



ICAO

UNITING AVIATION

UPDATE ON CNS INFRASTRUCTURE AND AUTOMATION IN THE CAR REGION

CNS: *Communications, Navigation and Surveillance*

Mayda Alicia Ávila

Regional Officer, Communications, Navigation and Surveillance

International Civil Aviation Organization

North American, Central American and Caribbean Regional Office

e-mail: mavila@icao.int

CAR/SAM Planning and Implementation Regional Group (GREPECAS)

Twenty Second Scrutiny Working Group Meeting (GTE/22)

Mexico City, Mexico, 26 to 30 September 2022



CNS: *Communications, Navigation and Surveillance*

- ✈ ***Surveillance Status in the CAR Region***
- ✈ ***Communications infrastructure***
- ✈ ***Automation (AIDC and NAM/ICD protocols)***



State	Surveillance Data (Yes/No)	ADS-B IMPLEMENTATION								
		ADS-B Stations	ATM Integration	HMI support interface	Airborne System Version	Training	Technical Performance requirements	Regulations	Operational (Yes/No)	Comment
Antigua and Barbuda	No	0	No	No	No	No	No	No	No	
Aruba	Yes	Yes	Yes	Yes	No	No	No	No	No	Aruba has a WAM System and ADS-B antenna for TWR/APP ATC service
Bahamas	Yes	0	No	No	No	No	No	No	No	Proposed: 1 Radar A/C/S/ADS-B
Barbados	Yes	2	Yes	Yes	No	No	No	No	No	Two MLAT with ADS-B
Belize	Yes	1	Yes	Yes	V0,V1,V2	No	No	No	No	
Canada	Yes	x	Yes	Yes	V2	Yes	Yes	Yes	Yes	
Costa Rica	Yes	3	Yes	Yes	V0,V1,V2	No	No	No	No	
Cuba	Yes	8	No	No	V0, V1 (6), V2 (2)	No	No	No	No	
Curaçao	Yes	0	No	No		No	No	No	No	Space based ADS-B not integrated with ATC system
Dominica	No	0	No	No		No	No	No	No	
Dominican Republic	Yes	0	No	No		No	No	No	No	

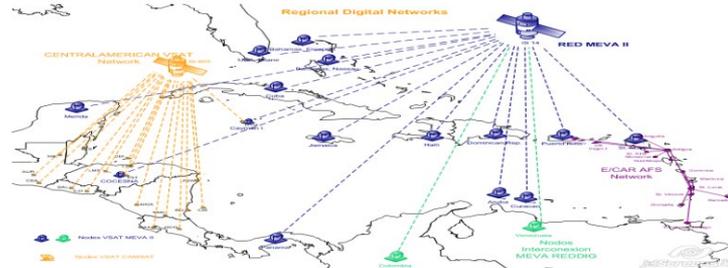


State	Surveillance Data (Yes/No)	ADS-B IMPLEMENTATION								
		ADS-B Stations	ATM Integration	HMI support interface	Airborne System Version	Training	Technical Performance requirements	Regulations	Operational (Yes/No)	Comment
El Salvador	Yes	1	Yes	Yes	V0,V1,V2	No	No	No	No	
Grenada	No	0	No	No	No	No	No	No	No	
Guadalupe	Yes	0	No	No	No	No	No	No	No	
Guatemala	Yes	3	Yes	Yes	V0,V1,V2	No	No	No	No	
Haiti	No	0	No	No	No	No	No	No	No	Proposed: 1 Mode A/C/S Radar and 2 ADS-B
Honduras	Yes	3	Yes	Yes	V0,V1,V2	No	No	No	No	
Jamaica	Yes	0	No	No	No	No	No	No	No	
Martinique	Yes	0	No	No	No	No	No	No	No	Radar SSR
Mexico	Yes	10	No	Yes	V0,V1,V2	No	No	No	Yes (1)	AFAC CO AV-91.2/19 (Aircraft)
Nicaragua	Yes	3	Yes	Yes	V0,V1,V2	No	No	No	No	
Saint Kitts and Nevis	No	0	No	No	No	No	No	No	No	
Saint Lucia	No	0	No	No	No	No	No	No	No	Plan ADS-B
Saint Vincent and the Grenadines	No	0	No	No	No	No	No	No	No	
Trinidad and Tobago	Yes	1	Yes	No	No	No	No	No	No	Radar SSR
United States	Yes	710	Yes	Yes	V2	Yes	Yes	Yes	Yes	

