

整合计划—— 遥控驾驶航空器系统与空中交通管理系统整合有待解决的问题

INTEGRATION PLANS – issues to be addressed when integrating RPAS into the ATM system



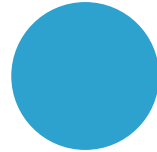
Presented to: ICAO RPAS/3
Presented by: Xinghao Zhang, Director, Air Traffic Control Division
Date: September, 11, 2018

中国民用航空局空中交通管理局
Air Traffic Management Bureau. CAAC

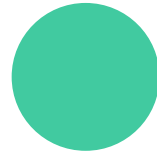
Agenda

- **About ATMB**
- **Issues to be addressed when integrating RPAS into the ATM system**

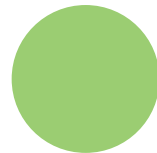
About ATMB



Chinese ANSP
Beijing: Headquarters

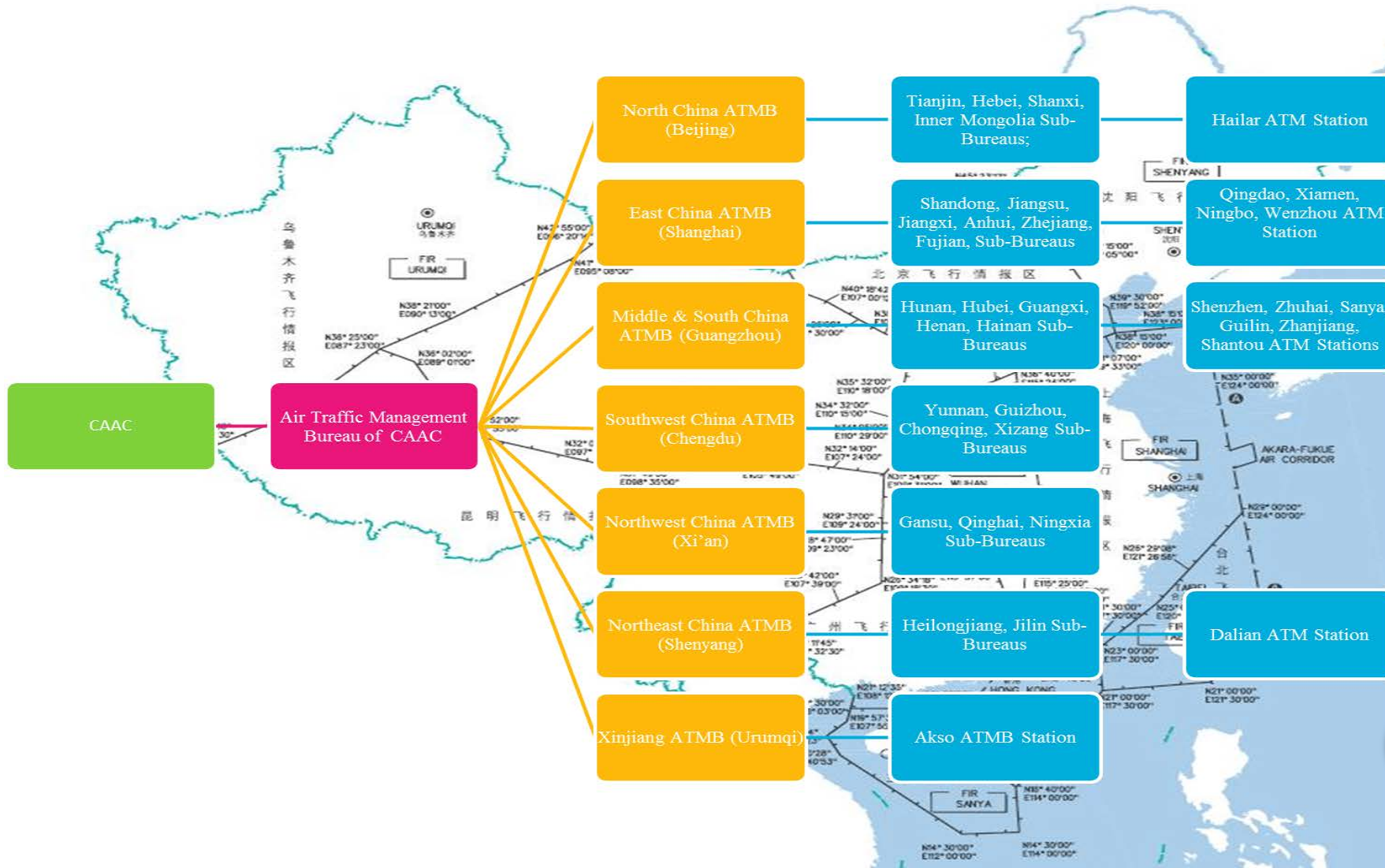


Operations Management Center
Airspace Management Center
Technical Center
Aviation Meteorology Center
AIS Center



ATS\CNS\A-MET\AIS

