AirNav Indonesia

PBN IMPLEMENTATION IN INDONESIA

Program For
The PBN Workshop For ATC

I Wayan Sudiartha

Head of the Standardization and Certification Division

Profile of AirNav Indonesia

AirNav Indonesia

Establishment :
- Declared by Government Decree no 77 on September 13th, 2012
- Started the operation on January 26th, 2013.
- The shares is wholly owned by Government and become Single Air Navigation Service Provider.

Core Bussiness of AirNav Indonesia :
- Air Traffic Services
- Aeronautical Telecommunication
- Aeronautical Information
- Search & Rescue Information
- Aviation Meteorology Information

Scope of operation :
operate **at 275 Airports**
- 26 Airport previously managed by Airport Operator.
- 249 previously managed by DGCA

Scope of operation including :
- **2 ACC** Units (*Area Control Centre*)
- **2 FIC** (*Flight Information Centre*)
- **37 APP/TMA** Units (*Approach Control / Terminal Control*)
- **14 FSS** (*Flight Service Station*)
- **66 TWR** (*Aerodrome Control Tower*)
- **209 AFIS** (*Aerodrome Flight Information Service*)

Indonesian space = 4.110.752 Km^2
FIR Coverage = 5.193.252 Km^2
Traffic Movement = 1.828.934 /year

Vision :
To be the best Air Navigation Service Provider in South East Asia

Mision :
- Working together with partners to provide air traffic services that are safe, comfortable and environmentally friendly, in order to meet the expectations of service users
- Meet the expectations of shareholders and regulators
- Improving the quality , performance and career of personnel

Corporate Value :
I-SAFE : Integrity, Solidity, Accountability, Focus on Safety and Excellent Services

Topic of presentation

AirNav Indonesia

1. PBN Implementation Update in Indonesia
2. Update on PBN Implementation in Indonesia
3. Experience and Challenges on PBN Implementation in Indonesia
4. Safety Improvement Program In Papua and Remote Area
5. Proposed RNAV Services in Papua using GPS/WAAS as a main sole navigation system

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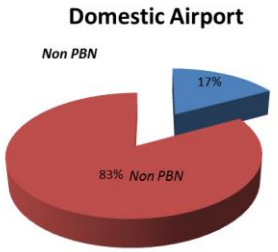
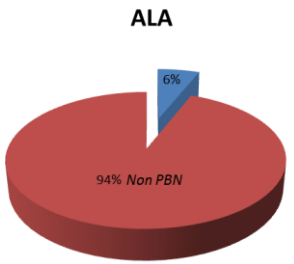
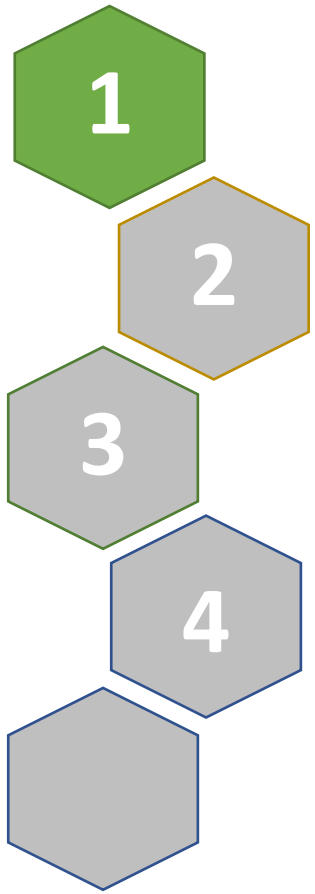
PBN Implementation Update in Indonesia

1. International Airports **84 %** of total 25 Airport
2. Domestic Airports **16 %** of total 65 Airport
3. Aerodrome for Light Aircraft **6 %** of total 516 Airport
4. Lower Domestic ATS Route **3 area**







