



International Civil Aviation Organization

MIDANPIRG/20 and RASG-MID/10 Meetings

(Muscat, Oman, 14-17 May 2023)

Agenda Item 6.5: ATM/SAR

**THE CANSO AIR TRAFFIC FLOW MANAGEMENT (ATFM) DATA EXCHANGE
NETWORK FOR COOPERATIVE EXCELLENCE (CADENCE)**

(Presented by CANSO)

SUMMARY

This paper introduces the CANSO Air Traffic Flow Management (ATFM) Data Exchange Network for Cooperative Excellence Task Force (CADENCE TF), created to support regional ATFM and Collaborative Decision Making (CDM). This paper also presents the accomplishments of the CANSO ATFM Data Exchange Network for the Americas (CADENA) including the Operational Information System (OIS). The purpose of the OIS is to accelerate the implementation and enhancement of regional ATFM/CDM from a politically neutral standpoint in an economical manner. The CADENCE Task Force's approach to advance regional ATFM/CDM supports ICAO's "No Country Left Behind" policy.

1. INTRODUCTION

1.1 The CADENCE TF was created on 22 March 2021, as a strategic initiative to develop a network for operational coordination and information sharing among air navigation service providers (ANSPs) in Flight Information Regions (FIRs) around the world. The CADENCE TF focuses on the enhancement and implementation of operational information sharing capabilities using an Operational Information System (OIS), a web-based information sharing application designed to support ATFM/CDM. The CADENCE TF is a subgroup of the CANSO Operations Standing Committee (OSC).

1.2 There is no single ATFM/CDM solution that is applicable globally. Every region has its unique considerations. To support regional ATFM/CDM implementation/enhancement needs, the CADENCE TF will work with the respective regional ICAO offices, ANSPs, and other ATFM stakeholders to assist with shaping a solution that leverages the benefits offered by the CADENCE OIS to address regional demands.

1.3 The unique contribution to regional ATFM/CDM by CADENCE would be the implementation of a basic, regional OIS, at no cost to ANSPs or stakeholders. Thus, the regional OIS is a web-based, independent, politically neutral, and transparent system that does not rely on physical infrastructure or host resources.

2. BACKGROUND

CANSO ATFM Data Exchange Network for the Americas (CADENA) - Beginning

2.1 CADENA was established in June 2016 to implement regional ATFM/CDM in the Latin America and Caribbean region. At the time when CADENA was established, many ANSPs in the region did not have Traffic Flow Management (TFM) units to conduct ATFM operations. CADENA supported such ANSPs in the building of TFM units and the training of personnel.

2.2 CADENA initiated Weekly Operational Web Conferences in December 2016, exchanging information such as ATFM Daily Plans and advisories via emails and phone calls. CADENA quickly realized emails and phone calls are workable solutions; however, they are cumbersome and inconvenient. CADENA implemented the OIS in August 2017, allowing ANSPs to easily share information via the web application. Since then, the CADENA OIS has been enhanced several times to provide more capabilities to exchange ATFM/CDM related information and to enhance coordination opportunities.

2.3 The CADENA Weekly Operational Web Conference became so important for regional airline operators that they requested a more frequent occurrence of the Web Conference. CADENA expanded the once-a-week Operational Web Conference to twice-weekly Operational Web Conferences in January 2023.

CADENA Contingency Procedures and Training

2.4 ATFM is needed most when demand exceeds capacity. The balance between demand and capacity is often disrupted in contingency situations such as natural disasters (e.g., extreme weather, volcanic activities, earthquakes, etc.), air traffic control service interruptions (e.g., power outage, equipment failure, staffing issues, etc.) and airport capacity issues (e.g., closure, reduced operation, etc.).

2.5 CADENA prepared the CADENA Operational Procedures Manual based on ICAO DOC 9971. CADENA identified fifteen (15) contingency situations and prepared checklists to follow for each of these contingency events. In addition to quarterly contingency trainings, CADENA also provides many types of training such as training for new members, advanced CADENA support, Web Conference hosts, and training on how to estimate nominal and dynamic airport/airspace sector capacity declarations.

2.6 The CADENA ad-hoc Web Conference is another method to address contingency situations when the situation requires discussion and a collaborative solution. It is essential that CADENA members know how ad-hoc Web Conferences work in addition to regular procedures.

Roadmap to the regional Free Route Airspace (FRA) and Trials

2.7 ICAO's Global Air Navigation Plan (Doc 9750) consists of an Aviation System Block Upgrade (ASBU) framework. ASBU specifies two ASBU Elements that lead to the FRA. These Elements are Direct Routes or DCTs (ASBU FRTO, Block 0, Element 1) and FRA (ASBU FRTO, Block 1, Element 1).

2.8 CADENA’s step-by-step approach to implement regional FRA is progressing through collaboration with the regional offices of IATA and ICAO. The steps being taken are described below. The usefulness and benefits of each step have been proven and the CIIFRA WP provides more details of the roadmap and trials.

