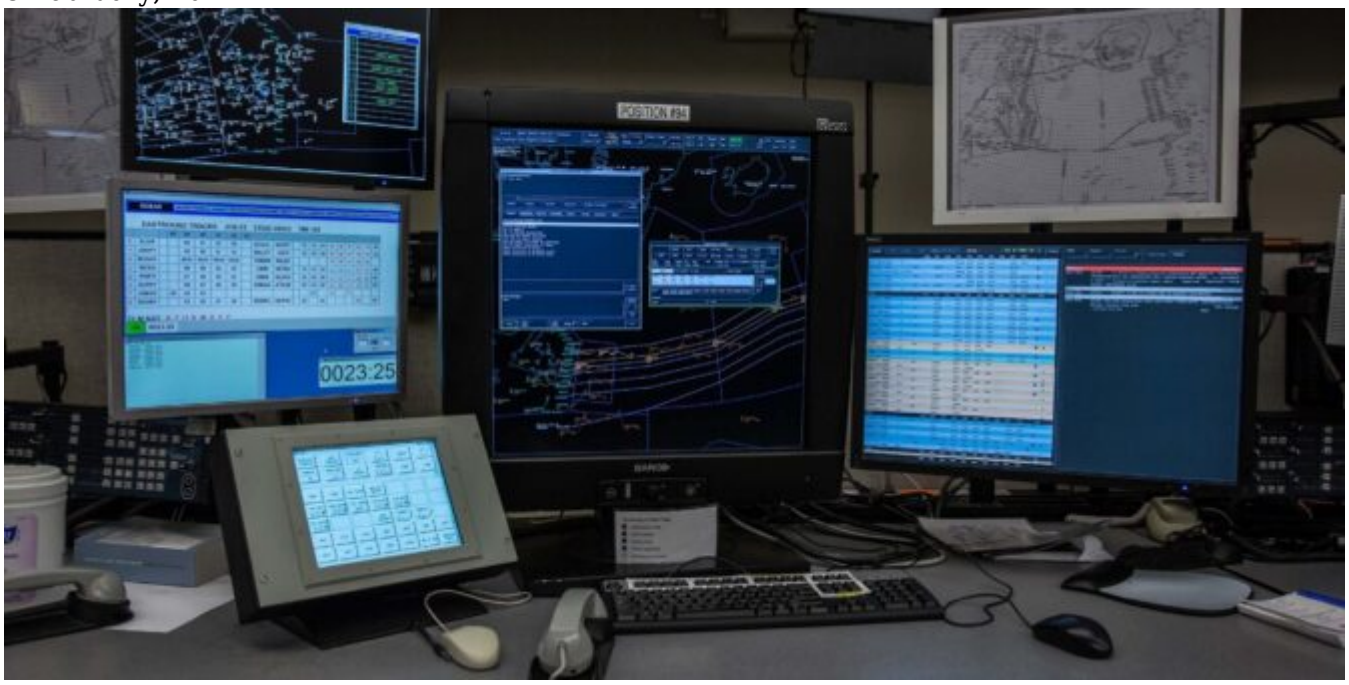
No more NAT tracks at FL330 and below

OPSGROUP Team
8 February, 2022



Big news from the NAT. From March 1, 2022, FL330 and below will no longer be part of the NAT Organised Track Structure (OTS).

What does this mean?

It means operators will have the flexibility to **file random routes at FL330 and below** when flying between Europe and North America.

Particularly for operators unable to file routes across OTS tracks with active flight levels, this means much greater flexibility in choosing their own trajectory.

Why is this helpful?

NATS quoted a study which suggested every extra minute over the ocean equates to about £51, or $70. It might not be the most radical change, but it is a step towards further improving the efficiency for operators, and ultimately to **reducing fuel burn**.

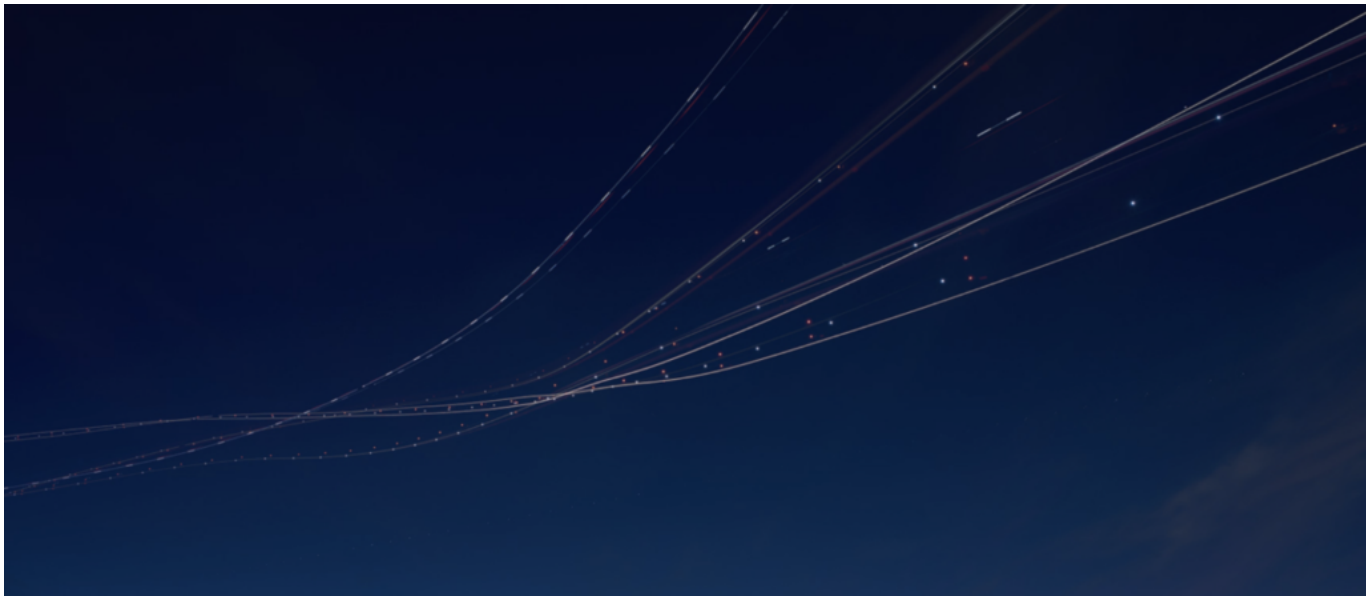
Why now?

It comes down to the **introduction of ADS-B**. This allows controllers to receive updates every 7-8 seconds instead of every 840 seconds (14 minutes).

What about the rest of the tracks?

This change forms part of **NATS 2030 NAT vision**, and more improvements can be expected. Unfortunately, it isn't a direct result of their NAT tracks NIL experiment and abolishment of all the OTS isn't on the cards anytime soon.

However, studies from the 'OTS Nil' trial are being reviewed and there are plans to simulate further OTS Nil on busier traffic days to see if viable, useful, doable…



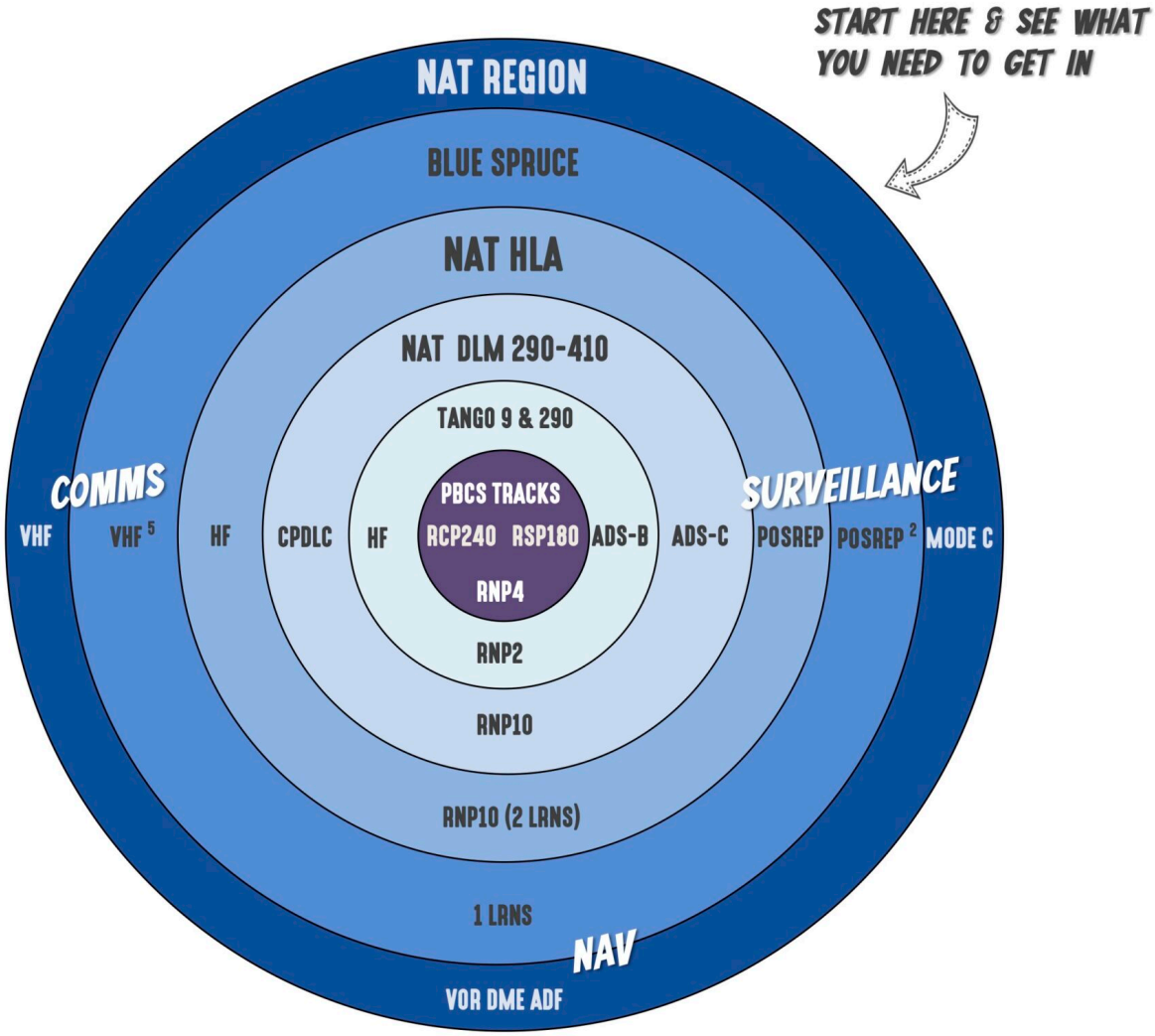
What do you need?

