

NEFAB

north european functional airspace block

FRA consultation with Airspace Users

Helsinki 26 May 2016

Welcome and introduction

Agenda:

- ▶ Opening, Welcome and introduction
- ▶ Session 1: ANSP view,
- ▶ Session 2: Users view
- ▶ Session 3: Expanding the FRA
- ▶ Closing of meeting



Meeting will close at 15:00

Short breaks will be taken when convenient

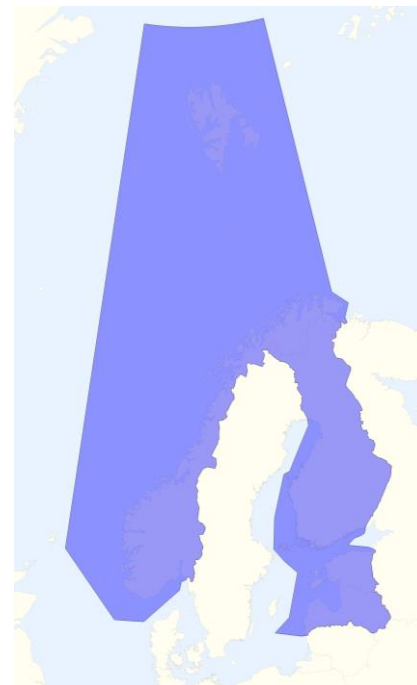
Objective

NEFAB States implemented Free Route Airspace on November 12 2015. FRA is a key part of NEFAB Network Plan. The concept is composed of elements that support FRA across all NEFAB States.

NEFAB FRA volumes (currently two) are interfacing the FRA in DK-SE FAB, in the NEFRA Programme.

Further implementation steps are in progress for a seamless FRA across the 6 States in NEFAB and DK-SE FAB, and the concept will be extended to cover UK/IRL FAB and Iceland in the coming years.

The objective of this consultation is to exchange experiences in the usage of FRA and identify opportunities and challenges from users, and ANSP views. The results will be used in the ongoing development and extension of the FRA concept.



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Implementation 12 November 2015

Helsinki 26 May 2016

Session 1 Implementation November 2015

NEFAB Network Plan: **FRA Essentials in RED**

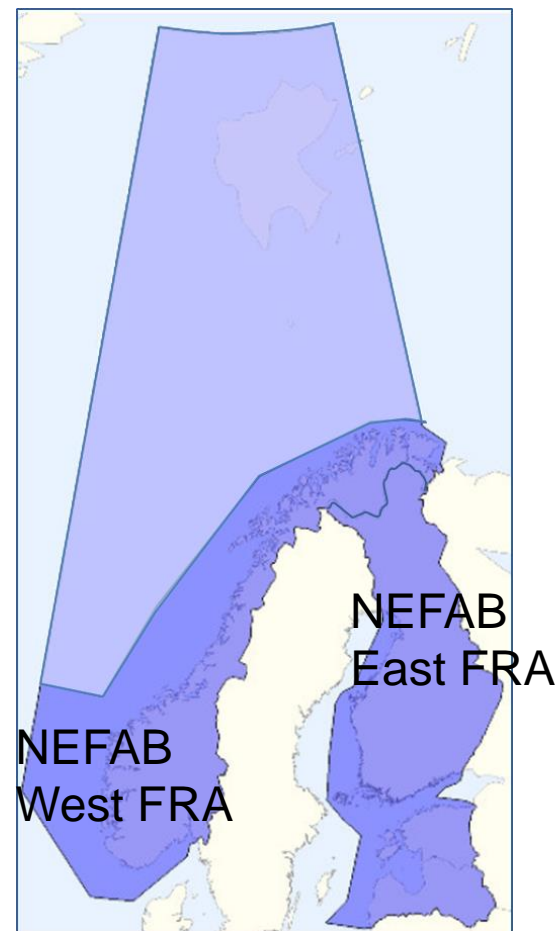
- ▲ Annex 1: NEFAB ATS Route design principles
- ▲ **Annex 2: NEFAB FRA Concept**
- ▲ Annex 3: NEFAB airspace classification and delineation
- ▲ **Annex 4: NEFAB MIL airspace design**
- ▲ **Annex 5: NEFAB sectorisation design**
- ▲ **Annex 6: NEFAB ASM/ATFCM concept**
- ▲ Annex 7: NEFAB data link strategy and concept
- ▲ **Annex 8: NEFAB Trajectory and conflict management concept**
- ▲ Annex 9: NEFAB traffic synchronization concept



