

Greece-ing the Turkey: The Aegean Dispute

OPSGROUP Team

29 January, 2021



The dispute between Turkey and Greece is one we have mentioned before. Not because it was having a particularly big impact on aviation operations, but because of the vaguely amusing Notam battle they have been waging against each other for the last few years.

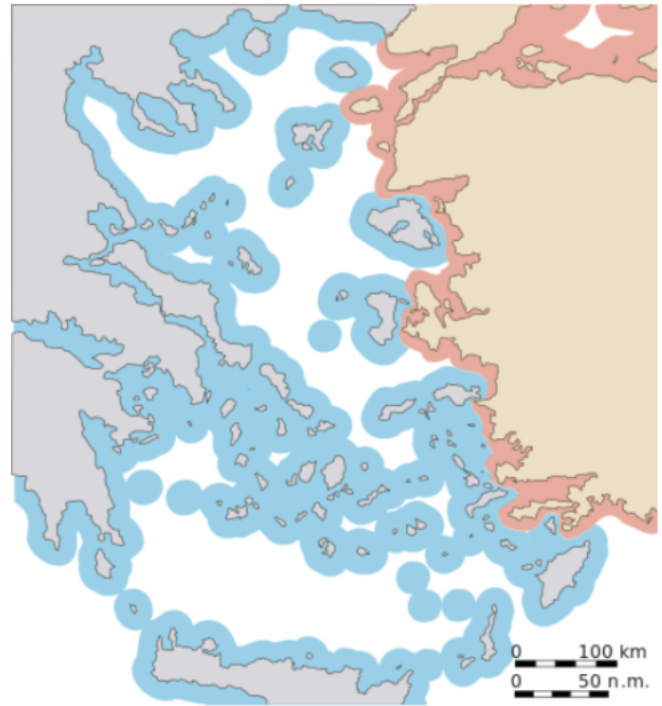
But what appears to be a rather silly conflict actually has a more serious side to it, so we thought we would take a little look at what is going on.

What are they arguing over?

This dispute is about what disputes always seem to be about – who owns some bit of land, or in this case, a Continental Shelf (so a bit of land that is submerged under several miles of Eastern Mediterranean Sea). Turkey want it because it is a treasure chest of energy resources, while Greece want it because, well, they reckon it was always theirs.

The dispute goes a bit “higher” than the continental shelf though. Like those annoying neighbours who keep pushing their fence backwards into your garden, so **Greece have decided that their airspace extends not the usual 6nm** (based off territorial waters), but 10nm. Turkey refuse to recognise those extra 4nm as Greek. Nor do ICAO who have a 1948 statute saying airspace must coincide with territorial water boundaries.

So we would say that’s one:nil to Turkey, except for Greece’s point that they actually laid claim to those extra 4nm way back in 1931 before ICAO came along with their statute. Plus, this isn’t the only area Turkey has had disputes over, so maybe Greece have a bit of a point.



6nm vs 10nm airspace

But do we care, or can we just let them keep bickering?

Well, the permanent Notam battle can be ignored with a simple filter that removes the likes of these from your Notam package:

NAVIGATIONAL WARNING TO ALL CONCERNED: REF (A) GREEK NOTAM A0058/21 LGGGYNYX. REF (B) TURKISH NOTAM A0231/21 (111055 EUECYIYN JAN 2021). WITH REFERENCE TO REF (B) TURKISH NOTAM A0231/21 WE POINT OUT THAT THE ASSERTIONS CONTAINED THEREIN ARE REJECTED AS MISLEADING AND DEVOID OF ANY LEGAL BASIS. IN THIS RESPECT AND FURTHER TO THE REF (A) GREEK NOTAM A0058/21 LGGGYNYX, WE REITERATE THAT GREECE, EXERCISING ITS SOVEREIGNTY UNDER INTERNATIONAL LAW, ESTABLISHED IN 1931 A TERRITORIAL SEA OF TEN NAUTICAL MILES FOR THE PURPOSES OF AVIATION AND THE CONTROL THEREOF. THEREFORE, GREEK AIRSPACE DOES NOT EXCEED THE BREADTH OF THE TERRITORIAL SEA AS ESTABLISHED IN 1931. FURTHERMORE, TURKEY FULLY RESPECTED THE BREADTH OF GREEK NATIONAL AIRSPACE FOR 44 YEARS UNTIL 1975. TURKEY IS THE ONLY COUNTRY THAT CREATES DIFFICULTIES IN RELATION TO THE TERRITORIAL SEA OF 1931 AS SPECIFIED ABOVE. GREECE, THEREFORE, FULLY ABIDES BY INTERNATIONAL LAW AND WILL CONTINUE TO DO SO WHILE FULLY EXERCISING ITS SOVEREIGNTY. IN FACT, AS FAR AS INTERNATIONAL LAW IS CONCERNED, TURKEY IS THE ONLY COUNTRY, REGRETTABLY, WHICH FAILS TO RESPECT THE PROVISIONS OF THE CHICAGO CONVENTION WITHIN THE ATHINAI FIR, WHERE, IN ACCORDANCE WITH THE ICAO REGIONAL AIR NAVIGATION AGREEMENTS OF 1950-1952-1958, THE GREEK AUTHORITIES ARE THE ONLY COMPETENT AUTHORITIES CHARGED TO IMPLEMENT THE RELEVANT PROVISIONS OF THE CHICAGO CONVENTION AND TO ENSURE UNIMPEDED, REGULAR AND SAFE AIR TRAFFIC. CONSEQUENTLY, THE POINT RAISED BY TURKEY IN REF (B) TURKISH NOTAM CREATED: 11 Jan 2021 11:33:00 SOURCE: LGGGYNYX

One example of the endless battle of Notam insults between the two

However, that is not the only repercussion. Actually, all this makes for some messy airspace controlling because it impacts FIRs and with that, who controls military flight activity. This has led to a bunch of provocations from both sides, with them regularly sending military aircraft into the 4nm disputed bit just to annoy the other side. And this is a problem, because it often escalates with retaliations. In 1996, **Turkey claimed one of their aircraft had been shot down by a Greek fighter jet**, and in 2014 the number of Turkish incursions into Greek airspace rose to nearly 1,500.

Tensions flared up again in 2020 when Turkey finalised their purchase of Russian S-400 mobile surface-to-air missile system. Now, this wasn't specifically aimed at Greece, but it did go against NATO and US orders, resulting in big sanctions against Turkey.

Greece spent 2020 developing stronger defensive ties with their neighbouring countries, and at the start of this year, placed an order for 18 French Rafale fighter jets to pad out their Air Force.

A bit of a jam

Deliberate GPS Jamming is also a major issue in the Eastern Mediterranean and across Turkish airspace, adding to the list of threats commercial aircraft have to consider.

So is this a conflict to watch?

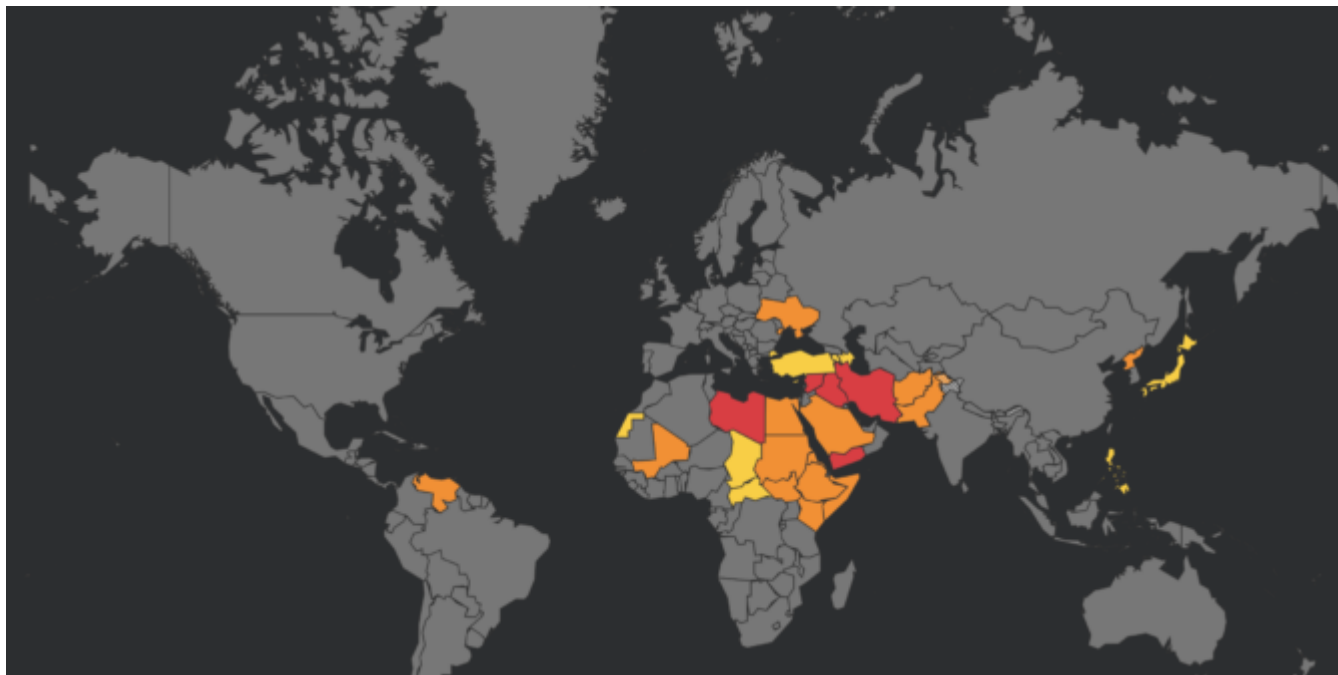
2020 was a tense year between the two nations, and 2021 seems unlikely to see much de-escalation. While direct conflict between the two will likely be prevented by neighbouring countries and the EU and NATO, the dispute is still simmering away.

For commercial flight operations, **the impact remains primarily in the Notam world**, but attention does need to be paid to **any temporary prohibited or restricted airspaces which might pop up** because of increased military activity in the region.

Additionally, Turkey is a large country and their airspace provides a major overflight route between Asia, the Middle East and Western Europe. Having **an awareness of the political tensions between the two countries is important**, particularly if routing to or from Greece, or carrying Greek nationals onboard, since this might compound your problems if you have to divert into a Turkish airport.

SafeAirspace: 2021 Update

Chris Shieff
29 January, 2021



2020 was a heck of a ride. But therein lies the risk – **what else might you have missed amongst all the Covid-related noise?** Sadly, conflicts and their risks to civil aviation have not taken a break during the pandemic.

As it's a new year, we thought **a summary of Airspace Risk** was called for. Here's what's making headlines at the moment:

Saudi Arabia & Yemen

Houthi rebels in Yemen are regularly firing **explosive drones and rockets** across the border into Saudi Arabia, and these usually target airports in the south such as **OEAH/Abha** and **OEGN/Jizan**. Their latest attack was on **OYAA/Aden** airport in late December which resulted in mass casualties.

Saudi Arabia continues to retaliate with airstrikes. The latest was in the capital **Sanaa** just weeks ago, where multiple munitions landed near the airport.

The risk to aviation is that **overflying aircraft may get caught in the crossfire** or might be **misidentified by Saudi air defences**. Active terrorist groups in Yemen may also use anti-aircraft weaponry to target foreign interests.

The FAA prohibit all US operators from entering most of the OYSC/Sanaa FIR at any level. Only two airways are allowed, and they are well off the coast – **UT702** and **M999**.

There are no restrictions on Saudi Arabia but **use caution in the southern regions**. France and Germany have issued their own warnings.

*SafeAirspace **Yemen** page – [click here](#).*

*SafeAirspace **Saudi Arabia** page – [click here](#).*

Iraq

Rocket attacks on military interests at airports have become a common occurrence. They are generally fired by local militia without warning. **ORBI/Baghdad** is frequently targeted, along with other airports including **ORER/Erbil**. There is a clear risk to aircraft at low levels.

US relations were further strained through 2020 with multiple attacks on the US embassy in Baghdad. The

tensions escalated to a point where the US considering closing it.

Foreign aircraft continue to be at risk from **armed militia who have access to portable anti-aircraft weaponry**, while **misidentification by the air defence systems** of multiple foreign forces in the country is also possible.

The FAA has extended its ban on US operators entering the Baghdad FIR **at any level**. Even though the SFAR says you can enter above FL320, the long-running Notam KICZ A0036/30 says otherwise.

*SafeAirspace **Iraq** page – [click here](#).*

Syria

There have been several recent **Israeli airstrikes on targets throughout Syria**. In late December there are reports that Israeli fighters transited Lebanese airspace at low level causing alarm in Beirut before attacking targets in Western Syria. Just weeks ago, several sites around Damascus were targeted by Israeli missiles.

The primary risk is that aircraft may be **misidentified by Syrian air defence systems** which are regularly activated. Civil operators may get **caught in the crossfire** as missiles may erroneously lock on to the wrong aircraft.

The FAA are taking no chances – the ban on US operators entering the OSTT/Damascus FIR at any level has been extended a full three years to 2023.

*SafeAirspace **Syria** page – [click here](#).*

South Sudan

Just this week ICAO issued a concerning warning about the risk to aircraft operating below FL245 in the **HSSX/Khartoum FIR over South Sudan**, or flying in and out of **HSSJ/Juba**. They are ‘gravely’ concerned about ATC disruptions, a lack of contingencies, inadequate training of controllers, limited info about equipment outages and a lack of co-ordination with other ATS units.

*SafeAirspace **South Sudan** page – [click here](#).*

Emerging Conflict Zones

2020 saw **three new conflict zones** emerge, here is what is happening with them now.

Ethiopia

A civil conflict erupted in October last year in the **Tigray region of Northern Ethiopia**. The government went to war with the TPLF – a regional force seeking independence.

The region’s airports were closed and TPLF showed an intent to internationalise the conflict by attacking aviation interests. They fired rockets into Eritrea targeting **HHAS/Asmara**, and also attacked multiple airports to the South of the Tigray region.

Two airways were closed (T124, and M308) with **no explanation of the risk**. Other airways remained open but uncomfortably close to the fight – especially UG300, UN321 and UL432. **No airspace warnings** were issued despite the dangers.

What’s the latest?

In late November Ethiopian forces captured the region’s capital **Mekelle** and regained control. Remaining

TPLF forces have retreated leaving behind a humanitarian disaster and a vow to continue the fight. Since then, the **airway closures have been removed** and things have gone quiet, **but an airspace risk remains** – armed militia continue to be active in Northern regions and may be looking to make a statement. **Be wary of operating in the area.**

Western Sahara

Late last year the region's independence movement (the Polisario) declared war on Morocco for breaching a ceasefire agreement. The FAA published a warning that the Polisario **might have access to anti-aircraft weaponry** left over from previous conflicts.

What's the latest?

It is still an **active conflict zone**. The fight has reached the international stage after the US declared their support for Morocco. The Polisario have indicated they are willing to at least talk, but so far have not put down their weapons. So, it is a wait-and-see type deal.

The risk to overflying aircraft remains. The GCCC/Canarias FIR keep extending a Notam advising operators to **not fly below FL200** on the following airways: **UY601, UN728 and UT975**. However, the reason is still missing: because of the **risk of anti-aircraft fire**. The G000/Dakar FIR haven't issued any warnings despite the threat. Take care if operating in the area.

Armenia-Azerbaijan

In September last year, an ethnic conflict erupted over a disputed territory in Western Azerbaijan – **Nagorno-Karabakh**. The fight was between Azerbaijan and Armenia.

As a major air corridor for en-route traffic, there were **significant flight disruptions**. Azerbaijan swiftly closed all but one west/eastbound airway and routed traffic via Georgia. Armenia asked aircraft to take extra fuel and expect re-routes. The conflict was short but intense, with heavy artillery fire from both sides. The conflict eventually spread beyond the contested regions with longer range weapons. The entire border region posed a **risk for civil aircraft**.

What's the latest?

For once the news is good. In November a ceasefire agreement was signed with the help of Russia. Armenia effectively lost and withdrew from the region and **the conflict was officially over**. Armenia removed its airspace warning, while Azerbaijan re-opened the affected airways and a large section of airspace near the border.

With the conflict now over, and no new reports of significant fighting since the peace agreement in November, direct crossing traffic between the two countries is now technically possible again. However, **most East-West flights are currently still electing to go further north** instead, connecting between Azerbaijan and Georgia's airspace, avoiding Armenia.

What about Safeairspace.net?

Our conflict zone and risk database is **updated constantly**. We assess risk with official sources and build a simple picture for you of those need-to-know places.

There are currently 5 regions which are assessed as a **Level 1 Risk - No Fly**. These are: **Iraq, Iran, Yemen, Libya, and Syria**.

Head over to SafeAirspace.net and take a look. With a single click you can download a **risk briefing** of the entire world in just a few pages of nice simple English.

The mission of SafeAirspace is this: to provide a single, independent, and eternally free resource for all airspace risk warnings, so that airlines and aircraft operators can easily see the current risk picture for unfamiliar airspace. If you know of a risk not listed on the site, or you have anything else to add, please get in touch with us at news@ops.group

US to require Covid tests for all international passengers

David Mumford
29 January, 2021



From January 26, **all international passengers need a negative Covid test** that is less than 72 hours old to board a flight to the US.

The US CDC has published the **full details of the requirements here**, and they've done a good job too – it includes a pretty thorough Q&A section split into separate sections for passengers and crew.

Here's a summary of the main points:

- All international travellers aged two years or older need a test, including citizens and foreigners.
- Applies to all flights, including private and charter flights.
- Applies only to international flights – from “anywhere that is not a state, territory, or possession of the United States”. Therefore, passengers do not need a test if coming from: American Samoa, Guam, the Northern Mariana Islands, Puerto Rico, and the US Virgin Islands.
- It needs to be a “viral test” (NAAT or antigen test) – antibody tests will not be accepted. The PCR test is a type of NAAT test (Nucleic Acid Amplification Test), so those are accepted. You

can read more about the different types of tests [here](#).