If you want to fly at FL330 or below (down to FL285) then remember **you are still in the NAT HLA**, just not on the OTS, so the same HF, long range nav and comms requirements apply, as do datalink mandates.

CIRCLE OF ENTRY

NORTH ATLANTIC AIRSPACE

OPSGROUP 07.2021



A FEW NOTES :

1 : The **NAT HLA** (formerly MNPS) is FL285-420 and everyone needs HLA approval in this area.
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, Tango 9 & 290, and 'surveillance airspace' over Iceland/Greenland (latter needs ADS-B).
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. You can normally **climb and descend** through most airspace even if you don't have the gear to cruise in it. You need **TCAS 7.1** everywhere in the NAT, and **RVSM** from FL290-410. **SLOP** right on all tracks, including random. Outside VHF areas **2 LRCS** are required – HF must be one, Satcom or CPDLC for the other.

This is our NAT Airspace Circle of Entry 2021 – easily check what you need for Nav, Comms and ATC Surveillance depending on which bit of the NAT you will be flying through.

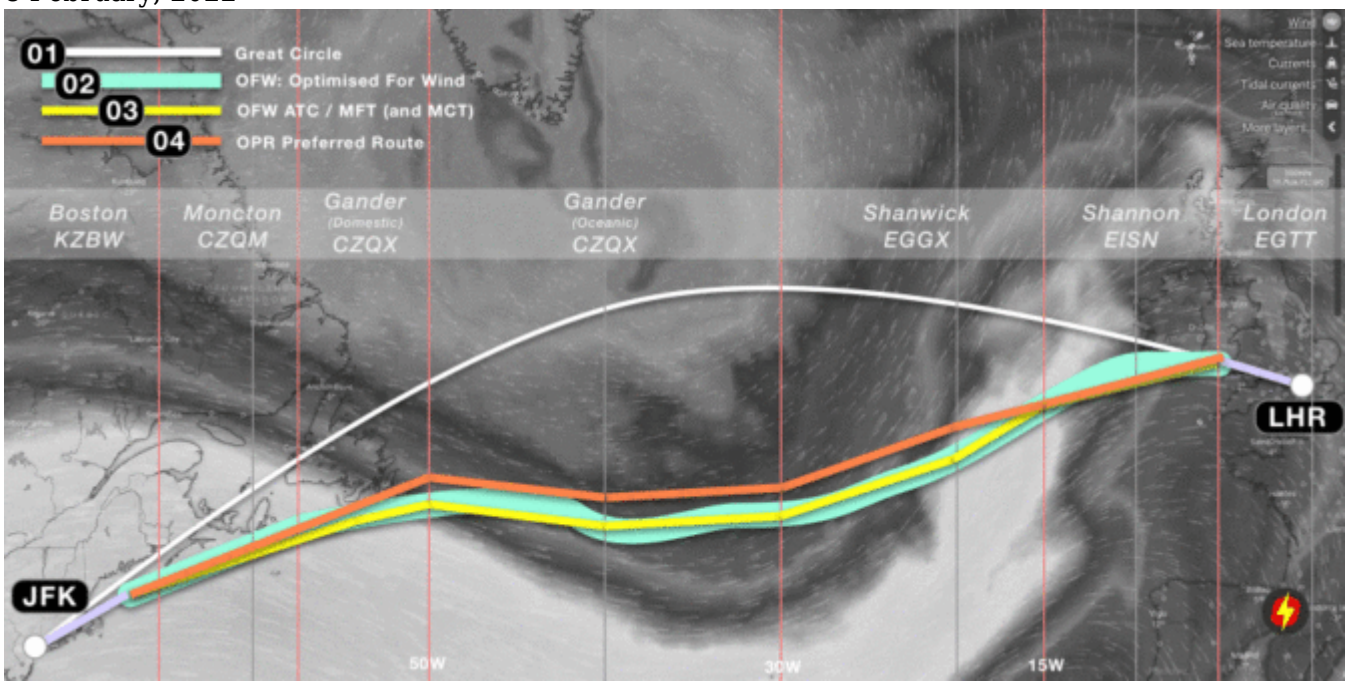
Anything else?

Unfortunately no, that's the news for now. Any questions on this feel free to direct them to us at team@ops.group

If you want to read the "official" NATS notice then you can do so here. We don't yet have a reference for the official NAT Docs.

NAT Tracks NIL – an experiment

Mark Zee
8 February, 2022



The long-awaited and much discussed scenario on the North Atlantic finally happened this week: **No published NAT Tracks, with all aircraft on Random Routes.** The concept of free-routing on the NAT is one that airlines in particular have been keen to see for a long time: the ability to decide their own routes, unconstrained by an overlay of tracks that may be tangential to their flight-planning whims.

This is an experiment being led by NATS and Nav Canada (or Shanwick and Gander, if you prefer), and on the face of it, it appears straightforward. Traffic levels are lower at present – about 40% of normal. In January 2021, Shanwick managed 15,241 flights (averaging 491 flights per day), 41% of the January 2020 figure of 36,782 (averaging 1,189 flights per day). A reduction in volume goes hand in hand with a reduction in complexity from an ATC perspective. Without published tracks to assist in separation, the burden on the controller is increased – but the lower traffic levels mean it can be safely managed. Ideal time to try it out.

The concept has garnered much media interest, not least because of the timing of a scientific research paper from Reading University that suggests efficiencies of up to 16.4% can be achieved with this "new idea". As a result, in the past 10 days the NAT Tracks have featured on CNN ("Airlines can now pick their own routes across the Atlantic. Huge fuel savings could follow") and the Independent ("'Surfing the wind' could allow aircraft to cut carbon emissions and reduce flight times"). Headline: **New York-London**

journeys could be cut by 21 minutes.

The media, and even our own industry news coverage, would have us believe that somehow we've just stumbled onto some preternatural scheme of harnessing the power of the wind, to spirit our hulking lumps of metal across the pond. Jet streams, you say? Pray tell.

Let's clarify something first. Aviation contributes around 2% of global CO2 emissions. Global warming is a danger to our entire existence. We are an industry founded on innovation and ingenuity, and we should be looking for every opportunity to do something more than just shave a few dollars off a route cost. We need to open our minds, stop being quite so defensive about aviation, collaborate with science and research, and above all recognise the impact that aircraft are having on the environment. We need dramatic change.

In the cold light of operational reality, however, all is not as the public coverage seems. The Shanwick/Gander No-Tracks experiment itself is founded on solid ground – the results will provide useful insight, and the reasoning for it is sound. The research paper, however, and associated media fanfare, has shakier foundations. In fact, there are fundamental flaws in the assumptions made to reach the headline proclamations of 16.4% and 230km (125 nautical mile) savings on route distance.

We'll look at three things in this article …

One: How an aircraft operator actually chooses a route across the NAT
Two: The ATC perspective; why No NAT Tracks is not as easy as it might sound.
Three: A review of the research report from Reading University.

Part One: How does a NAT route get chosen?

The hardest thing in life is knowing what you want. It's no different on the NAT. The process for selecting a route across the ocean is more complex than it might seem. At first glance, it might appear that the most logical route is the best wind route, in other words, the track across the ocean where we can take maxium advantage of the jet stream. In the Reading University report, this is called the "**OFW: Optimized for Wind Route**". Let's see why this is not the case.

There are four track calculation options available to most aircraft dispatchers and flight planing systems:

A. **MDT**: Minimum Distance Track. Departure to destination with shortest distance (ie. Great Circle track). Only sensible if there is no wind, which never happens.
B. **MFT**: Minimum Fuel Track. Departure to destination with lowest possible fuel burn. Equivalent to the OFW/Optimized for Wind Route.
C. **MTT**: Minimum Time Track. Departure to destination in shortest possible time. Often very similar to the MFT.
D. **MCT**: Minimum Cost Track. Departure to destination with lowest cost – considering not just fuel, but navigation fees, and the cost of time (eg. knock on schedule effects, missing curfews etc.)

Which is the most commonly used? **Minimum Cost Track**, by far. Minimum Fuel is good. But for aircraft operators, we have to consider whether saving 100 kgs in fuel results in being 10 mins late to stand, or makes us overfly a much more expensive country, or miss a curfew time at the airport.