NO	CATEGORY	PERCENTAGE		INFORMATIONS
1	International Airport	**84 %**	21 of 25 Airports	80 Procedures: • 21 SID • 25 STAR • 34 APPROACH
2	Domestic Airport	**16 %**	11 of 65 Airports	12 Procedures: • 1 SID • 1 STAR • 10 APPROACH
3	Aerodrome for Light Aircraft	**6 %**	32 of 516 Airports	46 Procedures: • 2 STAR • 44 APPROACH
4	Lower Domestic ATS Route	**3**	ATS Area Navigation Route up to FL 150 between Spoke – Hub Airport for 3 areas : Aceh, Maluku and Papua	

Charts of Implemented PBN Procedures

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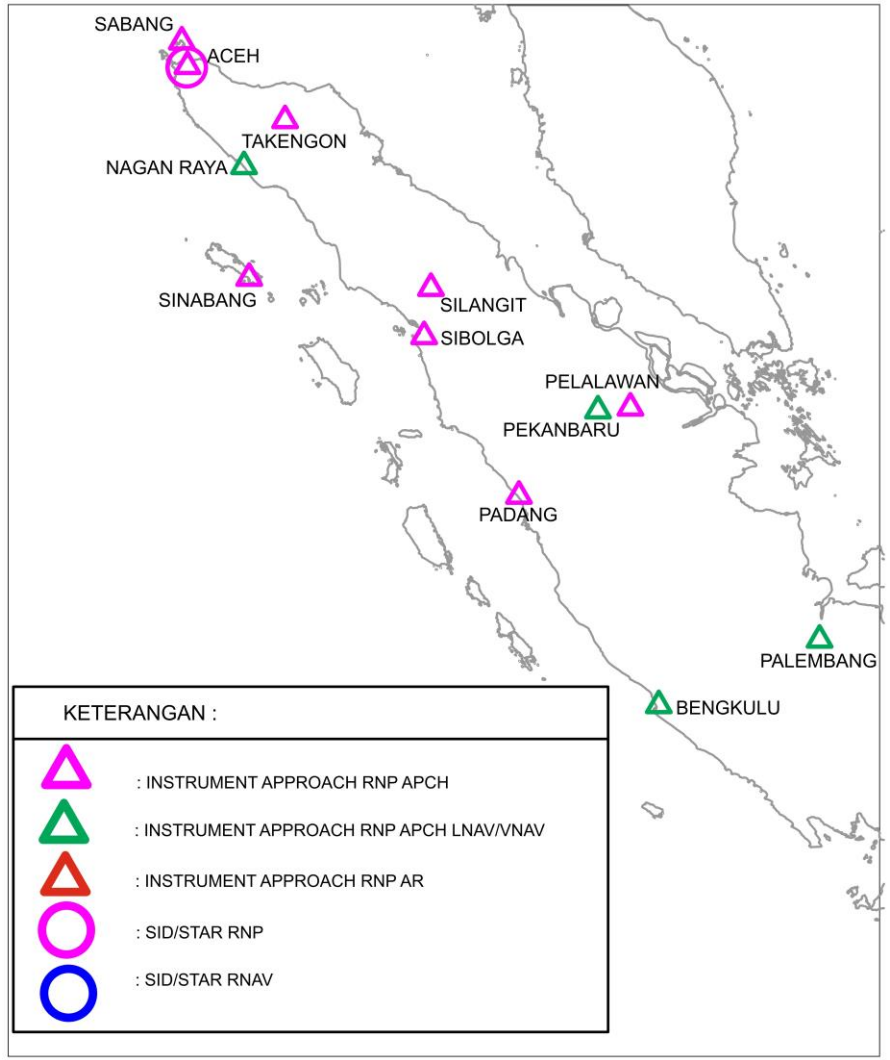