Safety plan and safety case at FAB level is in development to be used by ANSPs in their Safety Cases

Session 1 Implementation November 2015

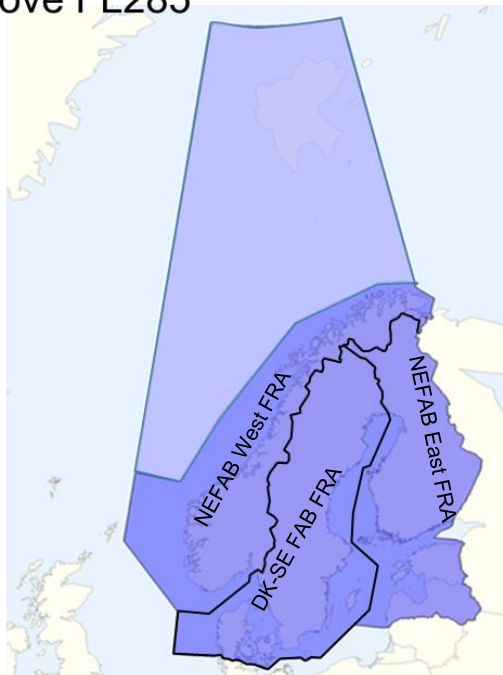
- ▲ NEFAB FRA
 - NEFAB East
 - ▲ FL95 – FL660 in Finland and Estonia FIRs
 - ▲ FL95 – FL460 in Latvia FIR
 - NEFAB West
 - ▲ FL135 – FL660 in Norway FIR



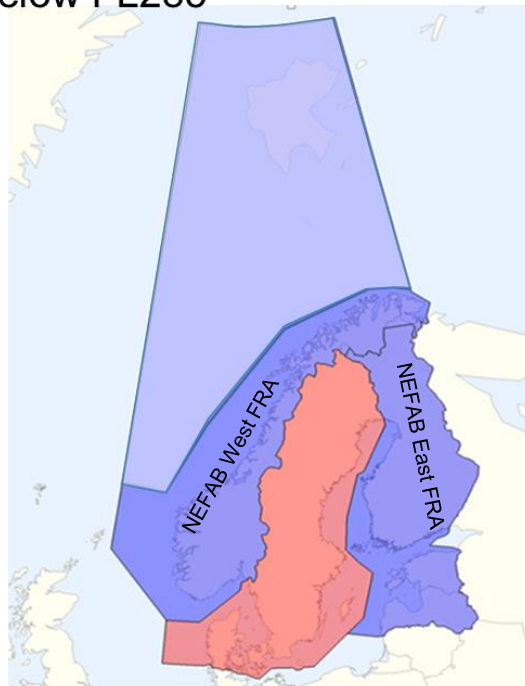
Session 1 Implementation November 2015

NEFAB FRA interface with DK-SE FAB FRA (NEFRA)

Above FL285



Below FL285



FL660	FL660	FL660 (FL460 in LV)
FL135	FL285	FL95
NO	DK/SE	FI/EE/LV

Note: Bodø Oceanic will be included following formal ICAO process in the NAT region

