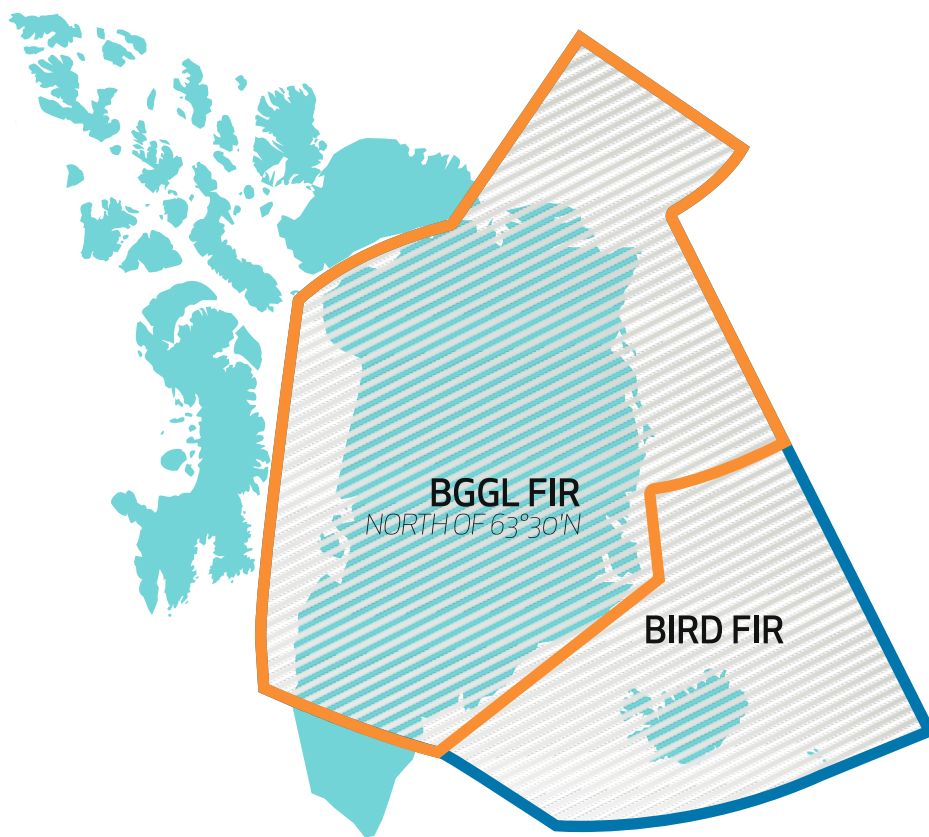




**GREENLAND** AIR TRAFFIC MANAGEMENT  
IMPROVEMENT PROGRAM





## BACKGROUND

Reykjavik Oceanic and Area Control Centre provides ATM Services in the Reykjavik FIR (BIRD) and that part of the Søndrestrøm FIR (BGGL) which lies north of latitude 63°30'N. In the latter FIR, the service is provided above flight level 195, flight information service being provided at lower levels by Søndrestrøm Flight Information Centre (FIC).

