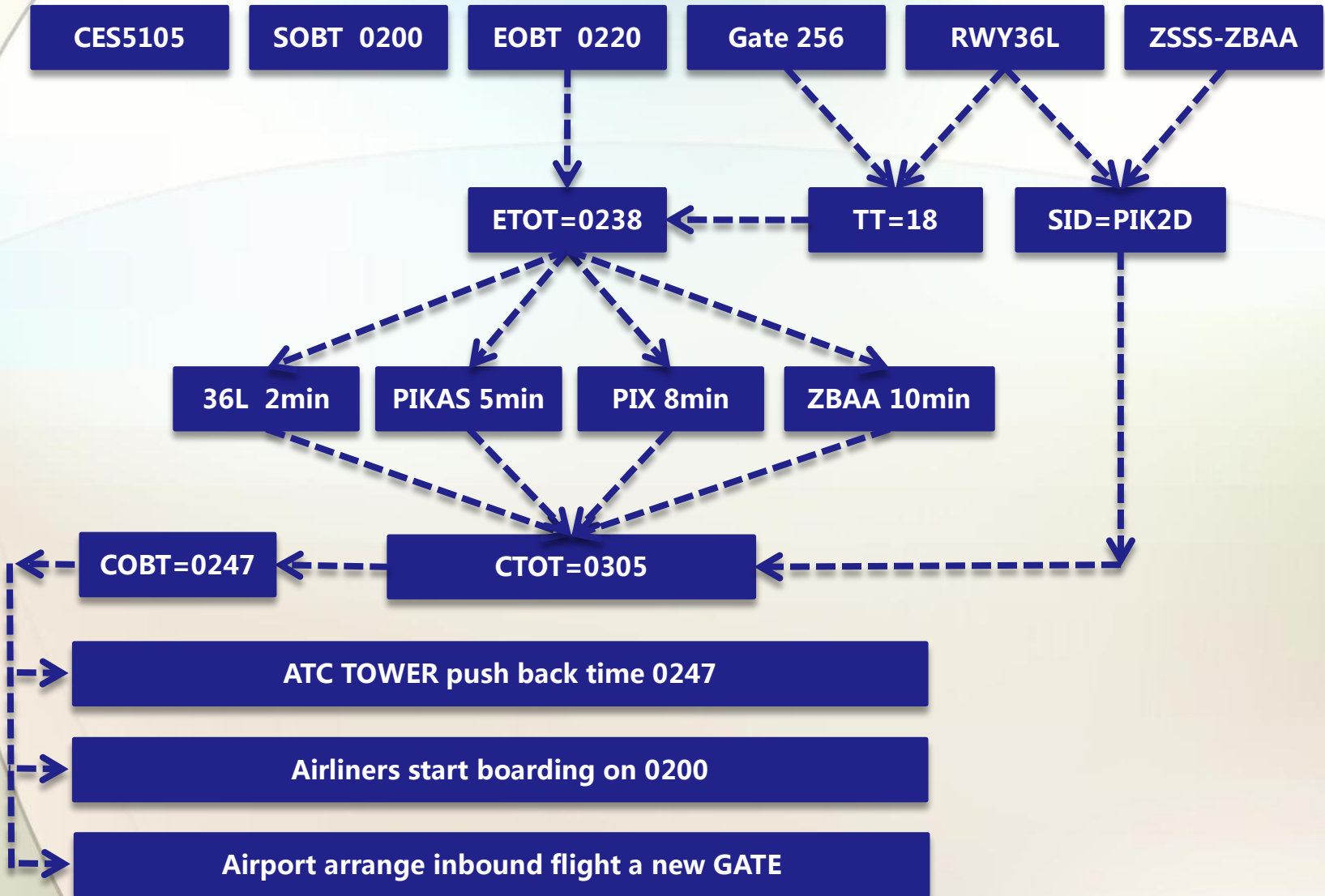
# What we did in East China



proceed the GDP in Shanghai FIR

# What we did in East China

## A-CDM operation procedure



# What we did in East China

**CDM 中小机场塔台系统** 16:52:49

航班查询:  查询  CTOT  严格控制 分钟:  航班状态  正常  严格控制

跑道运行模式  当前生效限制

等待航班							滑出等待航班							落地航班											
航班号	机型	落站	计划时刻	COBT	CTOT	TOBT	操作	航班号	机型	落站	CTOT	申请时间	操作	航班号	机型	落站	CTOT	申请时间	操作						
✓ CHQ6479	B744	VVNB	1445				等待 推开	✓ CES4748	A321	UHHH	1654	推/开 取消	✓ CCA5015	B772	EGLL		1654	塔台 回退	✓ CHQ6479	B744	VVNB				落地
✓ ANA7640	B772	LFPG	0330				等待 推开	✓ CHQ9282	A333	UTTT	1654	推/开 取消							✓ ANA7640	B772	LFPG				落地
✓ CSH6278	B772	EGLL	0445				等待 推开	✓ CHQ1874	A333	UTTT	1654	推/开 取消							✓ CSH6278	B772	EGLL				落地
✓ CSN3483	A333	UAAA	0910				等待 推开												✓ CCA5015	B772	EGLL				落地
✓ MAS8626	A321	VVNB	0045				等待 推开												✓ CCA2547	A321	UHWW				落地
✓ ANA8756	A333	VVNB	1020				等待 推开												✓ CSN3483	A333	UAAA				落地
✓ AMU1056	A321	VDSR	1015				等待 推开												✓ MAS8626	A321	VVNB				落地