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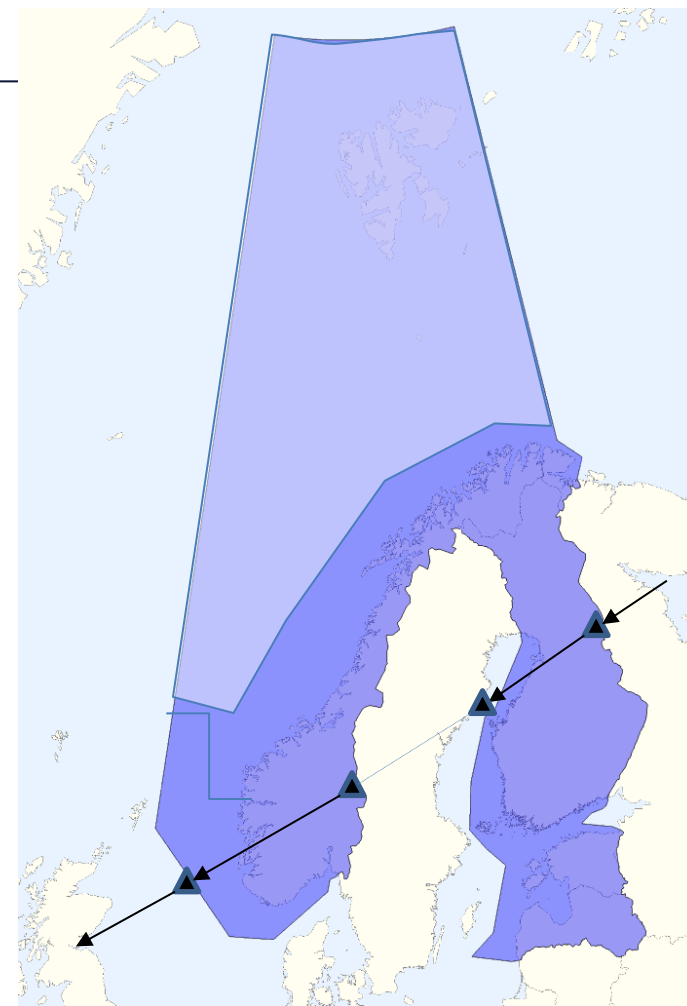
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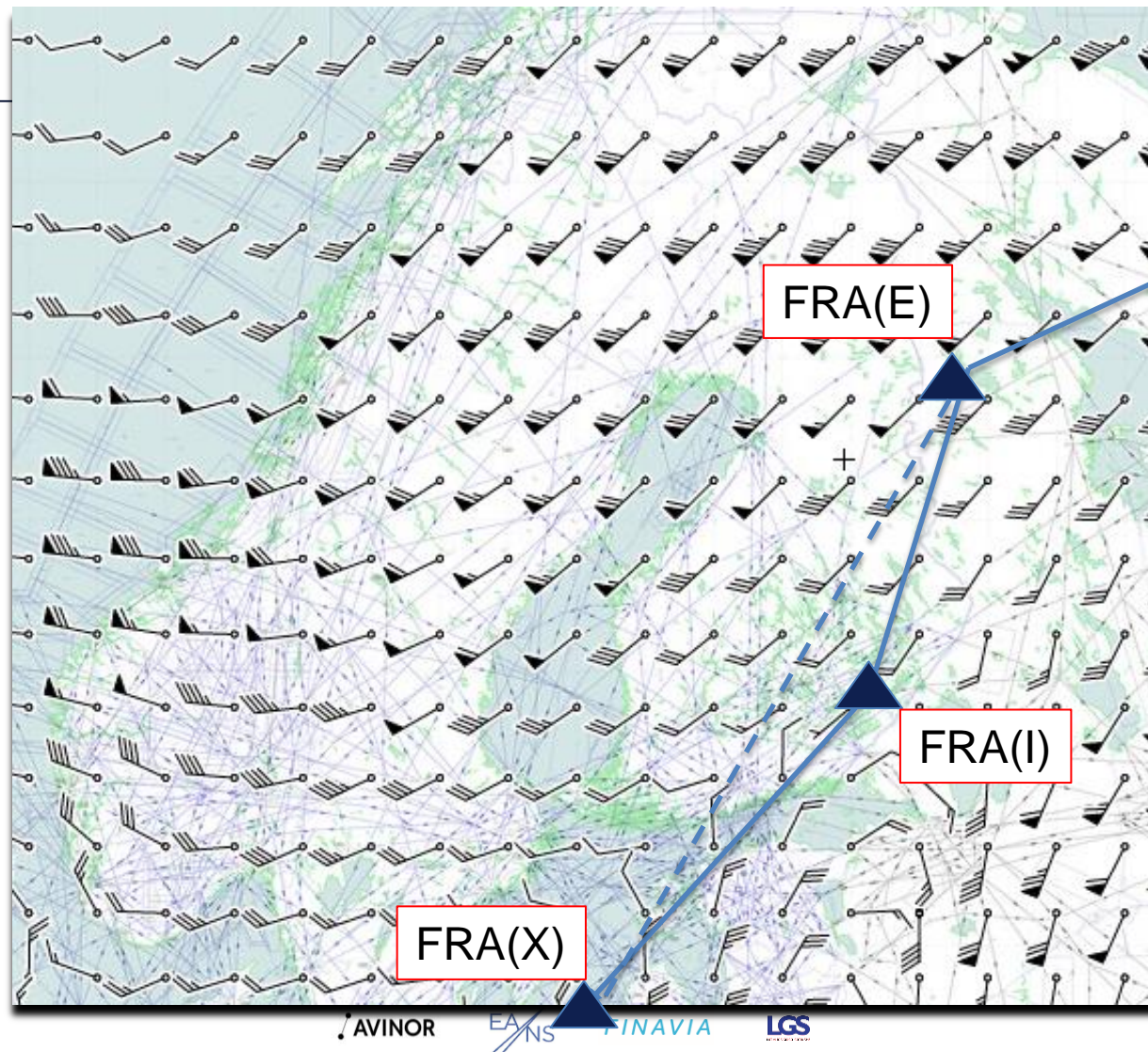
Flight Planning in FRA