- The test must be done within three calendar days of departure to the US. If passengers have one or more connecting flights to the US, it gets a bit more complicated.
- Airlines and operators will need to check that their passengers meet the requirements prior to travel.
- **For crew travelling to the US:** you don't need to get a Covid test in advance as long as you're "active crew" - i.e. you're operating the flight or travelling in an assigned deadhead status. You also have to follow the health and safety rules set out in the FAA's SAFO 20009. However, we've had several reports saying that if you are positioning crew into the US via an airline for any reason, the reality is that you will likely be asked to show proof of a Covid test. More guidance on the definition of "active crew", check out the CDC's dedicated webpage.
- If crew/pax can prove they have already had Covid, have recovered from it, and can provide documentation to this effect, they don't need to get a test.
- Operators must distribute and collect Passenger Attestation Forms prior to embarkation, and keep copies of these for 2 years. Operators do not need to keep copies of passenger test results.
- If you're heading out of the US, and plan to return within 72hrs, you will still need a test. You can get this done in the US before you leave. But if you end up staying out of the US for more than 72hrs, you will need to be retested before your return flight.
- **Quarantine rules:** Technically, all pax inbound to the US now have to quarantine for 10 days upon arrival, as per the Executive Order that went into effect on Jan 26. However, it looks like the CDC will not actually be enforcing this - at least for now.

Important to note: the old rules banning certain pax from entry still stands: with specific exemptions, foreign nationals who have been present within the past 14 days in the European Schengen area, the UK and Ireland, mainland China, Iran, and Brazil will still be barred from entry - with or without a negative test. The 'specific exemptions' part basically means this: US residents and family members, and flight crew traveling to the United States on C, D or C1/D visas. For more details on this rule, check the US Government webpage [here](#).

Sudan Airspace Update: A New Risk

OPSGROUP Team
29 January, 2021

What warnings are in place due to conflict?

South Sudan – Although the situation has improved since Sept 2018, several countries (the UK, France and Germany) still advise against overflying South Sudan below FL250/260 due to **the risk posed by anti-aircraft weaponry**. The US published a similar warning but rescinded it in Aug 2019.

Sudan – Only has one official warning in place, from the French authorities. This recommends against overflights below FL260 in the far Southern and Western regions.

But there is a new warning for South Sudan?

Yes, there is. And it isn't conflict related.

ICAO released a letter on January 20th regarding the safety of Civil aircraft in the Khartoum FIR over South Sudan.

The raised **'grave concerns' for the safety of International air traffic operating below FL245**, and operating into and out of HSSJ/Juba international airport.

The concerns relate to the disruption of air traffic services and the lack of contingency arrangements in place. They warn about the lack of suitably qualified air traffic control personnel, the lack of information being shared on unserviceable or withdrawn navigation equipment, and inadequate air-ground communications.

A quick search on Notams for Khartoum FIR and Juba airport only brought up info on the opening of airspace following Covid restrictions.

The full warning from ICAO can be read [here](#).

In summary

- Both Sudan and South Sudan are considered **Level 2: Danger Exists regions** because of ongoing conflicts.
- South Sudan now poses a **separate risk due lack of aviation infrastructure** and lack of information being promulgated (through Notams) on this.
- **Caution recommended** if operating below FL245 in South Sudanese airspace, or if you are operating into HSSJ/Juba airport.

Gulf routings set to ease up as Qatar blockade comes to an end

Diogene De Souza
29 January, 2021



After three and a half years of political stalemate, **the Gulf blockade against Qatar by Saudi Arabia, the UAE, Egypt, and Bahrain, is coming to an end.** These countries have restored diplomatic relations and opened their borders and airspace to Qatar – with Egypt also expected to follow suit shortly.

What does this mean for operators?

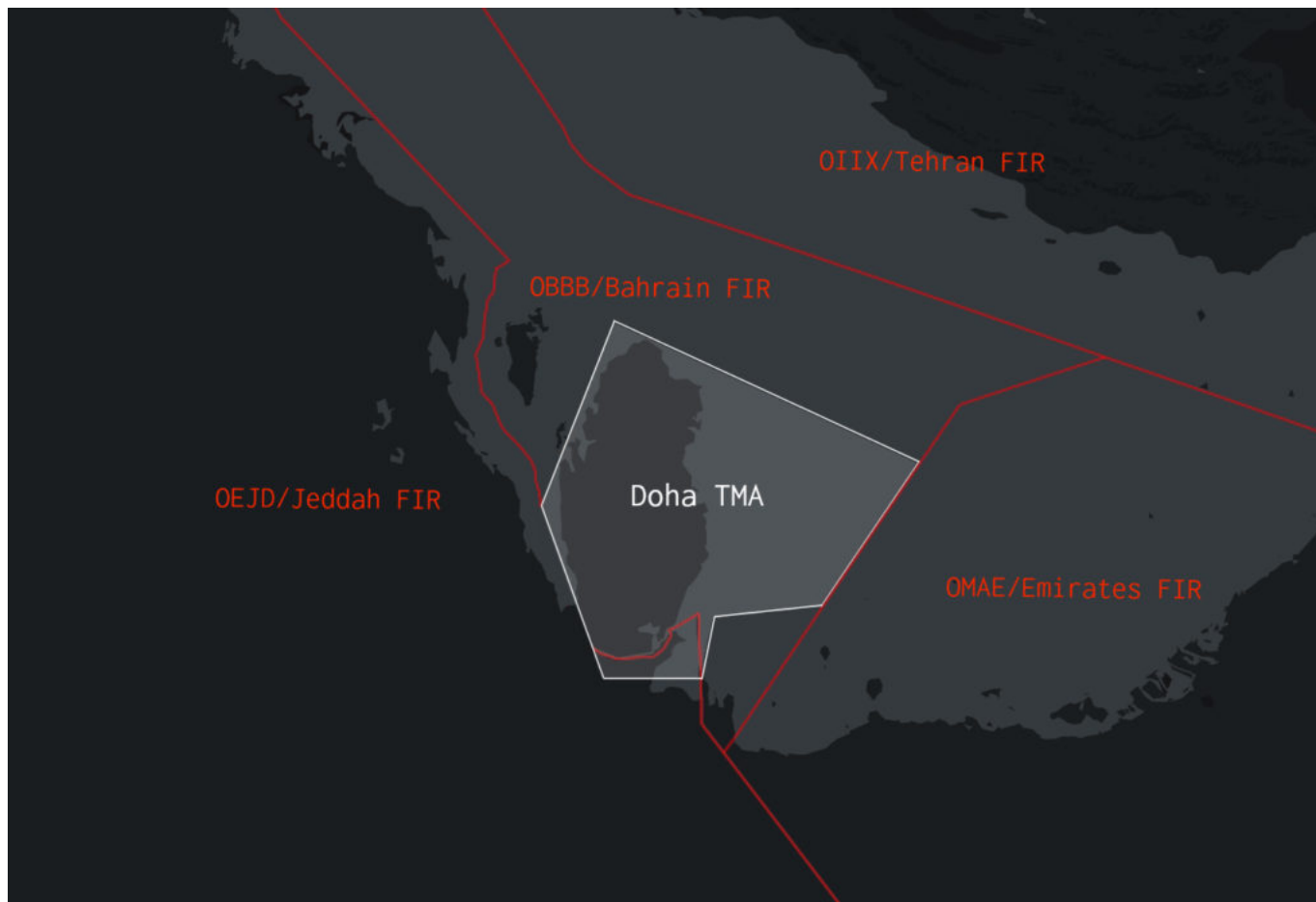
The biggest change seen will be for **aircraft registered in Qatar (A7-)** which will now be allowed to route via OEJD/Jeddah FIR and OMAE/Emirates FIR, and gain more efficient use of OBBD/Bahrain FIR – in addition to reinstated landing rights in those countries. This is as opposed to routing via OIIX/Tehran FIR, which incurs time and fuel penalties and in the worst cases requires a tech stop.

But this is also good news for **foreign operators.** For the past three years, foreign operators had been faced with various different restrictions if trying to fly to/from Qatar – they needed special permission from Saudi Arabia, Bahrain and the UAE if planning to overfly any of those countries, and Bahrain had banned direct flights from Qatar completely.

This has now changed. With Saudi Arabia, Bahrain and the UAE lifting their blockade against Qatar, they have cancelled a bunch of Notams which effectively means there are no longer any special requirements for foreign-registered aircraft flying to Qatar via Saudi/Bahrain/UAE airspace. In short, **more efficient routings are now available** if you are operating into, out of, and through the Arabian Gulf region.

Here is the current state of play as of **20 January 2021:**

Remember: Qatar does not have its own FIR, and is nested completely under the OBBD/Bahrain FIR – any Qatar Notams are therefore published under OBBD. The Doha TMA extends SFC to FL245, above which is the Bahrain UIR.



If you have a question or have information to share, use our Slack channels! We are a community based on sharing information and resources to help each other – jump in!

Testing Times: More than just a stick up the nose

Chris Shieff
29 January, 2021



In the last few weeks, several major countries have announced that **pre-departure Covid testing** of all international passengers is now compulsory. And it is up to the operators to make sure that this happens.

It is now mandatory for anyone travelling to **the UK, Australia and Canada** from anywhere. **The US** will follow suit from January 26.

Covid testing is set to become a common part of our aviation landscape for the foreseeable future. Until a vaccine has had time to work, people will need to be tested to move around the world freely.

But what type of Covid test do I need?

Just google 'Covid test' and **prepare for confusion**. There are **different types of test** out there, and to make matters worse, there are **multiple confusing names for the same test**. Ask a passenger and the chances are that many will not understand why a rapid test at the airport isn't enough to board their flight.

So here is a super basic breakdown of the types of tests out there and how they work...

Covid Test 101

Covid tests can do two things:

1. They can tell you've had it in the past by looking at your blood (**Antibody test**), or -
2. They can detect if you actively have the virus by looking at your mucus or saliva (**Diagnostic test**).

Antibody tests = Cannot tell if you are actively sick and contagious. So for travel, they are pretty much useless.

Diagnostic tests = There are a bunch of highly technical names floating around out there but the good news is that there are only a couple of types - **Molecular tests (PCR)** and **Antigen Tests**. (The bad news is you're getting a stick up the nose either way.)

- **Molecular tests (PCR)**. The gold standard in testing. These tests are super accurate and work by detecting the nucleic acid left behind by the virus. This is what most countries

require. The downside is the results take much longer and it is difficult to test a whole bunch of people quickly. There are home kits available but most of the time you'll need a lab to test you.

- **Antigen Tests.** When people say 'Rapid Test' this what they mean. These tests are quick, cheap and work by looking for a piece of coating on the virus. You still get swabbed but the results come back far quicker. They are what you see in airports. So what's the issue? They're not as accurate and can return false negatives. In most cases borders just won't accept them.

So what's the issue with antibody tests?

All they do is look for anti-bodies in your blood and your body has to build up those defences. It can take up to 14 days after you first catch the virus before they can be detected. You can be sick and contagious before the test will even detect them. To make matters worse there is no evidence you can't catch Covid again even if you have already had it. So what's the point of them? They help authorities work out just how far the virus has gone out there.

Moving Forward...

With rapidly changing testing rules around the world it will become super important to make sure you and your passengers get **the right kind of test**. Most of the time the one you will need is a **PCR test**. Rapid testing at airports is convenient and looks the same but in most cases just won't cut the mustard.

Brexit is here: What's the impact to ops?

OPSGROUP Team
29 January, 2021



The UK officially left the EU on Jan 1st, 2021. Although it's **still a part of Europe** (the continent), it's **no longer part of the European Union** (the trade and political bit). Whereas before, the UK fell under EASA and all their rules and regulations, **the UK CAA is now in charge** of all things aviation in the UK...

So, what does that mean?

It means a **raft of changes to the rules for operators flying between the UK and EU states**. A new agreement has been drafted which applies from Jan 1. Here are the main changes:

- Essentially UK operators will **no longer be considered as EU carriers**, and will instead be 'third country' carriers, meaning they will lose their special treatment. Flights between the UK and EU will continue, but **passenger cabotage flights will no longer be allowed**. Or in more human terms, UK operators will not be able to carry fare paying pax between two EU states (and vice versa). **Cargo cabotage will still be okay** as long as the two countries involved have an agreement.
- Both sides will still have **the right to overfly each other's territory**, make technical stops, and to operate third- and fourth-freedom passenger and cargo flights between any point in the UK and any point in the EU. The fifth-freedom rights beyond the EU will continue, but only for a five-month period and with a new capacity cap.
- UK and EU airlines can also **continue codesharing**, and UK airlines can continue providing wet-leasing operations.
- There are other changes coming too, which EBAA cover here.

But what about laws, licences, rules and regulations?

All existing EASA certs, approvals and licences valid for UK registered aircraft **will be good for another two years**. For UK operators of EU-registered aircraft things are more complicated. The UK CAA have set up a useful website to help you get your head around what you need to do to stay compliant elsewhere in Europe, and it's a great place to start. There is also a helpful flow chart to keep things simple.

With Brexit complete, the UK CAA is now in charge of setting the rules, but they've basically said that they'll be sticking to pretty much all of the aviation law, rights and obligations that were in place before. You can read that statement, and a bit more, on the UK CAA's main regulations site.

The heads-up for passengers

Things may get complicated. UK citizens will likely lose their special EU travel privileges which means it may become harder to move around Europe thanks to everyone's favourite elephant in the room, Covid.

As a general rule, pax from the UK to Europe will need to **make sure their passport has at least six months validity** in it if they want to visit any EU country, Iceland, Liechtenstein, Norway or Switzerland. They will also need to **check their health cover** – the EHICs (European Health Insurance Cards) are still valid if issued before January 1.

If they are entering as a tourist, they can stay for **90 days** – and they can do that twice a year. But if they are entering for business purposes, they might need a visa.

All of this is on the UK Gov website if you want to take a look.

The Question of Covid

Not being part of the EU anymore means that flights from the UK to the EU will **no longer have the same Covid entry restrictions applied**. "Luckily" no-one was really letting UK flights in anyway, what with their virus mutation running rampant, so right now, any change for flights originating in the UK (and passengers for that matter) is not really relevant.

The entry rules for UK nationals in the rest of Europe are changing fast, and every country is different but in most cases **it will be harder for UK travellers to avoid Covid related rules for non-essential travel**. Don't know where to start? We don't blame you. The best place is the UK FCO website which has the most up to date entry requirements for UK nationals for every country around the world.

CO2 much?

One extra little snippet of info to know about Brexit is that the amount of emissions small, non-commercial operators can produce as "improved". If you already have an EU-ETS (emissions trading scheme) exemption then your allowance has now been doubled.

Instead of 1,000t CO2, you can now produce 2,000t CO2 – half in the EU and half in the UK.

Don't think you can get away with puffing about and no-one watching though. The UK are setting up their own scheme, and France will be monitoring the EU bit of it (apparently they won the task because UK operators tend to spend more time there than anywhere else in Europe).

If you are trying to work out what 1,000t of CO2 coming out your aircraft looks like, then there is a handy calculator you can use (but its roughly 103,400 gallons or 391,500 litres of JET A1 burned).

The news for N-reg'ers

Well, to be honest, not a lot at this point. The main thing to know is that the UK no longer falls under EU (EASA) rules and law, so if you have any problems **you'll now be dealing direct with the UK CAA...** but currently their laws aren't actually any different to what they were at the end of December.

If you are carrying passengers from Europe to the UK (or vice versa) then there will be **different passport and entry procedures** for them now.

That's about it.

So, the really important bit... can you bring food?

Always one of the big questions for crew who want to stock up on all things delicious. Basically, no meat, milk, or dairy stuff into the EU from the UK. The UK is a bit more chilled, but you do need to declare things, and a suitcase filled with Camembert and wine probably won't go down very well.

Of course, the real good news is all those juicy **duty free goods** which travellers between the UK and EU will now be able to buy!

A is for Airplane: The OPSGROUP 2020 Wallchart

David Mumford
29 January, 2021



2020 was a long, sometimes challenging, sometimes exciting, sometimes sad... and always very Covid filled year!

We wanted to take a quick look back at some of the things which really stood out to us over the past twelve months.

So we wrote a **list...**

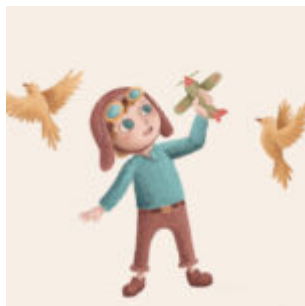
The list became a **little poem...**

And then, as a logical next step, the poem turned into an **ABC wall chart!**

Here it is in all its glory!

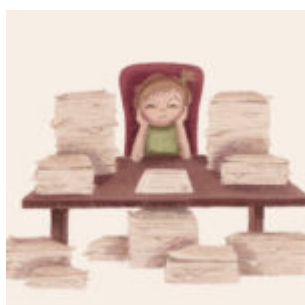
You can download a nice hi-res version by clicking on it. Print it out, stick it on your wall, send it to a friend - whatever you like.

The OPSGROUP 2020 Wallchart was designed by our wonderfully talented artist friend, Cecilia La Rosa, and you can see more of her amazing work [here](#).



A is for Airplane, flying high as a bird

As always, airplanes were on our mind. The safety of them, the places they are going, and the people flying in them.



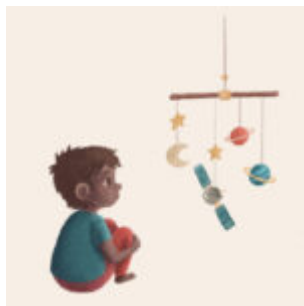
B is for Bureaucracy and unreadable words

Messy Notams, changes to charts, new regulations, old documents – we tried to keep you updated you on changes you needed to know about, mainly by writing things in an easier-to-read way.



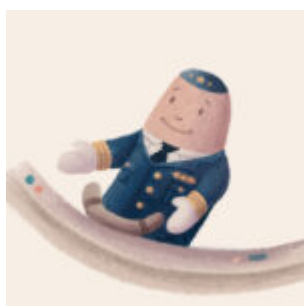
C is for Covid not going away

No 2020 wall chart would be complete without a mention of Covid. Traffic across the world fell by almost two thirds. Then it started to improve, then it got a bit worse again, and then the vaccine came out – unfortunately, shortly followed by a new strain of the virus... Here's hoping 2021 sees the end of it.



