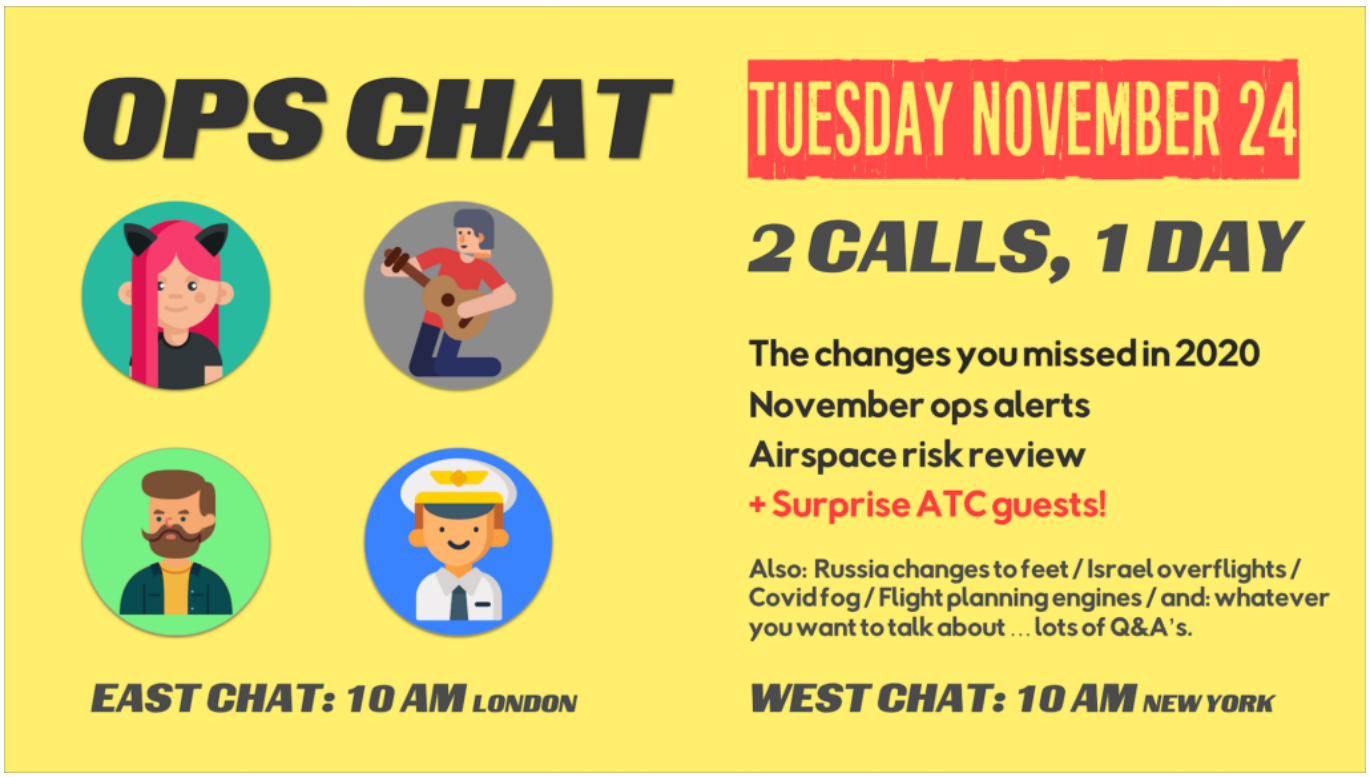
November Ops Chat

OPSGROUP Team
19 November, 2020



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 runing 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?