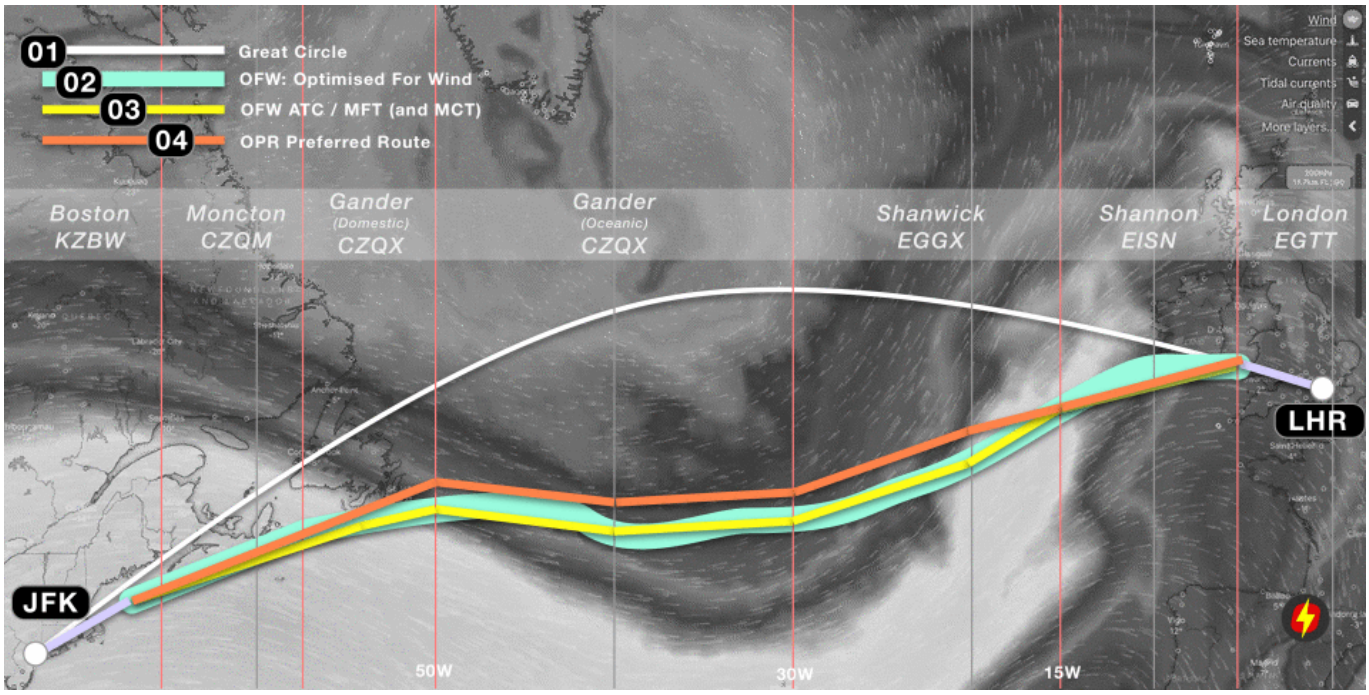
A North American OPSGROUP airline dispatcher told me: "*To give you an idea of cost, a Minimum Time Track (MTT) or Minimum Fuel Track (MFT) for our Boeing 777 from the west coast of North America to east Asia can cost anywhere from $10,000 to $15,000 more than taking an MCT. The difference? The MTT and MFT will go through Russia [where navigation fees are much higher]. The MCT stays on the North Pacific in Oakland and Fukuoka airspace. But that cheaper route can be 30+ minutes longer.*"

And even then, that's not the track the operator might want to fly. **One big consideration: Turbulence**.

In the winter months in particular, the eastbound jet stream can be nasty. The place where the most efficient route lies is efficient because that's where the winds are strongest. This is often also where the core 'efficient' NAT Track Xray or Zulu lies these days. A 200 knot tailwind is great, but it comes with a sting in the tail: severe turbulence. The same dispatcher told me: "*In the last week, we've not flown the NAT Tracks because of multiple patches of severe turbulence, both forecast and reported by other airlines*".

Planning a real-life NAT route from start to finish: eight steps

We'll look at an eastbound flight from New York Kennedy (JFK/KJFK) to London Heathrow (LHR/EGLL). Given that the research paper mentioned above identifies maxium fuel savings eastbound of 16.4%, this is a good example to choose. On the maps that follow, you will see the there are **eight steps**, starting with the great circle track, and working through what happens in practice until we reach the **actual route flown**. The aircraft in this example is a Boeing 787, which has an optimum altitude of FL390 (presure level of 200 hPa) at operational weight (~85% of MTOW). Therefore, the winds shown are those at FL390. For track planning, we will consider only the track from Top of Climb (first point of cruising altitude) to Top of Descent (beginning of descent into LHR). The map also shows the ATC areas that will control the flight in the enroute phase. The jet stream is shown as background: the whiter, the faster.



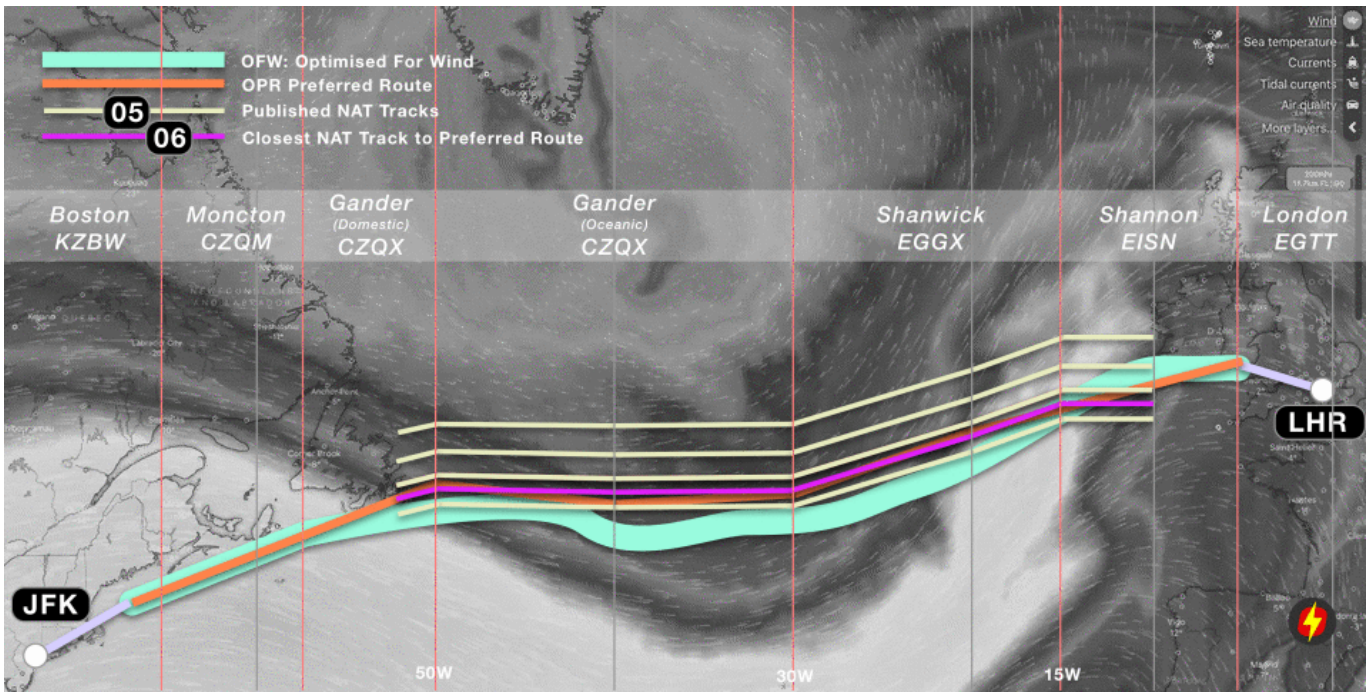
01: GC: Great Circle Route. The shortest distance between JFK and LHR. This does not take winds into account, so to find the best wind route, we must add wind from the forecast for FL390 for our time of flight.

02: OFW: Optimised For Wind route. The track taking maximum advantage of the winds at FL390 (39,000 feet, or the 200 hPa pressure level in ISA).

03: OFW ATC route. The OFW route as adjusted for oceanic ATC flight planning limitations – which are: **1.** You must use fixed 1/2 degree latitude points at every 10 degrees of longitude from Oceanic Entry Point to Oceanic Exit Point. **2.** You must fly a straight line from that point to the next 10 degree longitude line. This route equates to the MFT (Minimum Fuel Track) in flight planning systems, and in our case here, also the MTT (Minimum Time Track). For some NAT routes, overflight fees will be a consideration (for example, avoiding higher charges in UK and Swiss airspace on routes that go further into Europe) – but here, they are not, so **MCT (Minimum Cost Track) is also the same**. In other words, OFW ATC = MFT = MTT = MCT.

04: Operator Preferred Route. The next big consideration is turbulence. In this example flight, there are moderate-severe turbulence warning patches at several points on the ATC OFW/MCT route above, so the dispatcher elects to move it a little further north – still gaining from the eastbound jetstream, but outside the core jetstream which has the highest turbulence.

