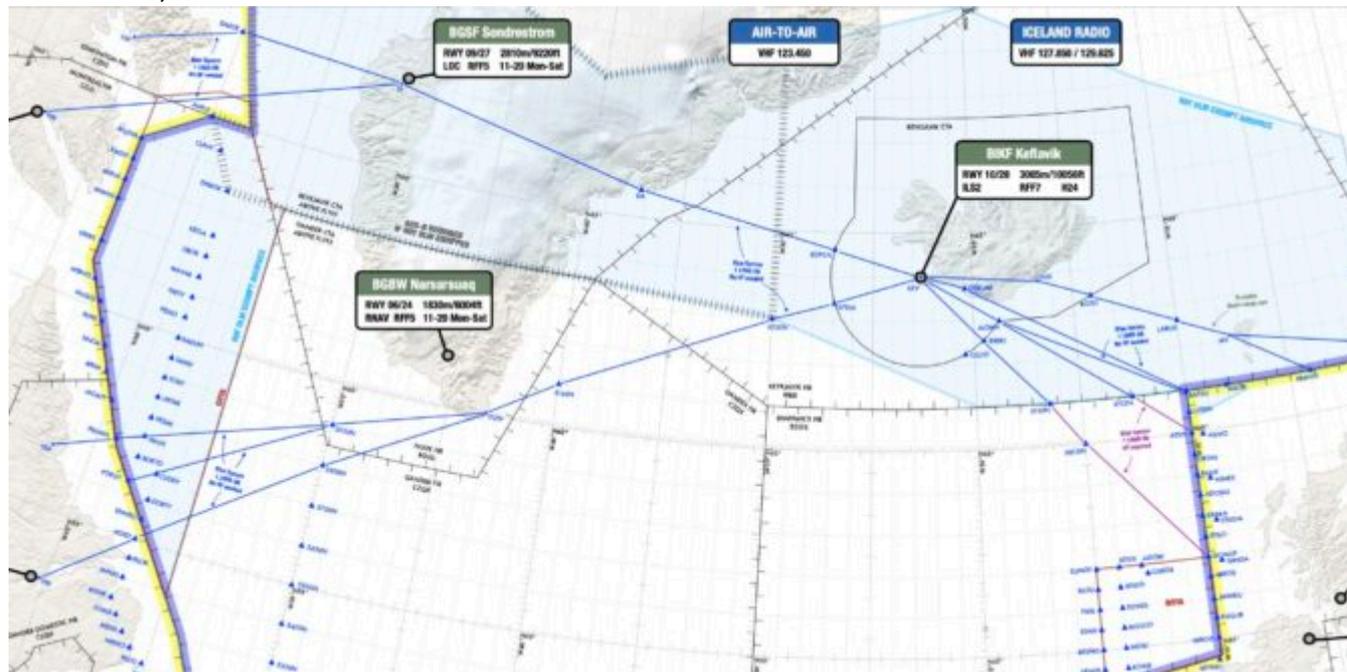


# NAT Ops: Flying the Blue Spruce Routes

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Most traffic crossing the North Atlantic Airspace (NAT) occurs from **FL290-410 through the North Atlantic High Level Airspace (NAT HLA)**. Over the years, advances in navigation, communication, and surveillance equipment have led to additional requirements for operators so ATC can safely reduce aircraft spacing and pack more aircraft through the airspace.

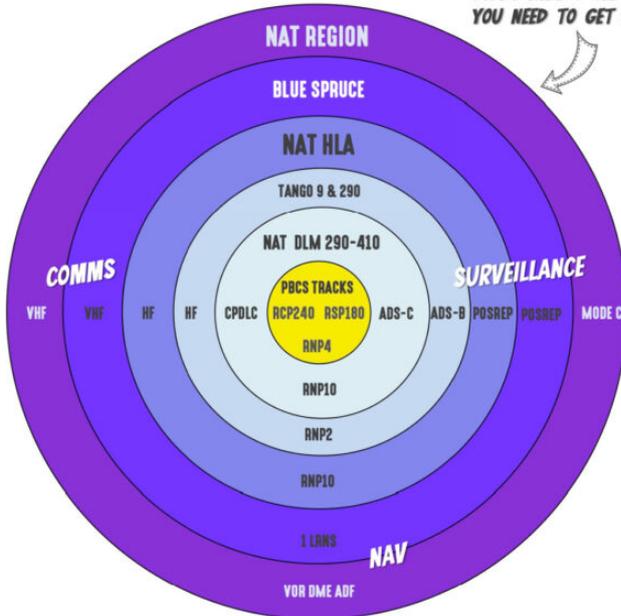
OPSGROUP has recently updated the **NAT Circle of Entry** for 2025. This tells you what you need to get into each different sliver of North Atlantic airspace:

# CIRCLE OF ENTRY

NORTH ATLANTIC AIRSPACE

OPSGROUP  
10.2024

START HERE & SEE WHAT YOU NEED TO GET IN



## A FEW NOTES :

- 1 : The **NAT HLA** (formerly MNPS) is FL285-420 and everyone needs HLA approval in this area. 2 **LRNS** required.
- 2 : **Blue Spruce** routes: 1 LRNS ok. VHF ok on most, but since 2021 more restrictive: datalink needed FL290-410 on southerly routes, ADS-B over Greenland (if no ADS-C), and HLA approval FL285-420.
- 3 : **Datalink** (CPDLC and ADS-C) is needed from FL290-410 in the entire HLA, except for: North of 80N, NYC Oceanic and GOTA. Also, with ADS-B though, Tango 9 & 290, and the Iceland, Bodø, and Azores surveillance corridors.
- 4 : **PBCS Tracks** (half degree apart), when published, are FL350-390 requiring Datalink with RCP240 and RSP180, and RNP4. Normal NAT Tracks (one degree apart) just need HF, Datalink, and RNP10.
- 5 : **Shanwick OCA** needs HF, no exceptions (even Blue Spruce). **T9 & T290** need HF, RNP2, and ADS-B, but not datalink, and only one LRNS.
- 6 : You need **TCAS 7.1** everywhere in the NAT, and **RVSN** from FL290-410. **SLOP** right on all tracks, including random. Outside VHF areas 2 **LRCS** are required – either 2x HF, or HF & Satcom/or CPDLC, for the other.

Click to download the PDF!

## So, for unrestricted access to the NAT HLA, operators need:

- 2 Long Range Navigation Units (LRNUs)
- Outside VHF areas 2 LRCS are required – either 2x HF, or HF & Satcom/or CPDLC, for the other.
- FANS 1/A equipment for the NAT Datalink Mandated airspace
- Super-duper datalink for the coveted PBCS Tracks (i.e. CPDLC capable of RCP240 + ADS-C capable of RSP180)

## And for US operators, that equipment list is a prerequisite for several required LOAs:

- A056 CPDLC Enroute, and Oceanic and Remote (PBCS)
- B036 Oceanic and Remote Continental Navigation Using Multiple Long-Range
- Navigation Systems (M-LRNS), Aka. RNP 4 (and RNP 10)
- B039 NAT HLA

- B046 RVSM
- D195 MEL (not technically required for a crossing, but might as well throw this one in)

**The above is the ideal setup. But what if I fly old stuff, or new stuff, or broken stuff, or little stuff?**

### **Old Stuff**

To the formerly early adopters without the benefit of factory standard state-of-the-art equipment: let's say your aircraft has LRNUs that are only capable of RNP 10, or your FANS equipment is RCP400 and RSP400. All else being equal, the only limitation would be **no PBCS tracks**. And **no T9/T290** either. All other tracks or random routes through the HLA are approved.

Is your equipment so old it doesn't even have the above equipment? **Consider yourself the same as broken**, and keep reading...

### **New Stuff**

You just closed on a shiny, new, well-equipped jet and have to ferry it across the pond, but you have no LOAs. In this case, you are altitude and route are limited. No RVSM or NAT HLA LOAs means the airspace from FL290-410 is off limits for you. If traffic permits, ATC may let you climb through the HLA above FL410, but you might want to plan fuel and route at FL280. Route-wise, without B036, **you're Blue Sprucing it**.

If you only have some of the above-listed LOAs, **also consider yourself broken**.