✓ MAS2455	A321	VDPP	1015				等待 推开												✓ ANA8756	A333	VVNB				落地
○ CES9710	A321	VDPP	1015				等待 推开												✓ AMU1056	A321	VDSR				落地
✓ CSN6654	A321	VDPP	1015				等待 推开												✓ MAS2455	A321	VDPP				落地
✓ CCA8625	A333	VIDP	1030				等待 推开																		
✓ CSN2603	B763	VYYY	1050				等待 推开																		
✓ CES9545	B744	UUDD	1510				等待 推开																		
✓ ANA9359	B744	VVNB	2340				等待 推开																		
✓ CCA0624	A321	UHFF	0250				等待 推开																		

已开车航班							塔台航班							落地航班						
航班号	机型	落站	CTOT	申请时间	操作		航班号	机型	落站	CTOT	申请时间	操作	航班号	机型	落站	CTOT	申请时间	操作		
✓ CSN6916	B772	EGLL	1033		滑出 回退		✓ ANA7988	B744	EDDF	1033		起飞 回退	✓ CES4748	A321	UHHH	1654		停机 回退		
✓ CSN8011	A333	LTBA	1033		滑出 回退															
✓ CHQ9261	B772	LFPG	0808	1033	滑出 回退															
✓ CCA2547	A321	UHWW	1654		滑出 回退															

5分钟内起飞航班							5分钟内停机航班						
航班号	机型	落站	CTOT	申请时间	起飞时间		航班号	机型	落站	CTOT	申请时间	停机时间	
✓ CSH8905	B744	EDDF	1033	1654									

