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**Work shop on the applications of Global Navigation Satellite
Systems**

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**Planned Differential GPS System at Yangon International
Airport**

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Outlines

1. Background
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I. Background

- In Yangon International Airport, (DCA) Myanmar is currently commissioning instrument landing system (ILS) comprising the following components (i) localizer (ii) glide path and (iii) distance measuring equipment (DME).
- Conventional methods are expensive, tedious and have some limitation.
- Signals from GPS have proven to be fast, accurate and cheaper alternative to conventional methods. Recognized growing importance of DGPS, a new landing aid system based on GPS will be implemented soon.
- According the standard and recommended practices from ICAO, Myanmar DCA is now planning Differential GPS landing system for Yangon International Airport



2. Introduction

- Since the implementation of GNSS operations requires to be considered a number of elements, Myanmar DCA will establish the GNSS implementation team (GIT).
- GPS systems' accuracy, availability and reliability are subjected to numerous biases or errors. To meet the operational requirement, augmentation system is required.
- After setting up team, goals and objectives, Myanmar DCA will move GNSS forward on step by step basis.
- Priority will be necessary GNSS ground infrastructure and local area ground-based augmentation system to enhance accuracy.



2. Introduction (continued)

- In order to provide CAT-I precision instrument approach and landing , GBAS will be installed in Yangon International Airport.
- For wide area, SBAS and GRAS will be the future consideration.



3. Initial Phase

- GNSS implementation team was set up.
- Fully coordinate within ICAO planning and implementation regional groups.
- Myanmar DCA is frequently sending its staffs to abroad training in order to be able to cope with knowledge regarding to GNSS.
- GNSS master plan will be established to facilitate the smooth implementation of GNSS infrastructure and support the aviation industry.



3. Initial Phase (continued)

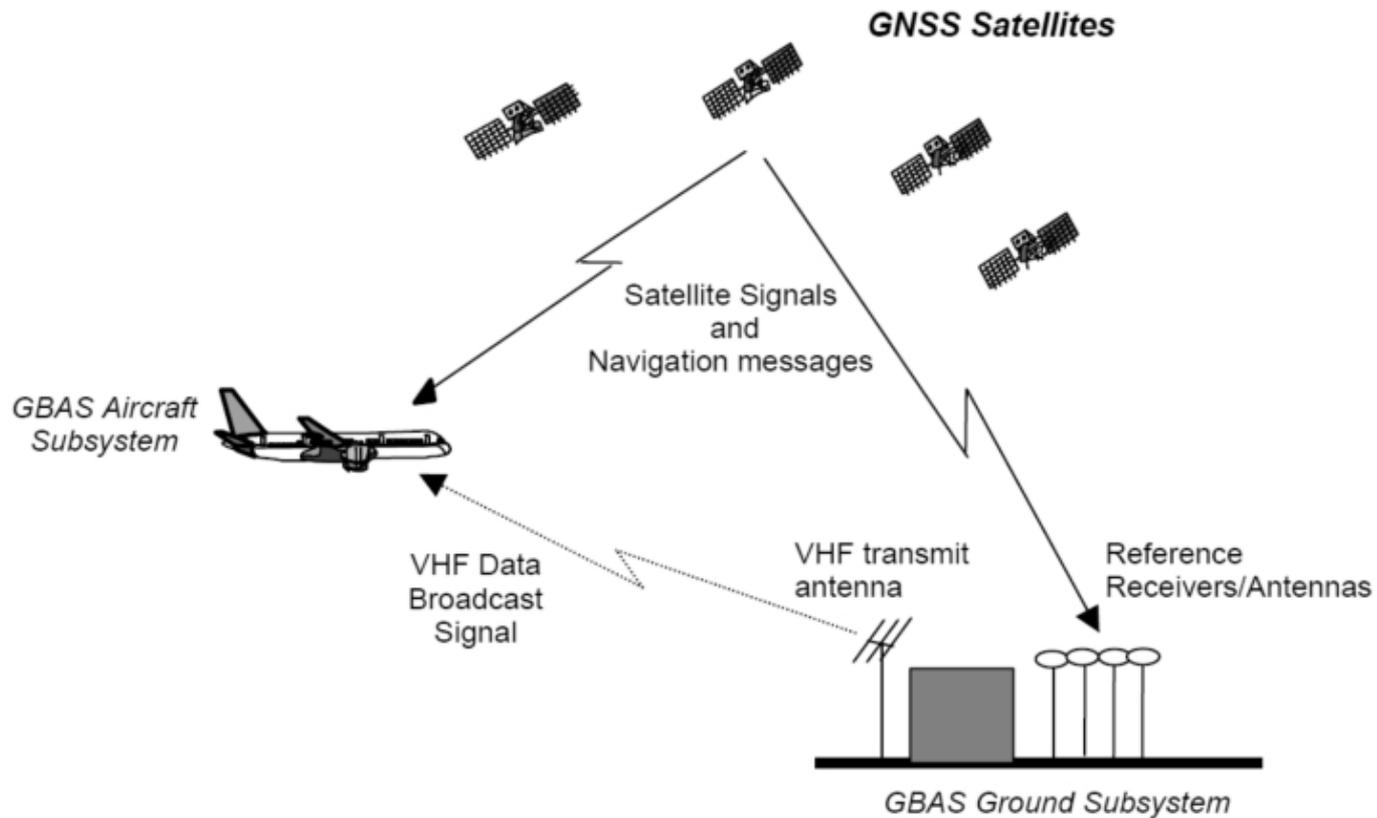
- GIT will foster a cooperative approach to developing the standards, systems, procedures and the terms and conditions of regulatory approvals that respond to the needs of the aviation community.
- GNSS will be implemented through active participation of regulatory, service provider organizations, and user representatives.



4.Steps to Implementation

- Organization of GNSS implementation team
- Feasibility studying
- Establishing master plan
- Training, workshop, seminar
- Establishing infrastructure
- Augmentation system enhancement
- Technology development
- International collaboration

5. Proposed GBAS architecture



5. Proposed GBAS architecture (Continued)



- In order to make sure that aircraft receive the benefits of GNSS technology in a timely and effective fashion, while maintaining high standards of safety.
- Provide precision approach capacity CAT-I at Yangon International Airport.
- Focuses its service on the airport area (approximately a 30 km radius).
- Provide area navigation (RNAV) capacity, instrumental departures, and surface movement to operations in the terminal area.
- Carry out new advanced instrumental procedures to allow for a more flexible use of the air space.

5. Proposed GBAS architecture (Continued)



- In order to meet ICAO GNSS performance requirements, GBAS project will be great help of improve accuracy horizontal, accuracy vertical, integrity, continuity and availability.
- For safety-critical GPS applications, Receiver Autonomous Integrity Monitoring (**RAIM**) technology will be introduced to provide integrity monitoring of GPS for aviation applications.



6. PBN implementation schedule

Implementation Activities Starts	Terminal Areas	Target Navigation Specifications		Expected Operation Date
2010	VYYY (Yangon Intl Airport)	Approach	RNP APCH (Baro VNAV)	2012
		SID	RNAV1 (DME/DME/IRU) or GNSS	2012
		STAR	RNAV1 (DME/DME/IRU) or GNSS	2012



Thank you very much

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