D is for Datalink on the NAT HLA

The Great North Atlantic Datalink Mandate. It went into the final phase on 30 Jan 2020, and if you want to fly between FL290-FL410 you must be equipped with CPDLC and ADS-C... But then due to Covid this got delayed a number of times, with Shanwick saying it will remain suspended until 25 Feb 2021.



E is for Errors of the Gross Nav variety

The FAA changed their definition of Gross Navigation Errors to mean anything more than 10nm. You used to have 25nm before you got into trouble (except for on the NAT HLA which was always 10nm).



F is for OpsFox, a secret society

Business at the Lucky Star Chicken restaurant was up in 2020. Goat Curry (number 64 on the menu) proved to be a popular favourite. Join the secret society and submit your reports.



G is for Guy Gribble, gone too soon

Our friend and colleague Guy Gribble passed away on 26th October 2020.

Guy joined OPSGROUP on Day 1 (some four and a half years ago), and was an ever-present contributor, collaborator, mentor and friend to us. If you've ever sent us an email with a difficult question and received a good answer, the chances are that Guy Gribble was the man behind the scenes who helped us figure it out for you. We lost count of the number of times Guy would post replies on Slack giving people advice and guidance.

The NBAA will have an award named after Guy for "Outstanding Contribution" - which tells you all you need to know about the impact he had on the industry.

Thank you Guy and Rest in Peace - your legacy continues.



H is for Humans, me and you

Our mission is to make aviation human-friendly for us all.



I is for Israel overflight clearance

Big news from the end of 2020 as Israel rebuilt relationships with the UAE, and for the first time in decades we saw a flight between the two nations. Israel then opened their airspace for overflights, and Jordan allowed Israeli bound flights to pass through their airspace as well. The overflights mean shorter, more efficient routings, and it's a highlight of the year that friendships are being rebuilt between Israel and neighbouring regions.



J is for Jamming and GPS interference

GPS Jamming remained an issue, particular across Eastern Mediterranean, Middle East and Caucasus, with thousands of reports of jams through the year. The story is bigger than just the equipment issue though, it is a political and conflict related one too. We wrote this article on it to help give a bit more info on the issue.



K is for Kiwis showing us what to do

New Zealand led the way on how to deal with the Covid situation, managing to go nearly a month with no cases. They slowly started to reopen a travel corridor with Australia, but remain strict on their entry requirements.



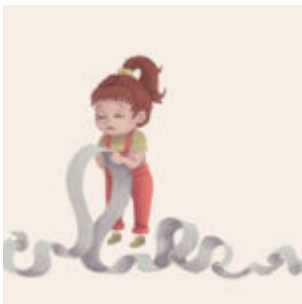
L is for Lockdown, no kiwi for you

Lockdown was (and still is) a big part of 2020. For some it was a difficult time away from family, but for others it allowed time for new skills to be learned, hobbies to be enjoyed, and a fair few Zoom quizzes to take place. We will keep reporting on the big Covid changes but are definitely looking forward to a day when no Covid alerts are required anymore.



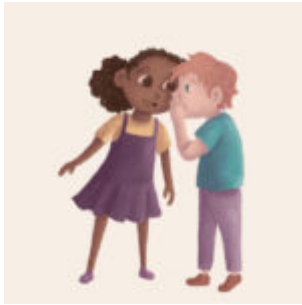
M is for Members, colleagues and friends

We're grateful to everyone in the group for showing up, trading stories, experiences, and information, having regular chats, and in turn keeping us all safe and up to date.



N is the Notam problem again

The Notam problem hasn't gone away, but we are getting there...



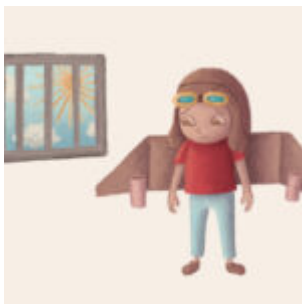
O is for OPSGROUP, share what you know

OPSGROUP is more than just the team working here – it's all the members and the knowledge and information you all share.



P is for Pilots flying us home

2020 was a tough year on pilots, and we think they deserve a big Thank You for continuing to fly our families and cargo safely around... but we also thank the cabin crew who looked after us onboard, the ATC controllers who kept the skies safe, the engineers who fixed the airplanes, the dispatchers and planners, handlers and airport workers, and everyone else affected by Covid and who kept working hard. So P is really for People.



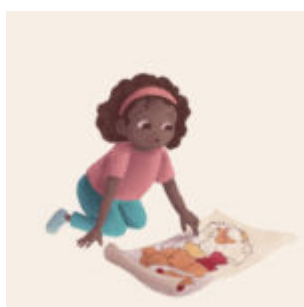
Q is for Quarantine in a government compound

Quarantine can be tough. Trying to work out a country's Covid-related entry rules is one thing, but where you get locked up and how long for is quite another. So Q is for quarantine questions, queuries about Covid-cancelled flights, and all the queues of people who want to go flying again. Let's hope 2021 is far Quieter on all things Covid.



R is for Relief Air Wing, eyes on the ground

When a hurricane hits, the world responds. But before anyone can fly in to help, they need to know what things look like on the ground. After Hurricane Dorian devastated the Bahamas in September 2019, no information was available for several days. Relief aircraft were waiting, but critical information was missing. What airports are open? Is there fuel available? Is there ATC? Where is help best directed? Learning from the lessons of Hurricane Dorian, the mission of Relief Air Wing is to get that critical information, provide it to the first responders, and help to coordinate the aviation relief effort.

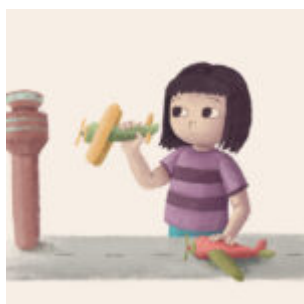


S is for SafeAirspace, where not to fly

On 9th January 2020, we saw the tragic shoot-down of Ukraine Int Airlines flight 752 over Tehran by Iranian Armed Forces, having mistaken the aircraft radar return for an inbound missile. And just a month later, a passenger plane almost got shot down over Syria, after coming under fire from Syrian air defences.

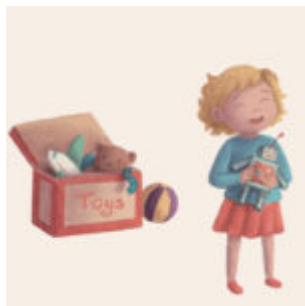
Throughout the year we've seen new conflict zones emerge, posing risks to overflying aircraft – from Saudi Arabia and Yemen, to Armenia and Azerbaijan, to Ethiopia and Eritrea.

Our sense of mission with Safeairspace.net is stronger than ever – to provide a single, independent, and eternally free resource for all airspace risk warnings, so that airlines and aircraft operators can easily see the current risk picture for unfamiliar airspace.



T is for Towers, controlling the skies

Towers (and the ATC folk in them) controlled the skies splendidly this year. We also looked into what happens during “ATC Zero” events, particularly over the NAT HLA after we saw Gander East close briefly in December.



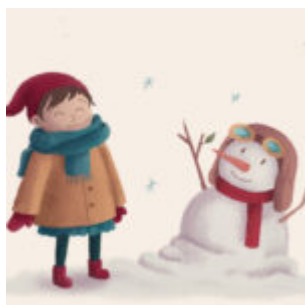
U is for Unreliable speeds on aircraft stored too long

Unreliable airspeed incidents increased after bugs and beetles made nests in airplane probes – an unexpected consequence from Covid. And unreliable airspeed was not the only thing to look out for with long term storage.



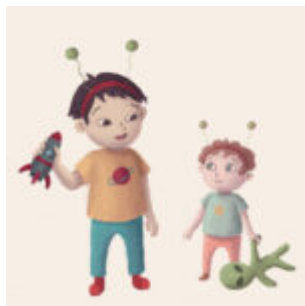
V is for going Viral when you do something wrong

From men on jet packs, to pilots drawing pictures in the sky, we laughed at some of the stories we saw this year. And not all were bad – the Don't Rush challenge went viral as aviation communities from all over created their own Don't Rush movies.



W is for Winter Ops, cold weather tips

Winter is here – at least in the Northern Hemisphere. Here are 5 golden rules that could help you stay out of trouble during these colder months. Here's a quick lowdown on freezing fuel problems as well.



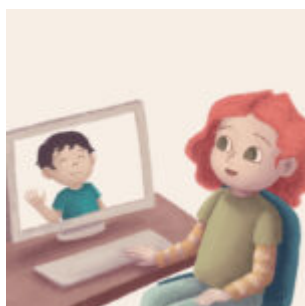
X is for Space X, launching their ships

We reported on a fair few temporary danger airspace areas through 2020, many of which were down to Space X and other rocket launches. The operational impact for earth flights kept us reporting, but we're also a little excited at the developments in space flight. OPSGROUP GALACTIC might be a new idea for 2021...



Y is for a big Yes to 2021

2020 has been tough – but we have faith that 2021 will be better. We hope borders open, vaccines roll out, Notams improve, airplanes get better, airspace gets safer, and aviation becomes more human!



Z is for Zoom calls - sometimes they're fun!

Our OpsChats were a big part of our year and we loved our *2-timezones-in-1-day* Zoom call.

We look forward to seeing you all again in 2021!

ALL WE HEAR IS: RADIO BA DA, RADIO BODØ, RADIO BA DA

OPSGROUP Team
29 January, 2021



Wave at the ATC tower, and you might find there is no-one in to wave back. But that does not mean air traffic controllers are not watching us anymore, they just might be doing it from somewhere a little more remote.

The rise of the remote controller

In 2021, LEMH/Menorca airport will no longer have air traffic controllers in their tower. Instead, they will have a network of 360 degree panoramic and pan-tilt zoom cameras which will feed high resolution images to a single, mighty control tower in Bodø, Norway.

Kongsberg (possibly a reference to King Kong who liked climbing up towers, but more likely just named after the town in Norway where it was founded), is working with various airports on a program called Ninox. The plan is to eventually have advanced Remote Tower Systems across 15 different airports.

The plan is to eventually have advanced Remote Tower Systems across 15 different airports. Two systems are already fully operational, and the overall result of the project will be an ATC service that brings “new capabilities to air traffic operations, enabling safe operation at reduced costs.”

They had me at “new capabilities”.

Is there anybody up there?

Rather than having controllers at the airport, able to look out the window, this system feeds images to a remote control tower. The cameras are incredibly high resolution and can zoom in on the smallest details, detecting movements from birds and drones. They also can have infra-red settings making it possible to see in the dark.

The tools provide greater contingency as well as vision enhancement, and there are options for automated

object detection, virtual safety nets, and augmented reality features to be installed.

The real big advantage is that multiple towers can be managed with one all powerful air traffic controller so even the smallest airports providing only AFIS will potentially be able to sign up and have a “controller” over-seeing their traffic – increasing their services without a mega increase in costs.

What if the big ‘what if’ happens

A big “what if?” for this system is “what if the feed fails?”

This isn’t a problem though – each tower is connected to the Remote Towers Centre via networks with huge amounts of redundancy. If one network fails, another can be used to connect again. It also means if one controller gets stuck in traffic, another controller can control from a different spot on the network.

Rapunzel, Rapunzel, let down your air... craft

So far only Norwegian airports have been set up on the Bodø master network. Røst airport has been operating under remote tower conditions since October 2019, with 3 more coming online through October and November of this year.

But actually...

The concept is already used across Europe, and there are multiple projects around the world.

EDDR/Saarbrücken Airport in Germany has had a remote tower since 2018. With 15,000 flight movements a year it is one of the largest airports to have its operations controlled remotely.

They have projects worldwide including Brazil and New Zealand, and both civilian and military. EGJJ/Jersey Airport in the UK has implemented a contingency system, Iceland is testing the technology for severe weather conditions and LOWW/Vienna is already using their vision enhancement system.

EHAM/Amsterdam Schiphol Airport has also been involved in trials, in conjunction with the Single European Sky ATM Research (SESAR) project and Air Traffic Control the Netherlands (LVNL). The trials tested how controllers would use the cameras, as well as the screens for radar, weather and flight planing which were integrated into their stations, and the results were pretty good.

And then there is AIMEE

AIMEE is an AI developed by the company Searidge, and NATS and NAV Canada are pretty excited about it.

It receives inputs from different sensors, sources and scenarios, and uses an algorithm that learns patterns and so can predict problems, and offer solutions quicker than a human brain can.

AIMEE is being trialled at EGLL/London Heathrow to see if it can improve capacity by as much as 20%. The system will use ground level cameras to monitor aircraft positions in rubbish weather, and will be able to see when aircraft have exited runways much quicker than people eyeballs through fog can.

AIMEE is also being installed at airports like KORD/Chicago O’Hare and CYYC/Calgary where its AI eyeballs will monitor de-icing bays and provide a spacial marshalling system. In KFLI/Fort Lauderdale the system is used on gates for remote apron management.

So the future is remote

People-less control towers are not a thing of the future, they are happening now. Anytime you fly across London, you are probably being controlled by controllers in Swanwick.

For pilots, there is no change in procedures – they will still talk to personnel on the radio, but the actual people looking after you are squirrelled away in their remote tower in Norway.

Are we going to have a Matrix type AI computers taking over situation?

No, don't worry, it won't.

All this technology is there to supplement real people brains because it can process stuff faster. But it is unable to make the decisions human ATC currently make, so we are more likely to get pilot-less airplanes before we see entirely people-less control towers.

US pilots and air traffic controllers can now take the Pfizer vaccine

David Mumford
29 January, 2021



US pilots and air traffic controllers are now **allowed to take the new Pfizer Covid vaccine**. On Dec 12, the US FAA issued a statement authorizing this, which means aviation professionals can take the vaccine **without risking losing their medical certificates**. You can read the FAA's official statement [here](#).

The FAA has reviewed the @pfizer COVID-19 vaccine for use by FAA-certificated pilots and air traffic controllers, with a required 48-hour waiting period after vaccination. Read more at <https://t.co/ilQAKB3id6>. [pic.twitter.com/tFC29Qkkex](https://t.co/tFC29Qkkex)

— The FAA ✈️ (@FAANews) December 12, 2020

The vaccine needs two doses, three weeks apart. The FAA say you will need to **wait 48 hours after each**

dose before you can operate.

All future vaccines will need a **separate approval** – the Pfizer one is the only one you can take at this stage.

Now that the Pfizer vaccine has been approved by the FDA, a huge supply chain effort is underway to get the vaccine ready for use as soon as possible. With crew likely to be carrying shipments of the vaccine, the FAA has issued a new safety alert for the **carriage of dry ice**. In big quantities this can be hazardous to crew and cause carbon dioxide poisoning if things aren't handled properly. It is also important to be aware of manufacturer limits on how much you can carry. The new SAFO provides guidance on the risks, and how operators can better protect themselves.

TCAS Trouble: Why We're Getting It Wrong

Chris Shieff

29 January, 2021



Earlier this year Eurocontrol published a report on TCAS Resolution Advisories, and the results weren't pretty...

Over a 12-month period, over the heart of Europe, only 38% of RAs were flown correctly and **34% of aircraft even manoeuvred in the wrong direction.**

In other words, **nearly half of crew for one reason or another didn't follow the RA** – a last-resort safety net proven to save lives. So concerned are Eurocontrol, they rank the issue as its **second highest air traffic threat** – it's a big deal.

Here's the issue in a nutshell

ICAO say that no matter what, unless the safety of your aircraft is compromised by something more

dangerous (think terrain or stall etc.) if you get an RA, **you have to follow it**.

TCAS, ACAS or whatever you want to call it has been around for a long time. Development started back in the 50s, and it has been mandated in the US for larger aircraft since the 80s. It has become incredibly reliable.

So, if it's that black and white, the question remains, **why does this keep on happening?** Turns out there are a bunch of reasons, and so it is worth taking a look at exactly what is going wrong up there.

The Elephant in the Room

We may as well address it first – when crew choose to second guess an RA. The good news is that this isn't happening very often. Most of the time there are other factors at play. But while we're here, a little note on TAs and RAs.

Traffic Advisories (TA) **prevent**. You haven't lost separation yet, but you might. They're a warning for us to go heads up and do something about it – make visual contact, talk to ATC, level off, you name it. This is the time for us to go to work and make decisions.

Resolution Advisories (RA) **mitigate**. There is no more time to prevent – **that ship has sailed**. RA's typically trigger when you are within 25 seconds of a collision threat with the other aircraft. But here's the kicker – you are expected to respond to it within 5 seconds. In other words, there is not much time for us to make effective decisions. Safest course of action? You guessed it – **follow the RA**.

So, what else is going on then?

Numero Uno – The number 1 biggest reason why RAs aren't followed? Because we think **we can see the threat out the window**. Unfortunately, you can't assume that the aircraft you can see is the one who triggered the RA. We're also not very good at assessing threats visually, especially at altitude and it does not give us any info about what the other aircraft is intending to do.

Startle Factor – Put us in a stressful situation and we react in different ways. RA's are a rare event, and they're **not always preceded with a TA**. In other words, without warning they can emerge with significant 'pucker factor'. A large number of mis-flown RAs in the EUROCONTROL report lasted for less than 8 seconds. Beware of the **'knee jerk' reaction** – our instinct is to act but surprise can get in the way of procedure.