Flight Planning in FRA - overflights

Aircraft operators planning their route across NEFAB are provided with Entry and Exit points to/from the FRA, located at the FRA boundary.

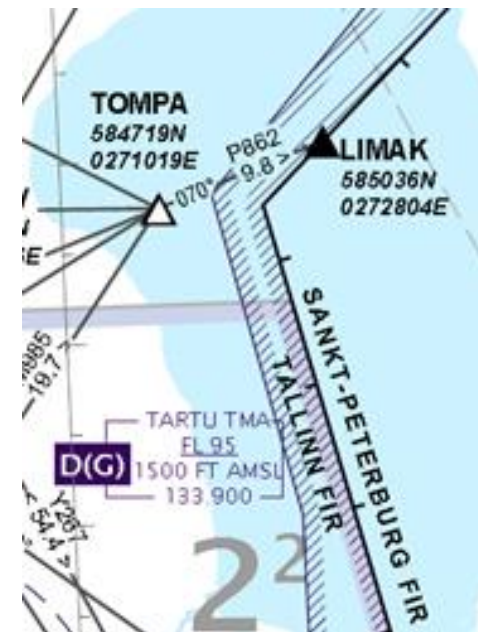
It is now possible to select between shortest distance or inserting intermediate points and taking the benefit from prevailing wind conditions.