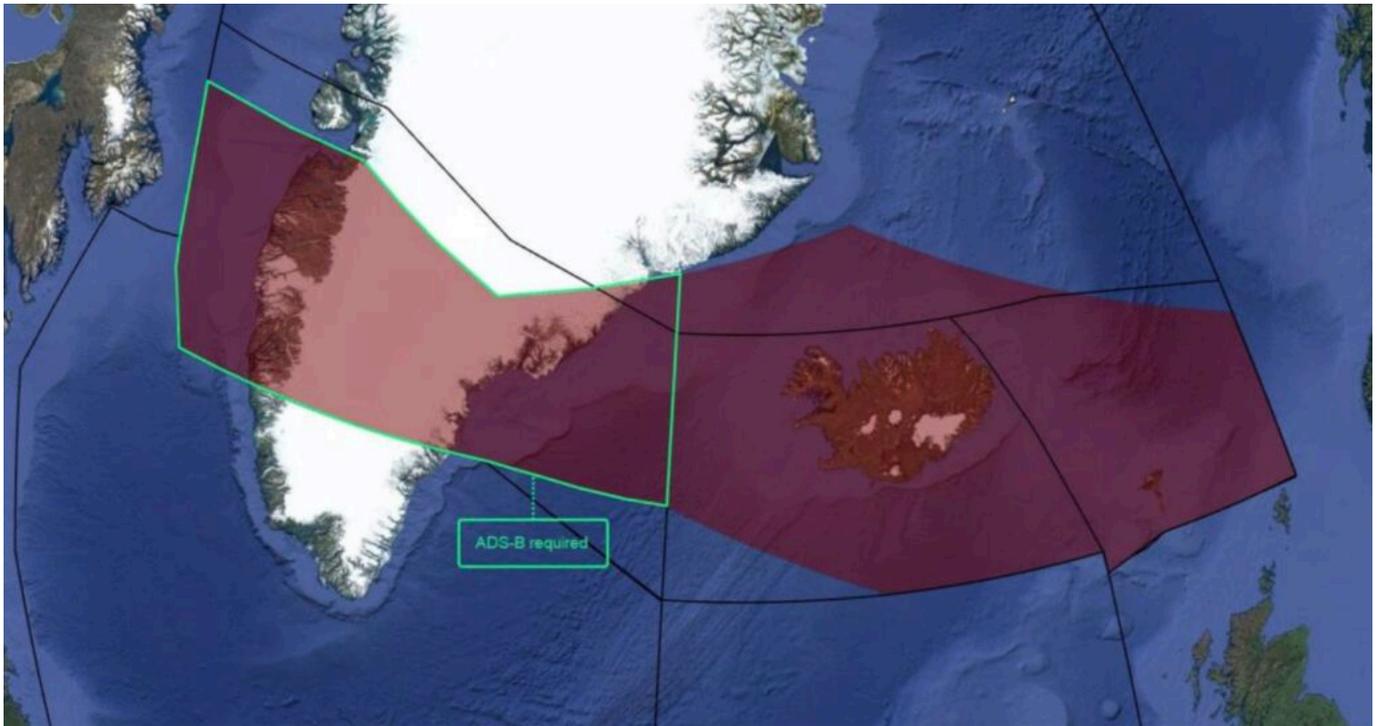
Now, it gets a little more nuanced...

### **Broken Stuff**

You've been spoofed, but only one GPS came back. When down to one LRNU (or you don't have B036), **Blue Spruce it**. With only one LRNU, you could fly through the NAT HLA along the Blue Spruce routes if you get State approval. Otherwise, fly above or below.

You're down to **one HF radio** because you lost the other HF or Satcom - **Blue Spruce it**, and altitude is your discretion. Your bad day just got worse, and you lost both HF radios - Blue Spruce it - but **stay clear of Shanwick OCA** (good news, there's a Blue Spruce Route for that).

HFs are back, but your **Datalink konks out** (CPDLC or ADS-C), or you don't have A056. There are two options: stay within the Data Link Mandate (DLM) exemption area (overlays the Northern Blue Spruce route) and fly any altitude, or **fly the Southern Blue Spruce route below FL290** (or maybe above FL410, if ATC lets you). The DLM exemption area exists because you don't need CPDLC in that area. Radio reception is pretty good through there.