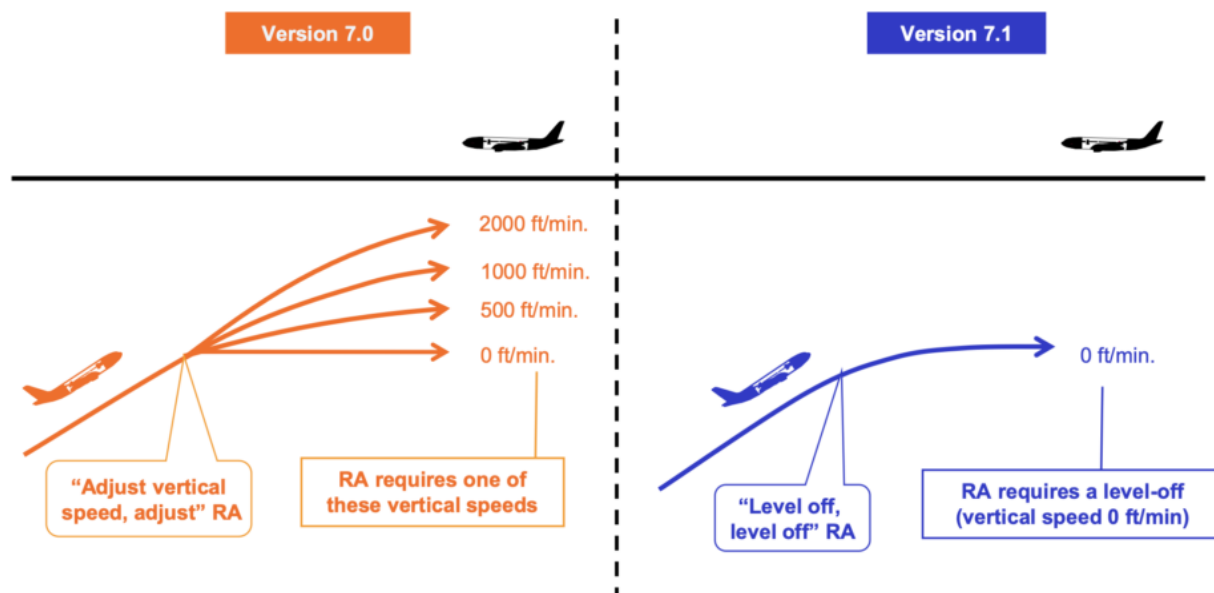
Beware of Contradictions – It's not ATC's fault, but it's important to understand. They don't know what your TCAS is telling you to do and they will be working hard to help. The issue is when **ATC instructions contradict your RA**. In 2002, a Tupolev passenger jet collided with a 757 over Germany – one crew followed the RA and the other ATC. The industry learnt an important lesson: **always follow the RA**. Use the phrase "TCAS RA" on the radio and ATC will understand you are following one.

Performance – RA's are often not followed as the crew are **worried about performance**. This usually happens when they're heavy and high or near their service ceiling and get a climbing RA. So, what should you actually do? The official word is this: **do your best to follow it**, even if your response is weak. Even if it means maintaining your level. In most cases an RA will only result in a level change of less than 500 feet. The biggest threat by far is opposing the RA, which will put your aircraft in far more danger.

Training – That old chestnut. But the reality is it is really important to practice these things in the sim. Weird ones. Unexpected ones. Ugly ones. Ones with multiple threats. Because this is usually what we're up against in **the real world**. Also keep your finger on the pulse for changes. Some modern aircraft can now fly RA's automatically, but the sims you train in may not have had the same update.

Older Versions – watch out for them. The latest one (7.1) has a number of major safety updates including

clearer instructions and 'reversals' – a fancy term for knowing when the other aircraft isn't doing what it is supposed to do. Older versions of TCAS are more likely to be misunderstood by crew. One phrase in particular is especially bad – “Adjust Vertical Speed, Adjust.” In many cases crew have increased their vertical speed rather than reduce it. If you're using older versions it is important to be aware of its limitations.



TCAS is an awesome piece of kit that has made huge advances in preventing completely avoidable accidents. But it is only as reliable as the humans who respond to it. That's why it is so important we learn about what we we're getting wrong so it can do its job – keeping us safe up there.

Other Useful Things

- Eurocontrol's recent report on RA non-compliance
- The FAA's Guide to TCAS 7.1 (the latest version)

The November Mega OpsChat - All the Links...

OPSGROUP Team
29 January, 2021



The November 24th “East/West-One-Day-Two-Calls” **OpsChat Bonanza** was great! Thank you to all who joined us, and those who shared some useful intel with the group.

Boy, did we cover a lot! The good news is if you missed the show, you can **re-watch the recording here**:

During the chat, we provided a **bunch of links** for each topic covered. If you weren’t quick enough to catch them at the time (we don’t blame you), here’s a little summary....

November Updates...

Greenland

What? Baffling Notam issued declaring Greenland’s airports were closed.

What else? Panic not, a better one was then reissued, saying that you could still use Greenland’s airports for ETOPS and diversion alternates. We called them and they said that tech-stops and ferry flights are also allowed (although not listed in the Notam). They’ve basically just banned passenger flights, and don’t want people staying overnight.

More Info:

- Greenland Closes Its Airports To (Nearly) All Passenger Flights - Opsgroup Blog Post
- Official Word from The Danish Civil Aviation

Israel

What? You can now overfly Israel (as well as Jordan, Saudi Arabia and Bahrain).

What else? You need a local sponsor, should depart from an approved airport (but they do make exceptions) and need a permit.

More Info:

- Israel overflights now allowed - Opsgroup Blog Post

Hong Kong

What? Strange ILS behaviour, especially on Runway 07R/25L. Pretty much down to antennas, terrain and Boeing AFDS...

What else? They have also updated their Covid entry restrictions for crew – it's now slightly harder to get in.

More info:

- The Thing About the ILS
- Hong Kong Entry Rules for Flight Crew – OpsGroup Blog Post
- The Official Word

CENEMAR (Central America)

What? There are some new flight planning requirements you need to know about.

What else? You can flight plan direct above FL200, and must include the new AFTN address MHFPZYXZ when filing your flight plan.

More info:

- CENEMAR: New Flight Planning Requirements – Opsgroup Blog Post
-

Other big updates from 2020...

November 5th ICAO changes

When? Er... November 5th!

What? We are talking changes to wake turbulence categories, NAT Contingency Procedures, SLOP and Gross Navigation Errors.

More info:

- The 511 on Nov 5th Changes – Opsgroup Blog Post
- Hopefully a Link to the New 4444

Other overflights that are now ok

What? FAA SFAR updates – where US operators can't go!

Where?

- Ukraine: UKFV/Simferopol FIR is ok, UKDV/Dnipro FIR is not ok.
- Iran: Not ok, but the Gulf of Oman and Persian Gulf are – Emirates, Kuwait, Bahrain and Muscat FIRs.

More info:

- Safeairspace
- Overflying Crimea – Opsgroup Blog Post

Russian Me-trics

What? Russia are moving to feet (referenced to QNH) below transition through their airspace, starting with major airports.

When? From December 3rd.

More info:

- Russia are still playing me-trics on us – Opsgroup Blog Post
- The Russian AIP (don't worry, it is in english too)

ADS-B

What? When will you get in trouble for not having it.

Where?

- Europe: ADS-B is required from June 2023, but have your retrofit plan in by December 7 (unless your AoC is before 1995).
- US: ADS-B is required anywhere Mode C, or in the picture below.
- Rest of World: Above FL290, pretty much.

More info:

- European ADS-B Mandate – Opsgroup Blog Post
- The FAA FAQs on ADS-B

North Atlantic Datalink Mandate

What? The North Atlantic Datalink Mandate (NAT DLM) is the thing that came into effect in Jan 2020, which meant that CPDLC was then required between FL290-FL410 throughout the entire NAT region. Simply put, you must be equipped with CPDLC and ADS-C if you want to fly between these flight levels.

And then what happened? Then Covid happened. Because of the resulting reduction in traffic they suspended this mandate, and it looks set to stay this way until the end of Feb 2021. Bottom line, aircraft which do not have CPDLC and ADS-C can continue to operate across the North Atlantic between FL290-410 until then.

More info:

- North Atlantic Datalink Mandate – Opsgroup Blog Post

SafeAirspace Update...

Ethiopia

What? Escalating conflict – Danger to overflying aircraft – beware of open airways!!

Where? Ethiopia – the Tigray region bordering Eritrea

More info:

- Safeairspace – Ethiopia
- Airspace Risk Warning: Eritrea and Ethiopia – Opsgroup Blog Post

Saudi Arabia

What? Drone and ballistic missile strikes continue from Yemen, no end in sight.

Where? Southern Saudi Arabia particularly, but Jeddah and Riyadh have also been attacked.

More info:

– Safeairspace

Armenia/Azerbaijan

What? The conflict is ‘officially’ over, but the airspace remains dangerous!

Where? The airspace between Azerbaijan’s UBBA/Baku FIR and Armenia’s UDDD/Yerevan FIR.

More info:

– Safeairspace

Western Sahara

What? An emerging conflict zone, with the threat of anti-aircraft weaponry. Little info or warnings, that may well affect aircraft operating into the Canarias.

Where? Northwestern Africa – a area region between Morocco and the Polisario.

More info:

– Safeairspace

Stay tuned for our next Ops Chat coming up in January 2021!

Hong Kong revised entry rules for flight crew

David Mumford
29 January, 2021



Hong Kong has published **extensive guidance on its entry rules** via its dedicated Covid website, but in a bizarre twist, it’s actually the Notams which make it clearer to quickly work out exactly what’s allowed

here:

A1199/20 – IN VIEW OF THE LATEST SITUATION OF COVID-19, THE HONG KONG SPECIAL ADMINISTRATIVE REGION GOVERNMENT IS IMPLEMENTING THE FOLLOWING MEASURES:

1. ALL NON-HONG KONG RESIDENTS COMING FROM OVERSEAS COUNTRIES AND REGIONS BY PLANE WILL BE DENIED ENTRY TO HONG KONG.
 2. NON-HONG KONG RESIDENTS COMING FROM THE MAINLAND, MACAO AND TAIWAN WILL BE DENIED ENTRY TO HONG KONG IF THEY HAVE BEEN TO ANY OVERSEAS COUNTRIES AND REGIONS IN THE PAST 14 DAYS.
 3. ALL TRAVELLERS COMING FROM MACAO AND TAIWAN, INCLUDING HONG KONG AND NON-HONG KONG RESIDENTS, WILL BE SUBJECT TO A 14-DAY COMPULSORY QUARANTINE, WHICH IS THE SAME AS THE ARRANGEMENTS FOR PEOPLE ENTERING HONG KONG FROM THE MAINLAND.
 4. HONG KONG RESIDENTS ARRIVING IN HONG KONG WHO HAVE BEEN TO ANY OVERSEAS COUNTRIES AND REGIONS IN THE PAST 14 DAYS WILL BE SUBJECT TO A 14-DAY COMPULSORY QUARANTINE.
 5. AIR CREWS ARE EXEMPTED SUBJECT TO CONDITIONS. DETAILS CAN BE FOUND IN [HTTPS://WWW.CORONAVIRUS.GOV.HK/ENG/INBOUND-TRAVEL.HTML](https://www.coronavirus.gov.hk/eng/inbound-travel.html)
- 29 SEP 07:39 2020 UNTIL 29 DEC 15:59 2020 ESTIMATED. CREATED: 29 SEP 07:39 2020

Ok, still not actually that clear. Big block of text, all upper case, an assault on the eyes...

So, to make that even clearer, between now and Dec 29:

- Non-residents may only enter if coming from China, Macao or Taiwan, but not if they have travelled to any other country within the past 14 days.
- All inbound pax, including Hong Kong residents, are subject to a 14-day quarantine.
- There are **special rules for flight crew**...

Rules for Flight Crew

On Nov 24, Health authorities in Hong Kong published a document with the revised entry rules for flight crew. There are basically slightly different rules depending on whether crew have been in “very high risk places” in the past 14 days. Either way, all crew should have a negative PCR Covid test taken within 48 hours of operating, along with a letter from their airline/company that certifies an accredited laboratory was used. On arrival, all crew get tested again and must isolate until departure.

Rules for Positioning Crew

You have to go through all the same health checks, but there’s a way to get around the 14-day quarantine on arrival. You need to prepare a letter in advance (see below). As positioning crew, you’re required to self-isolate at a hotel for medical surveillance whilst you’re waiting for your outbound flight. You’ll have to wear a mask and get your temperature checked daily for reporting to the authorities. If you have a residence in HK, you should be allowed to go there instead.

To apply for the **exemption from the 14-day quarantine for positioning crew**, you have to send a letter to HKBAC, who will charge you HKD500 (around \$65 USD). Here’s how it works, and the info you need to include:

1. *Flight Operator issues the letter with company letter head describing travel purpose and duty of the concerned crew*
2. *The Operator sends email to HKBAC to get verification endorsement on the letter. After verification, a scanned copy of the letter would be sent to the Operator by email.*

3. *The Operator provides that letter with verification by HKBAC to its concerned crew.*
4. *The concerned crew brings along the letter when travelling as passengers on commercial flight*
5. *Upon landing in Hong Kong, the crew approaches Crew Channel to obtain exemption from the Duty Immigration Officer before going through Immigration as passenger*

Remarks:

1. *HKBAC's checking is only for the identity verification based on the information provided by the Operator. HKBAC does not hold any liability on the exemption approval process.*
2. *Administration fee at HKD500 per endorsement would be applied and will be charged to the Operator which requests for the crew exemption letter.*
3. *Validity of the letter for crew exemption will be 7 days from the commercial flight date.*
4. *Although air crew can be exempted from the compulsory quarantine, the Department of Health (DH) will arrange Medical Surveillance for persons under the exempted categories of persons during their stay in Hong Kong. Exempted persons are subject to the temperature check and health declaration procedures carried out by DH.*
5. *In order to avoid your crew members being denied check in or boarding the commercial flights, please contact the commercial airlines that the crew would be travelling in in advance to ensure they are aware of the exemption.*
6. *Please be advised there is no guarantee that HK Health accepts the air crew letter for inbound positioning crew.*

Hong Kong has always been a tricky place to fly to, unless you're an airline with landing rights secured for the next two decades. As the world's third busiest airport, with only two runways, it goes without saying that **congestion is a big issue here!**

Things have gotten slightly easier this year due to the **downturn in traffic** caused by the Covid pandemic, with airport authorities now allowing airlines to keep their slots even if they don't use them. So, good news for them, but also good news for GA/BA operators, as the overall reduction in traffic means that **a lot more slots are available right now - daytime ones too!** So if need to go to Hong Kong and can navigate the entry rules, slots and parking should not be a problem.

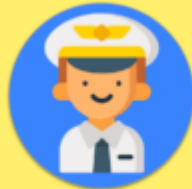
Have you flown to Hong Kong recently? How did it go? Send us an email and let us know, or even better - file a report on **Airport Spy** and it will automatically go out to everyone in the group!

November Ops Chat

OPSGROUP Team
29 January, 2021

OPS CHAT

TUESDAY NOVEMBER 24



EAST CHAT: 10 AM LONDON

2 CALLS, 1 DAY

The changes you missed in 2020

November ops alerts

Airspace risk review

+ Surprise ATC guests!

Also: Russia changes to feet / Israel overflights / Covid fog / Flight planning engines / and: whatever you want to talk about ... lots of Q&A's.

WEST CHAT: 10 AM NEW YORK

OPS CHAT

TUESDAY NOVEMBER 24



EAST CHAT: 10 AM LONDON

2 CALLS, 1 DAY

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+ Surprise ATC guests!

Also: Russia changes to feet / Israel overflights / Covid fog / Flight planning engines / and: whatever you want to talk about ... lots of Q&A's.

WEST CHAT: 10 AM NEW YORK

We have decided to run not one, but **two Ops Chats** on **Tuesday November 24th!**

Why two calls?

The calls have been getting bigger and bigger. So, we're running two so there's more time to talk, answer questions, and make sure that if you want to get a chance to take part, you can. And also, so that you don't have to stay up until midnight (or worse) if you're not in the United States.

Who can join?

This is an **open call**. If you work in international flight ops, you're welcome to join us.

So, when should I set my alarm for?

The date is **Tuesday, November 24th**.

Chat 1, the **EAST-CHAT** is at **10am London time**. (10am London, 11am Berlin, 2pm Dubai, 6pm Singapore, or **1000Z**)

Register and save your spot at ops.group/eastchat

We will have some lunch.

Chat 2, the **WEST-CHAT** is at **10am New York time** (9 am Paris (Texas), 7 am Forks of Salmon (California, or **1500Z**).

Register at ops.group/westchat

So, pick the time that suits you best and join us for a chat. Or, join us for both chats. Your choice!

What are we chatting about?

- We are getting to the end of this year, and the plan is to **get out from the Covid fog** and take a look at **what else has been going on in 2020**.
- There have been some **big changes**, and in case you have missed them, we will give you **brief rundown** of what they are.
- We will look over the **“highlights” of November’s ops alerts**.
- There will be a **2020 Airspace risk review** looking at Conflict Zones and changes this year.

Get your questions ready

You can be nice and **send these through early** (email us) so we can look clever answering them, or you can put us on the spot. But we love questions so prepare some for us.

Airspace Risk Warning - Ethiopia and Eritrea

Mark Zee

29 January, 2021



There is a new Conflict Zone in the east of Africa, which carries elevated risk to flight operations that may not be obvious from NOTAMs or other risk warning sources.

Some airways have been closed by the Ethiopian and Sudanese CAAs. Other airways that are still open are very close to the Conflict Zone. These are frequently used by international operators on the Europe- East Africa route. In particular: UN321, UG300 and UL432. **We are concerned that operators may be using these routes without being aware of the risk.**

OPSGROUP has today issued an Airspace Risk Warning to its members.

17 NOV 2020

AIRSPACE RISK WARNING

OPSGROUP

SAFE AIRSPACE

Airspace Risk Warning

ETHIOPIA & ERITREA

HAAA FIR (ADDIS)

HHAH FIR (ASMARA)

ISSUED: 17 NOVEMBER 2020

TO: OPSGROUP MEMBER AIRCRAFT OPERATORS

Notice to Flight Crew and Dispatch

There is a new Conflict Zone in the east of Africa, which carries **elevated risk to operations that may not be obvious** from NOTAMs or other risk warning sources.

Under the SafeAirspace tier system, this airspace is assessed as **Level 2 – Danger Exists**.

