



TWELFTH AIR NAVIGATION CONFERENCE

Montréal, 19 to 30 November 2012

Agenda Item 4: Optimum capacity and efficiency – through global collaborative ATM

4.1: Efficient management of airspace and improved flow performance through collaborative decision-making (CDM)

SAFETY AND SERVICE INITIATIVES IN THE NORTH ATLANTIC AREAS UNDER CANADIAN CONTROL

(Presented by Canada)

SUMMARY

This paper provides information on safety and service improvement initiatives undertaken by Canada for operations in remote continental Canadian Domestic Airspace (CDA) and in the North Atlantic (NAT) Region. This initiatives reflect current and forthcoming developments in automated systems and data link technology and provide benefits to operators

Action: The conference is invited to agree to the recommendation in paragraph 3.

1. INTRODUCTION

1.1 The ability to take advantage of advancements in both aircraft avionics systems and air traffic management (ATM) flight data processing systems to permit more fuel efficient flight profiles is a critical planning component for long haul flights.

1.2 By providing air traffic services throughout the northern portion of Canadian Domestic Airspace (CDA) and the Gander oceanic control area (OCA) within the North Atlantic (NAT) Region, the air navigation service provider for Canada, NAV CANADA, has taken a leading role in progressing initiatives that will provide benefits to aircraft on routes through remote continental and oceanic airspace.

1.3 NAV CANADA is the private sector, non-share capital corporation that owns and operates Canada's civil air navigation system. Transport Canada is Canada's regulator for the civil air navigation system. NAV CANADA coordinates the safe and efficient movement of aircraft in Canadian domestic airspace and in international airspace assigned to Canadian control. Through its operations, NAV CANADA delivers air traffic control, flight information, weather briefings, aeronautical information, airport advisory services and electronic aids to navigation.

¹English and French translation provided by Canada.

1.4 A key contributor to safe and efficient ATM and the advancement of initiatives designed to increase capacity at optimal flight levels has been the development of the Gander Automated Air Traffic System (GAATS+) and the Canadian Automated Air Traffic System (CAATS) flight data processors. Through direct interface with other ANSPs and communication service providers (CSPs), these systems provide multiple tools that improve operational performance, boost efficiency, and save customers both time and money.

1.5 A brief description of some of the safety and service improvement initiatives is provided below.

2. INITIATIVES TO INCREASE EFFICIENCY AND REDUCE OPERATOR COSTS AND GHG EMISSIONS

Reduced Longitudinal Separation Minimum (RLongSM)

2.1 The goal of RLongSM is to decrease fuel cost to airlines by providing the opportunity for more optimal climb profiles within the NAT, with longitudinal collision risk remaining within the target level of safety (TLS) and without negative impact on collision risk in the vertical or lateral dimensions.

2.2 The proposed minimum, currently in operational trial, reduces separation between aircraft on 18 minute ADS-C periodic contracts from ten minutes to five, thereby providing opportunity for mid-ocean step climbs and also freeing up vacated flight levels for use by other flights.

Reduced Lateral Separation Minimum (RLatSM)

2.3 RLatSM will reduce lateral separation between RNP 4 aircraft also equipped with ADS-C and CPDLC to 25 miles, resulting in half degree track spacing. For eastbound NAT flights in particular, this will result in greater accessibility for flights looking forward to benefiting from tailwinds provided by the jetstream.

2.4 Phase 1 of RLatSM, which will introduce 25 NM lateral separation by implementing ½ degree spacing between the two organized track system (OTS) core tracks, is scheduled to begin operational trials in 2015.

ENGAGE – Europe and North America Go ADS-B for a Greener Environment (variable speed and altitude)

2.5 Under the auspices of the AIRE (Atlantic Interoperability Initiative to Reduce Emissions) initiative the ENGAGE trial was designed to assess the impact of variable Mach and altitude in the NAT and within the ENGAGE corridor.

2.6 This also provided opportunities for aircraft not yet in surveillance coverage to vary their Mach so as to maintain more fuel efficient speeds. It was noted that the largest fuel efficiencies were gained from variable Mach, rather than changing flight levels.

2.7 Phase 2 will expand the airspace volume into additional flight information regions (FIRs) and is planned to commence towards the end of September 2012.

Automatic Dependent Surveillance–Broadcast (ADS-B)

2.8 ADS-B uses satellites, aircraft avionics and ground infrastructure to relay a range of aircraft parameters such as identification, position and altitude in areas where traditional radar systems are impractical or impossible to install and maintain.

2.9 ADS-B services encompassing 250 000 square nautical miles of airspace over Hudson Bay in Northern Canada commenced in 2009. Coverage on the north eastern coast of Canada has been in effect since 2011.

2.10 The southern portion of Greenland containing airspace within the Gander OCA commenced ADS-B service in early 2012.

Controller Pilot Data Link Communications (CPDLC) in CDA

2.11 CPDLC has been fully implemented in the Gander OCA since 2006.

2.12 On 16 December 2011, NAV CANADA commenced use of CPDLC within the CDA, with services offered in the Montreal FIR. This was followed on 30 January 2012 by implementation in the northern portion of the Edmonton FIR.

2.13 NAV CANADA intends to incrementally expand CPDLC service into the Moncton, Gander, Winnipeg, Vancouver and Toronto FIRs during the remainder of 2012 and early 2013.

3. RECOMMENDATION

3.1 The Conference is invited to agree to the following recommendation:

Recommendation 4/x – Safety and service initiatives in the North Atlantic

That the Conference:

- a) note the information contained in this paper; and
- b) encourage States and all interested stakeholders to contribute to future development of safety and service improvement initiatives.

— END —