Using the EFS to exchanging information with the CDM platform

# What we did in East China

## Airport CDM Coordination Agency Procedure

CES

CCA

CSN

CQH

DKH

SHA

**Request the CTOT 1 Hour before EOBT**

**Make confirmation before boarding**

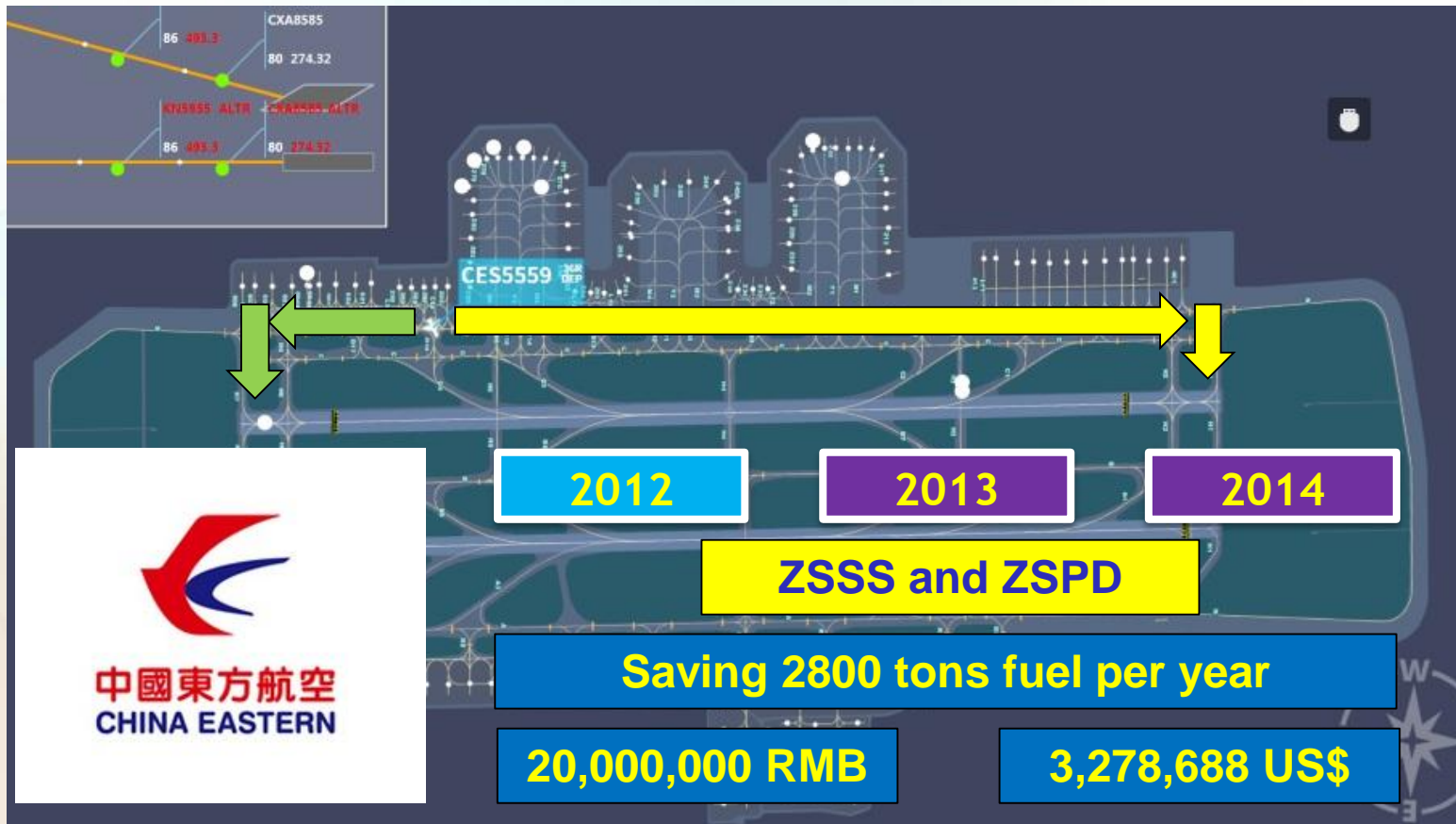
**Proceed Flexible boarding for more than 40m delay**