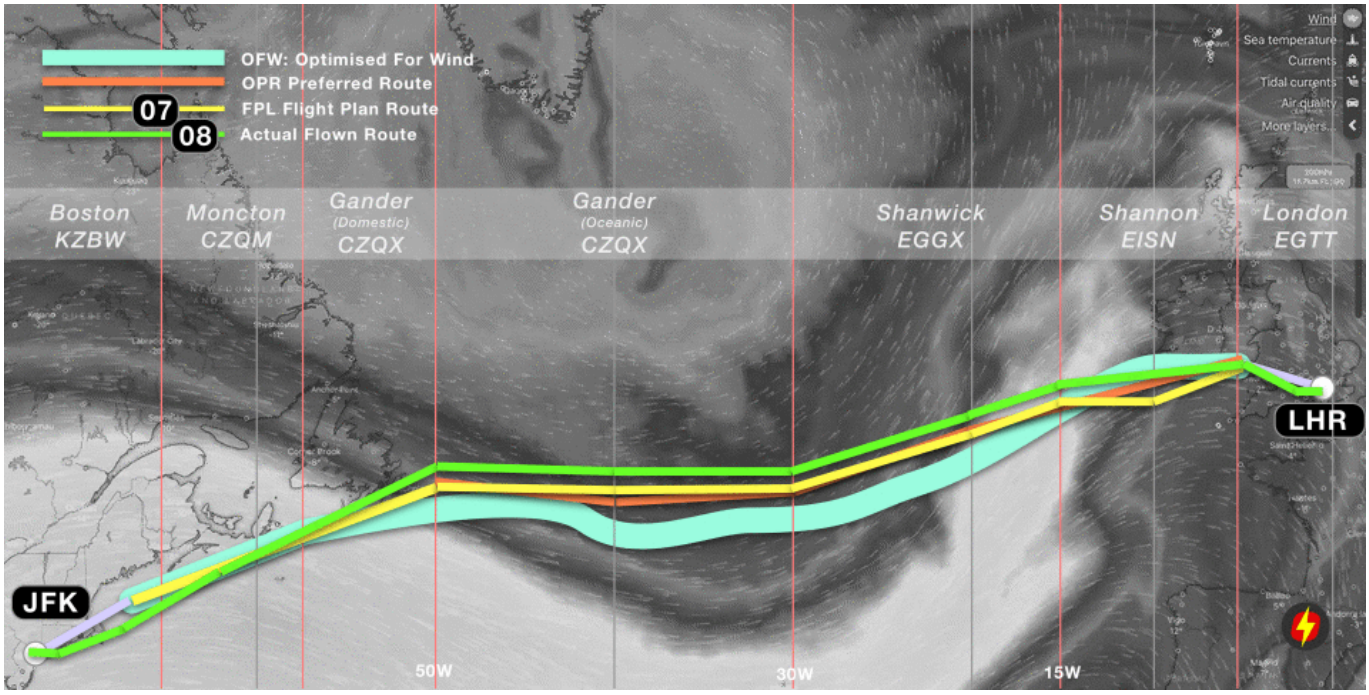
We can now move on to the next stage of planning in a real-world scenario: accounting for a high volume of other traffic, ie. matching the Operator Preferred Route to the closest NAT Track of those published for the day of flight.



05: Published NAT Tracks. Once a day, Gander issues the NAT Track Message for Eastbound Tracks, which allows Air Traffic Control to safely separate the peak flow of flights from the US to Europe. In this case, there are five tracks.

06: Closest NAT Track to Preferred Route. This is a simple calculation – which NAT Track most closely matches the Operator Preferred Route across the ocean. In this case, it is highlighted in purple, and is a relatively close match.

Finally, we can account for what will happen at the time of flight …



07: Flight Plan Route (FPL). With the choice of track made, the operator will then file the Flight Plan with their requested route, several hours in advance of the flights' departure from JFK. The purple track above at Step 6 (closest NAT Track) becomes the yellow track in this step, to which the domestic ATC routings are added. Once airborne and enroute, about an hour from the Oceanic Entry Point at 50W, the crew will request their Oceanic Clearance from Gander, as per this flight plan route.

08: Actual Flown Route. For this flight, the requested track was not available at FL390 (because of other traffic ahead). The crew were given a choice of either a more notherly NAT track at their preferred level (FL390), or their requested NAT track at FL370. The altitude difference would have made for a greater fuel burn than a slightly longer distance, so the crew elected to take the more northerly track (30 nautical miles further north laterally, but in terms of distance flown adding about 20 nautical miles). At 15W, the flight is under radar coverage from Shannon, and was cleared direct to the Strumble (STU) beacon in Wales (which was the original planned Top of Descent). The green track therefore depicts the actual route flown.

Where did we lose most efficiency?

Since the background to this article is considering the benefits of not having to follow prescribed NAT Tracks, the key question is – where has most efficiency been lost on this flight?

1. **Loss 1:** The difference between the **Minimum Fuel Track (MFT)** (or "ATC OFW") and the **Optimized for Wind Route (OFW)**. Some efficiency is lost because the OFW is constrained by flight planning requirements – specifically having to flight straight lines between each 10 degrees of longitude, and having to cross each 10 degrees of longitude at 1/2 degrees of latitude. The "route of straight lines" is, of course, longer.
2. **Loss 2:** The difference between the **MFT** and the **Operator Preferred Route**. In this case, the operator chose to move the track further north to avoid turbulence. This decision creates an efficiency loss in terms of fuel burn, because the minimum fuel track is no longer being followed.
3. **Loss 3:** The difference between the **Operator Preferred Route** and the closest matching **NAT Track**. This is the key efficiency difference when considering gains from the "No NAT

Track's" experiment.

4. **Loss 4**: The difference between the **NAT Track** requested (Flight Plan Route) and the **Actual Route flown**. There is a mixed bag here. On the one hand, if the operator has to fly anthing other than the requested route, they lose efficiency to some degree. In this case, ATC could only offer a lower level, or a more northerly route. On the other, domestic ATC (using radar) often provide shortcuts which lessen the track miles flown.

A scientific analysis of a series of actual flights would reveal the numbers involved in the four different areas of efficiency loss – and this is roughly the aim of the OTS NIL experiment that Shanwick and Gander are conducting,

Part Two: Why we might still need NAT Tracks

The narrative in the majority of recent reports about the North Atlantic tell us that because we now have ADS-B satellites, and thereby excellent surveillance, this changes the entire landscape, and allows for the disbanding of NAT Tracks. But this overlooks a key point: **it's not a surveillance problem, it's a comms problem.**

We've got surveillance nailed – it's basically the same as radar, now that the full complement of Aireon ADS-B satellites are up and running, complementing the ADS-C coverage already in place. So, controllers can see the aircraft in much the same way as a domestic radar controller. That's exciting.

However, it's a bridge too far to assume that just because surveillance is good, we can start treating the Air Traffic Control of NAT aircraft as if it were somewhere in the centre of Europe.

And the reason: **instant communication**. In a domestic ATC environment, the approximate sequence of events goes like this (callsigns dropped from some calls for clarity):

Controller (thought): … *Hmmm, Delta and Speedbird are getting a little close. I'll climb the Delta.*
Controller: *Delta 63, climb FL360.*
Delta 63: *Sorry, unable 360, we're still too heavy.*
Controller: *Delta 63, roger, turn right 10 degrees due traffic.*
Delta 63: *Roger, right turn heading 280.*

And Delta turns. Conflict solved. That entire sequence of events takes about **10 seconds**. Now consider the Oceanic environment. CPDLC is a hell of a lot better than HF, but the target time for the same sequence of events is 240 seconds, or **4 minutes**. That's the basis of RCP240.

See the ATC problem? We can see the traffic now, but we can't be sure that we can move it around in the same way as a real radar environment, because we don't have VHF.

This is why the new satellite coverage does not go all the way to allowing a full reduction in separation to the standard enroute value of 5 nautical miles. Oceanic ATC, even with this additional surveillance, remains more of a procedural environment – and separation standards cannot yet drop. In the same vein, we're not yet at the point where we can solve enroute conflicts with a few vectors and "on your way".

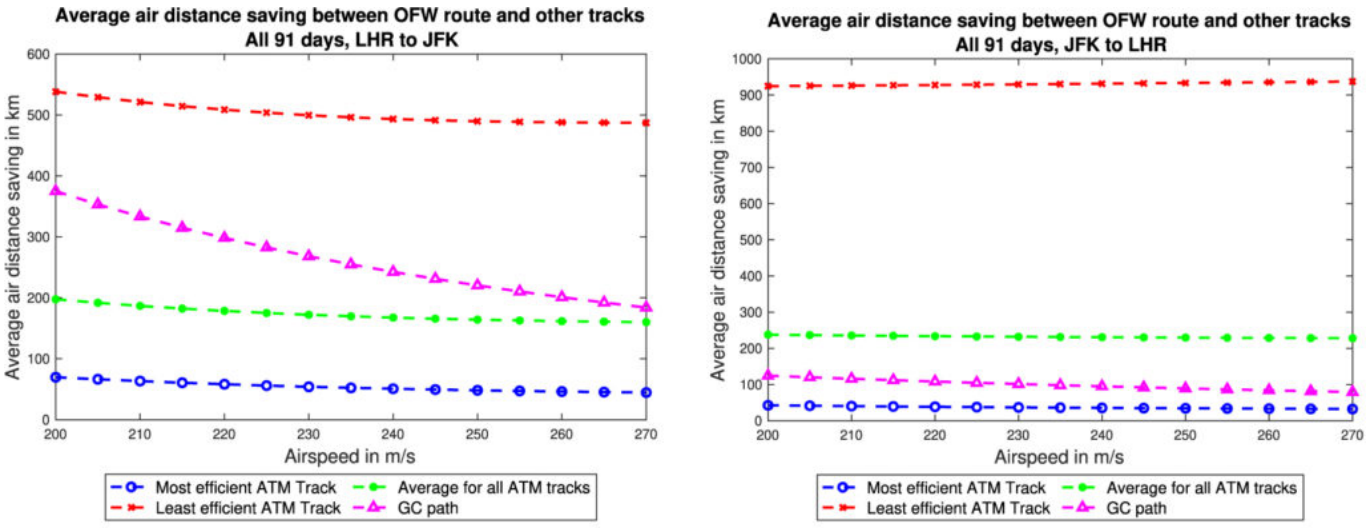
And therefore, removing the NAT Organized Track Structure for high volumes of traffic is a big challenge.

Part Three: The Reading University Report

Published in January 2021, a paper from Reading University titled "*Reducing transatlantic flight emissions*

by fuel-optimised routing" suggested that "current flight tracks [on the North Atlantic] have air distances that are typically **several hundred kilometres** longer than the fuel-optimised routes", that by using the optimal wind route eastbound flights would save on average 232 km, and that an efficiency gain of up to 16.4% would be possible. These headline figures are the ones taken by the media in the last few weeks resulting in articles suggesting that the average New York-London flight could arrive **21 minutes earlier** [Independent >].