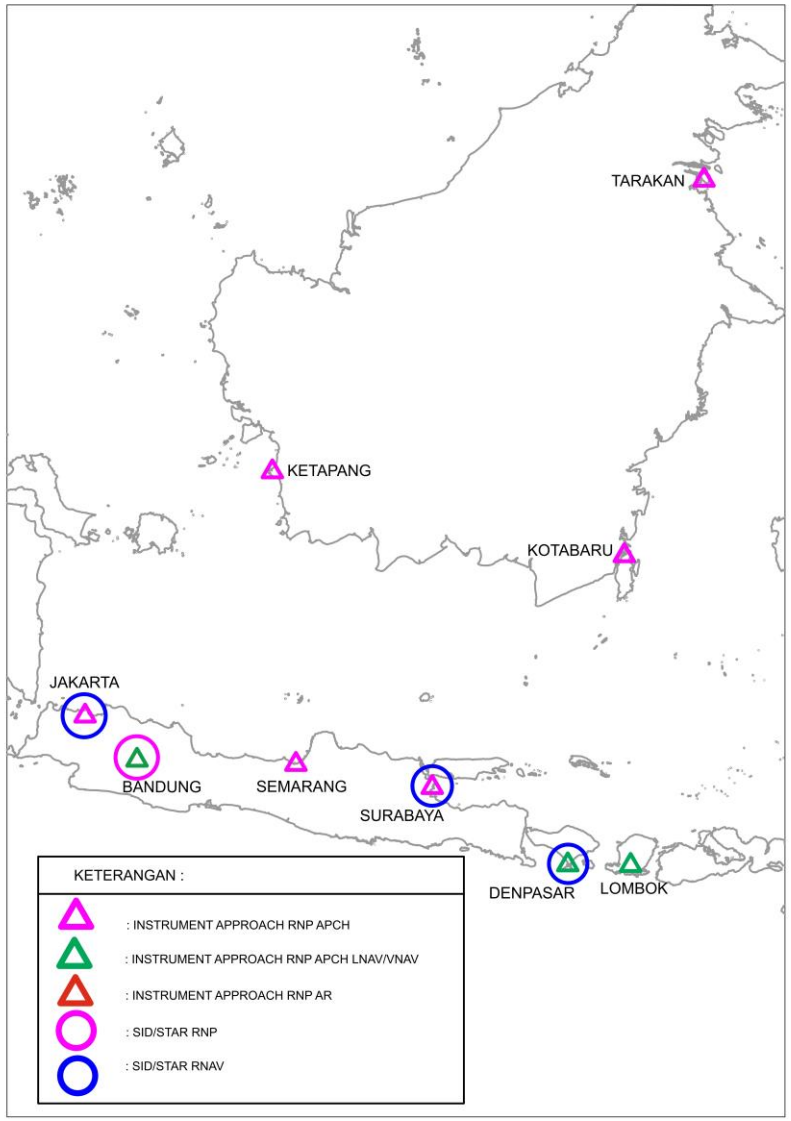

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Charts of Implemented PBN Procedures