New Conflict Zone – Tigray

LEVEL 2 – DANGER EXISTS

The region being disputed is called Tigray. It's in the north of Ethiopia. Government forces are fighting a regional force that wants independence, called the TPLF. In the past week, there has been heavy fighting, multiple airstrikes, missiles launched, and a growing refugee crisis. **A domestic conflict has become a cross-border war.**

Danger – Airways near Conflict Zone

Some airways have been closed by the Ethiopian and Sudanese CAAs. Other airways that are still open are very close to the Conflict Zone. These are frequently used by international operators on the Europe-East Africa route. In particular:

UN321
UG300
UL432

Guidance

Enroute – Overflight:

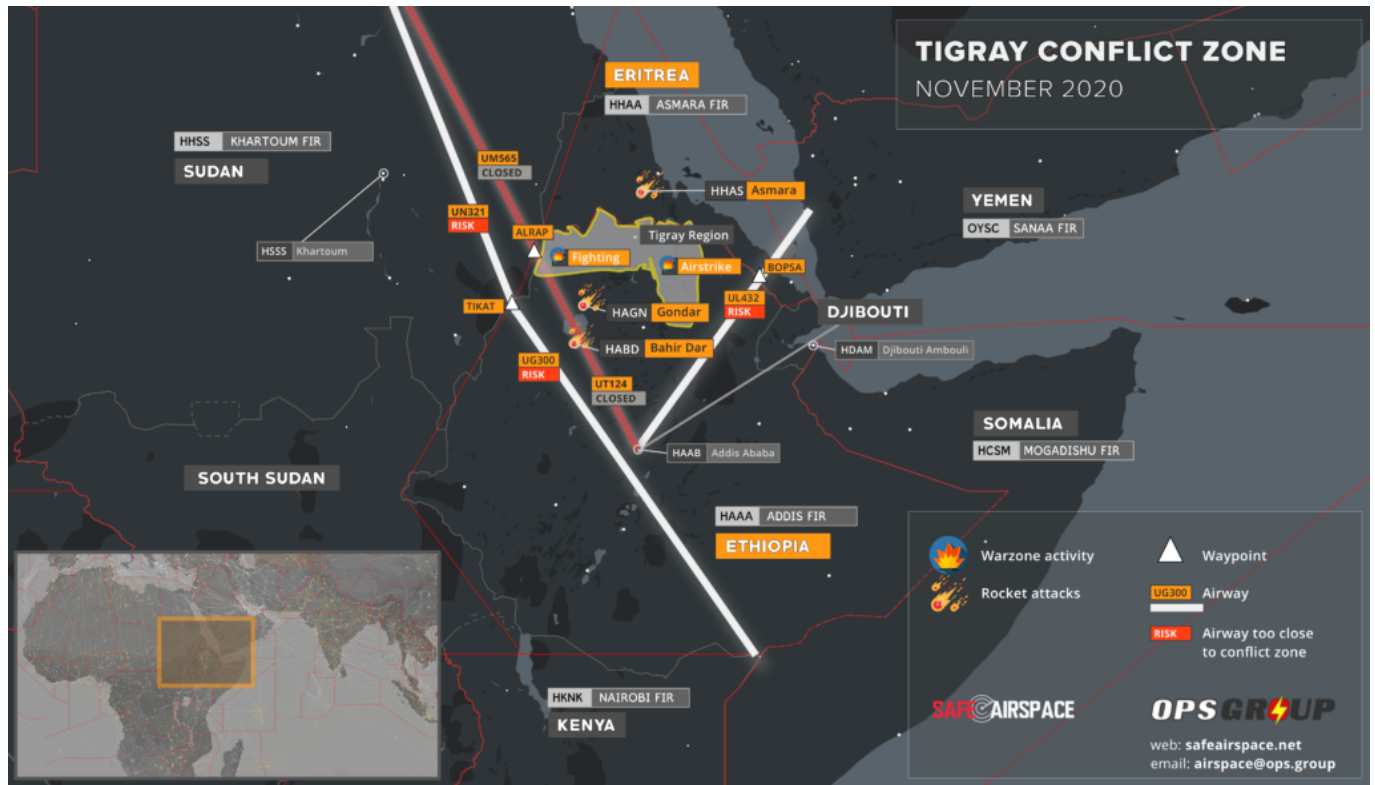
If you're transiting any airspace near or over Ethiopia, Eritrea, or Sudan, take a close look at the map and cross check the airways you are operating on. Several open airways are exceptionally close to the Conflict Zone. Just because they are open does **not** mean they are safe.

Landing – Airports:

Airports in the north of Ethiopia, including the Tigray and Amhara regions, are unsafe at present. Many are closed. There have been missile attacks on HABA/Bahir Dar, and HAGN/Gondar.

HHAH/Asmara in Eritrea should be avoided – missile attack on Nov 14, 2020.

Download OPSGROUP Airspace Risk Warning – Ethiopia/Eritrea (PDF)



Download Hi-Res version of this Conflict Zone map

Situation

The region being disputed is called Tigray. It's in the north of Ethiopia. Government forces are fighting a regional force that wants independence, called the TPLF. In the past week, there has been heavy fighting, multiple airstrikes, missiles launched, and a growing refugee crisis. A domestic conflict has become a cross-border war.

Our Concerns

There are many warning flags that point to previous shutdown incidents – not least MH17 and PS752. These are the reasons we are particularly concerned about the risk to civil aviation in this region:

Local NOTAMs are misleading

The NOTAMs issued by the Ethiopian CAA to close airways in the conflict zone (UM308, UT124) do not say why they are closed. NOTAMs issued to reroute traffic to adjacent routes (UN321, UL432) do not say why they are rerouted. The same applies to NOTAMs issued by the Sudan CAA to close airways and reroute traffic. Flight crews and aircraft operators are therefore not alerted to any conflict in the area by NOTAM.

Arbitrary Reroutes

Traffic is being rerouted to other airways by ATC, but it's not clear, or likely, that there has been any risk assessment. European flights are now using UN321/UG300, and UL432 – all of which come exceptionally close to the conflict zone. As we've learned from MH17 and PS752, just because airspace is open and available, does not mean it is safe.

Previous shootdowns

The Ethiopian Army shot down an Embraer 120 in May 2020, in Somalia. The Ethiopian Air Force shot down a US Learjet in August 1999 in the Eritrean border region. Both were misidentified.

No guidance to operators

No aviation authorities or official sources have issued any guidance or warnings to date via normal channels.

Rapid Escalation of Conflict

The situation has intensified rapidly, and is extremely unpredictable and unstable. The impact on aviation has not been widely reported.

Guidance

Enroute - Overflight:

If you're transiting any airspace near or over Ethiopia, Eritrea, or Sudan, take a close look at the map and cross check the airways you are operating on. Several open airways are exceptionally close to the Conflict Zone. Just because they are open does not mean they are safe.

Landing - Airports:

Airports in the north of Ethiopia, including the Tigray and Amhara regions, are unsafe at present. Many are closed. There have been missile attacks on HABD/Bahir Dar, and HAGN/Gondar. HHAS/Asmara in Eritrea should be avoided - missile attack on Nov 14, 2020.

Information Sources

The Conflict Zone & Risk Database at SafeAirspace.net contains all current published warnings and alerts for Ethiopia and Eritrea.

The screenshot shows the 'SAFE AIRSPACE' website interface. The main heading is 'Conflict Zone & Risk Database' with the tagline 'All current warnings, in one place'. The page is focused on 'Ethiopia'. The 'Risk Level' is 'Two - Danger exists'. A text box provides context: 'Nov 2020: Major escalation of the conflict in the Tigray region, along the Ethiopia/Eritrea border. Some airways have been closed by the Ethiopian and Sudanese CAAs. Other airways that are still open are very close to the Conflict Zone. These are frequently used by international operators on the Europe- East Africa route. In particular: UN321, UG300 and UL432. Multiple airports have been targeted by rockets. Missiles were fired across the border into Eritrea, targeting HHAS/Asmara. Within Ethiopia, HABD/Bahir Dar and HAGN/Gondar were also targeted.' Another text box mentions a 'Sep 2018: Risk due to hidden ATC strike'. A map of the region is shown with labels for Eritrea, Sudan, Tigray Region, and various airports. On the right, there's a 'Risk RADAR' section with a table of operator policies: 'Avoid' (0%), 'Do not land' (0%), 'Specific routes only' (0%), 'Case by case' (0%), 'Unrestricted' (0%), and 'No policy' (100%). Below this is a 'Notifications' section with a 'SUBSCRIBE' button and a note: 'We will alert you when there are significant changes, and send you updated summaries when'.

SAFE AIRSPACE Conflict Zone & Risk Database
All current warnings, in one place

Ethiopia

Risk Level: Two - Danger exists
[about risk levels]

Nov 2020: Major escalation of the conflict in the Tigray region, along the Ethiopia/Eritrea border. Some airways have been closed by the Ethiopian and Sudanese CAAs. Other airways that are still open are very close to the Conflict Zone. These are frequently used by international operators on the Europe- East Africa route. In particular: UN321, UG300 and UL432. Multiple airports have been targeted by rockets. Missiles were fired across the border into Eritrea, targeting HHAS/Asmara. Within Ethiopia, HABD/Bahir Dar and HAGN/Gondar were also targeted.

Sep 2018: Risk due to hidden ATC strike. Ethiopian ATC controllers went on strike, and the ECAA and Ethiopian Airlines recruited both retired and foreign controllers to pick up the slack. Ethiopia denied several times that there was in fact a strike happening at all. The strike ended September 7th. Many were not qualified to operate in Ethiopian airspace, due to inexperience.

TIGRAY CONFLICT ZONE
NOVEMBER 2020

Risk RADAR BY OPSGROUP

Ethiopia: What are other operators doing?

0 % with Avoid or Do Not Land policy

Avoid	0%
Do not land	0%
Specific routes only	0%
Case by case	0%
Unrestricted	0%
No policy	100%

TAKE PART **SEE ALL**

Notifications

SUBSCRIBE

to receive Conflict Zone & Risk warnings.

We will alert you when there are significant changes, and send you updated summaries when

The countries that issue the most relevant updates for unsafe airspace are:

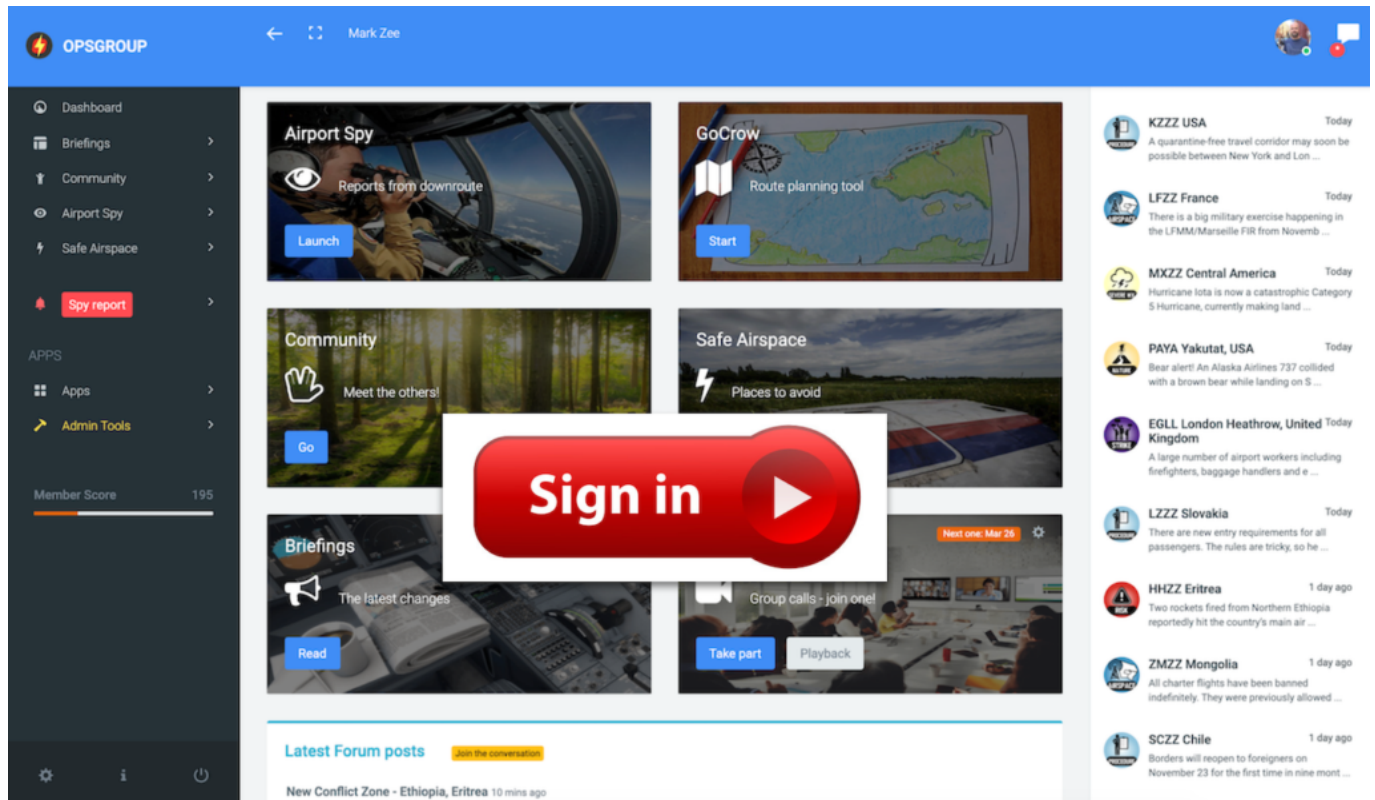
- US (FAA) – through Notams and SFARs
- UK (DFT) – by Notam and then AIP
- Germany (BMVI) – by Notam
- France (DGAC) – by AIC

Note: Operators should not rely on EASA Conflict Zone Information Bulletins (CZIB)'s as a primary source of information. These serve only as pointers to the above sources, and often are not issued until several months after updates, if at all. Note that the Civil Aviation Authorities of the countries whose airspace is determined to be unsafe are unlikely to issue reliable guidance.

Group effort

This information is compiled from OPSGROUP member input, information, intelligence and analysis. If you have additional information to share, please send it to report@safeairspace.net.

Members: More information



OPSGROUP Members: More information in the discussion in the Forum about Ethiopia/Eritrea:
Forum > International Ops > New Conflict Zone Ethiopia/Eritrea

All links to further resources are there.

Greenland closes its airports to (nearly) all passenger flights

OPSGROUP Team
29 January, 2021



Greenland have closed (nearly) ALL their airports to international passenger flights.

Well, apart from ones that come from Denmark. But don't go thinking you can make a quick stop off there first, they've even specified those are not allowed.

There is a provision for you to get special permission if you are transporting someone particularly important to the Greenland economy, but beyond that, no pax.

Here is the NOTAM:

BGGL SONDRESTROM FIR/FIC

A0621/20 - COVID-19: FLIGHT RESTRICTIONS.

ALL CIVIL FLIGHTS FROM OUTSIDE BGGL FIR, ARE BANNED FROM LANDING AT AERODROMES WITHIN BGGL FIR. FOLLOWING EXEMPTIONS APPLY:

1. FLIGHTS FROM AERODROMES IN DENMARK

1A. FLIGHTS ORIGINATING IN OTHER COUNTRIES THAN DENMARK, WITH INTERMEDIATE STOP IN DENMARK BEFORE CONTINUING TO GREENLAND, ARE NOT EXEMPTED FROM THE BAN.

2. FLIGHTS TO BGTL. SPECIAL PERMISSION MAY BE OBTAINED FROM THE DANISH TRANSPORT-, HOUSING- AND CONSTRUCTION AUTHORITY FOR THE PURPOSE OF TRANSPORT OF PERSONS WITH PARTICULAR IMPORTANCE TO THE ECONOMY OF SOCIETY. FURTHER INFORMATION ABOUT RESTRICTIONS AND PROCEDURE FOR THE APPLICATION FOR SPECIAL PERMISSION CAN BE OBTAINED VIA THE FOLLOWING LINK: [HTTPS://TBST.DK/EN/CIVIL-AVIATION](https://tbst.dk/en/civil-aviation). THE FLIGHT RESTRICTIONS DO NOT IMPACT THE USE OF AERODROMES AS ETOPS ALTERNATE OR FOR EMERGENCIES.

Still confused? Fear not, the government have now published a full clarification of the rules here – in **plain language** (which we like very much).

Can I do a tech stop?

Yes! Ferry flights and tech stops (gas and go) can continue – but you'll need to remain onboard.

Overnight tech stops are not allowed without special permission.

Can I pick up passengers in Greenland?

Yes! You are allowed to ferry an empty aircraft to collect passengers. You just can't bring them in.

What about ETOPS? Polar Alternates?

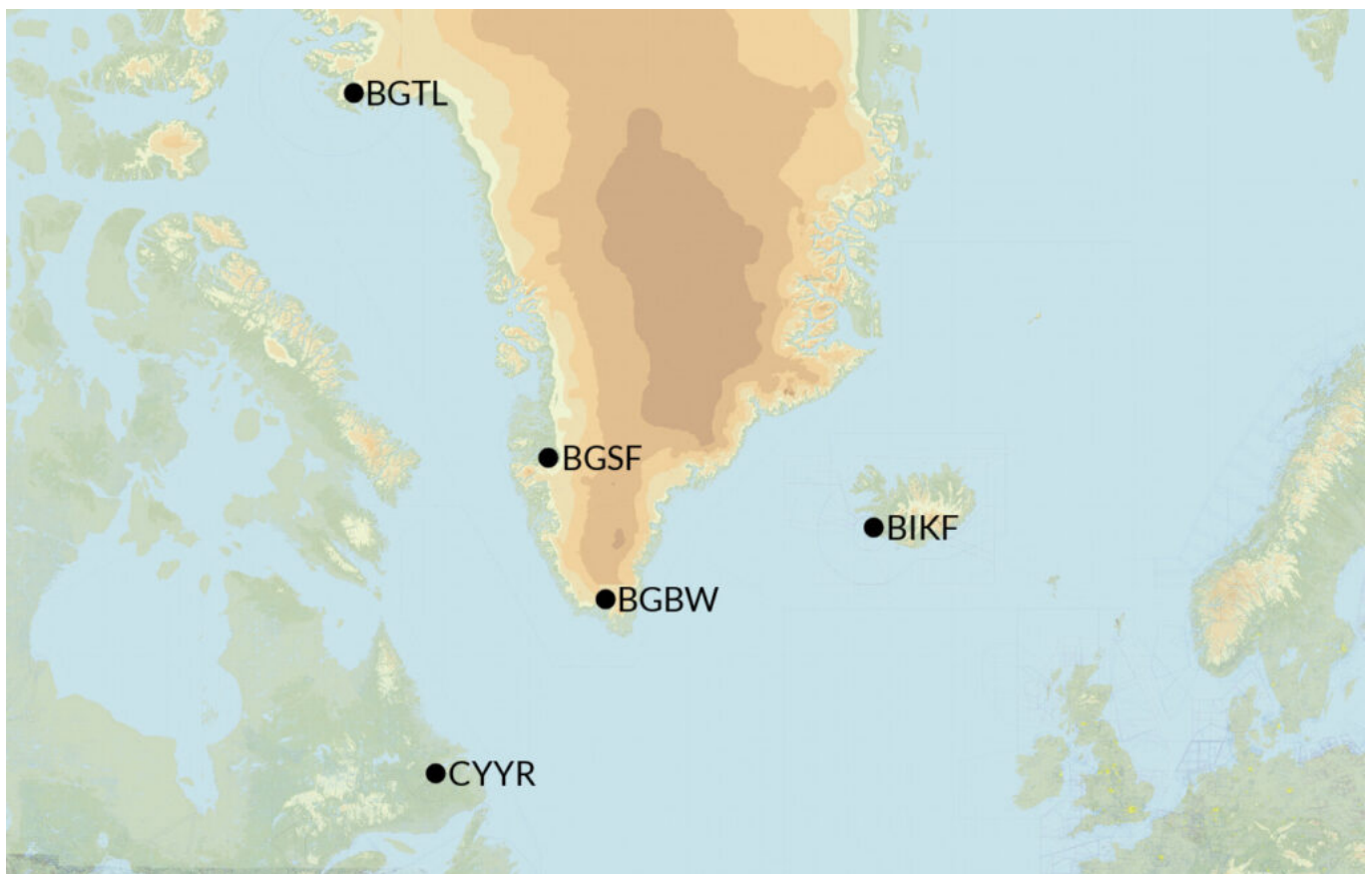
Yes! These are still permitted at BGBW/Narsarsuaq and BGSF/Kangerlussuaq. But watch out for extra charges if filing one of these airports on your flight plan as an alternate.