The paper shows these graphs, with the eastbound plot on the right:



(a) Average air distance westbound

(b) Average air distance eastbound

From an operational perspective, however, the promise of 232km (125nm) average route savings, and 16.4% increases in efficiency do not ring true. If you are a dispatcher, or pilot, you will share my instinct that this number feels extremely high. The term "potential increase in efficiency" really means "**current inefficiency**" – and my gut feeling says it's not always ideal, but far from that bad. Many plans are indeed sub-optimal, and crossing the NAT certainly has the potential to result in a track a half-degree north or south of the one requested or a level below the optimum – but is the inefficiency really that high?

Closer analysis shows that at least some of the assumptions in the report to be fundamentally flawed.

The report itself makes the flaw clear here: "Taking the results for an airspeed of 240 m s−1 and averaging savings in air distance between the most efficient ATM track and the OFW route across all 91 days of winter 2019–2020 for flights from JFK to LHR, gives an air distance saving of 37 km, but the saving for the **least efficient ATM track is over 931 km**. The average saving for all ATM tracks is 232 km"

The problem is that to reach these high numbers, the paper is assuming that "***airlines use all provided tracks equally***". This is not what happens in reality, by any stretch. There are normally 8-10 NAT Tracks eastbound. An airline, or aircraft operator will request their Preferred Track, as we have seen in the example above. Almost all of the time, the requested track is granted, albeit with potentially a lower level (or higher) than requested. Very ocasionally, a track one north or one south is given by ATC.

The efficiency figure of 16.4% is created by dividing the air distance between LHR-JFK by additional distance flown on the least efficient eastbound NAT Track (2,997nm/503nm ~ 16.4%). That *least efficient* NAT Track (which will usually be Track Zulu in non-Covid ops for an eastbound flight) is normally a southerly Caribbean area route intended for traffic departing places like Miami, the Bahamas, or even Trinidad and Tobago. It will never be flown by a New York-London flight.

Therefore, we have to disregard these higher numbers entirely.

The report does identify, when looking at actual flights, that efficiency savings of “2.5% for eastbound flights and 1.7% for those flying west” would be obtained by flying the optimum wind route (OFW). Those numbers look far closer to what we might expect as total efficiency losses identified at the end of Part One, above.

However, consider further that we looked at four different types of efficiency loss: **flight planning constraints**, **avoiding turbulence**, **the NAT Tracks requirement**, and **tactical routing by ATC**. It is clear, then, that the presence of the NAT Tracks accounts only for a portion of those inefficiencies. Again, real world analysis of actual flights with the full compendium of information as to what caused the ineffciencies would give the most insight, and this is what we will hopefully see from NATS and Nav Canada as a result of the “OTS NIL” experiment.

A further paper as an iteration of the first, applying a collaborative approach with the operational world (ATC, Airlines, Aircraft Operators, Flight Crew), would be beneficial.

Over the past 25 years, there has been continual improvement in ATC efficiency. The NAT region was the first to implement reduced vertical separation (RVSM), in March 1997, and subsequent improvements in surveillance (ADS-B, ADS-C), and communications (CPDLC), have led to lateral separation improvement from 60nm to 19nm, and longitudinal from 80nm (or 10 minutes) to as low as 14nm – in addition to the altitude separation reduction from 2,000 to 1,000 feet. In simple terms, the number of aircraft that can fly closer to the optimum route for a city pair has dramatically increased.

Despite the inaccuracies in the numbers, we should look at the bigger picture: The paper does identify a key point that we should digest in this industry: “Airlines currently choose routes that minimise the total cost of operating a flight (by specifying a Cost Index, which is the ratio of time-related costs to fuel costs), not the fuel consumption or emissions.”

This, I think, is important to consider. **We are not currently flight planning to minimise emissions – we flight plan to minimse cost**. With the reality of our warming planet, and the thankfully growing recognition that a corporation’s profit should not come ahead of the greater good of humankind, focus should be placed on how we can operate flights more efficiently – where ‘efficient’ does not mean reduced costs, but reduced emissions.

My first North Atlantic Flight is tomorrow – NAT Ops Guide (Updated 2018)

Declan Selleck
8 February, 2022

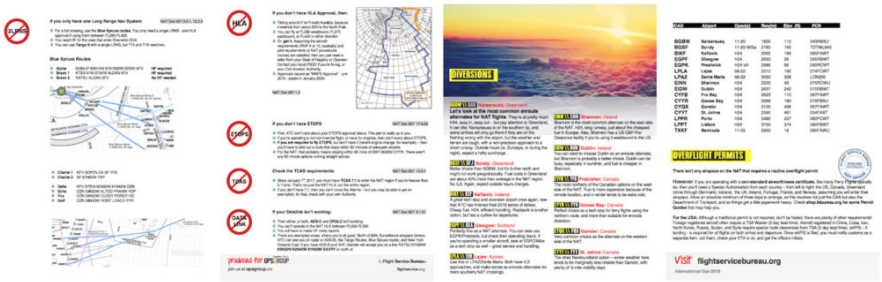
> For the **latest changes and updates on the North Atlantic**, including our most recent **Guides and Charts**, use our NAT reference page at **flightservicebureau.org/NAT**.

Of all the hundreds of questions we see in OPSGROUP, one region stands out as the most asked about – the NAT/North Atlantic. So, we made one of our legendary guides, to get everything into one PDF. It's called "My first North Atlantic Flight is tomorrow" – **and now we've updated it for 2018!**

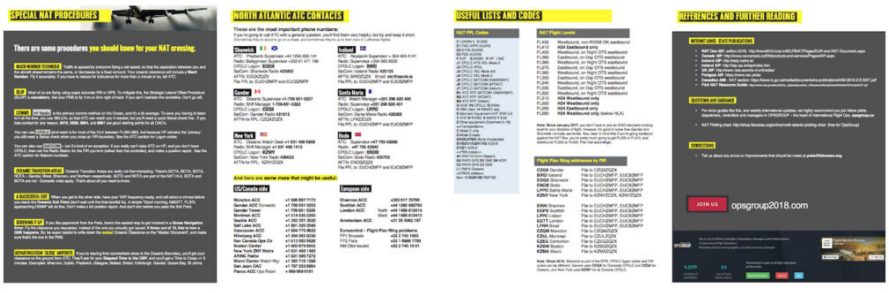
Contents:

- 1. What's different about the NAT?
- 2. Changes in 2018, 2017, 2016, 2015
- 3. NAT Quick Map – Gander boundary, Shanwick boundary
- 4. Routine Flight Example #1 – Brussels to JFK (up at 5.45am)

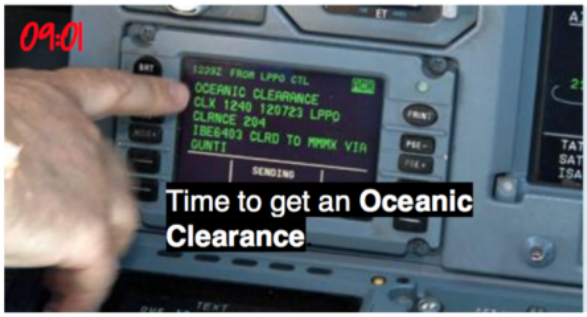
- 5. **Non Routine-Flights**: No RVSM, No RNP4, No HF, 1 LRNS, No HLA, No ETOPS, No TCAS, No Datalink – what you can do and where you can go
- 6. **Diversion Airports guide**: Narsarsuaq, Sondy, Kef, Glasgow, Dublin, Shannon, Lajes, Fro Bay, Goose Bay, Gander, St. Johns
- 7. **Airport data**
- 8. **Overflight permits** – routine and special



- 9. **Special NAT procedures**: Mach number technique, SLOP, Comms, Oceanic Transition Areas, A successful exit, Screwing it up, Departing from Close Airports
- 10. North Atlantic **ATC contacts** for Shanwick, Gander, Iceland, Bodo, Santa Maria, New York – ATC Phone, Radio Station Phone, AFTN, Satcom, CPDLC Logon codes; and adjoining Domestic ATC units – US, Canada, Europe.
- 11. NAT **FPL Codes**
- 12. NAT **Flight Levels**
- 13. **Flight Plan Filing** Addresses by FIR
- 14. Links, Questions, Guidance

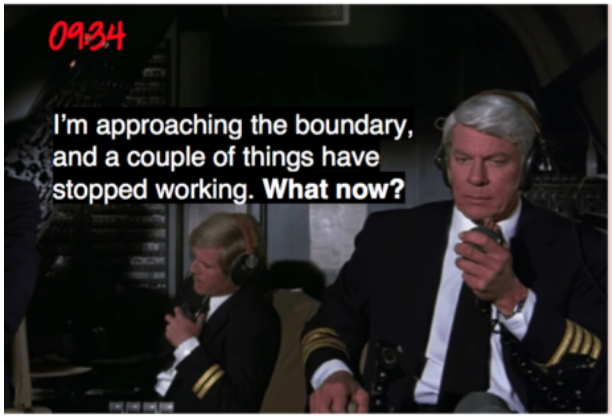


Excerpt from the Routine Flight #1:



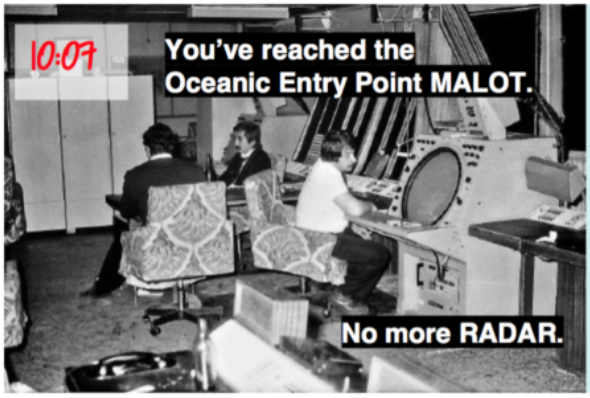
Oceanic Clearance NAT Doc 007, 4.1

- You need a specific clearance to enter Oceanic Airspace.
- Request it about 60 mins before entering, on CPDLC, VHF, or HF.
- When you get your clearance, **don't be a chump** and climb to your ocean level *without* a clearance from Domestic ATC. This happens pretty often, and will make you immediately unpopular. Your Oceanic Clearance is valid from the Oceanic Entry Point (OEP) only.