FRA Entry (E) and Exit (X) points

- ▲ (E) and (X) points are usually at the FIR border
- ▲ In some instances there might be a compulsory ATS route segment from FIR boundary to the (E)/(X) point
- ▲ These mandatory routes are described in national RAD/AIP



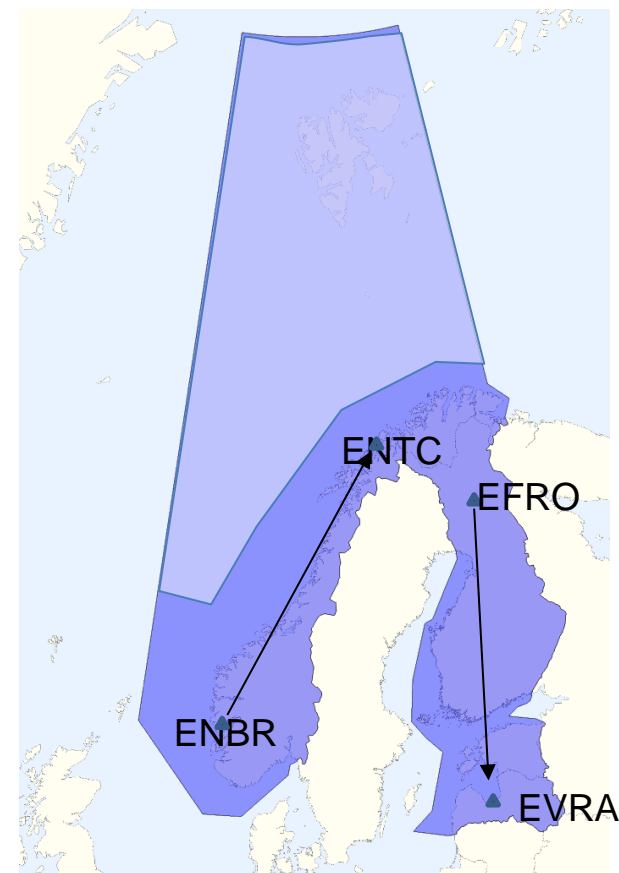
TOMPA	584719N 0271019E	L77 , L734 , L738 , M985 , P862	FRA exit point for flights via LIMAK, FRA exit point
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Flight Planning in FRA – NEFAB Domestic

For flights between NEFAB aerodromes the aircraft operators may flight plan freely between Departure point and Arrival point, which are located in the vicinity of aerodromes

Most of these domestic flights would select the shortest route straight from Departure point to an Arrival point

Cross-border DCT – no points at the FIR boundary



Flight Planning in FRA – Arrivals and Departures

Departures:

- ▲ FRA Departure (D) points are defined for each aerodrome in AIP and RAD Appendix 5
- ▲ After (D) a DCT is allowed – regardless of flight level
- ▲ EFHK and ENGM have mandatory ATS route segments to the (D) points, defined in AIP and RAD appendix 5

Arrivals

- ▲ FRA Arrival (A) points are defined for each aerodrome in AIP and RAD Appendix 5
- ▲ DCT to (A) is allowed – regardless of flight level
- ▲ EFHK and ENGM have mandatory ATS route segments from the (A) points towards the TMA, defined in AIP and RAD appendix 5

FRA Departure Example – Dep EFHK to south

- Departure and Arrival routes are published in that national AIP where the routes reside
- EFHK southbound departures in Estonian AIP



EFHK TMA BDRY waypoint	FRA Departure Transition Point	Flight Plan
DOBAN	DOBAN	DOBAN-DCT
	ROSAX	DOBAN - P730 - ROSAX - DCT (compulsory for traffic crossing EETT-ESAA FIR BDRY)
	TLL	DOBAN - P855 - TLL - DCT (compulsory for traffic crossing EETT-ULLL FIR BDRY)

FRA in AIP

Detailed information on FRA is provided in the AIPs of the participating states.