BGTL/Thule is only open to emergency divers - not as a planning alternate because it's a military airfield which has no passenger facilities.

Who is this going to impact?

Mainly anyone who wants to bring in passengers for entry to Greenland. If you want to do it, you will need to apply for a special exemption at least 48 hours in advance. And you'll need a really good excuse.

Greenland serves as an important spot for ETOPS aircraft, and for an en-route alternate for polar operations - to repeat, you can still use BGBW and BGSF as ETOPS alternates.



So far they think the rule will remain in place until the end of January next year. Given the current mutated mink situation Denmark have found themselves in, we don't expect it to reopen sooner.

Has Russia stopped playing me-trics on us?

OPSGROUP Team

29 January, 2021



Russia have never been in much of a rush to join (most) of the rest of the world in how they measure stuff, but they are slowly getting there...

No longer playing me-trics on us?

Way back in 2011, they decided they would start using Feet instead of Meters above the transition level. So traffic cruising on through did not have to worry about sudden changes to metric levels, but any descending down into Russian airports still needed to whip out the old conversion tables once they went below transition.

Then in 2017, they started a trial at ULLI/St Petersburg to see if the whole Foot thing might work for them.

It turns out it went ok, because as of 3rd December 2020 they will be **implementing this across Russian airspace** – check out AIC 08/19 for the official announcement.

It's not all smooth sailing yet though...

The AIC seems to suggest that changes will occur in all airspace from Dec 3, but this requires lots of chart updates – in reality it's more likely that the big international airports will get updated first, and then the rest will follow.

At the end of November, European Regulators issued a **caution to operators** because some of the chart and database folk are struggling to update everything in time. We are talking en-route charts, SID and STAR charts, updates to prohibited and danger areas, updates to sector boundaries...

In their Safety Information Bulletin, EASA say if you are heading to Russia, check your charts to ensure they are in date, and keep an eye out to see what the changes are and if they have been implemented where you are heading.

What has changed?

- En-route stays the same: Flight Levels in feet, and metres if you are in a Russian aircraft.
- Below transition you will now also receive clearances in Feet (QNH).
- Pressure will be reported in hPa, unless you are a Russian aircraft then you can request in mmHg.

Last time we checked **188 out of 193 ICAO member states are using feet and QNH**, instead of meters and QFE. The only countries still working in Meters are China, Mongolia, North Korea, and Russia and Tajikistan (in lower airspace).

Here is a picture of UUWW airport showing the change:

Transition Levels

Initially, we had information that the transition altitude was going to be fixed at 10,000 feet across Russian airspace. **Not so, it turns out.** Each airport will have their own transition altitude and associated transition levels, **so be sure to check the approach plates.**

It looks as if Moscow is standardising it across their airspace with a transition altitude of 10,000', and transition levels based on the pressure

- FL110 when QNH is 1012hPa or above
- FL120 when QNH is 977hPa or above
- FL130 when the QNH is less than 977hPa

And there is more

- All ATS routes have changed to RNAV5.
- A lot of TMA structures, and airspace areas around airports have changed which means a lot of arrivals and departures for airfields in the Moscow TMA airfields will also have changed.
- UDD/Moscow Domodedovo and UUEE/Moscow Sheremetyevo airports now have independent simultaneous arrivals on their parallel runways.

References:

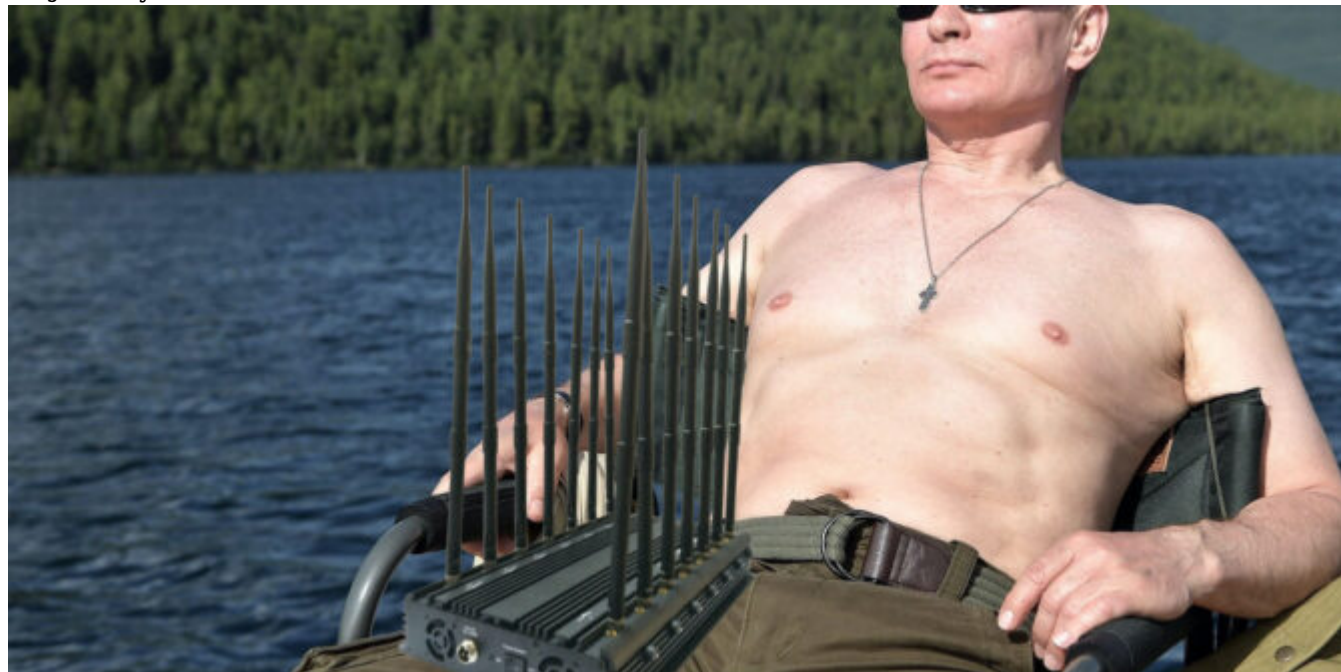
- You can access the Russian AIP [here](#)
- You can read up on Metric Altitude Reference [info here](#)
- Read our article from 2017 when ULLI/St Petersburg made the switch to feet and QNH

Thanks to Igor Nikolin, Deputy Head of the Air Navigation Support Service UTair Airlines for assistance with this post.

GPS Jamming: All the Wrong Signals

Chris Shieff

29 January, 2021



We live in a GPS world. This fantastic technology has **revolutionised aviation** since the first basic unit was approved for IFR use back in 1994. It has become engrained in day to day operations. We use it for a bunch of really important stuff – navigation, communication, surveillance, ADS-B and even TAWS. It is a technology that we rely on to stay safe.

And herein lies the problem. It relies on radio signals from satellites to work, and they can be **intentionally interfered with**. If you operate between Europe and Asia then the chances are this is not new. What is concerning is that it is happening more and more. In the last five years EUROCONTROL report that cases of GPS outages have risen dramatically. The number one suspect? **Deliberate interference.**

The Hot Spots

Almost always, widespread GPS outages occur in areas of political tension. It's no surprise then that the **Eastern Mediterranean, Middle East and Caucasus** are consistently the most affected regions – last year alone there were 3,500 reports of outages there. **About 10 a day**. And that's just from the people who spoke up. The **LCCC/Nicosia FIR over Cyprus** extending through to **LLBG/Tel Aviv** is particularly bad, with reports as far north as Italy, as well as **Turkey and Egypt**.

It is a part of the world **alive with tension** – spill over from the Syrian War, ongoing conflict in Libya and the current Azerbaijani conflict. Unfortunately it is also a **major air corridor** for flights between **Europe** and the **Middle East and Asia**. It is almost unavoidable.

But it's not just there – There are reports of GPS sabotage throughout the world – rings of interference (also known as 'crop circles') have been traced to **China, North Korea** and even **the US**.

So why tamper with GPS?

Unfortunately **electromagnetic warfare** is real. The goal for military interests is to make things as

difficult as possible for the other side including disrupting communications and navigation. GPS jamming is also used as a defence against drones – the explosive ones which we see in the headlines, and the ones that are spying. In other cases, jamming is used to protect people's **privacy**, and sometimes as a source of **criminal mischief**. Unfortunately for us, whether we like it or not, civil aviation is along for the ride...

Jamming or Spoofing?

GPS signals are low power, which means that a **weak interference** source can cause a receiver to fail, or more concerningly **produce false information**. A basic way to achieve this is with jammers – devices that mask the signal with noise. Although they are illegal in the US, they're not in other countries. And they're readily available.

A more sophisticated approach used by the military is '**spoofing**' where a ground station transmits a **fake GPS signal** that overrides the legitimate one.

In simpler terms – **jamming causes the receiver to die, spoofing causes it to lie.**

In powerful military applications, the effect of a single device has been known to affect a **300nm radius**, and it is almost impossible to locate them. They can be installed at bases, mounted in vehicles or put onboard ships.

So why is this a problem for aviation?

The issue is getting worse, and outages are sporadic and unpredictable. Three quarters of GPS loss worldwide is occurring in the cruise, and in ten percent of these cases it lasts for **more than half an hour**. There have also been reports where GPS receivers never regained a signal. According to ICAO's rules, frequent outages must be Notamed but the reality is, **few states are actually doing it**. To make matters worse, with so few aircraft flying during the pandemic it is unclear just how bad it is getting.

For crew, a loss of GPS forces an aircraft to rely on other means to navigate in airspace that **relies on accurate navigation** to separate you from other traffic. It can also lead to other issues including false alerts and even GPWS warnings. Requiring pilots to ignore them is a concerning precedent.

The plot thickens, enter 5G.

We've all heard about it – the revolutionary technology that will let you download your favourite episode of 'The Bachelor' in record time. Worrying news in the US has emerged that the federal government has allowed a new network provider to access a slice of the radio spectrum **usually reserved for GPS signals** to power a huge 5G network across the country. The frequencies are powerful, and there is **no guarantee** that they won't interfere with GPS signals.

So what can we do about it?

Unfortunately, like Covid, **the problem isn't going away anytime soon**. While manufacturers work on new ways to protect your aircraft, there are a few things you can do.

The most important thing is contingency – **have a plan**. Be aware of the threat of jamming if flying in affected areas of the world, and the issues it may create for you in the flight deck. If you lose GPS signal, **report it to ATC**. The more reports they get, the better. They will work to increase your separation and coordinate with other units.

When you're flying a GPS-based approach, know what you'll do if the **screen goes blank**. Be prepared for the unexpected because as recent events have shown, that super reliable technology can fail.

And **stay informed**, here are some useful resources:

- EUROCONTROL – check out the latest stats on GPS outages [here](#), and report loss of signal [here](#).
 - FAA – GPS Anomaly Reporting Form. For all US based GPS issues.
-

Space Weather: Here Comes Hubble...

Chris Shieff

29 January, 2021



History has shown that every ten years or so, earth comes under attack from high amounts of **space weather**- and we're about to embark on the next cycle.

Wait, there's weather in space?

Yep, but not in the conventional sense. That big ball of burning energy we call the Sun does more than provide us with the light and warmth we all seek on vacation.

It also constantly spews gas and particles into space, in what is known as the **solar wind**. These particles are charged with electricity, and are flung towards earth at up to a million miles an hour.

Luckily for us, our atmosphere and the earth's magnetic field acts like a shield. But sometimes these determined particles **make it through to our atmosphere**. When that happens we are often treated to the spectacular light shows we know as auroras. If you fly at high latitudes at night, chances are you have been lucky enough to see them. Sadly space weather can have more serious consequences for aviation than struggling to capture that illusive insta shot on your trusty iPhone 4.

Like the earth weather we're used to, **space weather is changeable** - its severity depends on what is happening on the sun.

Its surface is a busy place - hot gases are constantly on the move as powerful magnetic fields twist and turn. When things get especially rowdy, **a storm occurs** and the solar wind gets stronger. Occasionally

these storms produce a **solar flare** – essentially the sun burps, and sends significant amounts of radiation towards earth. This is where the trouble can occur.

What kind of trouble?

Communications. During solar events, **HF and satellite** communications can be disrupted. In severe cases, even disabled. There may be effects on **CPDLC and ADS-C services**. Line of sight VHF is less likely to be impacted, but that does not help much when you're over the middle of the ocean.

Systems. Some of your aircraft's systems are sensitive to radiation storms. Space weather may induce **sudden electrical failures** that can range broadly from insignificant to 'ruin your day.' Systems that rely on **magnetism** can also be affected

Navigation. The sun's particles disrupt the upper layers of the atmosphere, which can interfere with GNSS signals from satellites. You guessed it – the result is **unexpected position errors**. If it gets really bad, the signal may be lost all together. We're using RNAV based approaches more than ever these days, and the likelihood of not having ground based aids as a backup is increasing.

The Body. During these storms, you can be exposed to unusually high levels of **ionising radiation** (the nasty one for humans, think Chernobyl). As a general rule, the higher you fly or the higher the latitude, the more exposed you are. The effects of this on crew is the subject of ongoing studies. But the more you can **avoid higher exposure** levels the better.

What can we do about it?

Here's the best news: **space weather is predictable**. And ICAO are onto it.

Solar monitoring has improved significantly in recent years. A number of countries have joined forces to create three agencies responsible for issuing **ICAO Space Weather Advisories (SWX)** around the clock.

Space Weather Advisories have a standardised format, and are **not the same thing as a SIGMET**.

They are only issued whenever space weather conditions get bad – essentially **moderate and severe impacts**, and only when operations **above FL250** are affected. They are activated for comms, GNSS and radiation interference, so seeing an SWX advisory during your pre-flight briefing is a pretty good indicator to **have a closer look**.

They predict the effect of space weather at six hourly intervals across a twenty four hour period. To define the areas affected, SWX advisories effectively draw a box. They divide the world into six bands of latitude, and tell you how wide the box is with longitude. **Still confused?** A picture always helps...

For a full briefing, **the FAA** has recently published a helpful information bulletin which explains how Space Weather Advisories work in more detail. And if you're really brave, more info can also be found in ICAO Doc 10100.

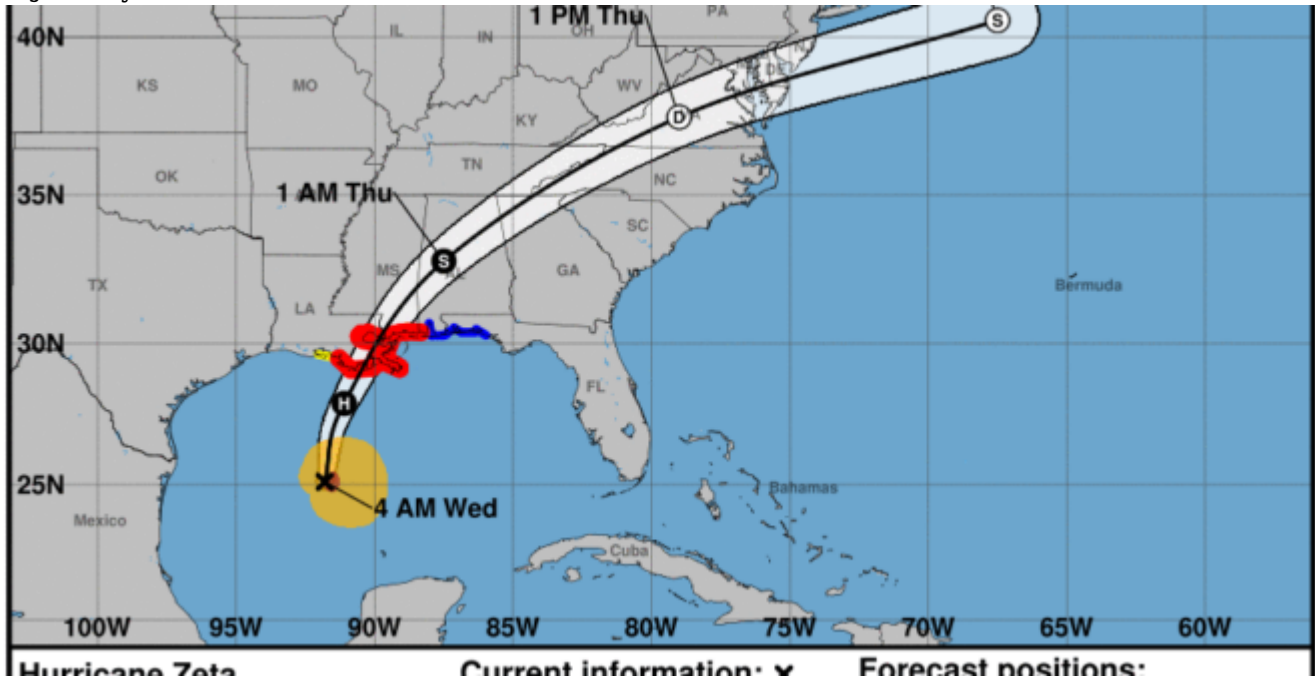
Some other useful stuff:

- **NASA's** frequently asked questions on space weather.
- **The Center for Disease Control and Prevention** – and their work on radiation exposure risk.