About ATMB



CAAC



ATMB



7 Regional ATMB



**23 ATM Sub-Bureaus /
14 ATM Stations**

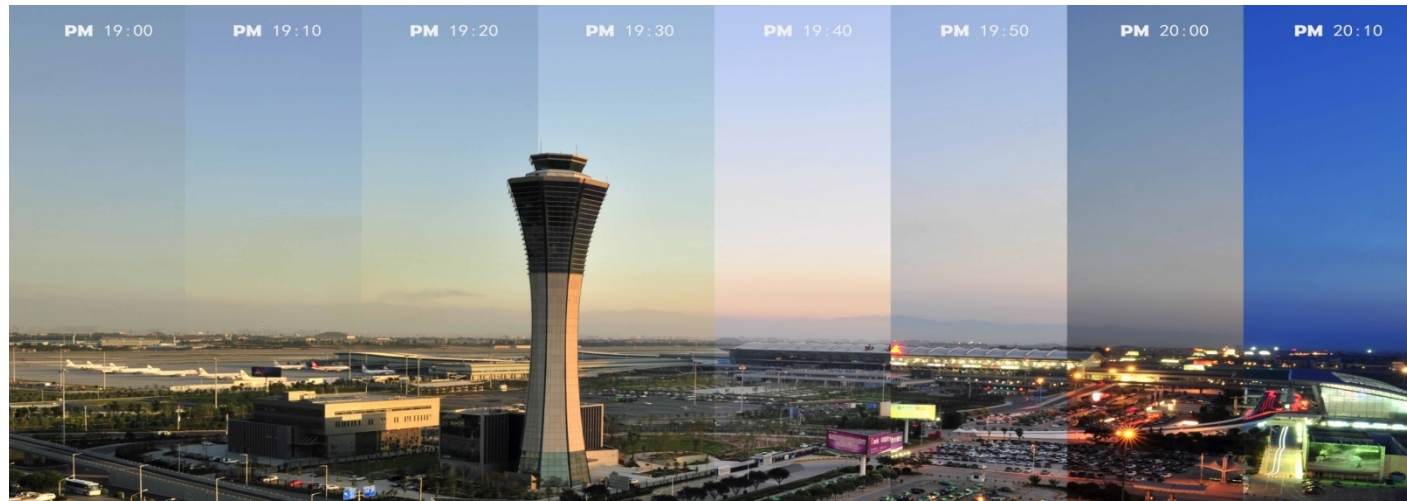
Airspace Structure in China 2017

- 01** Total Area: **10,810,000** Km²
- 02** **9** Flight Information Regions (FIRs)(**except** Taipei and Hongkong FIR)
- 03** **28** Area Control Centers
- 04** **41** APPs + **1** TMA
- 05** **223** control sectors
- 06** Daily flights **15881**

Issues to be addressed when integrating RPAS into the ATM system



Issues to be addressed when integrating RPAS into the ATM system



Issues to be addressed when integrating RPAS into the ATM system

民用无人驾驶航空器违规飞行 管制应急处置程序 (暂行)

第一章 总 则

第一条 为了降低民用无人驾驶航空器违规飞行(以下简称无人驾驶航空器)对空管运行安全和效率的影响,提高应急处置能力,理顺信息通报流程,结合实际运行情况,制定本处置程序。

