

AERONAUTICAL INFORMATION CIRCULAR 21/09

AIR TRAFFIC FLOW MANAGEMENT IN THE VICINITY OF HUDSON BAY AS A RESULT OF AUTOMATIC DEPENDENT SURVEILLANCE BROADCAST OUT IMPLEMENTATION

(Supersedes AIC 18/07 and AIC 34/08)

Introduction

This Aeronautical Information Circular (AIC) supersedes the information provided in AIC 18/07 and AIC 34/08 related to NAV CANADA air traffic control (ATC) services supported by automatic dependent surveillance-broadcast out (ADS-B out) in the vicinity of Hudson Bay.

In January 2009, an improvement in service provision was initiated through reduced separation services based on ADS-B out in the Montreal and Edmonton area control centres (ACCs) for application in the Minto and Hudson sectors depicted below.

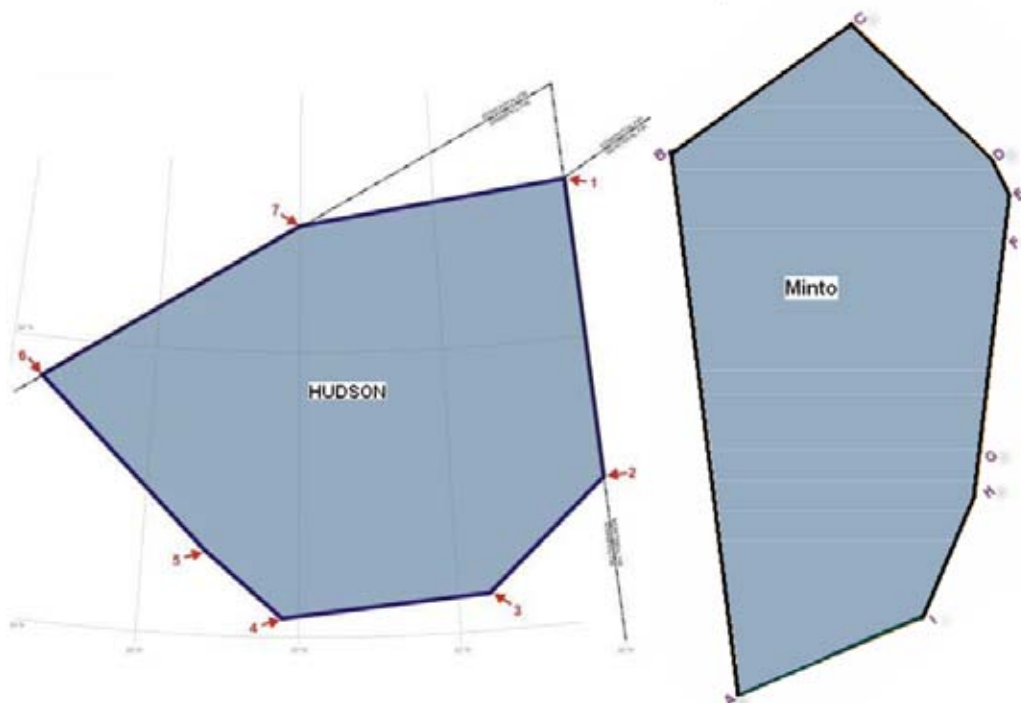
Hudson Sector - Edmonton ACC

The airspace extending from FL290 and above and bounded by a line beginning at

- 1) N624500/W0800000
- 2) N573000/W0800000
- 3) N554000/W0840000
- 4) N552000/W0903000
- 5) N563000/W0930000
- 6) N592000/W0985500
- 7) N621638/W0900000

Minto Sector - Montreal ACC

- A) N552500/W0800000
- B) N624500/W0800000
- C) N635928/W0741312
- D) N614500/W0711000
- E) N611500/W0705500
- F) N603000/W0712500
- G) N574000/W0732200
- H) N571000/W0735000
- I) N560000/W0753000



Tactical application of reduced separation has been applied on an opportunity basis for those customers who have approved avionics, have received Ops Spec 609 or 610 from Transport Canada, and have registered their eligible aircraft with NAV CANADA. The service permits customers the more frequent opportunity to fly their preferred trajectories. This service improvement was done as a first step, recognizing the current economic climate, our customers' need to control expenditures, and NAV CANADA's focus on continual improvement in air traffic flow management (ATFM).