## Little Stuff

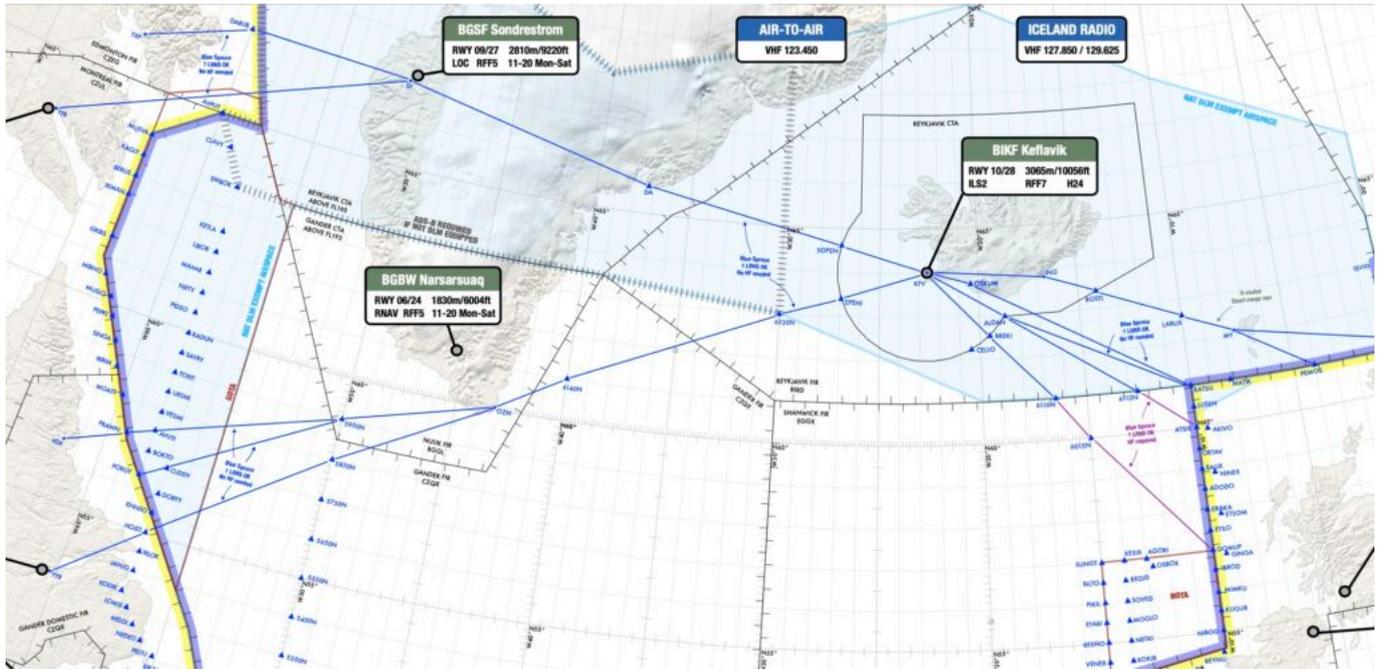
And if you get a wild hair to cross the Atlantic in an aircraft with only one LRNU, no HF radios, no Datalink, no LOAs, without the range to fly non-stop (like me), you guessed it, **Blue Spruce it**. It's starting to sound like a cheesy rap song.

## What's a Blue Spruce?

It's a Christmas tree native to the Rocky Mountains that you won't see across the Atlantic on any of your stops. However, the Blue Spruce Routes are routes in and around the Atlantic connecting Canada, Greenland, Iceland, and the UK.

**So why are they called the Blue Spruce Routes?** Back when military aircraft had wooden propellers (sometimes made of spruce), they painted the tips blue. These aircraft had to make the trans-Atlantic journey along the now-known Blue Spruce Routes.

A complete list of the 11 Blue Spruce Routes is found in Nat Doc 007 3.2.1. The routes are precisely defined, but in practice, they are more of corridors, give or take a degree of latitude.