Equipment Failure before the boundary NAT Doc 007, 6.6

- **HF fail**: Oceanic Clearance received – **fly the clearance**. Tell Domestic ATC. Use Satcom Voice, CPDLC, or VHF relay with other aircraft. **Don't revert to the filed flight plan**.
- **HF fail**: No Oceanic Clearance received, and no contact with Domestic ATC: You should enter the OCA **at the FPL requested Oceanic level and speed** but **not** execute any subsequent step climbs in the Flight Plan.
- **Datalink – affecting CPDLC or ADS-C**. Tell ATC. They will try to accommodate you within the Datalink mandated area (FL350-390), but you may be rerouted.
- **One LRNS failure** (of two) – request a reclearance below or above NAT HLA, or land and get it fixed.



Entering the Ocean NAT Doc 007, 4.1

- Say goodbye to the radar controller, you're on your own now.
- Select an offset for **SLOP** – 1nm or 2nm right of track, your call.
- Logon to **EGGX**, and call Shanwick on HF for a radio check.
- Expect a "Confirm Assigned Route" message on CPDLC .
- Check next waypoint is correct, and that you're going there.
- Set 123.45 for turbulence complaints + baseball scores, and 121.5.
- **Squawk 2000**, 30 minutes after passing the OEP.

If you do have to make a voice position report, then do it like this:
***Position, Swissair 100**, RESNO at 1235, Flight Level 330, Estimating 56 North 020 West at 1310, 56 North 030 West Next.*

Going around Weather NAT Doc 007, 13.4

- Unless you've spotted the CB late, request a deviation from ATC. Otherwise, follow the **contingency deviation procedure**:
- Turn away from the tracks, turn on your lights
- Call on 121.5 and 123.45 to tell others
- If deviating >10nm, if **north of track** descend 300 feet; if **south of track** climb 300 feet, but only once you are 10nm off track.
- Once clear, and back within 10nm of track, return to level.

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FSB content like this is included in your membership, **or**

2. **Join OPSGROUP** with an individual, team, or department/airline plan, and get it free on joining (along with a whole bunch of other stuff), **or**
3. **Purchase a copy** in the Flight Service Store!

PBCS: New rule on the NAT from March 29, 2018 – RCP240 and RSP180

David Mumford
8 February, 2022

> **Update March 16th, 2018**: PBCS is turning into a PITA. After OPSGROUP input, we have an update on the latest status including rumours of delays, A056 LOA's, and Aircraft that have failed to comply with PBCS.

> For the **latest changes and updates on the North Atlantic**, including our most recent **Guides and Charts**, use our NAT reference page at **flightservicebureau.org/NAT**.

ICAO is introducing another acronym in the North Atlantic Region. This time, it's PBCS (Performance Based Communication and Surveillance), and from March 29th 2018 you will need to be compliant if you want to fly on the half-tracks between FL350-390.

Initially, there will only be a maximum of three daily tracks where you will need to be PBCS-compliant between FL350-390. These will likely be the same tracks as we currently see being assigned as 'half-tracks' each day.

This requirement will eventually be extended to all the NAT tracks between FL350-390, but we understand that will only happen when the filing of PBCS designators on flight plans reaches the 90% mark, or 28th March 2019 – whichever comes first. Either way, the 'transition period' for this PBCS implementation is set to last six months, so the roll-out of the requirement to all the tracks won't happen until Oct 2018 at the earliest!

But from March 29th 2018, Shanwick and Gander will basically just continue the concept used in the RLatSM trial – whereby daily tracks spaced at less than 60nm from an adjacent track will be specified as a 'PBCS Track' and will be notified in the Track Message Remark-3.

So what is PBCS?

PBCS is the thing that will replace two trials in the NAT which are both coming to an end on March 29th:

- **RLAT** – **Reduced Lateral** Separation Minimum: where a reduced lateral separation of 25 nm has been implemented on the tracks between FL350-390 (so now there are extra "half tracks" each day, spaced by one-half degree of latitude)
- **RLong** – **Reduced Longitudinal** Separation Minimum: in the Shanwick Oceanic Control Area (OCA), longitudinal separation has been reduced to 5 minutes between aircraft following the same track.

When these trials end, PBCS standards will be introduced to continue to allow the application of both reduced lateral and longitudinal separation for aircraft that meet the Required Communication Performance (RCP) and Required Surveillance Performance (RSP) specifications.

How do I comply with PBCS standards?

To operate on the PBCS tracks between FL350-390, you will need to be RNP4 compliant, with CPDLC capable of RCP240, and ADS-C capable of RSP180.

But watch out! Some aircraft do have ADS-C and CPDLC but have never demonstrated RCP or RSP, and have no statement of compliance (e.g. most Honeywell Primus aircraft and several early Boeing aircraft). These aircraft may struggle to get approval to operate in PBCS airspace. Which brings us neatly on to…

Do I need PBCS approval from my state of registry?

PBCS approval will differ depending on which country operators are from.

For UK operators, check the requirements **here**.

US operators will need to update their LOA for Data Link Communications (A056). **The FAA have published a new guide**, which tells operators exactly what they need to do to get this authorisation, namely:

1. Submit an AFM Statement of Compliance for PBCS, showing exactly what data link communication systems you aircraft has, along with the selected performance
2. Since July 2016, various oceanic FIRs have been collecting data on whether certain aircraft meet RSP and RCP criteria. You need to make sure your aircraft isn't already listed as having

failed to meet these criteria, by checking here:
https://www.faa.gov/air_traffic/separation_standards/pbcs_monitoring/

What new codes do I need to put down on my flight plan?

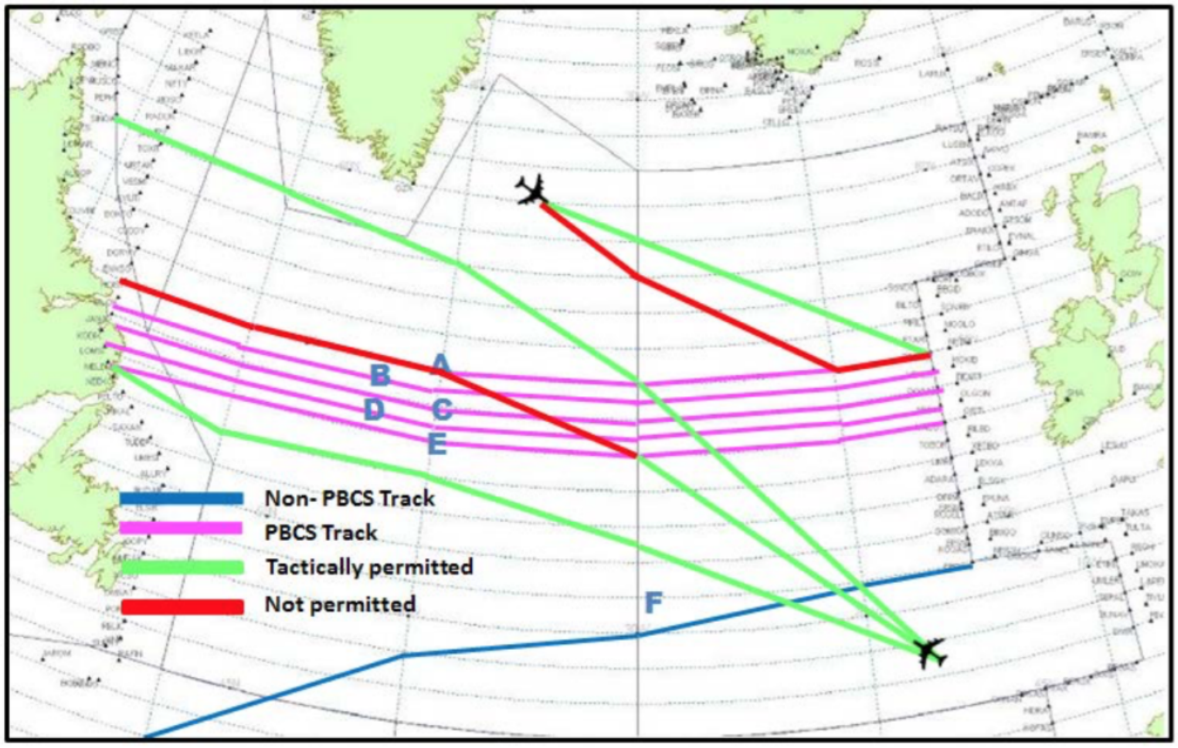
- FANS 1/A CPDLC equipped aircraft planning to operate in the NAT HLA shall insert the appropriate designator (J2, J3, J4, J5 and/or J7) in Item 10a of the flight plan.
- FANS 1/A CPDLC RCP 240 compliant aircraft intending to operate in the NAT HLA shall insert the designator P2 in Item 10a of the flight plan.
- FANS 1/A ADS-C compliant aircraft planning to operate in the NAT HLA shall insert the designator D1 in Item 10b of the flight plan.
- FANS 1/A ADS-C RSP 180 compliant aircraft planning to operate in the NAT HLA shall insert SUR/RSP180 in Item 18 of the flight plan.
- RNP 4 compliant aircraft planning to operate in the NAT HLA shall insert PBN/L1 in Item 18 of the flight plan.

If I'm not eligible for PBCS, where can I go?

ATC may allow you to do either of the following, depending on how stressed/busy they are (i.e. decided on a 'tactical basis'):

- You can infringe on the daily PBCS tracks between FL350 – FL390 at only one point (including Oceanic Entry/Exit Point) i.e. cross but not join an NAT PBCS track
- You can climb or descend through levels FL350 – FL390 on a PBCS track provided the climb or descent is continuous.

