International Civil Aviation Organization
North American, Central American and Caribbean Office (NACC)
GREPECAS CAR Project D – ATN infrastructure in the CAR Region and its ground-ground and ground-air applications
Santo Domingo, Dominican Republic, 27 September 2013

Agenda Item 3: **Other Business**

THE GLOBAL OPERATIONAL DATA LINK DOCUMENT (GOLD), EDITION 2

(Presented by ICAO)

SUMMARY
This information paper provides an overview of the *Global Operational Data Link Document (GOLD),* Edition 2, as a reference for its application in the provision of air traffic services (ATS) of NAM/CAR Regions and particularly on the datalink related services to be considered in the tasks of the D Project for the air-ground ATN applications.

References:
- Global Air Traffic Management Operational Concept (Doc 9854)
- Global Air Navigation Plan (Doc 9750)
- Global Operational Data Link Document (GOLD), Edition 2
- Sixth Meeting GOLD AD-hoc Group (GOLD/6) (Phoenix, Arizona, 27 January to 4 February 2013)
- First NAM/CAR Air Navigation Implementation Working Group Meeting (ANI/WG/1), (Mexico City, Mexico, 29 July to 1 August 2013)
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Strategic Objectives	*This information paper is related to Strategic Objectives:* *A. Safety – Enhance global civil aviation safety* *C. Environmental Protection and Sustainable Development of Air Transport*

1. **Introduction**

1.1 The dissemination of ATS information is usually through voice broadcasts on high Frequency (HF) and/or Very High Frequency (VHF) radio channels. In addition, pre-departure clearance (PDC) is issued to aircraft through voice on a designated VHF channel.

1.2   With more information it normally becomes time-consuming for the pilot to transcript the relevant content of voice messages. Sometimes, it is not possible to include MET information within the broadcast time. As one of the alternate means, we have to provide the critical information via broadcast over a particular radio aid, VHF omnidirectional radio range, Distance Measuring Equipment or Non-Directional (radio) Beacon (VOR, DME or NDB). This imposes greater inconvenience and more time for the pilots to listen and/or transcript the required information.

1.3   The ATS become busier as traffic increases radio congestion is frequently encountered for voice communications, which causes delay and adversely affect the ATS operational efficiency.

1.4   To overcome the above problems and to make use of data link technology, some data link applications have been conducted in several regions. Aircraft equipped with the Aircraft Communications Addressing and Reporting System (ACARS) and the required software can transmit and/or receive the full script of ATS messages.

2.   Data Link Applications

2.1   The intrinsic limitation of ACARS system for non end-to-end delivery means does not affect much on the information with broadcast in nature as the timely information can be accessed at pilot discretion. The implementation of Data Link Flight Information Service (DFIS) through ACARS system can also promote utilization of available avionics in a more efficient manner. The data link trials and applications have successfully demonstrated the safety and efficient benefits in the air operations.

2.2   The Digital Meteorological (D-VOLMET), Terminal (D-ATIS) and Departure Clearance (PDC) information are prepared and updated dynamically, and stored for access in the databases which are managed and maintained by the Air Navigation Service Providers (ANSPs). Several airlines have expressed interest to use the data link services.

2.3   As outcome of the implementation of via data link broadcast, positive feedback and favourable comments have been received from the pilots, airlines and air traffic controllers, which clearly confirm the added operational and/or safety benefits including:

         a)   reduction in workload for pilots and controllers;
         b)   greater data integrity;
         c)   removal of errors due to reception/transcription of information;
         d)   no time constraint and no coverage limitation in ground-air broadcast;
         e)   reduction in radio voice channel congestions;
         f)   enhanced flight efficiency and safety;
         g)   receiving at will by the pilots;
         h)   most updated information; and
         i)   quick access to specific information in the CPDLC messages.

2.4　　　　In accordance with the studies conducted in several regions, the implementation of data link applications, such as Controller-Pilot Data Link Communication (CPDLC) has been considered feasible. Some States of the NAM/CAR Regions use the ACARS protocol for Automatic Dependent Surveillance – Contract (ADS-C) applications and have initiated trials in VHF Digital Link (VDL) Mode 2. Some Area Control Centres (ACCs) have the initial capacity to process data with CPDLC protocols using the *Global Operational Data Link Document (GOLD),* Edition 2. This document is available in the ICAO NACC Regional Office website: http://www.icao.int/NACC/Documents/eDOCS/Fasid/GOLD%202nd%20Edition_26-Apr-13.pdf.