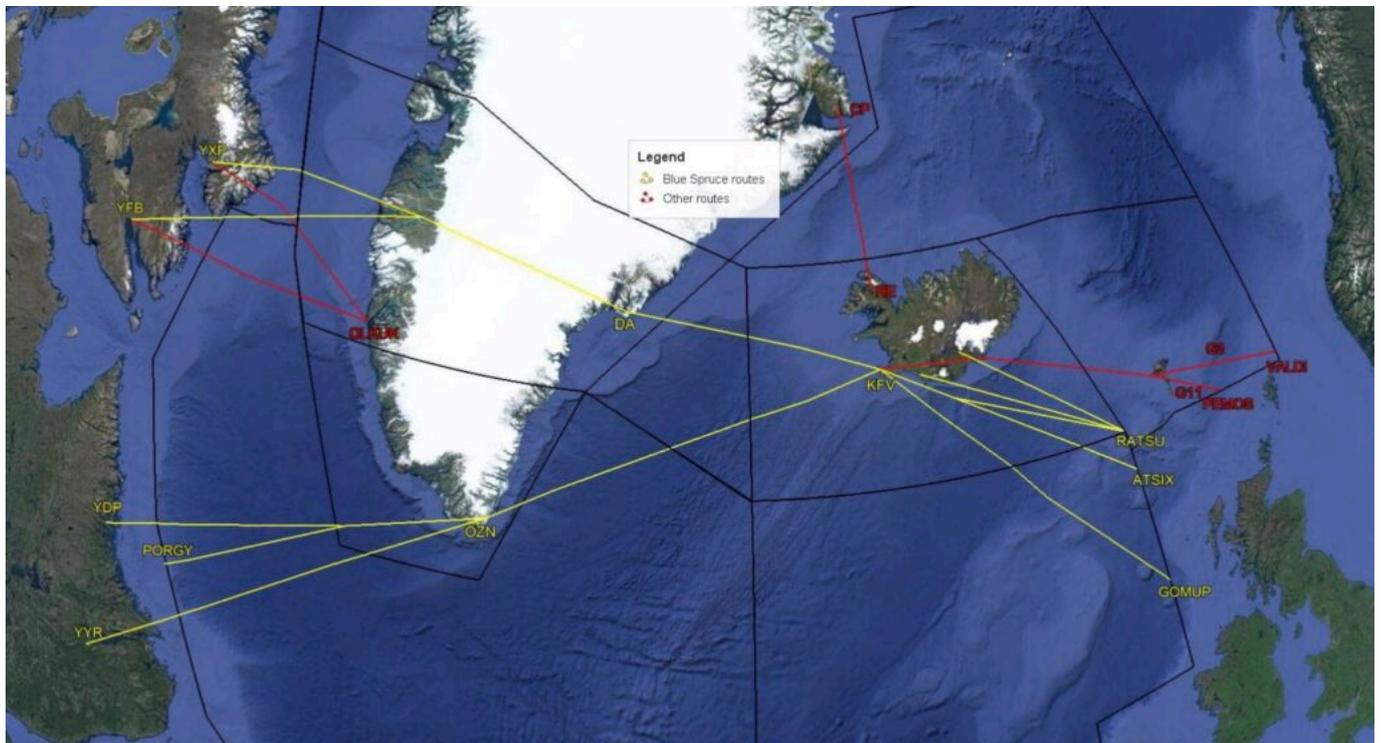


The routes are segments between countries. If you piece them together, the most commonly used complete **Southern Blue Spruce Route** route headed **East** is:

YYR HOIST 58°N50°W OZN 61°N40°W 63°N30°W EPENI KFU OSKUM RATSU

**The Northern route:**

YFB SF DA SOPEN KFU ALDAN RATSU

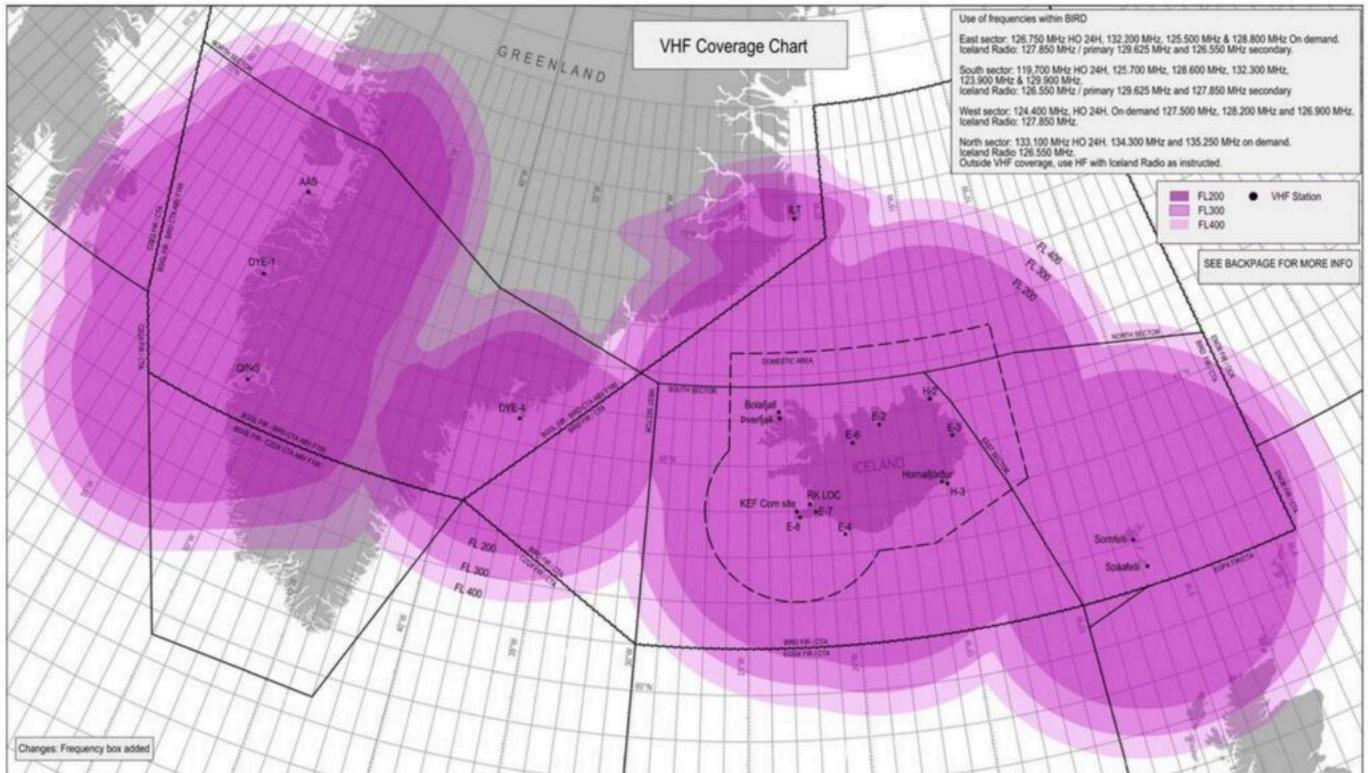


### Gray Areas

The Blue Spruce Routes provide exemptions from equipment and operational requirements because land-based radio transmitters along the route provide decent coverage, and route legs are short enough to complete a crossing without necessitating equipment redundancy.

**Now, there are exemptions from the rules, and then there are gray areas.** Despite all the relief these routes provide, one regulation remains: you must maintain two-way radio communication with ATC. So far, much of the discussion is how high you can go, **but what about how low?**

VHF communications have improved significantly in the Atlantic in the last ten years. Both the northern and southern routes have VHF reception at appropriate altitudes. The longest stretch of water is between Canada and Greenland. **On the southern route over this stretch of water, I have experienced adequate communication at FL250 and up. The northern route is good down to FL200.** Iceland is fantastic – it's almost like you're in domestic airspace.



**The gray area is when you plan to operate below these altitudes and are counting on using another aircraft to relay position reports.** By the letter, this is a no-no. The up-and-up solutions would be to rent a portable HF unit or containerize and ship the aircraft to Europe, both of which are about \$20k. You can see the incentive to count on relays.

**Are ferry pilots bending the rules?** Let us descend, inception-style, one further layer down the list of the exceptions: ATC can waive the HF requirement for ferry, delivery, and special event flights. Ferry pilots have all the fun ☐

## Summing up

**So, you have the Blue Spruce option if you need an exemption.** You can operate with one LRNU, no HFs, no CPDLC, and no LOAs along the Northern and Southern routes. Unless you can get above the NAT HLA, you're crossing between FL200-280 to the North or FL250-280 to the South for adequate VHF comms.