In their **NAT OPS Bulletin 2018_001**, ICAO have published a handy little picture to demonstrate this:

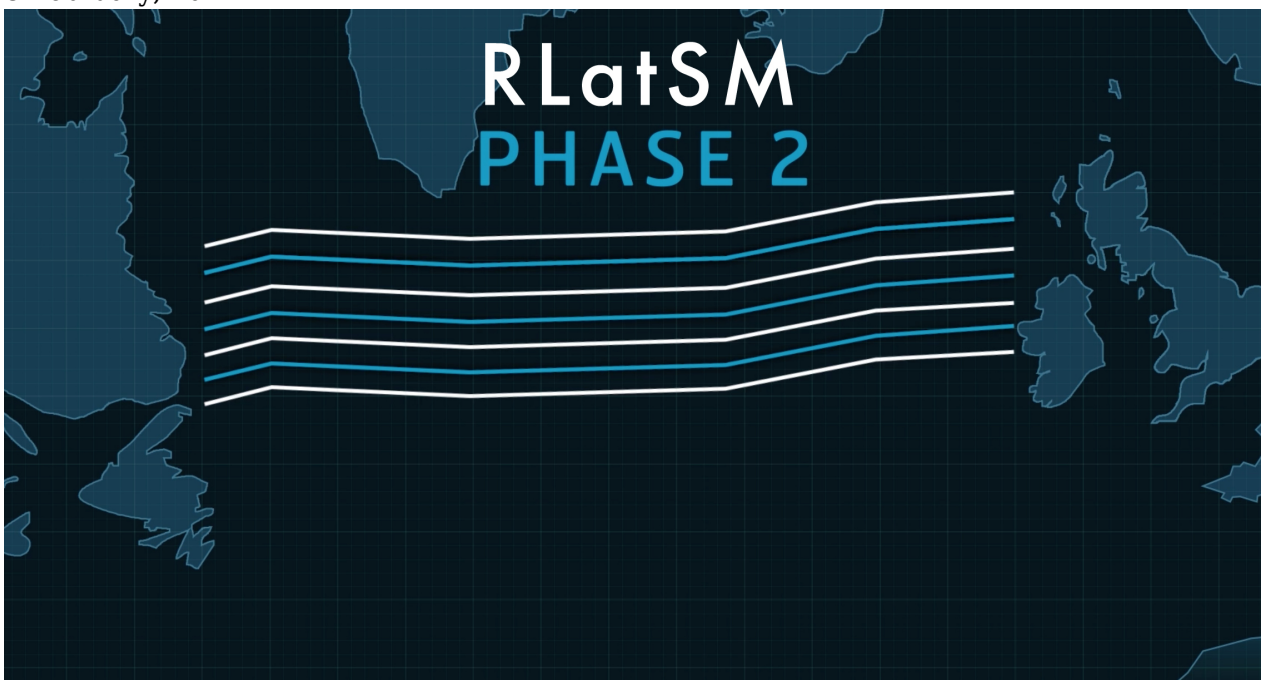


Further information:

- For a great FAQ on all things PBCS, check out the latest FAA document **here.**
- For more info on the PBCS implementation, check out the full UK AIC **here**.
- To figure out where you are welcome on the NAT, depending on what equipment and training you have, check out our quick reference guide **here.**
- *Special thanks go to Mitch Launius at 30westip.com for help with this post. For assistance with international procedures training for business aviation crews worldwide, and to watch an excellent webinar about all things PBCS-related, check out the* ***30westip.***

More NAT half-tracks are coming

David Mumford
8 February, 2022



Update Jan 23: The current phase of the trial for RLatSM Tracks will come to an end on March 29, when PBCS standards will be introduced for the NAT tracks. More info on that **here**.

Since Dec 2015, there have been three daily NAT tracks spaced by one-half degree between FL350-390. These are officially called 'RLatSM Tracks' (Reduced lateral separation minima), but we all just prefer to call them 'Half-Tracks'.

Separating flights by one-half degree of latitude rather than the standard one degree means that aircraft can be separated laterally by 25nm, which helps improve the efficiency of North Atlantic operations.

In Jan 2018 the Half-Tracks will be expanded from the three that now run each day, first by one additional track and then (maybe) to all NAT Tracks between FL350-390 inclusive. Jan 4 is the earliest day that this might happen, but because they will be decided tactically, it will most likely be the first busy day after Jan 4.

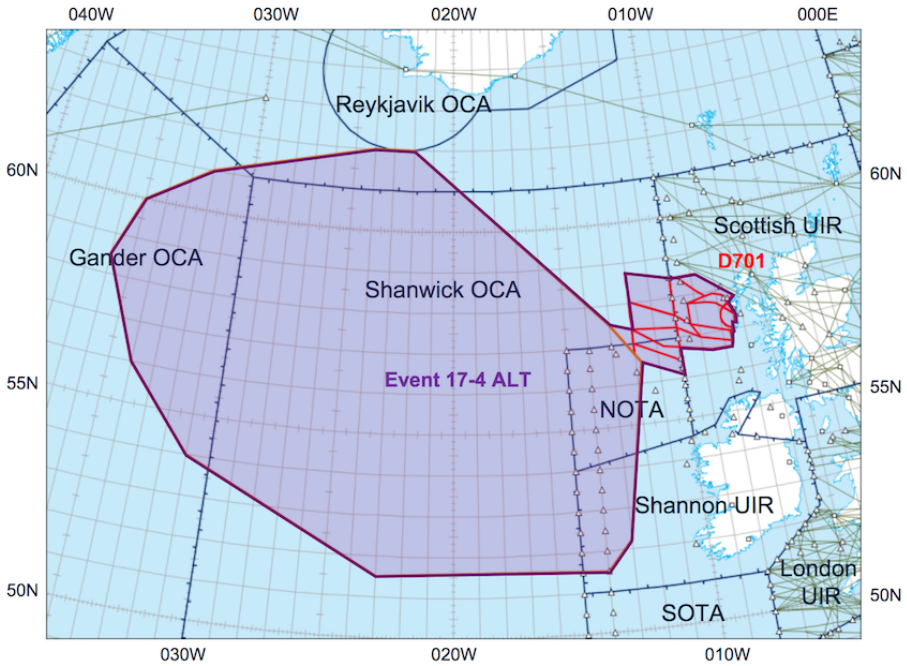
If you want to operate on the RLatSM tracks, you're going to need CPDLC, ADS-C, and RNP4; along with the other standard pre-requisites for operating in the NAT HLA between FL350-390: an HLA approval, TCAS 7.1, RVSM approval, two LRNS, and a working HF radio. To figure out where you are welcome on the NAT, depending on what equipment and training you have, check out our quick and dirty guide here.

One thing to be cautious of when using the half-degree tracks – most aircraft FMC's truncate lat/long waypoints to a maximum of 7 characters, so it will often show up as the same waypoint whether you're operating along whole or half degree waypoints. So when operating on the half-tracks, just remember to double-check the full 13-character representations of the lat/long waypoints when you enter them into the FMC.

For more details about the new RLatSM procedures, have a read of the UK AIC 087/2017 here.

NAT Airspace Closures

David Mumford
8 February, 2022



Update 18th Oct: No more events are planned at this time. However, we will keep this page updated with the latest news as we get it.

Sections of NAT airspace are set to close on various different dates in October. This is all due to U.S. and NATO joint military exercise that's going on, called Formidable Shield, which will mean huge chucks of airspace will be closed to civil ops for many hours.

The basics for each event are the same:

- **Airspace closed, SFC-UNL.**
- **Aircraft capable of flying in MNPS airspace will have to keep at least 30nm away from the area, other aircraft will need to keep 60nm away.**

Event 1 – **Happened on 25th Sep.**

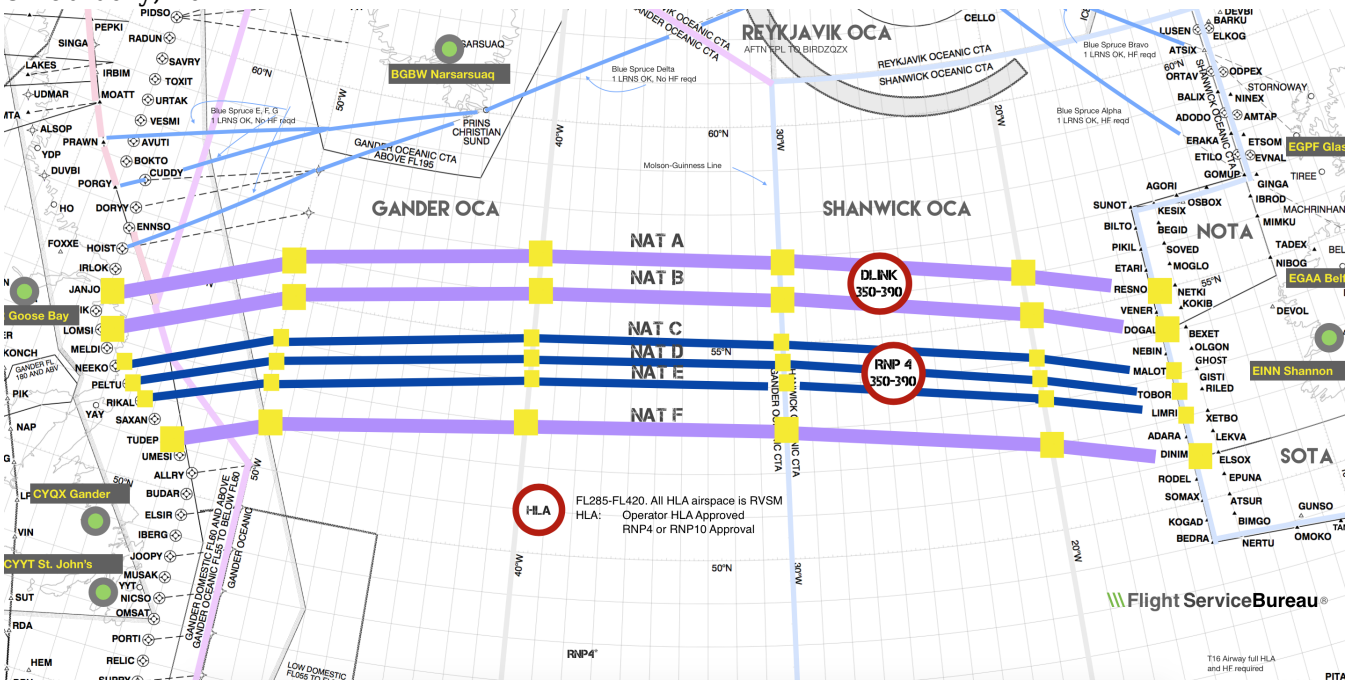
Event 2 – **Happened on 7th Oct.**

Event 4 – **Happened on 15th Oct.** (Yes, Event 4 happened before Event 3 – just to confuse us!)

