



AirNav Indonesia

# ATM AUTOMATION SYSTEM IN INDONESIA

*the very best for safety*

*Agenda 1 – Information Paper  
ICAO Asia/Pacific Regional  
ATM Automation System Symposium  
Nanjing, 22 – 23 November 2018*

# PRESENTER

## MR. HERDIANTO

Role:

- **Senior ATC System Specialist in UPG ACC**
- **ATFM Software Development Supervisor**

Background:

**Air Traffic Controller**

Experience:

**11 years Air Traffic Controller (TWR & ACC)**

**7 years ATC System Specialist**



AirNav Indonesia

*the very best for safety*

# CONTENT

- Indonesian Airspace
- ATS Units and Traffic Movement
- Current ATM Automation Systems
- IMANS and Future ATM Automation System



AirNav Indonesia

*the very best for safety*

# INDONESIAN AIRSPACE – FIR & TMA

Indonesian Airspace consist of:

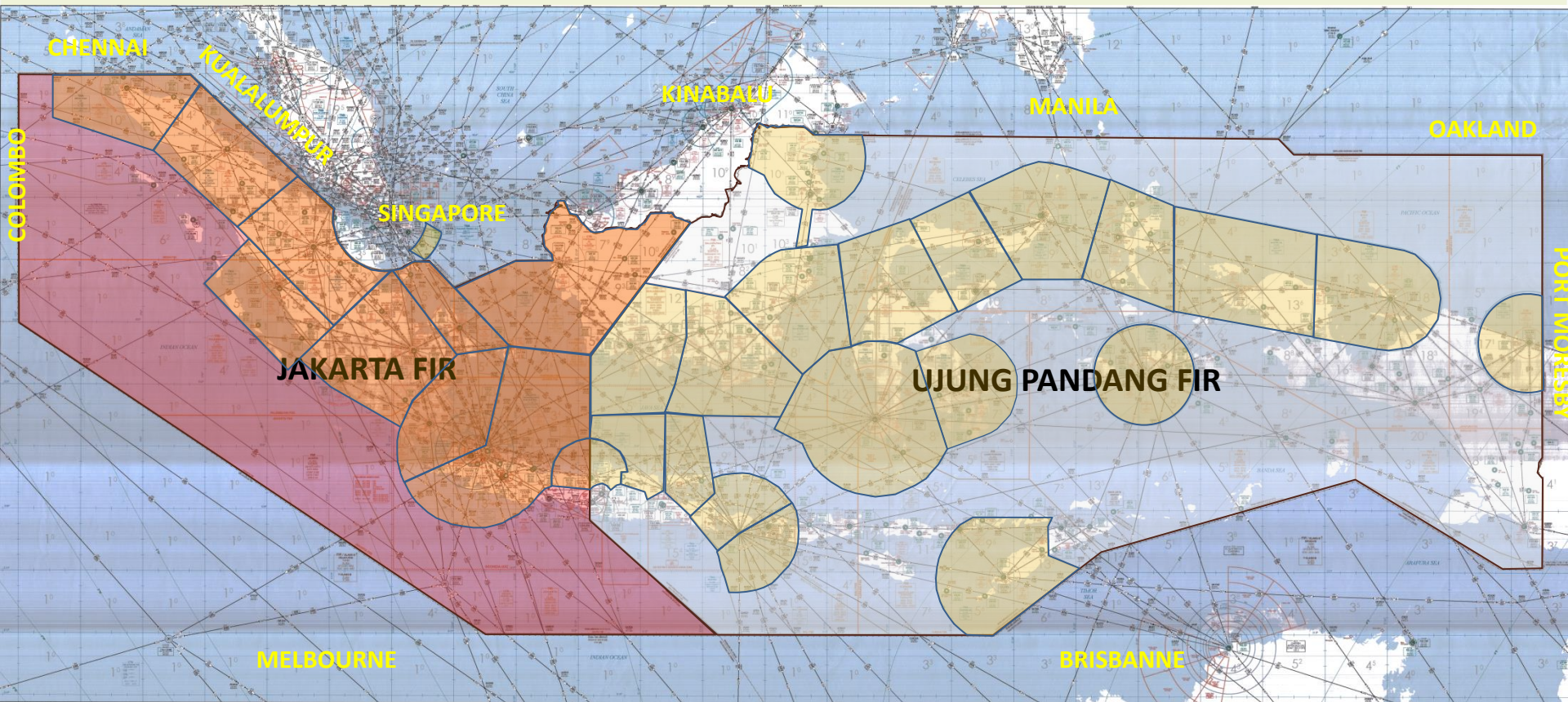
- 2 FIRs (FL245 – FL600)
  - Jakarta (JKT) FIR → served by JKT ACC
  - Ujung Pandang (UPG) FIR → served by UPG ACC
- 26 TMAs (A040 – FL245)
  - 12 TMAs by APP Surveillance Service
  - 14 TMAs by APP Procedural Service