**CDM Coordination Agency Coordinate with FMP**



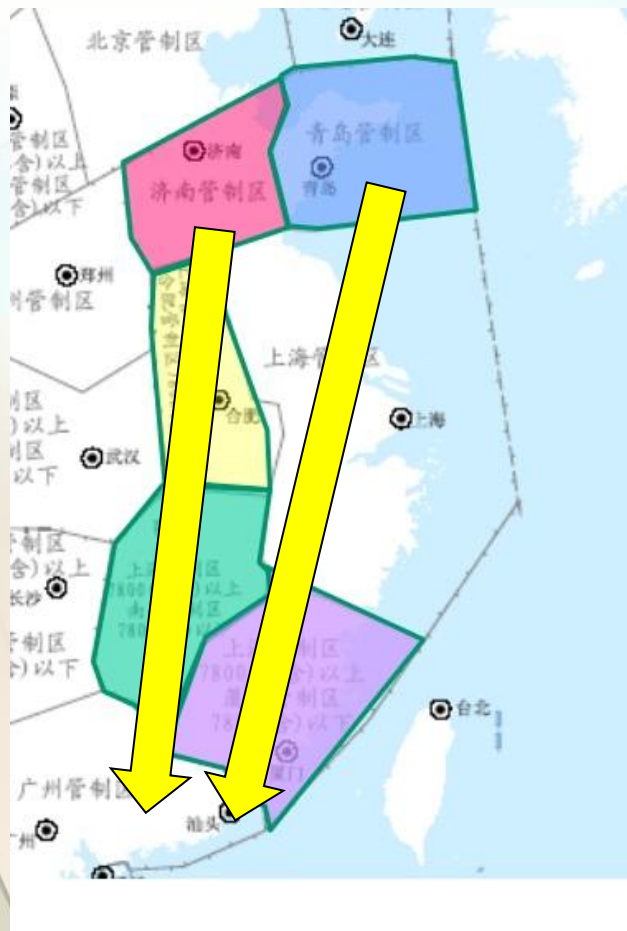
# What we did in East China

Using the **VTT** to calculate the **COBT**



# What we did in East China

## Expansion the ATFM Boundary in FIR



**Shandong  
Airlines**

**Alternate Flights In Summer**

**2013**

**More than 30**

**2014**

**Only 1**

# What we did in East China

## 42 Airports Implement the CDM operation



**East China CDM Coordination meeting**

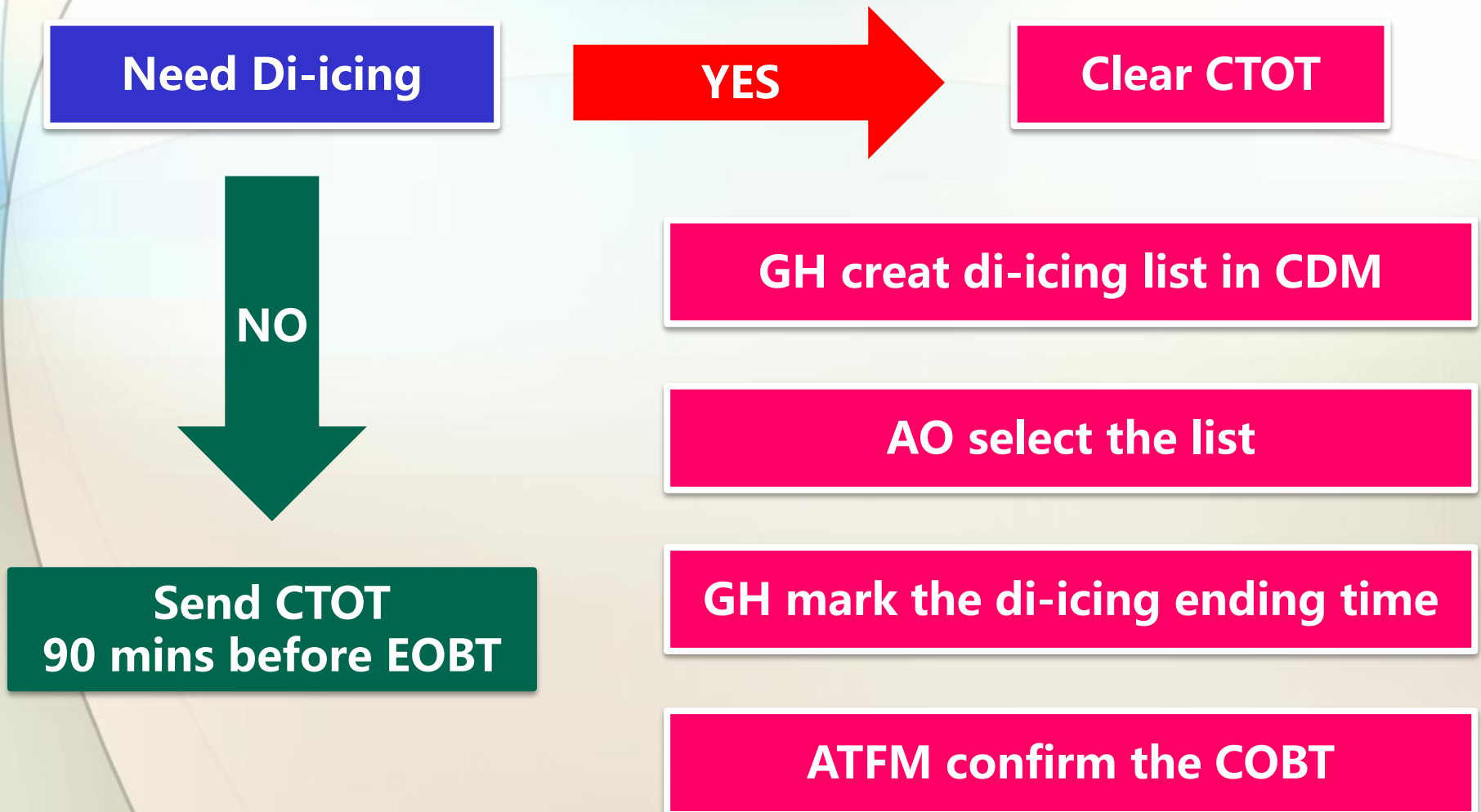
# What we did in East China

**the operation of the CDM is subdivided into 5 grades**

- 1 Manually Request CTOT by Input TOBT or Phone Call**
- 2 Automatic release CTOT 90 Minutes before EOBT**
- 3 Operating units to achieve data docking**
- 4 Release operation information to the public**
- 5 The ground service units to achieve Ground resources management through the handheld information system**

# What we did in East China

## Di-icing MODE in CDM system



# What we did in East China

## DI-icing MODE in CDM system

**Airport**

**Request flights**

Flight	Call Sign	Time
CES5109	C ??	1049
GES5569	C ??	1254

**ZSSS东方航空除冰序列01**

<input type="checkbox"/> CES5359	407 15 0942
<input type="checkbox"/> 407 to ??	0 min
<input type="checkbox"/> 补液	18
<input type="checkbox"/> CCA1558	407 95 1135
<input type="checkbox"/> 407 to ??	0 min
<input type="checkbox"/> 补液	18

**ZSSS南方航空除冰序列**

<input type="checkbox"/> CSN9531	407 15 0733
<input type="checkbox"/> 407 to ??	15 min
<input type="checkbox"/> CSZ9918	?? 15 08
<input type="checkbox"/> ?? to ??	0 min
<input type="checkbox"/> 补液	25
<input type="checkbox"/> CSN845	407 15 08
<input type="checkbox"/> 407 to 407	15 min
<input type="checkbox"/> CSN3562	407 15 09
<input type="checkbox"/> 407 to ??	0 min