**Is that all you need to know? Not even close!**

If you are an experienced international operator, it may be an easy option to cross on a Blue Spruce Route. **If you're new, there is a lot to consider:**

- Necessary paperwork for international operations

- Understanding ICAO and foreign aviation regulations
- Flight planning, handling services, and local airport operations
- Oceanic procedures and contingencies
- Survival equipment requirements - especially for single-engine aircraft
- Weather - it's not great down low!
- Human factors issues like fatigue and where to find the best beer (Reykjavik)

If you want to learn more, check out [myaircraftmanagement.com](http://myaircraftmanagement.com) for a 101-level walkthrough of a Blue Spruce operation.

## More NAT info!

The latest edition (2025) of the NAT Guide ("My First North Atlantic Flight is Tomorrow") has now been published. This 24-page guide is for pilots and dispatchers, to help you understand the basics of North Atlantic flying.



In the fewest number of words possible we will tell you what you need to know about crossing the North Atlantic. If you have a couple of days to spare, then read the official ICAO North Atlantic Operations and Airspace Manual (NAT Doc 007). Otherwise, pay attention and you'll be an expert in 15 minutes.

### So, what's different about the NAT?

#### It is BUSY

There's a ton of traffic on the NAT. So, ATC squeezes most of it onto the "NAT Tracks" to make it easier for them to keep everyone apart. That doesn't mean it's easier for you.

#### The rules keep changing

As soon as you think you've got things figured out, the rules will change. So we'll start with "What Changed" ... read on.

#### There's a lot of water

And not many airports. So it pays to know which ones are suitable, and closest.

#### Shanwick Shanwick

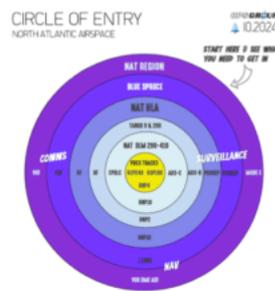
When you talk to "Shanwick Radio" it means you're not talking directly to ATC. So, when something major happens, know how to get off track safely without a clearance.

#### Acronym heaven

HLA, RCL, CPDLC, RNP, NAT OTS, TMI, OCA, OEP, SLOP, PBGS. Know 10 out of 10? Good. There's more.

#### It's complicated

Normally, you can get airborne, read the paper, do what ATC says, yawn, and land again. Easy. On the NAT, things are a good deal more challenging. Read on ...



- A FEW NOTES:**
1. The NAT RMA contains IFR, VFR, and uncontrolled airspace. It is the only area where IFR and VFR are required.
  2. The NAT RMA is divided into three zones: NAT RMA (Inner), NAT RMA (Outer), and NAT RMA (Inner).
  3. The NAT RMA (Inner) is the area closest to the NAT RMA (Outer). It is the area where IFR and VFR are required.
  4. The NAT RMA (Outer) is the area furthest from the NAT RMA (Inner). It is the area where IFR and VFR are not required.
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### CONTINGENCY PROCEDURES

Here's what to do when you need to respond quickly to an emergency, or weather - and can't get a revised clearance in time.

#### NAT CONTINGENCY!

### CONVEX

Shanwick OCA

#### Shanwick OCA

Shanwick OCA is the area where IFR and VFR are required. It is the area where IFR and VFR are required.

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### DIVERSIONS

Let's look at the most common diversion alternatives for NAT flights.

- 1. Reykjavik, Iceland
- 2. Shannon, Ireland
- 3. Dublin, Ireland
- 4. London, UK
- 5. Reykjavik, Iceland
- 6. Shannon, Ireland
- 7. Dublin, Ireland
- 8. London, UK

Click for PDF.

## Even more NAT goodies coming soon...

Start licking those lips, OPSGROUP members! Our in-house bakers at OPSGROUP HQ are currently hard at work perfecting the recipe for a new version of our **NAT Plotting & Planning chart** - valid for 2025. Stay tuned, it's coming soon!



Happy Crossings! ➔ 🗺 ➔