

ELEVENTH AIR NAVIGATION CONFERENCE**Montreal, 22 September to 3 October 2003**

Agenda Item 1: Introduction and assessment of a global air traffic management (ATM) operational concept

1.2 Enabling concepts in support of the global ATM operational concept
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**SINGAPORE AVIATION ACADEMY — TRAINING
PROGRAMMES ON CNS/ATM**

(Presented by Singapore)

SUMMARY

This paper highlights the contributions made by the Singapore Aviation Academy in providing CNS/ATM training in support of the development and implementation of CNS/ATM. The Academy has also played host to several CNS/ATM Working Group/Task Force Meetings over the last ten years. In addition to providing relevant CNS/ATM training on an annual basis, the Academy will continuously develop and make available new training programmes to meet the changing needs of the international aviation community.

1. CNS/ATM TRAINING PROGRAMMES SINCE 1992

1.1 At the Tenth Air Navigation Conference in 1991, ICAO endorsed the communications, navigation, and surveillance/air traffic management (CNS/ATM) concept on a global basis to overcome inherent shortcomings and deficiencies of existing air navigation systems.

1.2 To support the successful implementation and transition to new CNS/ATM systems on a global basis, the Singapore Aviation Academy (SAA) has conducted many CNS/ATM training programmes over the last 12 years:

S/N	Programme Title	Year
1	ATS Symposium	1992

S/N	Programme Title	Year
2	FANS Workshop	1992, 1993, 1994, 1995, 1997, 1998, 1999
3	Conference on ADS and Data Link	1996
4	CNS Data Link Operations Workshop	1997
5	Global Navigation Satellite Systems (GNSS) Seminar	1998, 1999
6	Controller-Pilot Data Link Communications Course	1998
7	Automatic Dependent Surveillance Data Link Course	1998
8	Technical Equipment Requirements and Standards for ADS	1998
9	ADS/CPDLC Data Link Applications Course	1999, 2001
10	Technical Equipment Requirements and Standards for ADS and CPDLC	1999, 2000
11	ATN Seminar	2000
12	Seminar on CNS/ATM (including latest development in GNSS)	2000, 2001, 2002, 2003

1.3 Since the inaugural training programme on CNS/ATM organized by the SAA in 1992, the programme content has evolved over the years to incorporate updates on the new developments in CNS/ATM. For example, the latest development in global navigation satellite system (GNSS) as well as implementation issues of automatic dependent surveillance — broadcast (ADS-B).

1.4 Some 780 participants from 70 countries worldwide have benefited from these training programmes. In recognition of the urgent need to make CNS/ATM training available to States, SAA has secured training scholarships from various sponsoring agencies. Of the 780 participants, 106 attended the CNS/ATM training programmes through scholarships worth a total of U.S.\$230 000. The SAA will continue to organize such training annually and source for more scholarships for developing States who need assistance to attend the training.

2. CNS/ATM WORKING GROUP/TASK FORCE MEETINGS

2.1 At the same time, the SAA has also made available its premises to host six international Working Group/Task Force Meetings on CNS/ATM:

S/N	Meeting	Year
1	ICAO APANPIRG CNS/ATM Task Force Meeting	1997
2	Second APEC Transportation Working Group (TPT-WG) Satellite Navigation and Communications (SN&C) Advisory Committee Meeting	1998

S/N	Meeting	Year
3	Third Working Group Meeting on Improvement of Air Navigation/Air Traffic Services in ASEAN	1998
4	APEC Satellite Navigation and Communications (SN&C) Advisory Committee Task Force Meeting	2000
5	Seventh APANPIRG CNS/ATM Implementation Coordination Sub-Group Meeting	2000
6	Third APANPIRG ATN Transition Task Force Meeting	2001

3. **UPCOMING TRAINING PROGRAMMES ON CNS/ATM**

3.1 Going forward, the SAA has scheduled more CNS/ATM training programmes. These are listed in the brochures and programme calendar distributed to delegates. Delegates may also refer to the SAA's Web site at www.saa.com.sg for the latest updates, information and online application/registration. The following are highlights of the upcoming CNS/ATM training programmes:

Seminar On CNS/ATM (Including Latest Developments In GNSS and ADS-B) (5 to 9 April 2004)

3.2 The next Seminar on CNS/ATM, scheduled in April 2004, will focus on the technical aspects of CNS/ATM implementation. It will also cover concepts associated with GNSS operations, augmentation and operational user requirements, as well as the latest developments in GNSS and ADS-B.

ADS/CPDLC Data Link Applications Course (12 to 16 April 2004)

3.3 This course will provide participants with an overview of ADS/CPDLC covering the objectives, system components, operational requirements, in-depth understanding of the operations of ADS/CPDLC and hands-on experience in ADS/CPDLC procedures.

4. **DISCUSSION**

4.1 ICAO is introducing the global ATM operational concept and its vision for an integrated, harmonized and globally interoperable ATM system. As this will form the basis for the implementation of CNS/ATM technologies worldwide, new training needs for the design, implementation and management of ATM systems will undoubtedly arise.

4.2 As implementation of global CNS/ATM systems gathers momentum, the need for training and knowledge transfer becomes even more urgent. For example, training in harnessing new technologies such as ADS-B to enhance the ATM system. Civil aviation training institutes will have a crucial role to play

in helping the aviation community achieve its vision of an integrated, harmonised and globally interoperable ATM system.

4.3 The SAA is committed to playing this role as effectively as it could by continuously developing and making available quality courses to meet the changing needs of the international aviation community.

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