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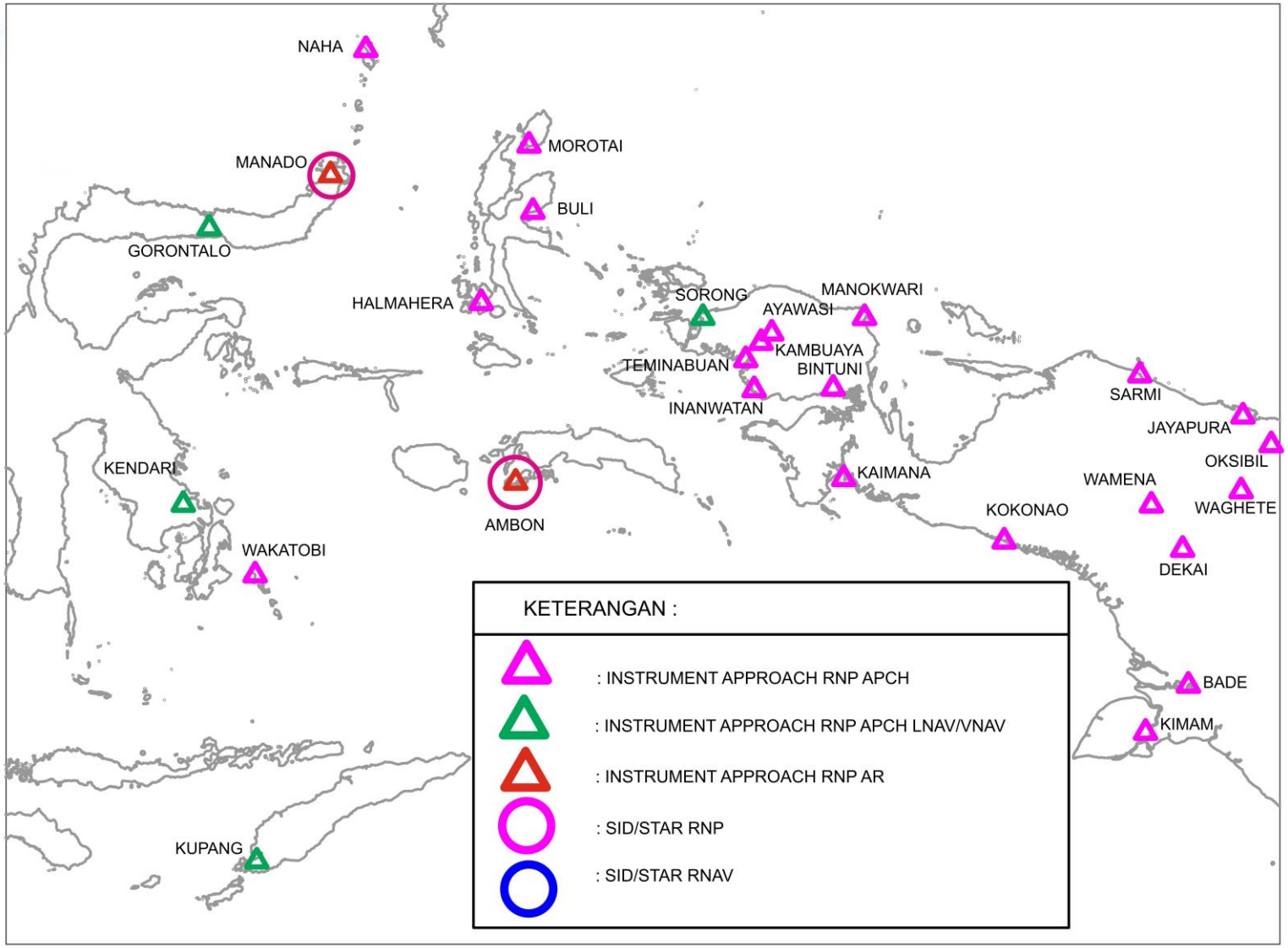

Topic # 2

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Experience and Challenges on PBN Implementation in Indonesia

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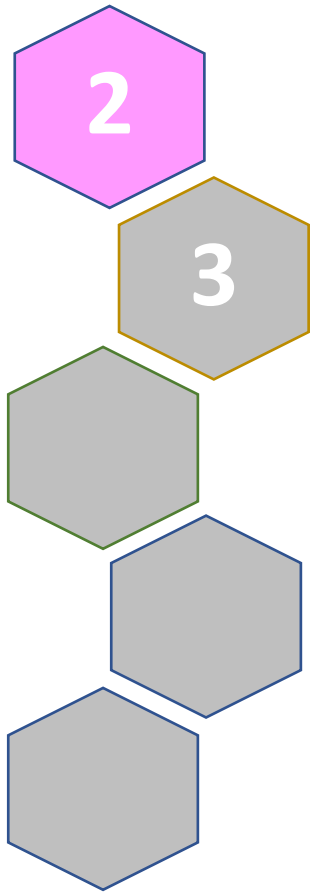
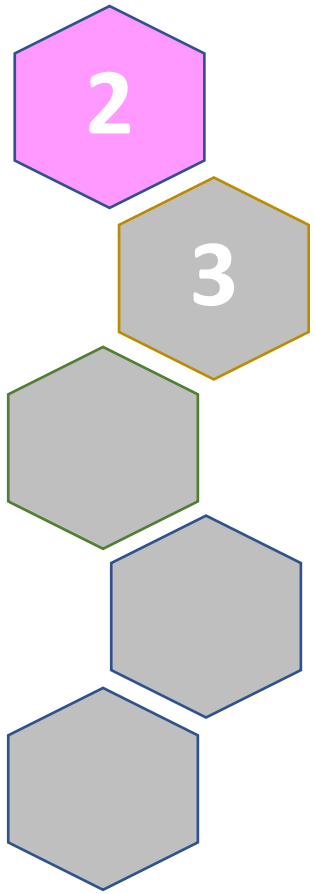
A. Implementation PBN Procedure in Papua and Remote Area
B. Training PBN for ATC Operation
C. Safety Improvement in Papua and Remote Are

A. PBN Implementation in Papua and Remote Area



- The following characterize:
  1. High accidents/incidents rate;
  2. Limited radar coverage;
  3. No highway infrastructure;
  4. Mountainous area;
  5. Limited weather reporting capabilities, instrument routes, or approach structures; and
  6. Remote living conditions.