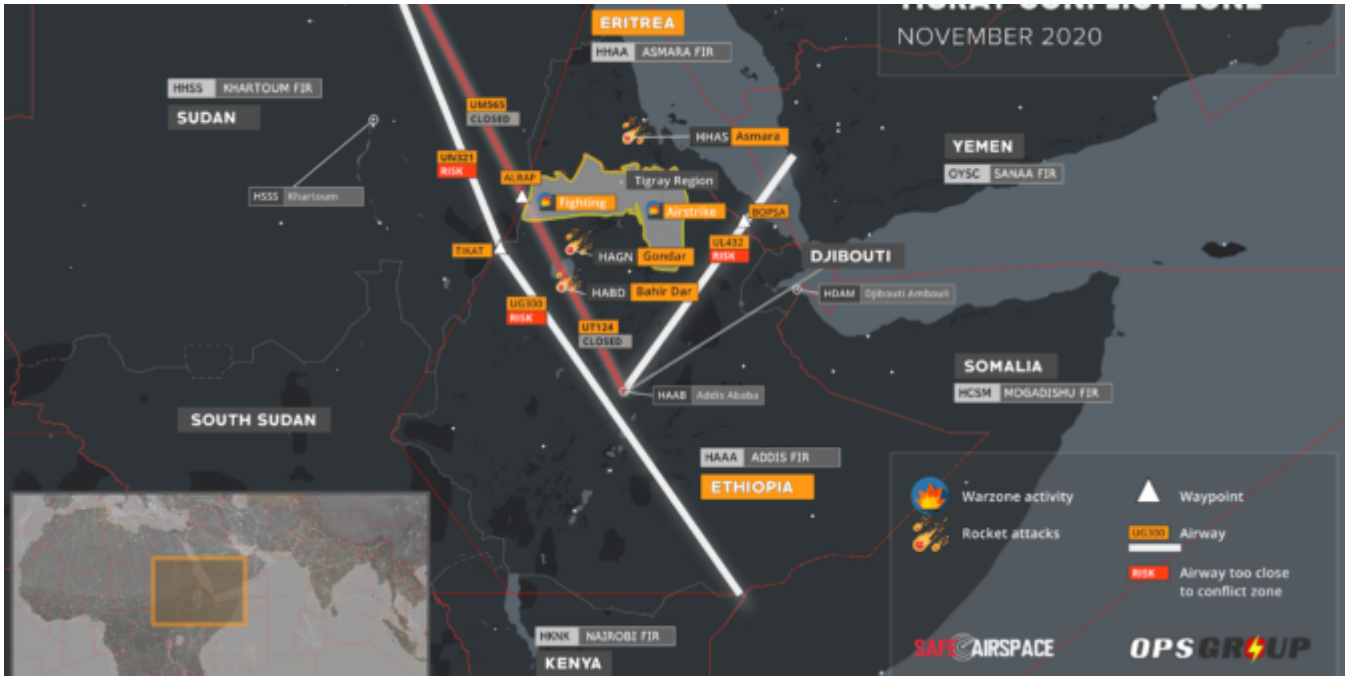
- We are getting to the end of this year, and the plan is to **get out from the Covid fog** and take a look at **what else has been going on in 2020.**
- There have been some **big changes**, and in case you have missed them, we will give you **brief rundown** of what they are.
- We will look over the **"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