第二条 本程序适用于民用机场塔台、终端(进近)管制区域内,无人驾驶航空器违规飞行活动的管制应急处置。

第三条 管制单位应当制定和完善本单位无人驾驶航空器违规飞行管制应急处置程序,及时修订管制运行手册,加强培训,提高管制员的应对能力。

第二章 发现核实

第四条 管制单位通常以机组报告、机场通报和空中交通服务监视系统发现等方式,获得违规飞行无人驾驶航空器的活动信息。

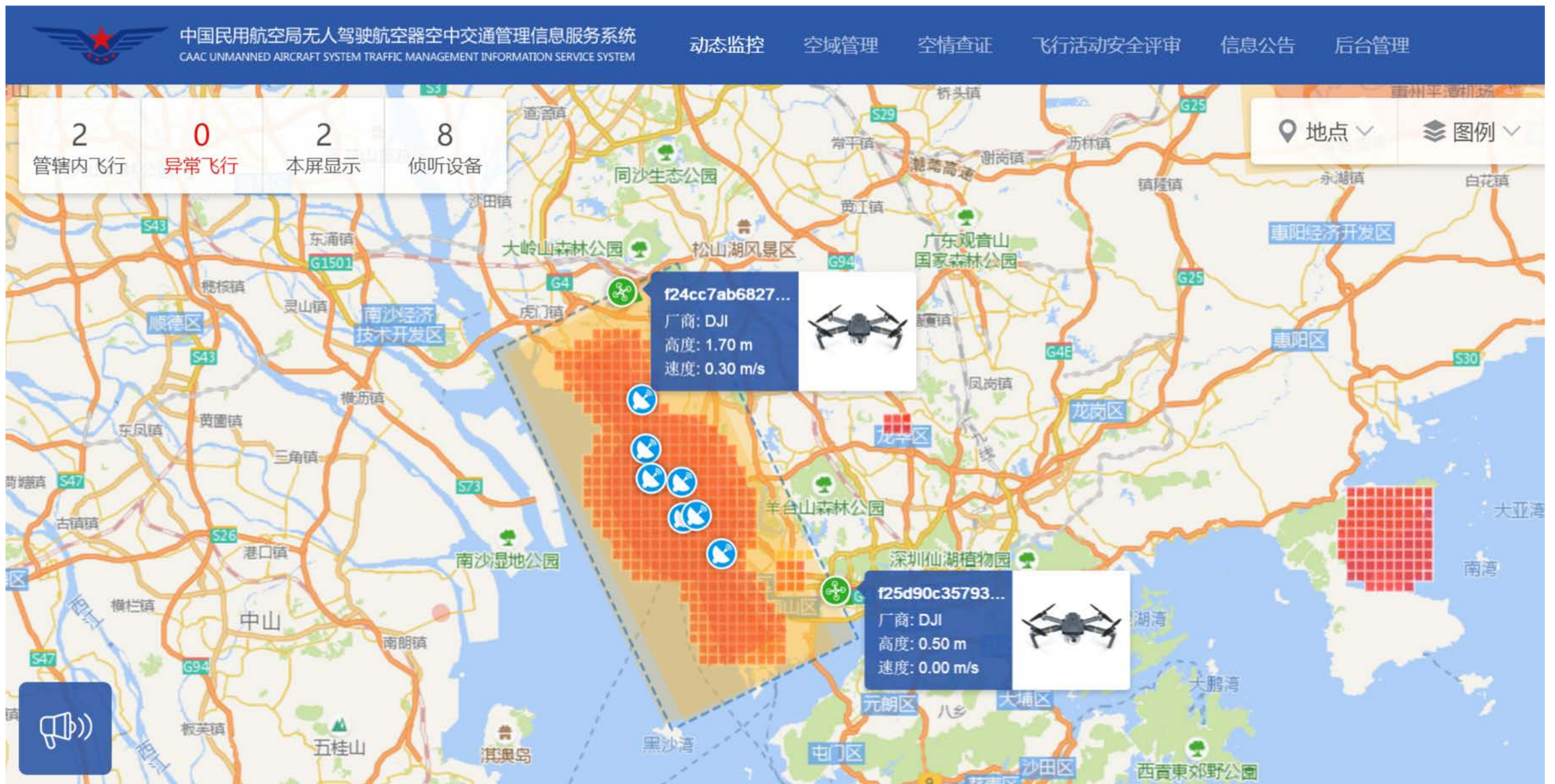
第五条 当管制单位获得无人驾驶航空器的活动信息

117 illegal UAS flights in 2017

Civil aviation flights emergency avoidance, return or alternative.