- Challenge for PBN Implementation in Papua/remote area
  1. Common constrains;
     a. High Terrain and Mountain
     b. Wide area
     c. Lack of ground Nav Aid (including power supply)
     d. Many of Airport/airfield – limited accessability
     e. Weather Phenomenon (rapidly change)



2. Technical Constrains;
    a. Hard to make Straight in Approach due to terrain
    b. Mostly high elevation airport (high OCA number)
    c. Visibility minima becomes high (5 km or more)
    d. Turning Missed Approach

3. Operation Limitations
    a. Aircraft capability on PBN compliance
    b. Limited PBN certified aircraft.
    c. ATC capability on PBN implementation

B. PBN Training for ATC

Training challenges :

1. Missed Perception concerning PBN training for ATC between DGCA and Airnav Indonesia
2. Training Provider lack of capabilities and competencies concerning PBN
3. Lack of PBN Instructors
4. Number of ATC personnel's (± 1600 personnel) spread out in Indonesia

Training Solution (Familiarization)Program :

1. In Coll*a*boration with NavBlue (Airbus Prosky) to conduct PBN ToT in 2 Locations (Bandung and Manado)
2. Propose to Training Provider to include PBN Training Program in the PANS-OPS in Training
3. PBN training simulation - A/C Simulator
4. Conduct PBN Training in the Field

CERTIFICATE OF ATTENDANCE

I, the undersigned, representing the Directorate General of Civil Aviation (DGCA) Indonesia, Airnav Indonesia and Airbus Prosky, certify that

ERNIES MARRISON

Attended the following activity :

PBN Flight Procedures Training

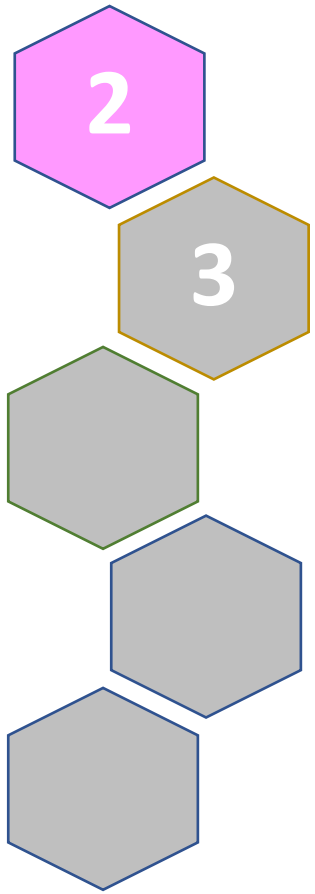
13 – 14 September 2016, Manado, Indonesia

Mr. Novie Riyanto R.
Director of Air Navigation
Directorat General of Civil Aviation

Mr. Yurlis Hasibuan
Director of Safety, Security & Standard
Airnav Indonesia

Mr. Doug Marek
Senior PBN/RNP ATC Instructor
Airbus Prosky Group

C. Safety Improvement in Papua and Remote Area



Safety improvement Program:

1. Established ad-hoc team
2. Collaboration between Regulator and Operator (ANSP and Aircraft Operator)
3. Propose new concept of operation – Papua Program, including :
   - ✓ *Weather and Other Information to the Cockpit;*
   - ✓ *Cost Effective CFIT Avoidance enhancement;*
   - ✓ *Improved Terminal Operations in Low Visibility;*
   - ✓ *Enhanced See and Avoid;*
   - ✓ *Enhanced En Route Air-to-Air Operations;*
   - ✓ *Improved Surface Surveillance and Navigation for the Pilot;*
   - ✓ *Enhanced Airport Surface Surveillance for the Controller;*
   - ✓ *ADS-B Surveillance in Non-Radar Airspace;*
   - ✓ *PBN Operation (RNAV Services)*