2020: A Record Breaking Hurricane Season

OPSGROUP Team

29 January, 2021



It has been a record breaking season for the Hurricanes. We are not talking the Carolina based NHL team. We are talking actual hurricanes.

2020 has now tied with 2005 as the most active hurricane season in history. No surprise there given what's gone on in 2020 so far.

Hurricane Zeta became the 11th hurricane of the year. It is also the earliest in a season that 27 storms have needed naming (2005's Zeta only formed at the end of November).

2005 is still (thankfully) beating 2020 in terms of major hurricanes.

What is the difference?

'Hurricane' comes from an old world which means 'god of the storm'. 'Typhoon' comes from the beast Typhon – a Greek monster who fathered the sphinx, Cerberus and the super lion Nemean that Hercules had to kill. The etymology of the word 'Cyclone' is less terrifying, but they all boil down to the same thing –

They are fancy terms for great, big, mess-making, flash-booming, horror storms. Whether it is a Hurricane, a Cyclone, or a Typhoon just comes down to where in the world it is wreaking havoc.

Hurricanes, Cyclones, Typhoons also get individual names if they get big enough. Some of these names get retired if they cause too much damage and destruction – like Katrina in 2005.

A full list of Hurricane names can be found [here](#).

So, what are they?

They are “large-scale, atmospheric wind-and-pressure systems characterised by a low pressure at the centre, and by a circulating wind motion”. They spin counterclockwise in the Northern Hemisphere, and clockwise in the Southern Hemisphere.

Buys-Ballot famously stated if you stand with your back to the wind in the Northern Hemisphere then the low pressure will be to your left. I wouldn't recommend standing with your back to a Hurricane though.

These storms only get classified as a Storm if the tropical depression they form from gets mean enough – basically, winds exceeding 39 mph. If the storm's winds exceed 74 mph it gets reclassified as a Hurricane.

Hurricane's also get classified from 1-5 based on their capacity for damaging things.

Category	Sustained Winds	Types of Damage Due to Hurricane Winds
1	74-95 mph 64-82 kt 119-153 km/h	Very dangerous winds will produce some damage: Well-constructed frame homes could have damage to roof, shingles, vinyl siding and gutters. Large branches of trees will snap and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.
2	96-110 mph 83-95 kt 154-177 km/h	Extremely dangerous winds will cause extensive damage: Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.
3 (major)	111-129 mph 96-112 kt 178-208 km/h	Devastating damage will occur: Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.
4 (major)	130-156 mph 113-136 kt 209-251 km/h	Catastrophic damage will occur: Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.
5 (major)	157 mph or higher 137 kt or higher 252 km/h or higher	Catastrophic damage will occur: A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.

Why does aviation hate them?

Well, mainly because of the weather they bring. The crazy winds, serious rainfall and flooding, and power outages they cause.

How can we avoid them?

Meteorology departments track storms and try to forecast their movement. Some of the movement is based on air currents and sea currents (because hot water feeds them) amongst other things. From this they can create what are called Spaghetti models which help forecast where the storm will travel.

Agencies such as NOAA also (on purpose) fly airplanes into them. These Lockheed WP-3D Orion aircraft have 4 turboprops and are pimped out with probes for measuring every wind and pressure change to help scientists see what is going on inside.

Little salute to the pilots who do those flights!

These aircraft measure everything! They have radars which can scan the storm vertically and horizontally, and can even drop probes to test the water temperature.



Satellites monitor storms as well, but mainly just send down horrifying photos of how massive they are.

All this information gets fed to sites, some of which we monitor...

What do we tell you?

We check a site called Cyclocane which tells us about active tropical storms, and their forecast paths. We try to give an alert about severe weather forecasts, and alerts on airports that are cancelling operations due to weather.

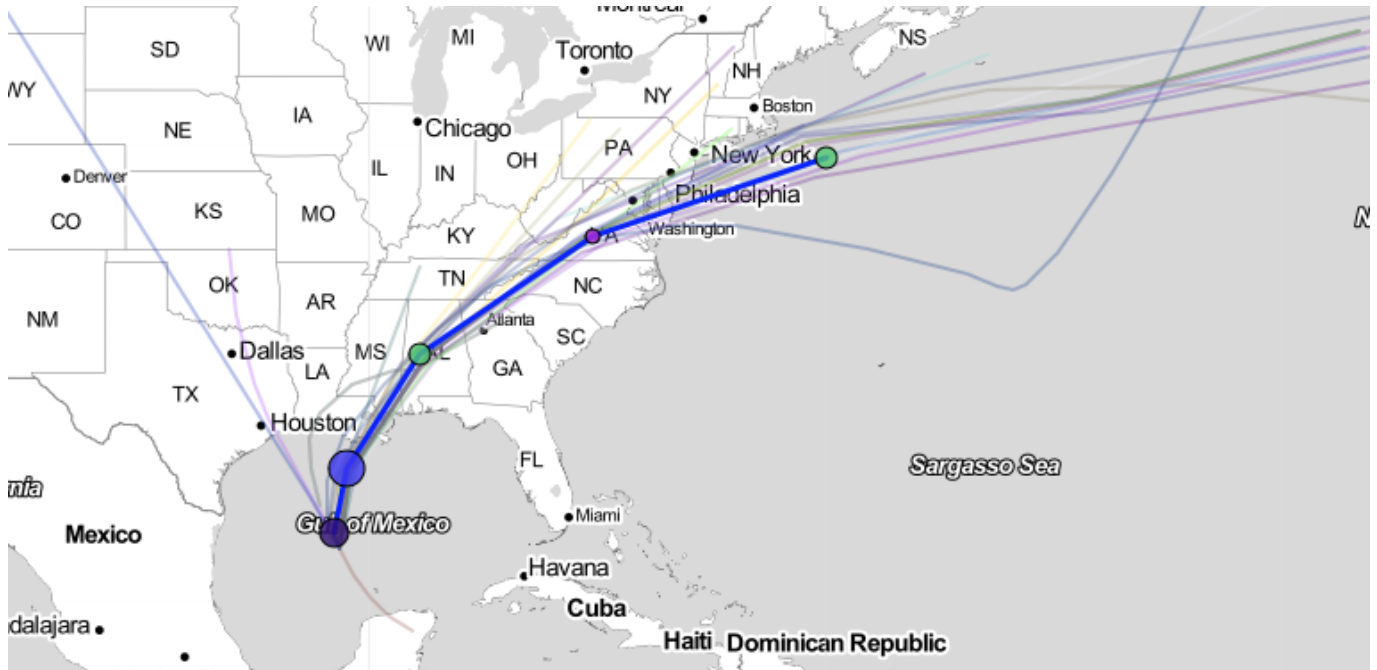
We also check other weather forecast sites, and NOAA for warnings on serious weather which might affect operations.

Zeta...

Zeta is a serious storm. Still currently over the water, it is strengthening and is expected to bring storm surges and extreme winds of over 100 mph

There are storm surge, tidal and hurricane warnings in place for Florida and Louisiana.

It is expected to turn North on October 28 or 29, and is expected to make land fall close to New Orleans late in the evening of October 28



ZETA Land Hazards

NWS Local Hurricane Statements

New Orleans LA AL282020 **ZETA EXPECTED TO BRING HURRICANE CONDITIONS AND STORM SURGE TO A PORTION OF THE NORTHERN GULF COAST TODAY**
 Birmingham AL AL282020 **Tropical Storm Watch Expanded Across Southeast Central Alabama**
 Tallahassee FL AL282020 **AIR FORCE HURRICANE HUNTER AIRCRAFT REPORTS THAT ZETA IS STRENGTHENING**
 Lake Charles LA AL282020 **AIR FORCE HURRICANE HUNTER AIRCRAFT REPORTS THAT ZETA IS STRENGTHENING**
 Jackson MS AL282020 **HURRICANE ZETA CONTINUES NORTHWARD, FORECAST TO MAKE LANDFALL LATER TODAY**
 Mobile AL AL282020 **ZETA EXPECTED TO BRING TROPICAL STORM CONDITIONS AND STORM SURGE TO THE AREA LATE THIS AFTERNOON AND OVERNIGHT**
 Peachtree City GA AL282020 **Remnants of Hurricane Zeta is expected to impact portions of north and west Georgia late today into Thursday**

Volcanoes - No lavaing matter

OPSGROUP Team
 29 January, 2021



One of the rowdy Icelandic volcanoes is at it again. Earlier this month, the Icelandic Met Office changed the aptly named Grímsvötn to a 'Code Yellow' after it started showing high levels of activity.. There has also been a fair amount of action in the Pacific Rim, and even Mount Etna has been rumbling...

Why is volcanic ash so dangerous?

For starters, it is not the same thing as smoke.

Volcanoes are on the ground, airplanes are in the air, but unfortunately volcanoes spit out loads of hot, nasty stuff and they tend to spit it rather high. That hot, nasty stuff is a mixture of glass, rock and mineral particles, and it is really fine – the diameter of a particle measuring less than 2mm. It is also very porous meaning it weighs next to nothing and is easily carried along on the wind.

Once the ash cloud starts to spread it, it can be very hard to spot – **even a fairly dense ash cloud is unlikely to show up on your weather radar because the particles are just too small.**

If it is ingested into a jet engine, it will erode the compressor blades before forming a substance similar to molten glass inside the combustion chamber, and this then re-solidifies on the turbine blades. The end result can be stalling and engine failure – and you might not be able to get them going again. And if that wasn't enough, it can also damage the flight deck windows, block pitot static systems, and get into the cabin air and damage ventilation and pressurisation systems.

So volcanic ash is to airplanes, like sand is to picnic on a beach – it gets everywhere, and pretty much ruins it.

Take British Airways Flight 9 for example...

In 1982 a British Airways 747 was en-route from London Heathrow to Auckland (with a few stops along the way). While overflying Indonesia, late into the night, their windshield began to glow an eerie shade of blue. They had unwittingly entered an ash cloud from the recently erupted Mount Galunggung. Within three minutes, all four engines had stopped. They descended over 25,000' and were making some pretty close-up eye contact with fish before they finally managed to get the engines running again.

In December 1989, a KLM 747 had a similar incident when en-route from Amsterdam to Tokyo, Narita. This time it was an ash cloud from the Redoubt Volcano that caused all four engines to fail. They also eventually managed to re-start and landed safely into Anchorage with no injuries, but with around 80

million dollars worth of damage to the airplane...

Okay, so what can we do about it?

For starters, understand the alerts you see in your pre-flight briefings.

To help operators plan against potential ash encounters, ICAO have helped develop a universal alerting system for aviation that uses a simple but informative colour coding to give a heads up of the activity level of volcanoes.

ICAO COLOUR CODE	STATUS OF ACTIVITY OF VOLCANO
GREEN	Volcano is in normal, non-eruptive state. <i>or, after a change from a higher level: Volcanic activity considered to have ceased, and volcano reverted to its normal, non-eruptive state.</i>
YELLOW	Volcano is experiencing signs of elevated unrest above known background levels. <i>or, after a change from higher alert level : Volcanic activity has decreased significantly but continues to be closely monitored for possible renewed increase.</i>
ORANGE	Volcano is exhibiting heightened unrest with increased likelihood of eruption. <i>or, Volcanic eruption is underway with no or minor ash emission. [specify ash-plume height if possible].</i>
RED	Eruption is forecasted to be imminent with significant emission of ash into the atmosphere likely. <i>or, Eruption is underway with significant emission of ash into the atmosphere. [specify ash-plume height if possible].</i>

ICAO also coordinate several Volcanic Ash Advisor Centers (VAACs) around the world that operate under the International Airways Volcano Watch. They use a network of met stations, satellites and even reports from pilots to provide forecasts, SIGMETs and advisories to the aviation community regarding ash clouds and eruptions. In other words, they try to tell you where it is, how bad it is and if it will get worse.

So, you can plan your flights to avoid affected areas both laterally and vertically.

Know the signs...

We have made you a handy infographic explaining what happens, and what you should do about it, but the general gist is:

Watch out for the signs that you might be entering an ash cloud – a strange colored cloud (in the vicinity of a known volcano), sulphuric or acrid smells in the cabin that can't be blamed on the co-pilot, increased static charge around the flightdeck windows, garbled radio, or a picture of it on your sigmet chart (that you missed in the pre-flight briefing) are usually a good giveaway;

If you think you've flown into ash, get out fast. A 180 degree turn is usually best. Follow the actions or volcanic ash checklist for your aircraft type, and consider getting yourself on oxygen;

Look after your engines. Monitor your engine closely – you might see surging, stalling or high EGTs. If they are, reduce power and turn the auto throttle off. **Do not try** to climb out of it;

Watch your speed. If you're getting erroneous speed indications, go back to basics using pitch and power until you can confirm your speed is safe;

Report it – Chances are if you've flown into it, so will another aircraft behind you, so make sure you put a radio call out to warn them, and to let ATC know why you just did a massive wheelie in the sky.

The Bigger Issue for Aviation

In 2010 the unpronouncable Eyjafjallajökull erupted and caused enormous disruption to air travel across Europe. The disruption lasted for over a week, and that was just one volcano!

A previously published report established that over one hundred airports in twenty-six different countries were affected by the eruptions of just forty-six volcanoes within a three period. Unfortunately for aviation,

there are about 1500 active volcanoes in the world (not counting the ones that line the ocean floor.) 75% of these fire breathing mountains live in the Ring of Fire, in the Pacific, but there are some seriously cranky calderas on all continents bar Australia.

Which ones should we keep an eye on?

Volcano-watching organizations and aviation authorities have established a ranking system for volcanoes using an overall threat score, and a threat to aviation score which take into account 24 factors.

In the US, Kilauea in Hawaii ranks numero uno worst with an overall threat score of 263, and an aviation threat score of 48. Mount St. Helens, Washington poses the greatest threat to aviation with a score of 59.

So what other resources are there to help avoid serious aviation disruptions from eruptions?

Unfortunately, volcanic eruptions can be a little hard to forecast, but generally how much they are rumbling, GPS data that monitors seismic activity, and historic eruption data are used to predict if and when they might pop.

Ash clouds are relatively hard to track as well – normally data is plugged into ash cloud modeling programs that consider the density and plume size, and the wind conditions for the day to model how it might disperse. Satellite sensing to detect radiation absorption levels, and thermal infrared wavelength levels also help, but there is no one sensor for observing everything.

Aviation authorities determine ash zones based on the concentration of ash. These are either a No Fly Zone, or an Enhanced Procedure Zone, and are based off tolerance levels agreed with aircraft and engine manufacturers. Generally enhanced procedures require training for the pilots (on identifying effects) and additional maintenance checks for the engines and aircraft.

Too Long; Didn't Read

1. **Keep an eye on our alerts.** Opsgroup will send out alerts on any volcanic eruptions that look like they will significantly impact flight operations;
2. **Familiarise yourself** with the signs of ash clouds, and the actions to take in case you ever do end up in one.

Other resources

- <http://www.bom.gov.au/aviation/warnings/volcanic-ash/> – shows the Volcanic Ash SIGMETs received in the last 24 hours for all regions around the world.
 - <https://www.ssd.noaa.gov/VAAC/vaac.html> – links to the individual websites of all the different Volcanic Ash Advisory Centers.
 - <http://icelandicvolcanos.is> – shows a nice clear map of the volcanoes in Iceland, color-coded to show varying levels of activity.
 - How to make your own volcano at home!
-

The 511 on the Nov 5th ICAO changes

Chris Shieff

29 January, 2021



A whole bunch of procedural stuff will be changing from 5 Nov 2020, with the release of a new amendment to ICAO's Procedures for Air Navigation Services document. There will be changes to **Oceanic Contingency and Weather Deviation Procedures, Wake Turbulence Separation, SLOP Procedures**, and how the **FAA defines Gross Navigation Errors**.

What is the PANS-ATM (ICAO Doc 4444)?

Procedures for Navigation Services – Air Traffic Management. In other words, the 'go to' manual for aircrews who operate internationally. It explains in detail the standard procedures you can expect to be applied by air traffic services around the world, and what they expect in return.

Here is a summary of the most important changes coming on 5 Nov 2020. *Thanks to Guy Gribble at International Flight Resources for this update.*

Oceanic Contingency Procedures

Basically, what you should do if you need deviate from your flight path without a clearance. Weather avoidance, turbulence, depressurisation, engine failure – you get the picture. Published procedures are changing: there will be one standard set of Contingency and Weather Deviation Procedures for all oceanic airspace worldwide.

If you've been flying in the North Atlantic Region over the past year and a half, you'll be familiar with how it works – the new procedures were introduced there back in March 2019, and now they're being rolled out everywhere.

The main change here is that Contingency offsets which previously were 15 NM are basically now all 5 NM offsets with a turn of at least 30 degrees (not 45 degrees).

For more on this, check out our article.

Wake Turbulence

Flight Plan Category

There will be a new wake turbulence category for flight plans:

No longer will 'Heavy' rule the skies. 'Super' is about to be added, which will cover the largest aircraft including the A380-800, and Antonov 225. You will even get to say it after your callsign on initial contact with ATC.

ICAO Doc 8643 will shortly include all aircraft which qualify for the category.

You'll need to tell them your category in Flight Plan Item #9 too. For Super, the letter 'J' is what you'll need to include.

Here's the new line up:

J - SUPER (Check Doc 8643 to see if you qualify)

H - HEAVY (Max take-off weight greater than 136,000kg/300,000Lbs)

M - MEDIUM (Max take-off weight greater than 7,000kg/15,500Lbs)

L - LIGHT (Max take-off weight less than or equal to 7,000kg/15,500Lbs)

Wake Turbulence Separation Categories

Countries may choose to use the ICAO wake turbulence codes above to determine how much room to give you from preceding traffic, or they can elect to use a grouping.