ATC Procedures to UAS Illegal operations

Issues to be addressed when integrating RPAS into the ATM system



Issues to be addressed when integrating RPAS into the ATM system

Pilot

- License
- Training



Issues to be addressed when integrating RPAS into the ATM system

Detect and Avoid

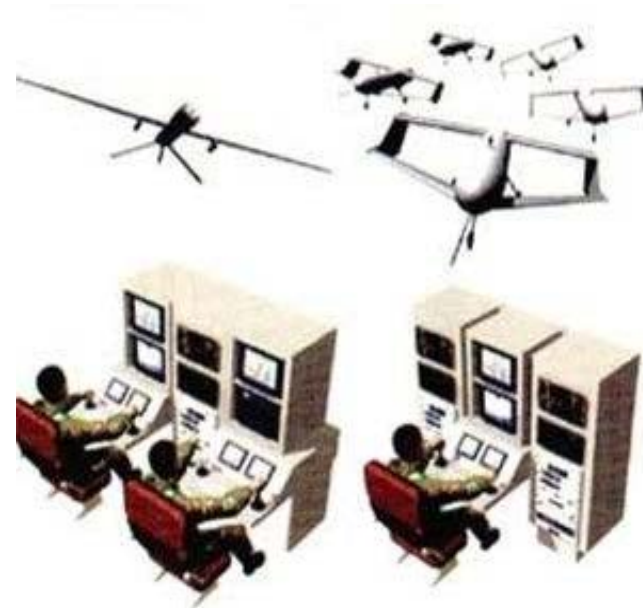
- All RPAS that plan to integrate into ATM system
- Detected between RPAS, RPAS and manned aircraft
- Doesn't rely on C2 link



Issues to be addressed when integrating RPAS into the ATM system

C2 Link

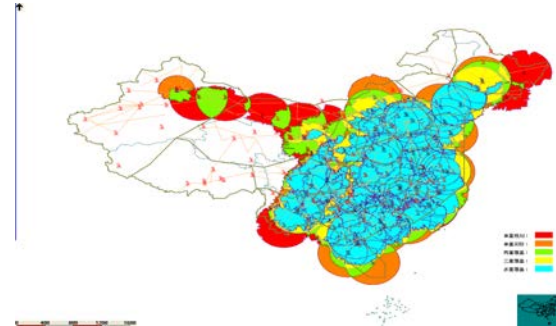
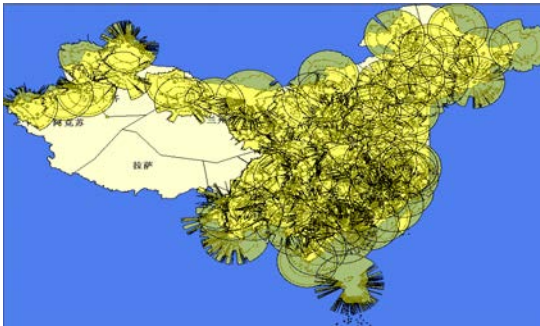
- **Reliability, safety**
- **Anti-interference, hijacking prevention**
- **Once C2 link failure, auto navigation**



Issues to be addressed when integrating RPAS into the ATM system

CNS by ANSP

- **Communication system**
- **Surveillance System**
- **Navigation system**
- **ATC Automation System**



Issues to be addressed when integrating RPAS into the ATM system

Air Traffic Controllers

- Adapt to new things
- Training
 - RPAS Performance
 - Terminology
- ...



THANK YOU

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