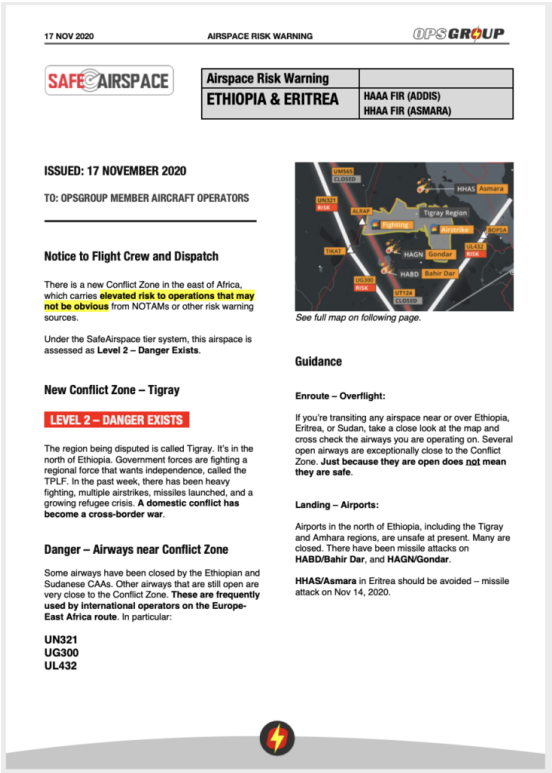
Mark Zee
19 November, 2020



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

SAFEAIRSPACE

Airspace Risk Warning	
ETHIOPIA & ERITREA	HAAA FIR (ADDIS) HHAA 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

See full map on following page.

Guidance

Enroute – Overflight:

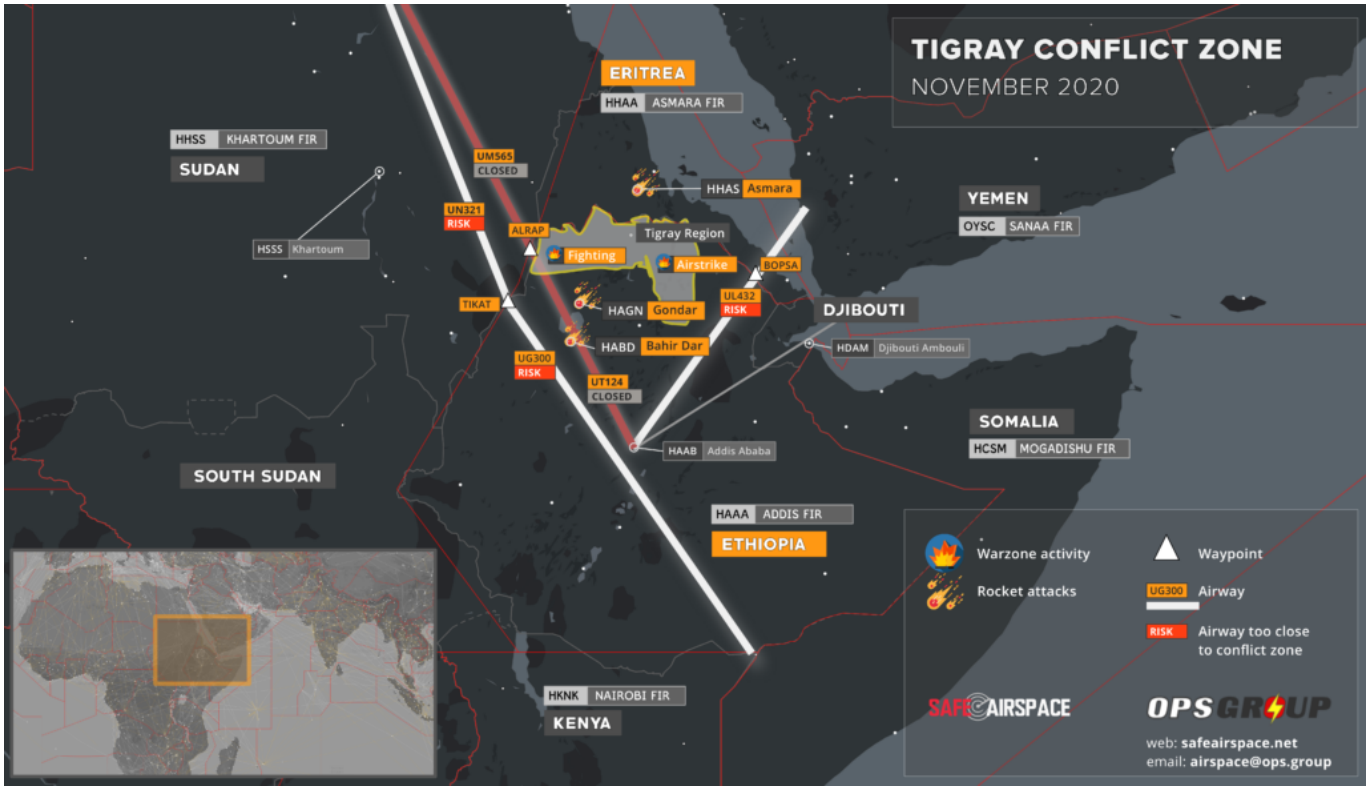
If you're transiting any airspace near or over Ethiopia, Eritrea, or Sudan, take a close look at the map and cross check the airways you are operating on. Several open airways are exceptionally close to the Conflict Zone. **Just because they are open does not mean they are safe.**

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.