STEP 1: Planned Airway System Alternative (PASA) Routes

STEP 2: Planned Airway System Alternative (PASA) End-to-End Routes

STEP 3: Trial User Preferred Routes (previously known as Optimized E2E Routes)

STEP 4: Strategic Direct Routing

STEP 5: Regional Free Route Airspace

Acknowledged by ICAO and IATA

2.9 Juan Carlos Salazar, Secretary General of ICAO, thanked CANSO for its global ATFM role and mentioned CADENA by name during his speech at the CANSO Global Leadership Summit 2022 on April 7, 2022. He stated, “CANSO’s global ATMF role is also demonstrating through the training and support it provides to the states and by sharing the experiences and best practices it gained from the implementation of the CADENA, (CANSO) ATFM Data Exchange Network for the Americas.”

2.10 At the opening of the 12th edition of the IATA Wings of Change Americas conference in Santiago, Chile on April 7, 2022, Peter Cerdá, IATA Regional VP for the Americas stated, “The savings in time, fuel and carbon emissions that we have seen so far on the first 6 routes tested are remarkable and demonstrate aviation’s commitment to a sustainable industry. As an example, the tests of the route between Atlanta and Lima have provided, in three months, a reduction of 515 minutes in flight time, 66 thousand kilograms of fuel and more than 200 thousand kilograms of CO₂. On this same issue, IATA has identified another 49 routes that could be implemented, generating savings and a more sustainable growth of air transport.”

3. CADENCE TF AND CADENCE OIS

3.1 CANSO formed the CADENCE TF to encourage regions to implement/enhance their ATFM/CDM capabilities by taking advantage of the experiences of CADENA. The CADENCE TF operates under the policy of transparency, inclusiveness, and collaboration supporting a multi-nodal, regional ATFM/CDM.

3.2 It is essential that all stakeholders can and do participate in ATFM and CDM in a multi-nodal environment. However, some stakeholders may have difficulty participating when the regional ATFM/CDM implementation plans exceed their technical and economic situation.

3.3 The CADENCE TF advocates CADENA’s successful approaches of “simple-to-achieve solutions”. Most stakeholders can participate with the relative ease of providing (1) computer, (2) internet access, and (3) human resources. This approach aids ICAO’s “No Country Left Behind” policy.

CADENCE OIS

3.4 CANSO and CGH Technologies, Inc., developer of the CADENA OIS, signed an agreement on 22 March 2021. This 20-year agreement secures the provision of a purpose-built collaborative software platform, the CADENCE OIS.

3.5 The CADENCE OIS platform is, therefore, now available in all regions and will be supported by CGH Technologies, Inc. The platform will enable ANSPs, airlines and potentially other airspace users to share information, facilitate situational awareness, and engage all stakeholders in the development of collaborative approaches to address issues.

3.6 The CADENCE OIS is a free and effective way for ANSPs to comply with the guidance material contained in ICAO Doc. 9971, Manual on Collaborative Air Traffic Flow Management. The platform can also be used to complement reoccurring ATFM/CDM teleconferences by allowing for the continued (inter-teleconference) exchange of operationally significant data on a single platform that is easily monitored by minimal staff.

3.7 The CADENCE OIS is capable of sharing a wide variety of operational information. The OIS supported information that can be exchanged includes, but is not limited to:

- 1) Regional Traffic Management Measures
- 2) Active Reroutes and Route database
- 3) Airport Delays (arrival and departure)
- 4) Advisories (Urgent or FYI)
- 5) NOTAMs
- 6) ATFM Daily Plan
- 7) Email Push Notification
- 8) Contingency Forms
- 9) Airport/Airspace Capacity
- 10) Other unique information such as briefings related to commercial space operations or volcanic eruptions and their related impacts.

3.8 The CANSO CADENCE TF would help implement the MID regional OIS including ANSP and airline training to use the OIS effectively.

4. ADDITIONAL INFORMATION

4.1 The public view of the existing CADENA OIS is accessible via <https://www.cadenois.org>.

4.2 When the regional OIS is implemented, it will be supported by technical staff at CGH Technologies' offices in Herndon, Virginia, USA. The technical staff is normally available from 1200 UTC to 0000 UTC.

4.3 If the region would like to customize the OIS beyond the current design, opportunities exist to collaborate directly with CANSO and CGH Technologies, Inc. to define specific changes and associated costs.

4.4 The CADENCE TF will continue to support the enhanced version of regional OIS and regional ATFM TF/Regional Implementation Group (RIG) activities.

4.5 Please direct any general questions regarding CANSO, its operational programmes and/or regional engagement to Javier Vanegas, Director Latin America and Caribbean Affairs (javier.vanegas@canso.org) and Scott Leis, Operations Programme Manager (scott.leis@canso.org).

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5. ACTION BY THE MEETING

5.1 The meeting is invited to note the contents of this Information Paper.

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