Priority Handling in the Hudson and Minto Sectors

Extensive customer consultation and an assessment of the time to obtain regulatory approval for customers' aircraft has led to the next step in ADS-B out service provision. It is accepted that a homogeneous ADS-B traffic capability will allow the maximum airspace capacity owing to the availability of the smallest separation standards between all aircraft. Leading up to the point when all aircraft are capable of taking advantage of ADS-B out in this airspace, it is reasonable to provide operational advantage for early technology adopters in the interests of an improved ATFM environment. To this end, as of May 2009 NAV CANADA has initiated priority handling of ADS-B eligible aircraft.

Some of the benefits eligible customers can expect are priority

- assignment of flight planned route;
- assignment of flight planned cruise altitude;
- assignment of flight planned Mach number; and
- approval of requests for en route dynamic rerouting.

An example of the specific application of priority handling can be seen where two conflicting aircraft have requested the same altitude to transit through the Hudson or Minto sectors. Since an ADS-B-eligible aircraft requires a smaller volume of airspace to be protected, providing the ADS-B aircraft its preferred altitude would result in a smaller volume of occupied airspace at the more optimal altitude, leaving greater capacity at this altitude for leading, following, or crossing traffic. In this case the ADS-B-eligible aircraft could expect to receive the clearance at its requested altitude. Customers not receiving approval for a requested route or altitude will be advised if the denial is due to their lack of ADS-B eligibility.

International Civil Aviation Organization's *Procedures for Air Navigation Services, Air Traffic Management* (PANS-ATM Doc 4444) already provides for flexibility in the application of the "first come, first served" concept in order to accommodate the least average system delays. NAV CANADA's ATC Manual of Operations allows for such latitude and other air navigation service providers have also stated their intention to begin moving towards preference based on aircraft equipage in order to enhance airspace capacity for system-wide benefit. Past initiatives such as the introduction of reduced vertical separation minima (RVSM) airspace have followed this application and achieved extensive system benefits. Another example is the use of required navigation performance (RNP) routes requiring specific aircraft performance in order to be cleared to operate on the routes.

Future Air Traffic Flow Management (ATFM) Changes

Current forecasts indicate that as of 18 November 2010, there will be a sufficient population of ADS-B-eligible aircraft operating through the Hudson and Minto sectors of Hudson Bay to warrant the application of specific ATFM changes. As of that date, from flight level (FL)350 to FL400 in the Hudson and Minto sectors, aircraft that are not ADS-B-eligible and flight plan to transit the airspace should expect route, altitude, or speed restrictions. The extent of the restrictions could result in the requirement to fly above, below, or around the lateral and vertical dimensions defined above for ATFM application. Flights that are not ADS-B-eligible operating into this area should dispatch with sufficient contingency fuel for potential reroutes around the flow-managed airspace.

When it is in our customers' best interest to implement an expanded ATFM area and support benefits from investments made in ADS-B out avionics, NAV CANADA will expand the ATFM application. This future date will be determined based on ongoing customer consultation, but at this time it is envisaged that the expansion of this airspace's ATFM plan could be implemented as soon as the end of 2012.

Operational Approvals

At the time of publication over 275 aircraft and 10 air operators were eligible to receive ADS-B-based separation services in the Hudson and Minto sectors. Guidance provided in Transport Canada's Advisory Circular AC700-009 explains how operators can achieve the Operations Specification 609 or 610 to be eligible to have a separation standard applied based on ADS-B out. In addition to holding the valid Operations Specification, each aircraft's unique 24-bit transponder address must be registered with NAV CANADA. The list of registered, eligible aircraft is updated every 14 days, minimizing any delay from receipt of operational authority to the ability to benefit from ADS-B services. For registration support please contact Chris Burrige.

Ongoing Customer Consultation

NAV CANADA is continuing to conduct regular customer consultation through teleconference and web-based media. If you are not part of the ongoing consultation forums and would like to participate, please contact one of the individuals listed below.

Jeff Cochrane, Manager
CNS Service Design
NAV CANADA
77 Metcalfe Street
Ottawa, ON K1P 5L6

Tel.: 613-563-3740
Fax: 613-563-5602
E-mail: cochraj@navcanada.ca

Chris Burrige, Technical Specialist
CNS Service Design
NAV CANADA
77 Metcalfe Street
Ottawa, ON K1P 5L6

Tel.: 613-563-4137
Fax: 613-563-5602
E-mail: burrige@navcanada.ca



Rudy Kellar
Vice President, Operations