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 shootdown 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.

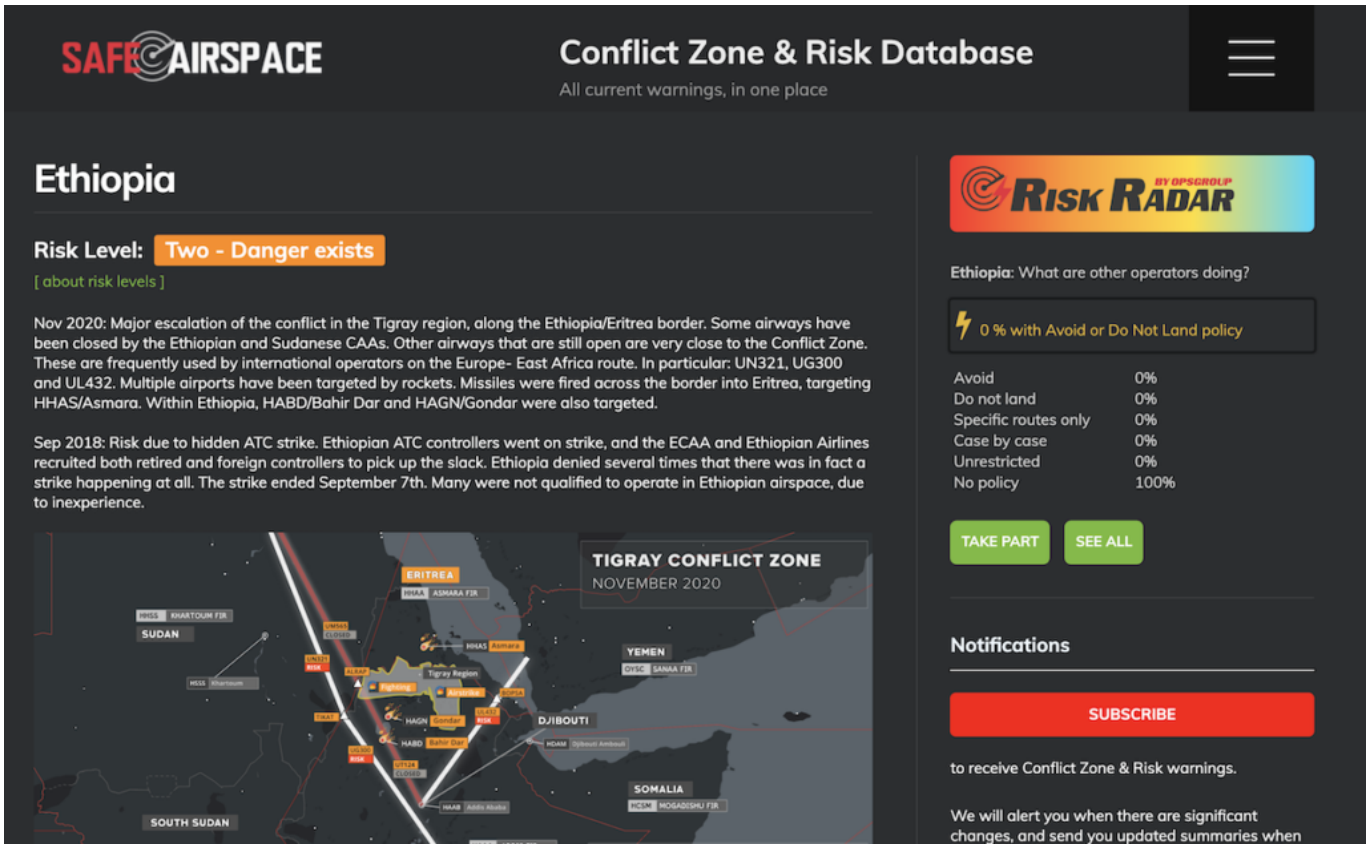
Guidance

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

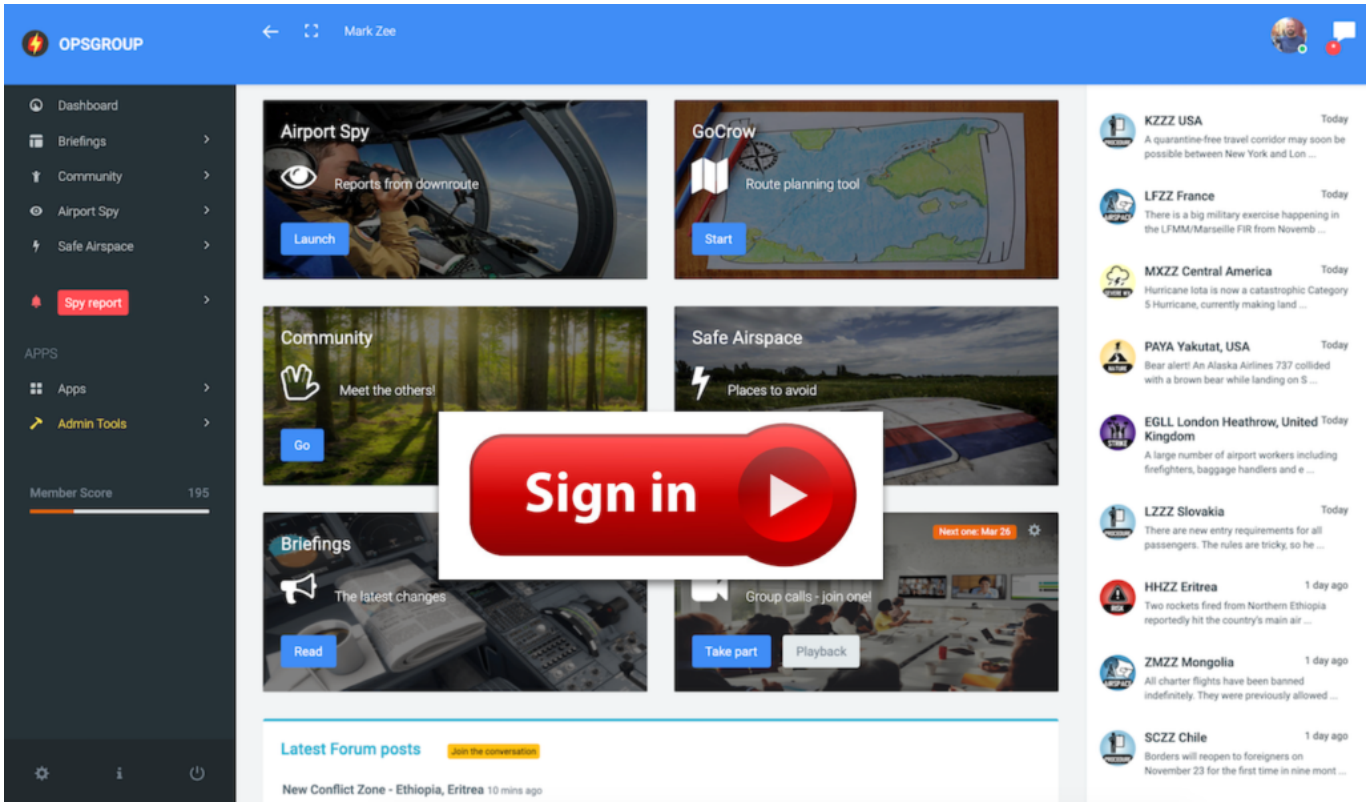
- US (FAA) – through Notams and SFARs
- UK (DFT) – by Notam and then AIP
- Germany (BMVI) – by Notam
- France (DGAC) – by AIC

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
19 November, 2020

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. 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?