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Primary Operational Goal

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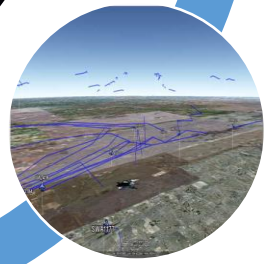
- expand the usable low altitude airspace for IFR operations and increase the access to airports in poor and marginal weather conditions.

- Improve Safety

Objective

To allow the use GPS Technology for the En-route portion of flight on routes in Papua and remote area outside the operational service volume of ground based navigation aids → Change aviation regulation

To establish new departure and approach procedures



Promote Safety by creating and promoting a usable IFR environment that allows an IFR option for pilots that had to fly predominantly in the visual flight rules (VFR) environment that exists today

Description Operational Use

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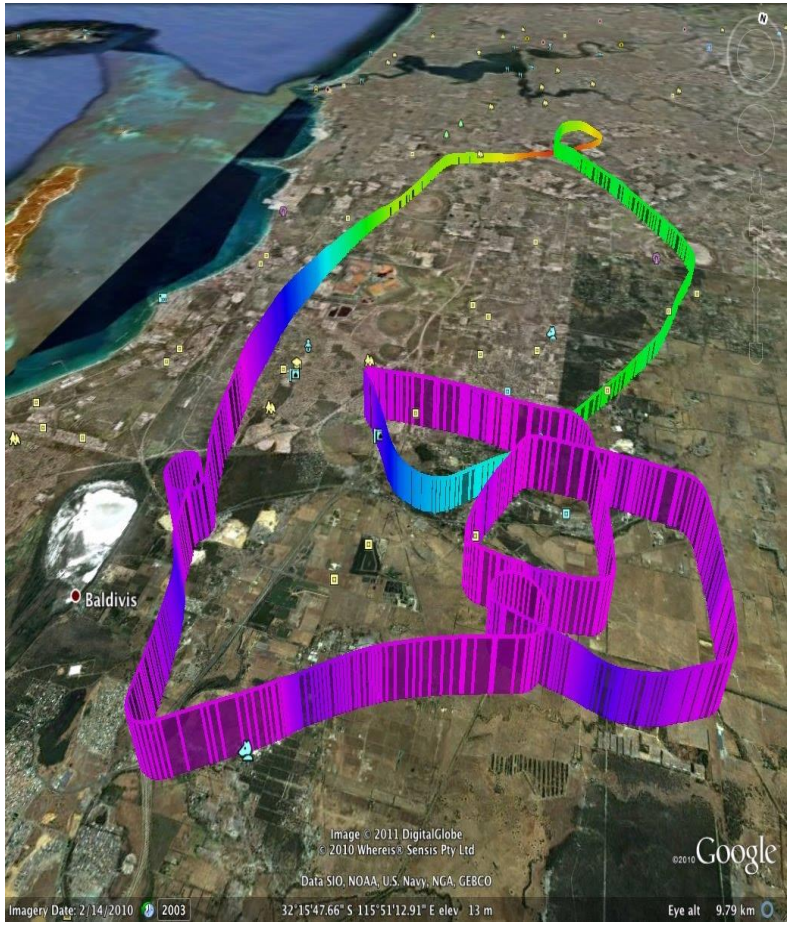

RNAV services make use of GPS as *the only means* of navigation from departure, throughout enroute operations, to approach at the destination airport.

This initiative creates an end-to-end IFR system, meeting our RNAV services goal. By using GPS avionics requirements for integrity monitoring, these departure/arrival routes can be optimized for lowest altitudes to connect city pairs.

Benefit

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1. Will accrue through the application of lower MEAs and creation of new RNAV routes
2. Allowing many flights to remain below adverse weather conditions
3. With the use of new RNAV instrument approaches, access to area airports will increase
4. Safety will be enhanced during these operations

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Thank You

Perum LPPNPI

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