- ▲ ENR 1.3: FRA general procedures and flight planning
- ▲ ENR 2: Areas
- ▲ ENR 3.5: FRA Transition Routes
- ▲ ENR 4.1 and 4.4: FRA Relevant Points (E) (X) (I)
- ▲ ENR 6: Charts

RAD Appendix 5 – Airport connectivity

RAD Appendix 4 – En-route DCT's – General Limits



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Flexible Use of Airspace

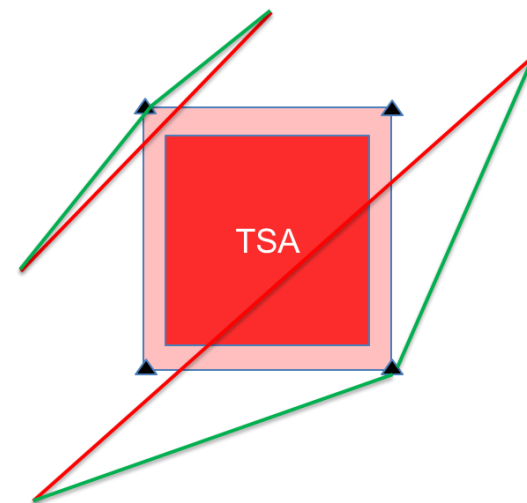
Flexible Use of Airspace – Why?

- ▲ FUA ensures fair sharing of airspace availability between civil and military users
 - ▲ State determines national airspace priority rules describing who has the priority and on what conditions
 - ▲ Airspace Management Cell (AMC) collects all booking requests the day before and promulgates the result in Airspace Use Plan (AUP). Conflicts are solved according to the national priority rules.
- ▲ Commission regulation (EC) No 2150/2005, detailed in EUROCONTROL ERNIP Part 3
- ▲ Airspace is owned by the States



AUP – airspace availability

- ▲ AUP lists all the reserved areas (name, time and levels) as well as available CDR's
- ▲ If there is a restriction attached to an area, IFPS will reject the DCT flight plan getting too close to the area
- ▲ Flight Plan Buffer Zones are published for each relevant area (TSA's)
- ▲ DCT trajectory penetrating FBZ is considered too close to the TSA -> rejection by IFPS
- ▲ Flight plan around the area by adding intermediate points to the route required



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ANSP Experiences

ANSP's experiences after Nov 2015

- ▲ No effect on the ATC capacity
- ▲ Relatively low utilisation of FRA by airlines
- ▲ Some work was needed to get the FUA working on ground systems (ANSP/IFPS)
- ▲ Flight planners/systems seem to struggle in taking into account the AUP information for finding the most optimal route around the reserved areas
- ▲ AUP not in use by many airspace users, require NOTAM distribution in addition to AUP

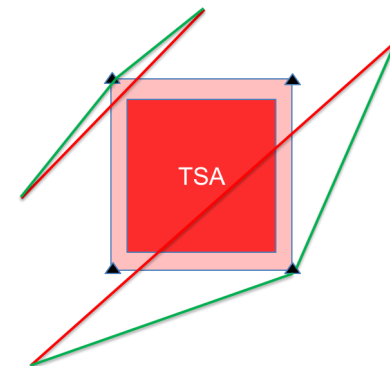
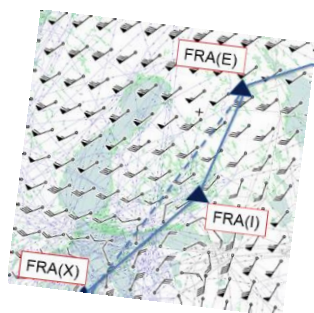


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Session 2: Airspace users experiences

Your experiences, expectations?



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Session 3: Future developments

FRA scenario developments (NEFRA Scenario 8)

June 20016:

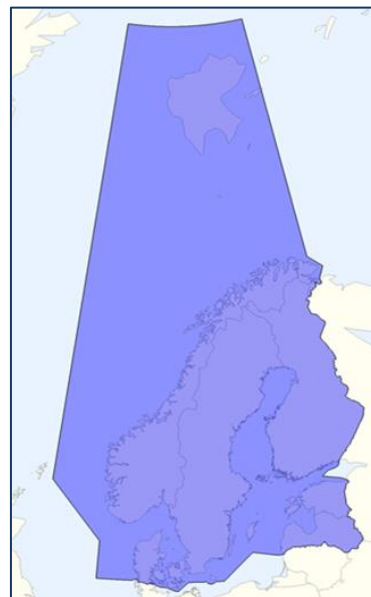
- ▲ NEFAB East and DK-SE FAB seamless connection
- ▲ Norway FIR a separate FRA volume