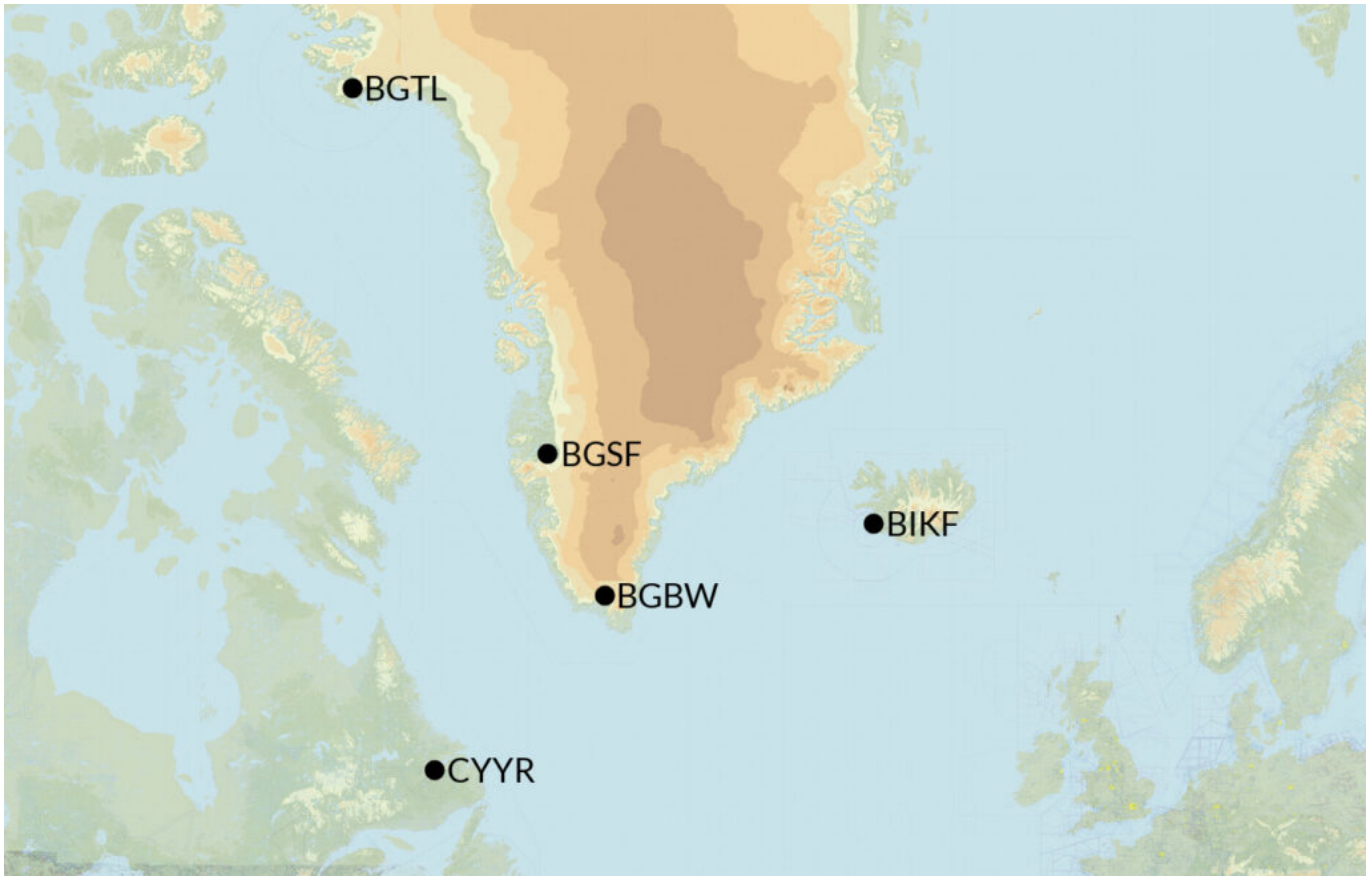
Yes! These are still permitted at BGBW/Narsarsuaq and BGSF/Kangerlussuaq. But watch out for extra charges if filing one of these airports on your flight plan as an alternate.