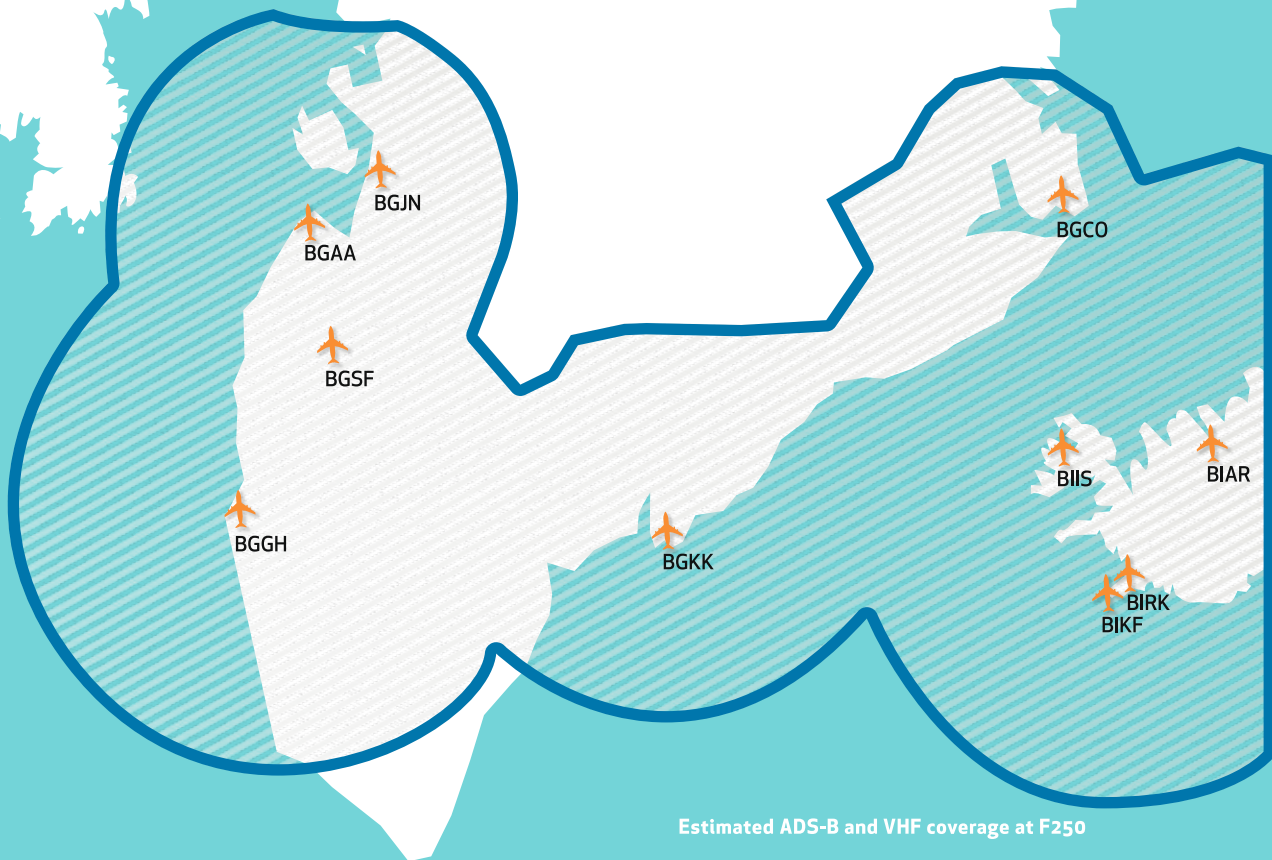
Service in the BGGL FIR is provided under an international agreement entered into in 1976. Although the combined service area (BIRD/BGGL) was fairly homogeneous at the outset, technical advances in the BIRD FIR have since created a considerable disparity, with radar surveillance now widely available east of longitude 30°W.

## AIRSPACE CHARACTERISTICS

Service provision in the BGGL FIR above F195 is still based on traditional oceanic procedures with no radar surveillance available to en route traffic. Air/ground communications are provided by a separate communications facility, Iceland Radio, mostly via high frequency (HF) radio but with VHF available in the southern portion of the airspace. Controller Pilot Data Link Communications (CPDLC) is also available to suitably equipped aircraft. No direct controller/pilot voice communication facilities exist. With a general lack of ground-based navigation aids, the primary means of navigation is area navigation, using Global Navigation Satellite Systems (GNSS) and Inertial Reference Systems (IRS).

As a result of this situation the selection of suitable separation standards has been severely restricted. High-level jet aircraft are generally separated laterally by 50 NM and longitudinally by 10/15 minutes - propeller driven aircraft laterally by 120 NM and longitudinally by 30 minutes.