- ✈ *To integrate and use surveillance information in an operational way, the surveillance facility needs to be certified and integrated into the ATM System. It is also necessary to certify the operation of the SURV data in the HMI position and provide technical and operational training to all personnel.*
- ✈ *Most of the CAR States have surveillance data and only a few States lack such data.*
- ✈ *Most of the CAR States share surveillance information, but some of them need to improve technical issues to ensure that their data could be shared.*
- ✈ *Some important improvements and project developments were identified in some CAR States for the TWR/APP surveillance project implementation.*
- ✈ *Some States that have ADS-B implemented need to develop a regulation to put it into operation.*

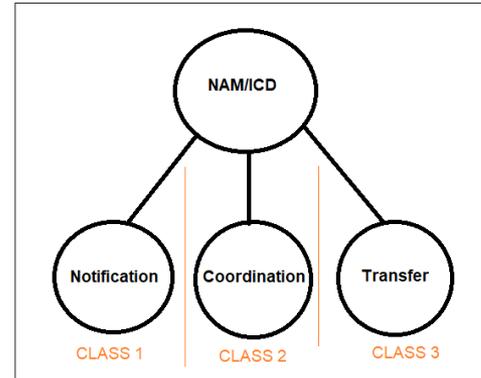
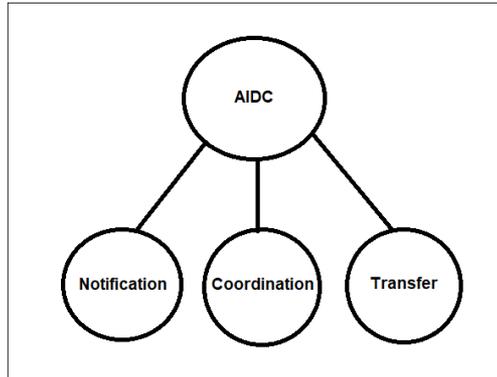


- ✈ **Currently, MEVA III Network is working for most of the CAR States communication needs.**
- ✈ **A new project is under development: “CANSNET Communication Network”**
 - ✈ *This new communication network is looking to support current and future communications for all CAR States, amongst each one of the States and outside of the NAM/CAR Region.*
- ✈ **It is necessary to update operational needs to integrate into the technical requirement of the network, specially backup communication needs.**



✈ **The CAR Region provides automation through two different protocols:**

- ✈ **AIDC Protocol (ATS Interfacility Data Communications [AIDC])**
- ✈ **NAM/ICD Protocol (North American (NAM) Common Coordination Interface)**





- ✈ *Two different protocols with similar operation but two ways of implementation.*
- ✈ *Each protocol needs specific training and procedures.*
- ✈ *CAR Region, in coordination with United States, works with NAM/ICD protocol.*
- ✈ *CAR States, in coordination with South American States, work with AIDC/ASIA PAC protocol.*
 - ✈ *Thus, States and Organizations that have coordinated with any of these States must implement both protocols, such as Jamaica, Trinidad and Tobago, Central America FIR (COCESNA) and others in the near future.*
- ✈ *Errors in flight plans are still a challenge for correct operation of both protocols.*



Conclusions

- ✦ *Some challenges exist regarding surveillance information to cover all CAR States FIRs. In that sense, States need to implement surveillance infrastructure to ensure coverage in all their FIRs.*
- ✦ *Communication is an opportunity now: through the CANSNET project we can identify the communication infrastructure needed to support regional operations.*
- ✦ *Automation protocols need special attention regarding implementation, operational procedure development and training.*
- ✦ *Errors in flight plans are still a considered as a safety concern.*





CONCLUSION

- ✈ ***The CNS infrastructure is a fundamental pillar to support the service of air traffic control operations, as well as the automation of information, which also relies on this infrastructure.***
- ✈ ***Knowing how this infrastructure impacts on the occurrence of LHD is fundamental to find the solution and mitigation mechanisms that support the reduction of the occurrence of these events.***



CONCLUSION



ICAO

UNITING AVIATION



ICAO

North American
Central American
and Caribbean
(NACC) Office
Mexico City

South American
(SAM) Office
Lima

ICAO
Headquarters
Montréal

Western and
Central African
(WACAF) Office
Dakar

European and
North Atlantic
(EUR/NAT) Office
Paris

Middle East
(MID) Office
Cairo

Eastern and
Southern African
(ESAF) Office
Nairobi

Asia and Pacific
(APAC) Sub-office
Beijing

Asia and Pacific
(APAC) Office
Bangkok



THANK YOU