**Waiting flights**

CCA1502	D 407 95 1038
GES5525	C 407 15 0919
HDA859	D ?? 16 1
CSN3526	C 407 15 1

**Waiting flights**

**Di-icing ending Time**

**Di-icing truck refuel time**

**Di-icing truck taxi time**

**Request flights**

# What we did in East China

CTOT release → Sequence release

MDRS Mode Procedure

Tower mark the first wave need to leave

ATFM issue the share

GH select the flights into blank strips

ATFM Calculate the **CTOT** according to the unnegotiable constrain

All units working follow the CTOT

Sequence release → CTOT release

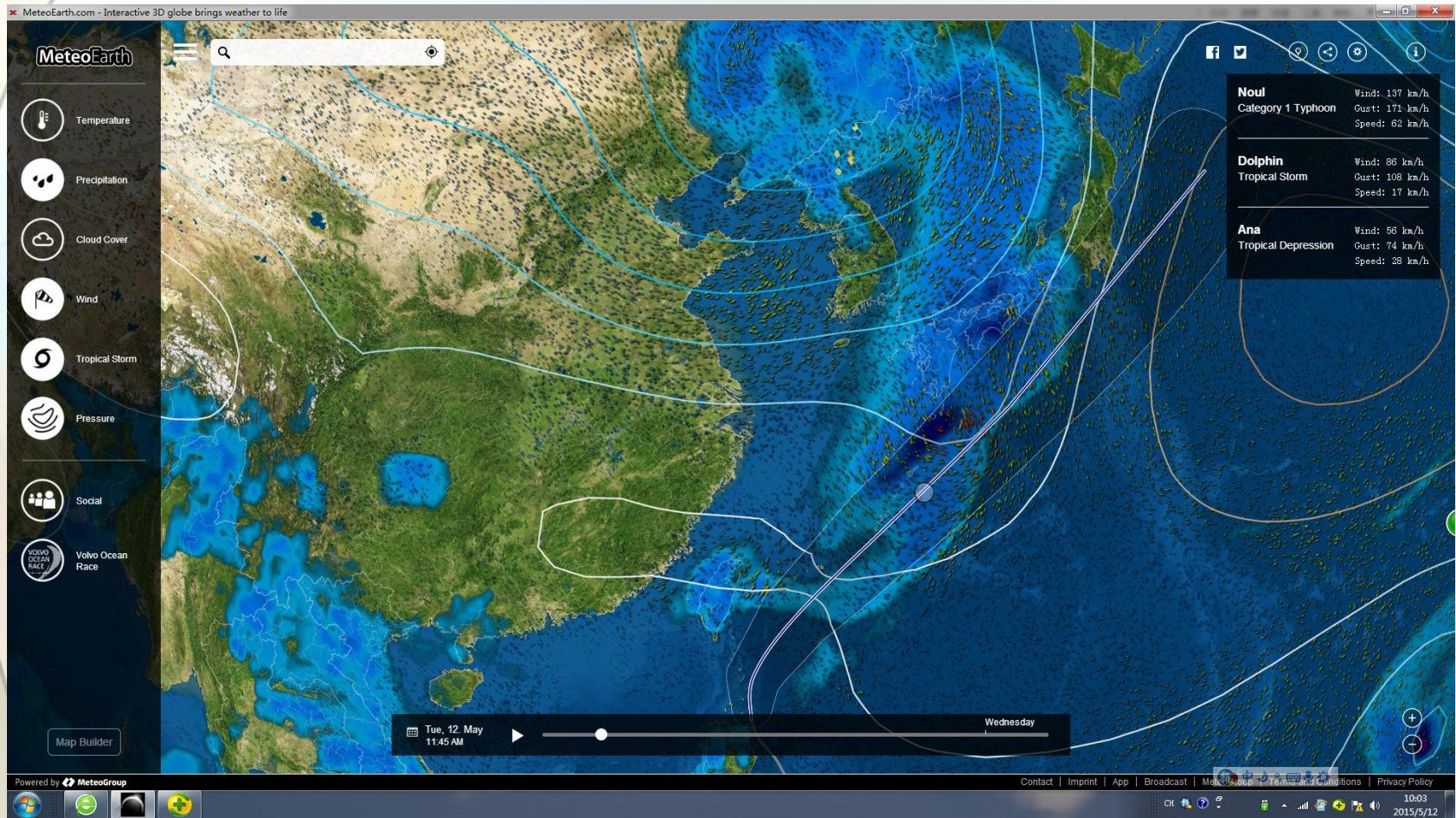
$\max ( \text{EOBT} , \text{TOBT} , \text{recover time} )$