Estimated ADS-B and VHF coverage at F250

## SERVICE IMPROVEMENT PROGRAMME

This leaflet is intended to inform aircraft operators about the plans Isavia has about service improvements in the airspace over Greenland which is controlled by Isavia.

Isavia believes that planned improvements to the Communication, Navigation and Surveillance (CNS) infrastructure will offer an opportunity to significantly improve the ATM services provided above F195, to both domestic and international operations.

## IMPROVEMENT IN PROCEDURAL SEPARATION SERVICES

Procedural separation is the term used for aircraft separation that is not provided by means of radar or automatic dependent surveillance - broadcast (ADS-B). The new communication facilities that will be installed in Greenland will facilitate a significant reduction in separation, benefitting those aircraft that are not equipped with ADS-B (see below). Capitalising on available VHF communication facilities and GNSS navigation, Isavia is working towards reducing the current 120 NM lateral separation and 30 minutes longitudinal separation.

## IMPLEMENTATION OF ADS-B SURVEILLANCE SERVICES

From 2014, Isavia is planning to implement ADS-B surveillance. Ground stations and associated direct controller pilot VHF voice communication equipment will be installed at five locations in Greenland during 2013. Estimated coverage at F250 is indicated above.

In order to benefit from the ADS-B surveillance services, aircraft must be equipped with transponders with dedicated 1090 MHz ADS-B "out" capability. In addition, the operator, aircraft and flight crew must have an approval in accordance with AMC 20-24 or equivalent. Aircraft that meet these requirements will be able to receive radar-like separation; 10 NM at or above F265 and 5 NM below F265.

## IMPLEMENTATION PLAN

Isavia is working in accordance with the following implementation plan. It should be noted that each phase is subject to the approval of the appropriate regulatory authority and will be presented to the appropriate implementation working groups within the International Civil Aviation Organisation, North Atlantic region (ICAO NAT).

### **Phase 1 – Spring 2013**

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- >> 20 NM lateral separation between aircraft that are climbing/descending through the level of the other aircraft, provided the aircraft are equipped with GNSS. This separation can be applied regardless of the means of communication (HF or VHF).
- >> 15 minutes longitudinal separation between aircraft provided that they are equipped with GNSS and are communicating on VHF.

### **Phase 2 – End-of-year 2013**

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- >> 7 NM lateral separation between aircraft that are climbing/descending through the level of the other aircraft provided the aircraft are equipped with GNSS and are communicating directly with ATC on VHF.
- >> 15 NM lateral separation between aircraft in level flight, provided the aircraft are equipped with GNSS and are communicating directly with ATC on VHF.
- >> 10 minutes longitudinal separation between aircraft, provided that they are equipped with GNSS and are communicating directly with ATC on VHF.
- >> 20 NM longitudinal separation between aircraft, provided that they are equipped with GNSS and are communicating directly with ATC on VHF.
- >> 10 NM longitudinal separation between aircraft that are climbing/descending through the level of the other aircraft provided that they are equipped with GNSS and are communicating directly with ATC on VHF.

### **Phase 3 – End-of-year 2014**

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- >> 10 NM radar-like ADS-B separation between ADS-B equipped aircraft at or above F265, provided that they are communicating directly with ATC on VHF.
- >> 5 NM radar-like ADS-B separation between ADS-B equipped aircraft below F265, provided that they are communicating directly with ATC on VHF.



### *REQUIRED AIRCRAFT EQUIPAGE*

Aircraft must be equipped with IFR-certified GNSS navigation equipment, and preferably with appropriate ADS-B equipment, in order to benefit from the improved ATM services. Isavia therefore urges operators with services in Greenland to take the necessary steps as soon as possible to equip their aircraft appropriately.



## *ABOVE AND BEYOND*

Isavia is committed to best practices in the delivery of its services with the focus on safety and an efficient aviation sector. Service improvements over Greenland:

- >> Improved safety and weather avoidance
- >> More flexibility
- >> Less track mileage
- >> More economical flight levels
- >> Reduced fuel consumption
- >> Reduced environmental impact