Date to be decided:

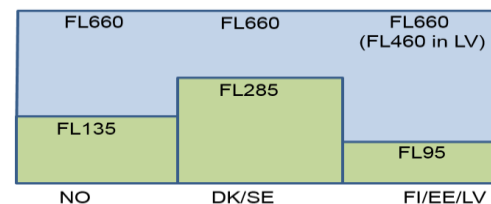
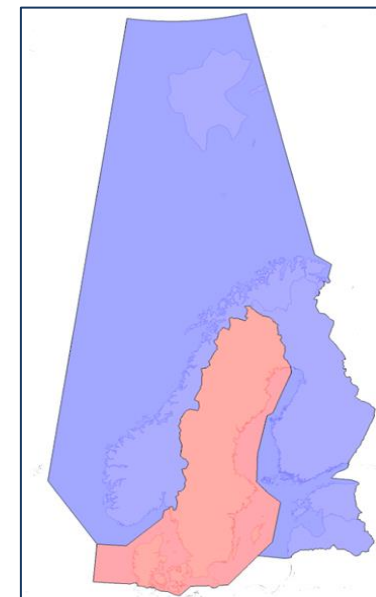
- ▲ Norway with seamless connection to NEFAB East and DK-SE FAB FRA volumes

Bodø Oceanic will be included following formal ICAO process in the NAT region

Above FL285



Below FL285



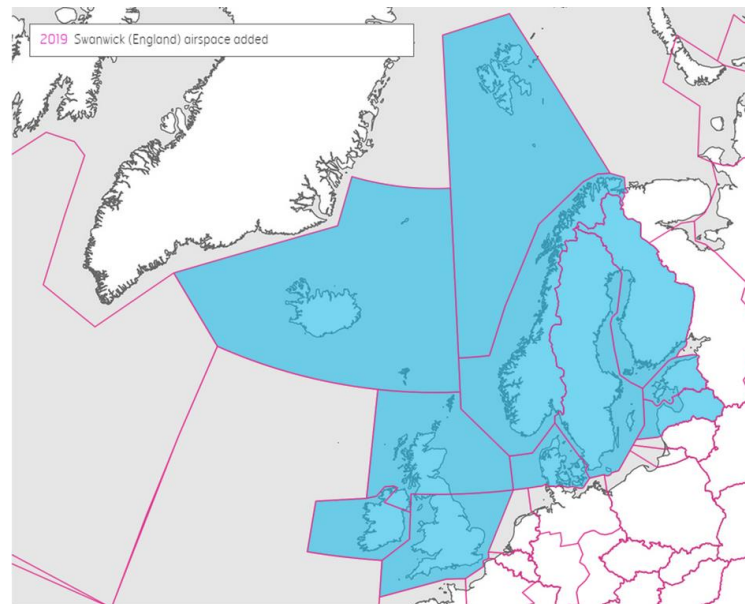
2019 The Borealis vision

NEFAB ANSPs are cooperating with the **Borealis Alliance** partners to implement **Borealis FRA vision**.

The Borealis vision is based on NEFRA concept, i.e. seamless interface between FRA volumes enabling flight planning and direct crossing between volumes without crossing at predefined fixed points

FRA status:

- DK/SE FRA implemented
- IRE FRA Implemented
- NEFAB FRA Implemented
- NEFRA seamless interface in progress
- Bodo Oceanic in progress
- UK and Scottish FRA in progress
- Icelandic airspace FRA compliant



Thank you for the attention

The NEFAB Programme:

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