CTOT

# What we did in East China

## Enhance Numerical Weather Forecast System





# What we will to do next

**OSD**

**PFM**

**TFM**

**ODA**

**CDM**

**EFS**

**MIP**

**ECU**

01:23:45 UTC

ZSHA-FMP01

空中  
航班

**OSD** Operation Situation Display      运行态势显示模块

航路

地面  
航班

**PFM** Pre-Tactical Flow Management      预战术管理模块

导航

延误  
航班

**TFM** Tactical Flow Management      战术管理模块

机场

**ODA** Operation Data Analysis      运行数据分析模块

流量  
限制

**CDM** Collaborative Decision Making      机场协同决策模块

航点

**EFS** Electronic Flight Strips      电子进程单模块

扇区  
容量

**MIP** Multifunction Inner Phone      多功能内话组件

联网  
状态

流量  
席位

**ECU** Electronic Coordination Unit      电子协调模块

确认  
信息

# What we will to do next

**Integrate Traffic Management Platform**

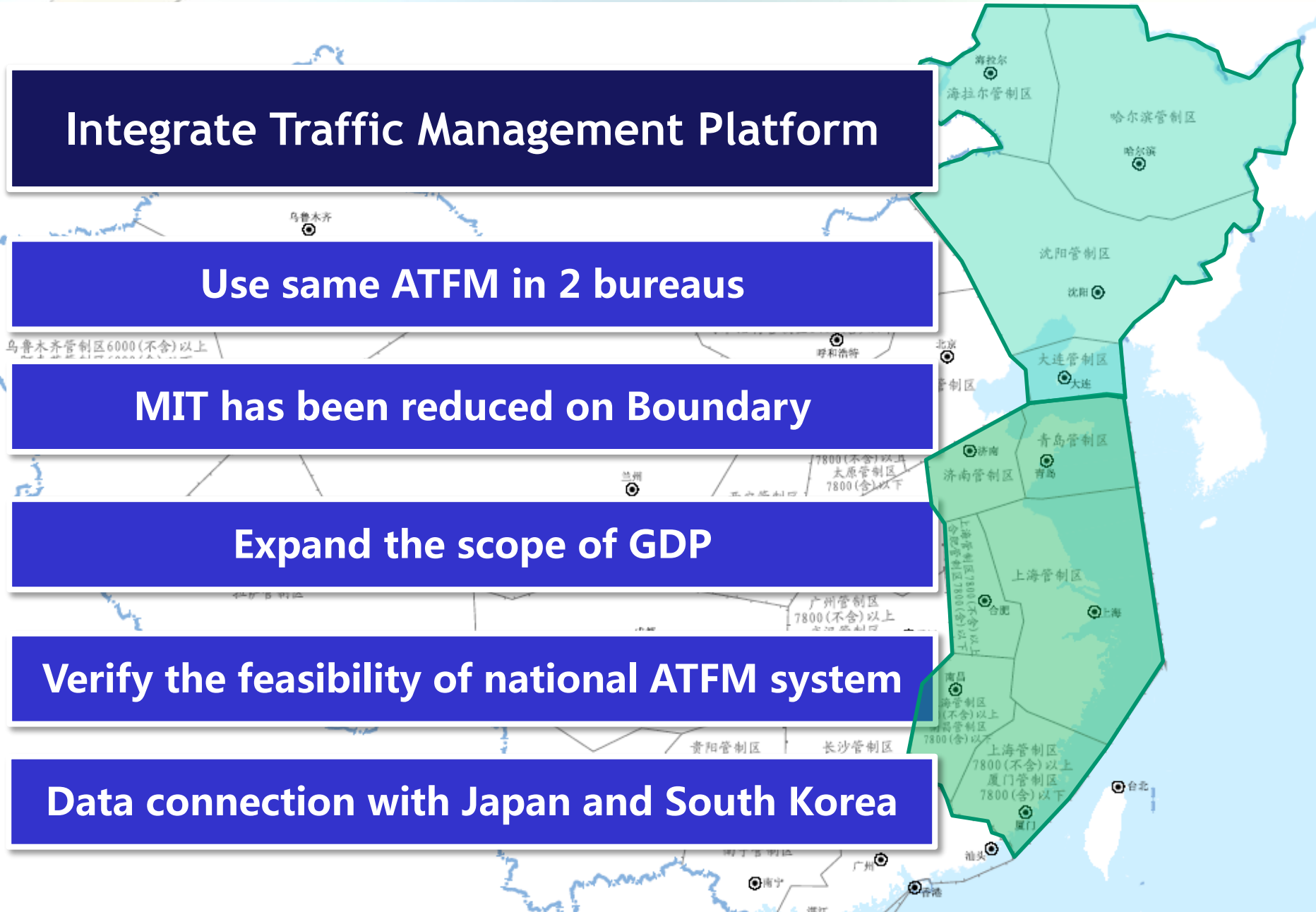
**Use same ATFM in 2 bureaus**

**MIT has been reduced on Boundary**

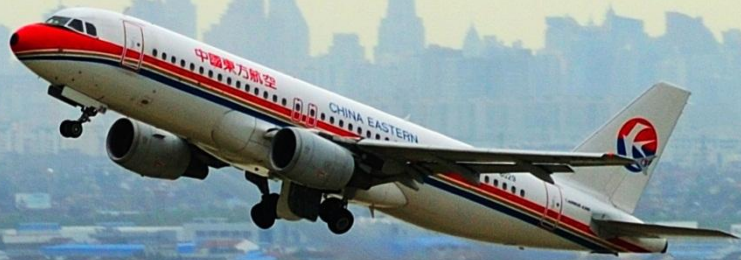
**Expand the scope of GDP**

**Verify the feasibility of national ATFM system**

**Data connection with Japan and South Korea**



# THANK YOU



Any questions?