Event 3 – **Happened on 17th Oct.**

NAT Tracks example with RLAT – 2017

Declan Selleck
8 February, 2022



With the new (ish) RLAT Tracks, the standard NAT Track picture looks different these days. We thought we'd draw one out so you can see the RLAT Tracks. This example is the Westbound Tracks today, February 24th 2017. The RLAT Tracks are C, D, and E.

The neat plotting chart that this is drawn on is from **Flight Service Bureau** and available here.

Picture first (click for big version), Track message follows:

232034 EGGXZOZX
(NAT-1/2 TRACKS FLS 310/390 INCLUSIVE
FEB 24/1130Z TO FEB 24/1900Z
PART ONE OF TWO PARTS-
A RESNO 56/20 57/30 57/40 56/50 JANJO
EAST LVLS NIL
WEST LVLS 310 320 330 340 350 360 370 380 390
EUR RTS WEST NIL
NAR NIL-
B DOGAL 55/20 56/30 56/40 55/50 LOMSI
EAST LVLS NIL
WEST LVLS 310 320 330 340 350 360 370 380 390
EUR RTS WEST NIL
NAR NIL-
C MALOT 54/20 55/30 55/40 54/50 NEEKO
EAST LVLS NIL
WEST LVLS 310 320 330 340 350 360 370 380 390
EUR RTS WEST NIL
NAR NIL-
D TOBOR 5330/20 5430/30 5430/40 5330/50 PELTU
EAST LVLS NIL
WEST LVLS 350 360 370 380 390
EUR RTS WEST NIL
NAR NIL-
E LIMRI 53/20 54/30 54/40 53/50 RIKAL
EAST LVLS NIL
WEST LVLS 310 320 330 340 350 360 370 380 390
EUR RTS WEST NIL
NAR NIL-
END OF PART ONE OF TWO PARTS)

232035 EGGXZOZX
(NAT-2/2 TRACKS FLS 310/390 INCLUSIVE
FEB 24/1130Z TO FEB 24/1900Z
PART TWO OF TWO PARTS-
F DINIM 52/20 53/30 53/40 52/50 TUDEP
EAST LVLS NIL
WEST LVLS 310 320 330 340 350 360 370 380 390
EUR RTS WEST NIL
NAR NIL-
REMARKS.

1.TMI IS 055 AND OPERATORS ARE REMINDED TO INCLUDE THE
TMI NUMBER AS PART OF THE OCEANIC CLEARANCE READ BACK.
2.ADS-C AND CPDLC MANDATED OTS ARE AS FOLLOWS
TRACK A 350 360 370 380 390
TRACK B 350 360 370 380 390
TRACK C 350 360 370 380 390
TRACK D 350 360 370 380 390
TRACK E 350 360 370 380 390
TRACK F 350 360 370 380 390
END OF ADS-C AND CPDLC MANDATED OTS
3.RLATSM OTS LEVELS 350-390. RLATSM TRACKS AS FOLLOWS
TRACK C
TRACK D
TRACK E
END OF RLATSM OTS
4.FOR STRATEGIC LATERAL OFFSET AND CONTINGENCY PROCEDURES FOR OPS IN
NAT FLOW REFER TO NAT PROGRAMME COORDINATION WEBSITE WWW.PARIS.ICAO.INT.
SLOP SHOULD BE STANDARD PROCEDURE, NOT JUST FOR AVOIDING WX/TURB.
5.80 PERCENT OF GROSS NAVIGATION ERRORS RESULT FROM POOR COCKPIT
PROCEDURES. CONDUCT EFFECTIVE WAYPOINT CHECKS.
6.OPERATORS ARE REMINDED THAT CLEARANCES MAY DIFFER FROM THE FLIGHT PLAN,
FLY THE CLEARANCE.
7.UK AIP. ENR 2.2.4.2 PARA 5.2 STATES THAT NAT OPERATORS SHALL FILE
PRM'S.
8.FLIGHTS REQUESTING WESTBOUND OCEANIC CLEARANCE VIA ORCA DATALINK
SHALL INCLUDE IN RMK/ FIELD THE HIGHEST ACCEPTABLE FLIGHT LEVEL WHICH CAN
BE MAINTAINED AT OAC ENTRY POINT.
9.ALL ADSC CPDLC EQUIPPED FLIGHTS NOT LOGGED ON TO A DOMESTIC ATSU
PRIOR TO ENTERING THE SHANWICK OCA MUST INITIATE A LOGON TO EGGX BETWEEN 10
AND 25 MINUTES PRIOR TO OCA ENTRY.-
END OF PART TWO OF TWO PARTS)

Did you know MNPS is over? Meet HLA, the new North Atlantic Airspace.

Mark Zee
8 February, 2022

From Feb 4th, 2016, **MNPS** (Minimum Navigation Performance Specifications) Airspace is being dumped as a term (no loss, really), and replaced by the much more user friendly **NAT High Level Airspace or NAT HLA**. MNPS first came into being in 1977, and this change is significant in that the requirements for approval to enter the new NAT HLA are updated – you must now have RNP4, or RNP10. Also, the rest of the Atlantic welcomes Bodø Oceanic to the fray – it joins Shanwick, Gander, Reykjavik, New York, and Santa Maria to make up the new NAT HLA, which keep the original vertical profile of FL285-FL420.

In short, that's all you need to know. You should read our **International Ops Notice 01/16** for the full story.

Monday Briefing: North Atlantic Changes, Caspian Sea Missiles

Declan Selleck
8 February, 2022

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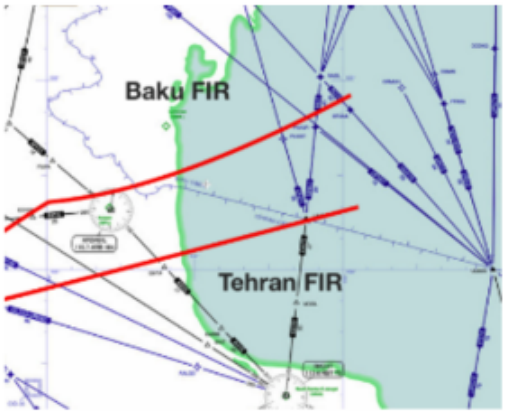

19OCT2015 Flight operations in the NAT region will see significant changes in around three weeks time, including new 'half-degree' NAT tracks, new Entry Points in Gander and Shanwick OCA's, and several procedural changes. A Special Bulletin with plotting chart, summarising the changes, will be issued by Flight Service Bureau next week.

19OCT2015 Last week 26 cruise missiles were launched across International air routes in Azerbaijan, Iraq, and Iran, with reports suggesting 4 did not travel as intended. The risk to aircraft operators is summarised in our International Ops Notice 10/15, see below for details.

RPHI/Manilla FIR, Philippines Typhoon Koppu has maintained its strength as it continues to move northward with slightly increasing forward speed along the shores of Ilocos Sur, Luzon. Current location (1200Z Monday) is to the west of RPLI/Laoag Airport. It is forecast to weaken to a Tropical Storm within 24 hours. No reports of airports affected so far.

OMDW/Dubai World hosts Dubai Airshow 08-12NOV. Landing Permit required for all flights, 3 days processing, standard documents and requirements. Slot required for OMDW, window +/- 5mins. Show details at www.dubaiairshow.aero

OPRN/Islamabad, Pakistan closed 1300-1800 daily due runway works 18-28OCT.

SEXX/Ecuador A new DGAC resolution now effective permits non-scheduled aircraft to land without a Landing Permit as long as the aircraft is operating under private ops, will not stay longer than 72 hours in Ecuador, and visits only one location in Ecuador. The official document is here (in Spanish).

VHHH/Hong Kong with effect 25OCT (IATA Winter 2015) will amend slot issuing procedures to give priority to operators with higher capacity aircraft, and where same types conflict for the same slot time, lower noise levels.

LIXX/Italy ATC Strike confirmed for 24OCT (Saturday) 0800-1600, service will be provided to Overflights and Intercontinental flights only.

LTXX/Turkey Traffic operating through the south eastern part of Turkish airspace to/from Tehran and Baghdad FIRs should check Notams for restrictions. Several restrictions up to FL310 due to military operations.

EGXX/Shanwick Large scale Military Exercise ‘At Sea Demonstration’ ASD15 affecting OEP’s ERAKA and GOMUP starts on 19OCT.

LFxx/France Datalink implemented from 22OCT LFRR/Brest and LFBB/Bordeaux ACC from 0900L. Initial phase, no ACL (Clearance via CPDLC), and aircraft must be on Eurocontrol whitelist. Ref France AIC A22/15.

VNXX/Nepal continues to experience shortages of fuel due to a halt in shipments coming from India. Available fuel for domestic airlines is rapidly decreasing, and authorities worry that domestic flights will soon be unavailable. The Nepalese government has requested that international airlines carry return fuel or refuel at airports en route, as Tribhuvan International Airport (VNKT/KTM) has no available fuel.

View the full International Ops Bulletin for 19OCT2015.