2.5　　　　The data link applications between ANSPs and air operators are consistent with the objectives of the ATM system as described in the *Global Air Traffic Management Operational Concept* (Doc 9854).

3.　　　　Sixth Ad-Hoc Working Group on the ICAO Global Operational Data Link Document (GOLD)

3.1　　　　The 6th Meeting of the ICAO GOLD Ad-hoc working group focused on reviewing change proposals on the GOLD working draft 1.4.1, develop resolutions and produce a new working draft leading to completion of GOLD, Edition 2.0 for further submission to the NAT SPG, APANPIRG and EANPG for endorsement during 2013. The following material was made available for the meeting:

a)　　　GOLD_1st Ed_Change Proposals_Master_22-Jan-13.doc – latest status of change proposals

b)　　　GOLD v1.4.1 Working Draft_Clean_18-Jan-13-1.doc – clean version

c)　　　GOLD v1.4.1 Working Draft_Tracked_18-Jan-13.doc – shows tracked changes from v1.4

d)　　　GOLD v1.4.1 Working Draft_18-Jan-13_Figures.ppt – original powerpoint slides for the figures

e)　　　GOLD v1.4.1 Working Draft_Comment Form_18-Jan-13.doc

3.2　　　　The main purpose of Edition 2.0 was to merge FANS 1/A material from Edition 1.0 with the ATN VDL2 material from the Eurocontrol LINK2000+ guidance material.

3.3　　　　In reviewing a summary of remaining issues, the meeting noted that some new material was brought up that was not directly linked to the task of merging FANS 1/A and ATN guidance. While acknowledging the value of the new material, the meeting agreed that efforts should concentrate on addressing the main objective of Edition 2.0. Any new material would only be included if it was fully mature, ready for inclusion and would not jeopardize the successful completion of Edition 2.0. Material that was not included in Edition 2.0, would be listed for the PIRGs to endorse as part of the future work programme. It was noted, that the inclusion of some new material was also dependent on other parallel activities within the ICAO OPLINKP, ASTAF and RTCA/EuroCAE SC214/ED78 groups.

3.4   In conclusion, the Ad-hoc meeting agreed to recommend the following:

  a)   Edition 2.0 could be adopted by the respective PIRGs as a basis for implementation of data links operations;

             North Atlantic – NAT SPG – Jun 2013
             Asia – Pacific – APANPIRG – July 2013
             European – EANPG - Nov 2013
             South American – SAM/IG– Oct 2013
             African – Indian Ocean – APIRG – Mar 2014

  b)   Edition 2.0 would supersede the Link2000+ originated guidance material;

  c)   States should be invited to promulgate Edition 2.0 to the service providers and operators to use as a guidance material assisting in implementation of data links;

  d)   PIRGs should be informed about outstanding issues for future amendments of the GOLD;

  e)   The GOLD ad-hoc working group should be kept on stand-by to address any potential future amendments to the GOLD, as required; and

  f)   That ICAO OPLINKP, should be invited to discuss possible solutions to elevate the status of the GOLD to become a global level document.

4.   Air Navigation Implementation Working Group (ANI/WG) and its support to the GOLD Document

4.1   During the first ANI/WG Meeting, in view of the successful trials and applications of data link, and the added operational and/or safety benefits, it was encouraged to States, to include the data link applications as one of the key priorities for implementation of the ATM system for the NAM/CAR Regions. States should also support these initiatives towards their implementation so stakeholders can reap the benefits mentioned.

4.2   A Task Force on the operational analysis of the Gold document version 2 was formed with its terms of reference and activities.

4.3   It was decided that States, Territories and international organizations of the NAM/CAR Regions should analyse data link communications, including ACARS and VDL in the continental and oceanic airspace. In this regard, the following conclusion was adopted:

CONCLUSION ANI/WG/1/8 OPERATIONAL REVIEW OF GLOBAL OPERATIONAL DATA LINK DOCUMENT (GOLD) EDITION 2

That in order to harmonize the use of data link applications in the NAM/CAR Regions with adjacent ICAO Regions, the Task Force on the operational analysis of the Gold document version 2 assess and present to the ANI/WG by **30 January 2014**, the operational considerations and recommendations for the adoption of GOLD Document, Version 2 and its subsequent presentation to the NACC/WG/4 Meeting

5. **Conclusion**

5.1   The GOLD Document is a dynamic document developed for the use and implementation of datalink applications that has been adopted in most of the ICAO Regions and recently under revision by the NAM/CAR implementation groups. The D Project is invited to take note of the updates to the 2nd edition of this document and its impact in the deliverables assigned to the Project in coordination with the ANI/WG.

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