AirNav Indonesia

*the very best for safety*

# INDONESIAN AIRSPACE – MAP



**AirNav Indonesia**

*the very best for safety*

# ATS UNITS & TRAFFIC MOVEMENT

- ATS Units
  - Controlled: 2 ACCs, 26 APPs, 68 TWRs.
  - Uncontrolled: 2 FICs, 14 FSS, 197 AFIS.
- > 9.000 movement per day
- 4 major airport's movement:
  - Soekarno Hatta – Jakarta = 431.000 per year
  - Juanda – Surabaya = 152.000 per year
  - Ngurah Rai – Bali = 146.000 per year
  - Sultan Hasanuddin – Makassar = 116.000 per year





# CURRENT ATM AUTOMATION SYSTEM

NO	LOCATION	FIR	ATC UNITs	ATM SYSTEM
1	Jakarta ACC	Jakarta FIR	TWR, APP, & ACC	<i>P: PRISMA</i> <i>B: HUGES</i>
2	Medan APP	Jakarta FIR	TWR, APP	AIRCON2100
3	Palembang APP	Jakarta FIR	TWR, APP	AIRCON2100
4	Pekanbaru APP	Jakarta FIR	TWR, APP	AIRCON2100
5	Pontianak APP	Jakarta FIR	TWR, APP	AIRCON2100
6	Tanjungpinang APP	Jakarta FIR	TWR, APP	AIRCON2100
7	Makassar ACC	Ujung Pandang FIR	TWR, APP, & ACC	<i>P: TOPSKY</i> <i>B: PRISMA</i>
8	Bali APP	Ujung Pandang FIR	TWR, APP	TAS
9	Balikpapan APP	Ujung Pandang FIR	TWR, APP	TAS
10	Jayapura APP	Ujung Pandang FIR	TWR, APP	AIRCON2100
11	Surabaya APP	Ujung Pandang FIR	TWR, APP	TAS
12	Yogyakarta APP	Ujung Pandang FIR	TWR, APP	TAS





# CURRENT FEATURES

Some location have covered some main features such as :

- Safety Nets
- Smart Label
- AIDC\*
- ADS-B\*
- Electronic Flight Progress Strip (EFPS)\*
- ADSC/CPDLC\*

*\*) Particular locations.*



# CURRENT FEATURES (DETAILS)

NO	LOCATIONS	FEATURES								SUPPORT	
		Safety Nets	Smart Label	AIDC	ADSB	EFPS	ADSC/CPDLC	AMAN	DMAN	SIMU	CBT
1	Jakarta ACC	Yes	Yes	No	Yes	No	Yes* <sup>1</sup>	No	No	No	Yes
2	Medan APP	Yes	Yes	No	No	No	No	No	No	No	No
3	Palembang APP	Yes	Yes	Yes* <sup>2</sup>	Yes	Yes	No	No	No	No	No
4	<u>Pekanbaru</u> APP	Yes	Yes	Yes* <sup>2</sup>	Yes	Yes	No	No	No	No	No
5	Pontianak APP	Yes	Yes	No	Yes	No	No	No	No	No	No
6	<u>Tanjungpinang</u> APP	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
7	Makassar ACC	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes
8	Bali APP	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
9	Balikpapan APP	Yes	Yes	Yes	No	Yes	No	No	No	No	No
10	<u>Jayapura</u> APP	Yes	Yes	No	No	No	No	No	No	No	No
11	Surabaya APP	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
12	Yogyakarta APP	Yes	Yes	Yes* <sup>2</sup>	Yes	Yes	No	Yes* <sup>3</sup>	No	No	No
13	New JATSC* <sup>4</sup>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note:

\*1) ADSC/CPDLC is a separate system

\*2) AIDC capable but not used yet

\*3) Basic AMAN

\*4) It will be available in New JATSC (Jakarta ATS Center) ATM automation system

# CURRENT ACHIEVEMENT

- AIDC
- ADS-B
- ADSC/CPDLC
- EFPS



AirNav Indonesia

*the very best for safety*

# ACHIEVEMENT – AIDC

- Established between:
  - UPG ACC and Brisbane ACC
  - UPG ACC and Bali APP
  - UPG ACC and Balikpapan APP
  - UPG ACC and Surabaya APP
- These programs successfully reduced the ATC workload, and improved the quality of coordination.
- Tested between:
  - UPG ACC and Oakland ACC (success)
  - UPG ACC and Manila ACC (success)
  - UPG ACC and Kota Kinabalu ACC (still issues)



# ACHIEVEMENT – ADS-B

- Implemented Tier-1 (Surveillance Separation) since 2015, aircraft onboard equipment is optional.
- ADS-B mandate implemented since 1<sup>st</sup> January 2018 at FL290 up to FL600, while below FL290 the ADS-B onboard equipment is remain optional.
- UPG ACC received 21 ADS-B.
- UPG ACC received 4 ADS-B data shared from AUS.
- JKT ACC received 9 ADS-B.
- JKT ACC received 1 ADS-B data shared from SIN.



# ACHIEVEMENT – ADSC/CPDLC

- Ujung Pandang (UPG) ACC started ADSC/CPDLC implementation in 2007.
- UPG ACC implemented PBCS\* on 29 March 2018.
- ADSC/CPDLC facility in Jakarta ACC is not integrated with ATC system (stand alone system).
- Jakarta FIR has started the operational trial of the ADSC/CPDLC since 2015 up to now.

*\*) PBCS = Performance Based of Communication and Surveillance*



AirNav Indonesia

*the very best for safety*

# ACHIEVEMENT – EFPS

- Electronic Flight Progress Strip (Paperless) has been started since 2007 in Ujung Pandang ACC.
- Balikpapan APP in 2013.
- Bali APP and Surabaya APP in 2016.
- At those locations, paper strip are still used in Tower unit.
- Furthermore, Palembang APP, Pekanbaru APP and Tanjungpinang APP started in 2Q2018.

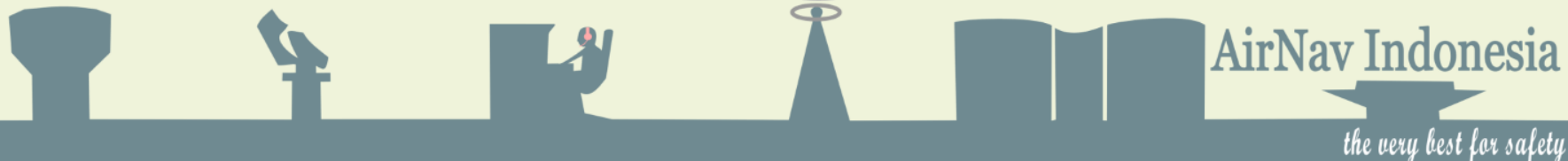


AirNav Indonesia

*the very best for safety*

# IMANS

- Stand for **Indonesia Modernization of Air Navigation Services.**
- The primary goals of the IMANS Program are to achieve the highest level of aviation safety, increase system capacity, and enhance operational efficiency.
- One of strategy to accomplish the goals is Implementation of **advanced Air Traffic Management (ATM)** and ATFM Systems and supporting infrastructure.





# NEW FEATURES IN IMANS

New feature in the new ATM Automation System in Jakarta ACC among others:

- AIDC
- ADSC/CPDLC
- Datalink Departure Clearance (DCL)
- Digital ATIS
- Digital VOLMET
- AMAN
- DMAN
- ATFM System.



AirNav Indonesia

*the very best for safety*

**THANK YOU**



**AirNav Indonesia**

*the very best for safety*