Currently, ICAO groupings are based simply on weight and there's only three of them. The problem with that approach is that sometimes the separation provided is excessive which slows down the flow of traffic and creates unnecessary delays.

The US and Europe were on to it when several years ago the FAA and Eurocontrol joined forces to look at the wake characteristics of aircraft in more detail. They came up with a better system - it was a process known as Aircraft Wake Turbulence Re-Categorization or simply, RECAT.

Turns out that when you take into account factors such as approach speeds, wing characteristics and handling abilities of various aircraft it is possible to safely reduce separation.

As a result, six new categories were created. You can read about those in FAA SAFO #12007 and EU-RECAT 1.5 if you would like to know more.

The point is, ICAO is now adopting those categories.

So why does it matter?

Because the separation applied when following smaller aircraft may be reduced to as low as 2.5nm on approach. Closer than you may be accustomed to.

Out with the old, in with the new. Here's what you can expect to see in November:

Old:

HEAVY (H) - aircraft of 136,000kg or more

MEDIUM (M) - aircraft less than 136,000kg but more than 7,000kg

LIGHT (L) - aircraft of 7,000kg or less

New:

GROUP A - $\geq 136,000\text{kg}$ and a wingspan $\leq 80\text{m}$ but $> 74.68\text{m}$

GROUP B - $\geq 136,000\text{kg}$ and a wingspan $\leq 74.68\text{m}$ but $> 53.34\text{m}$

GROUP C - $\geq 136,000\text{kg}$ and a wingspan $\leq 53.34\text{m}$ but $> 38.1\text{m}$

GROUP D - <136,000kg but >18,600kg and a wingspan >32m
GROUP E - <136,000kg but >18,600kg and a wingspan ≤32m but >27.43m
GROUP F - <136,000kg but >18,600kg and a wingspan ≤27.43m
GROUP G - <18,600 kg or less (no wingspan criterion)

Separation standards will soon be published accordingly.

Strategic Lateral Offset Procedures (SLOP)

Wait, what?

As a result of extremely high levels of accuracy in modern navigation systems, if an error in height occurs there is a much higher chance of collision. It also greatly increases the chance of an encounter with wake turbulence.

In some airspace, when the lateral separation applied or the distance between adjacent parallel routes is greater than 6nm, aircraft can deviate up to 2nm right of track without a clearance. This is what is known as SLOP.

The way in which it is applied is changing

Where the lateral separation minima or spacing between route centerlines is 15NM or more; offsets to the right of the centerline will be allowed up to 2nm.

When the lateral separation minima or space between route centerlines is less than 15nm (but more than 6nm), you will be able to offset up to 0.5nm right of track.

So, it is important you are familiar with what kind of lateral separation is being applied in the airspace you are operating.

The FAA will change their definition of GNE's

On 5 Nov 2020, the US FAA will change their definition of Gross Navigation Errors to mean anything more than 10nm (down from 25nm), to align with ICAO's 10nm definition that currently exists on the NAT HLA. So after this date, the FAA will require you to report all lateral errors, 10nm or greater worldwide.

More on this from Guy Gribble at International Flight Resources:

"Keep in mind that ATC does not always advise a crew that it files a report; therefore, the FAA inspector will try and contact the crew as soon as possible so the crew will remember details of the event. ATC keeps voice and communications records for between 30-45 days. New York Radio and San Francisco Radio keep voice communications for 30 days. The FAA directs that oceanic error investigations should be complete within 45 days of the incident."

Berlin's long-delayed Brandenburg airport is finally opening

OPSGROUP Team
29 January, 2021



When we say “new” that is a little bit of a lüge – the new EDDB is actually sort of consuming the old EDDB (Schönefeld) into its airport infrastructure, like the creature from The Blob. On October 25, Schönefeld Airport will become “Terminal 5” at Brandenburg Airport; and on November 8, neighboring EDDT/Tegel Airport will close and all traffic will switch to Brandenburg. At this point it will be the third busiest airport in Germany, and the fifteenth busiest in Europe.

The new airport does have some new buildings as well though. Terminal 1 will be the main terminal for the airport, with a train station situated in it for direct connections to the city of Berlin. Eventually a Terminal 2 will also be built.

The airport operator is expecting around 5000 passengers to pass through Terminal 1 on Day 1, and a further 8000 through Terminal 5.

Here’s the chart for Schönefeld Airport (i.e. how it looked before):

And here’s the chart for Brandenburg Airport (i.e. what it looks like now)

You can get your hands on the new airport charts via the European AIS Database. It’s free to register an account, and lists AIP info (including airport charts) for most countries in Europe (plus Kazakhstan and the Philippines too, for some reason).

So, when?

October 31 will see EasyJet and Lufthansa both racing to be the “first” aircraft to operate into the airport. Rather un-excitingly they will land on the “old” runway though.

November 1 will see the first ever departure from Brandenburg International airport, with the Southerly runway expected to open up to traffic from November 4th.

You might have heard about it earlier...

Work on the airport actually started in 2006, and it was supposed to open in 2011, but nearly a decade later (and close to triple the original budget), it has only just been completed.

The airport suffered a range of construction, corruption and calamity riddled development which resulted in the near decade long delay. Everything from lift sizes to fire suppression systems to approach light

power outages occurred.

In 2016 the airport was less than 57% usable...

But jump forward to May 2020 the airport *finally* received its operational licence, and on October 19th it completed its operational tests. These tests have been running since April (it takes a lot of tests to put a new airport through its paces) and with the rubbish bins made bigger, better signage and more clocks it is now ready to go – for passengers at least.

What about the airplanes?

Well, the important bits for airplanes have actually been up and running for a while now.

The airport will have two parallel runways, spaced 1,900 m (6,200ft) apart allowing for independent flight operations (and high traffic capacity when required).

The old runway, built in the 1960s, has already been renovated – lengthened to a nice 3,600m (12,000ft) and the new runway, commissioned in 2012, is a juicy 4000m (13,000ft).

The airport will be controlled by Deutsche Flugsicherung from their impressive 240ft (72m) tower, which has been operational since March 2018.

The general aviation terminal is located to the north of EDDB, and the main FBO for Schönefeld is still there.

What else can we tell you?

- Noise Abatement regulations mean you can probably expect the standard German airport restrictions of no operations between midnight and 05:00LT.
- It has an ATIS on 123.78MHz and a Tower frequency 118.8MHz.
- The elevation is 157ft.
- It's official coordinates are 52°22'00"N 013°30'12"E.
- The airport is named after Willy Brandt, who by all accounts was a total *ausgezeichneter herr* (awesome dude). He was awarded a Nobel Peace Prize for his work both in Deutschland and across Europe. He is also known for the Brandt report which called for the world to do better in supporting development in 3rd world countries, and he is the guy that flew to Iraq and got Saddam Hussein to free loads of hostages. He then flew back with 174 of them to Frankfurt.



Overrun, Forrest, Overrun!

OPSGROUP Team
29 January, 2021



Earlier this week the Accident and Investigation reports came out about two aircraft overruns, on the same runway, that occurred within two hours of each other.

So what was going on in UEEE/Yakutsk back in 2018?

Or rather, what was going off, and why?

A bunch of factors contributed to this double whammy of airplane excursions. First up, the runway at Yakutsk airport had been shortened for works. It was, in fact, 1,150m shorter – which is quite a significant amount.

There were some Notams published about this, (and pretty decent Notams at that)

A5991/20 said -

*DAILY 0000-0800: RWY 23L AVBL FOR LDG ONLY. **LDA 2248M**. TKOF FM RWY 23L CARRIED OUT BY REQ DURING THIS PERIOD. 2. DAILY 0800-2359: RWY 23L AVBL FOR TKOF/LDG. DECLARED DIST: TORA 2248M, TODA 2398M, ASDA 2248M, LDA 2248*

And then there was A3621/ 20 which said -

AD TEMPO UNAVAILABLE FOR ACFT OF FLW TYPES: IL-96-300, IL-96-400, IL-86, IL-62, A-310, A-330, TU-154, BOEING777, BOEING747, BOEING-767-400ER, MD-11F AND THEIR MODIFICATIONS.

What about the airplanes, I hear you ask.

Well, the Sukhoi Superjet 100LR is not included on the list of “can’t land here” airplanes. However, the Notams should have at least given them pause for thought, especially since both of them had technical issues reducing their deceleration performance.

Number 1 “First to Overrun” was found to have significantly worn out tires (which should have been spotted during a walk around), while Number 2 “Also Skidding Through” had a thrust reverser out of action. No big deal, but factors to be considered in the context of the other conditions of the day.

Talking of those conditions – the ATIS was reporting a tailwind of 6kts which is not outside anyone’s limits, and of course 150% of any tailwind is taken into account for landing calculations.

The braking co-efficient, however, was reported as 0.45

Now, ICAO and most national authorities have moved away from reporting measured friction because they decided that, really, it is a pretty useless thing to report. There is not actually any great way to work out how **those** contaminants on **that** day will result in **whatever** friction for **whichever** aircraft – because there is no way to correlate the measurements a ground measuring device can measure in a meaningful way to what an airplane will actually experience. In other words – it has limited practical use in actually characterizing the runway conditions for an aircraft operation.

To further add to its pointlessness, the 0.45 was not even accurate. The real coefficient measured that day was actually less than 0.3.

As slippery as an oiled-up eel

Now, these pilots did do a landing performance calculation using what they thought were accurate figures. Even with their selection of only medium auto brake, and the mandatory 15% safety margin added in during in-flight performance calculations, the results looked ok and so they gave it a go.

However, had they known the coefficient was only 0.3 then they would hopefully have come up with landing results similar to those calculated during the subsequent investigation. These showed that a Superjet needs about 1,598m on a dry runway, 1,838m on a wet runway and a whopping 3,650m if the coefficient of friction is 0.3. Their 15% safety margin could not even cover the extra distance because of

the poor braking action.

So, with one of the reversers out of action, a tailwind, an incorrectly reported friction co-efficient and only 2,248m available for stopping in, **poor old airplane Number 2 never stood a chance of stopping** in the space available.

What can we take away from this?

Runway Excursions are still in the **top 3 most common bad stuff that happens to airplanes**, and considering the vast majority are avoidable with a bit of planning, better procedures or common sense, this is fairly shocking.

So, what can pilots do to prevent overruns?

1. Check you performance and check it well.
2. If runway contamination is in doubt, if the runway is shorter than usual, if you have technical issues that degrade your landing performance... maybe consider diverting to somewhere with more margin.
3. Check your tires (and everything else you're meant to check for that matter).
4. Use the best auto brake for the situation.
5. In fact, use all the best deceleration "whatevers" you need for the situation.
6. If it isn't slowing down like it should be, do those memory items and do them fast.
7. Land how the manufacturer recommends (firm and in the right place).
8. If it is slippery out, be prepared to use differential braking, or reduce reversers to maintain directional control.
9. Keep monitoring the conditions and if something deteriorates recheck your performance.
10. Don't trust the braking coefficients given at Yakutsk airport.

Braking, braking, broken...

Sometimes brakes do fail, or systems malfunction, and if that happens being ready with your memory items is the best way to deal with this. They might vary slightly across different types, but the basic actions are probably something along the lines of –

1. Yell "AGGHHH! NEGATIVE BRAKES!"
2. Brake as hard as you can.
3. Select the other braking system.
4. Select maximum reverse.
5. Keep trying to brake and if it still doesn't work, (and if you have one) select the emergency brake system (usually using the park brake).

What are manufacturers doing to help stop overruns?

A lot of airplanes have some clever devices installed in them nowadays.

Take Airbus for example. They have their ROW/ROP systems. The ROW bit (runway overrun warning) does useful things like monitoring the conditions in real time, and running speedy little calculations based on the known runway length and aircraft weight to make sure the aircraft is still stoppable in the distance available. If it isn't, it will yell at the pilot.

The ROP bit (the protection that kicks in after landing) does something similar, and can automatically apply full whiplash effect with the brakes if it thinks you need it, as well as reminding you to "Set Max Reverse!"

Other aircraft have similar systems with warnings that trigger if an aircraft is too fast, or if the landing flare is too long, or the remaining amount of runway is too short...

What can authorities do to stop excursions?

Ensuring operators train crew and staff properly, and that information is distributed in the industry is important.

Airlines and Operators should have in place technical and practical training for their crew to help them have a better awareness of the risks and factors that lead to overruns. Better monitoring of areas like unstabilised approaches which often precede overrun incidents, and contaminated runway and winter operations awareness, is also necessary.

Airports should make sure Notams about works and changes to runway characteristics are up to date and correct. Giving correct information to pilots about the conditions on the day would also help...

In the US the FAA is advocating the use of EMAS (engineered materials arresting systems) at airports within insufficient runoff space, and this has apparently prevented the severity of 15 aircraft overruns in the years they've been installed.

Further Reading

- Opsgroup article: 5 Tips for Safer Winter Ops
- Airbus "Safety First" magazine: new issues published every 6 months, a wealth of info about all things safety-related.
- Useless fact: If you wanted to ski down a concrete slope using rubber skis, the coefficient of friction for rubber on concrete is 0.9 which means you would need a 42 degree slope to actually get moving.

Ferry Flights in the time of Covid

Chris Shieff

29 January, 2021



Ferry flights are tough to operate even at the best of times. Whether it's getting a new aircraft from the manufacturer to its customer, moving it to or from a repair facility, or just returning it to base, there are a bunch of things to consider beyond the normal planning you would do for a standard private or charter flight: extra permit requirements, insurance issues, equipment compliance, and a close eye on route planning!

Covid restrictions have made all this even more complicated, with many countries completely closing up shop to everything except repatriation and cargo flights at the start of the pandemic, only to reopen months later with complex entry rules and flight restrictions in place.

Here's a summary of the **main considerations when planning ferry flights**, and a **recent example of a trip** we eventually managed to do despite the Covid restrictions of various different countries at the time.

Permit Requirements

One of the most important considerations for ferry flights is whether or not the aircraft will be operating on a standard Certificate of Airworthiness or on some form of a Special Flight Permit. While some countries around the world will allow an aircraft to overfly or land without permission while operating on a standard Certificate of Airworthiness, most countries will not allow an aircraft operating on a Special Flight Permit (or equivalent) to overfly or land without receiving an additional permit.

Permit Lead Time

When obtaining overflight and landing permission for Special Flight Permits, consideration should be given for the lead time. Some countries have different teams looking after these types of permits than the people who issue the permits for "normal" flights. The lead time can vary from 24 hours to five working days, or even longer. Watch out for weekends too! In some countries the working week is not necessarily

Monday-Friday.

Flight support companies and local agents can be invaluable to assist with securing these permissions as they may have local contacts with the civil aviation authorities. These authorities are validating the Special Flight Permit and Operating Limitations, along with the Certificate of Registration and Certificate of Insurance to ensure they meet the requirements for their individual country.

Insurance Requirements

An important consideration when ferrying any aircraft is the Certificate of Insurance. This certificate needs to cover all areas that the aircraft will be operating in, as well as ensuring coverage for any flight crew who may be employed by the aircraft owner. Regions of the world (ex: Europe) may have minimum liability requirements that must be met and clearly stated on the Certificate of Insurance. Even though the certificate states 'worldwide' several countries in Central America will require that the certificate clearly states it includes their country prior to issuing the permission.

Navigation Equipment

Ferry flights are often being conducted to move older aircraft from one place to another with navigation equipment that is either out of date, due to be replaced, or unservicable. It is important to ensure that the navigation equipment and the crew qualifications are up to date and that the flight is being conducted in accordance to the requirements for the countries that the flights are overflying and landing at. A common area that local authorities will look at when conducting ramp checks is what equipment has been installed, certified and is operating.

Covid Complications!

In June 2020 we helped an operator move a Cessna 208 Caravan from the US back to Australia. What complicated this flight was that the operator had already attempted to move this aircraft in March at the beginning of the global pandemic to only end up with the aircraft being grounded for three months in Alaska while we waited for central and southern Asia to open up some of their restrictions.

This aircraft was issued an Australian Special Flight Permit which required permission from every country we were operating into or over, and was equipped with a ferry tank system to give us some additional range in our planning. As the flight was operating through Russia with an overnight stop, the crew were required to obtain Russian transit visas and due to the pandemic testing requirements, the crew were required to be tested prior to departing from the US as well as when en-route in the Philippines.

In the end, we decided on the following routing: PANC/Anchorage – PADK/Adak Island – UHPP/Petropavlosk – RJCC/Sapporo – RJBB/Osaka – ROAH/Okinawa – RPLC/Angeles – WAPP/Ambon – YBRM/Broome



We got special permission for the crew to stay overnight in PADK, UHPP, RJBB, RPLC and WAPP for crew rest.

Even without the additional Covid-related requirements, due to the Special Flight Permit, Japan required additional permissions from various government agencies, including their military. We got a local agent to assist with these arrangements, as well as the special Customs & Immigration arrangements required for the crew to remain overnight in RJBB. They were not authorized to remain overnight under any circumstances in RJCC or ROAH.

While the global pandemic raised a number of additional requirements, we needed to consider several things when determining the ferry flight for this aircraft. The most important consideration was aircraft range. Thanks to the ferry fuel system, we were able to have ample range to fly from Alaska into a customs airport in Russia. While a routing from PANC to UHMA (with or without a stop in PAOM) was considered, it was not possible at the time as UHMA was closed to all international traffic.

The routing through Japan was carefully considered with extensive consultation (and changes) with the Japanese agent. Many local authorities at different airports were back and forth on whether the crew would be allowed to overnight, and it was imperative to find an airport that would allow the crew sufficient rest.

The routing from Japan into the Philippines and through to Indonesia remained a challenge right up to the day of flight. Indonesia reopened their borders to international flights after the crew departed from the US, and required the crew to have a fresh Covid test which was arranged in the Philippines.

More info

Check out our Guide to Getting Unusual Permits. It has the details on 28 countries that have a special process for Ferry Flights and other Special Permits. You'll find Civil Aviation Authority contact details, Agent details (when necessary), and our descriptions of the best practice for each permit.