BGTL/Thule is only open to emergency diverts – 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
19 November, 2020

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.
- UUDD/Moscow Domodedovo and UUEE/Moscow Sheremetyevo airports now have independent simultaneous arrivals on their parallel runways.

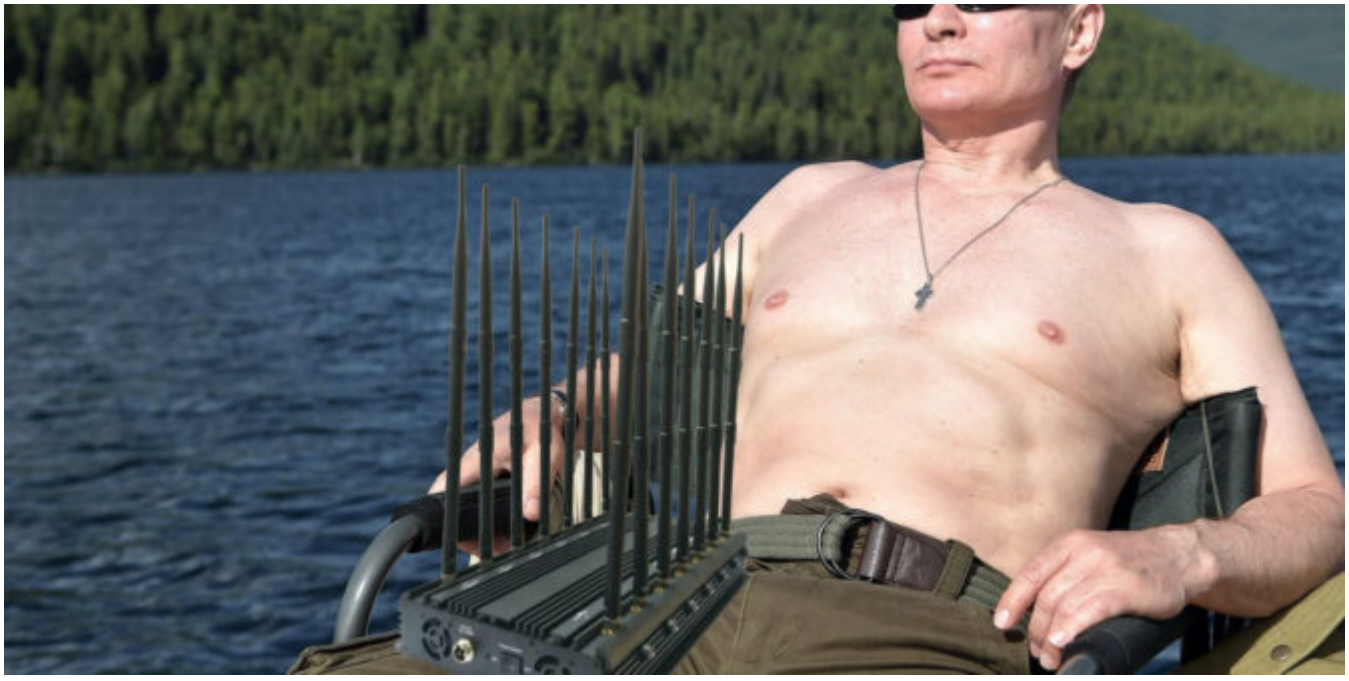
References:

- 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
19 November, 2020



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 won't interfere with GPS signals.

So what can we do it about?

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
19 November, 2020

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...

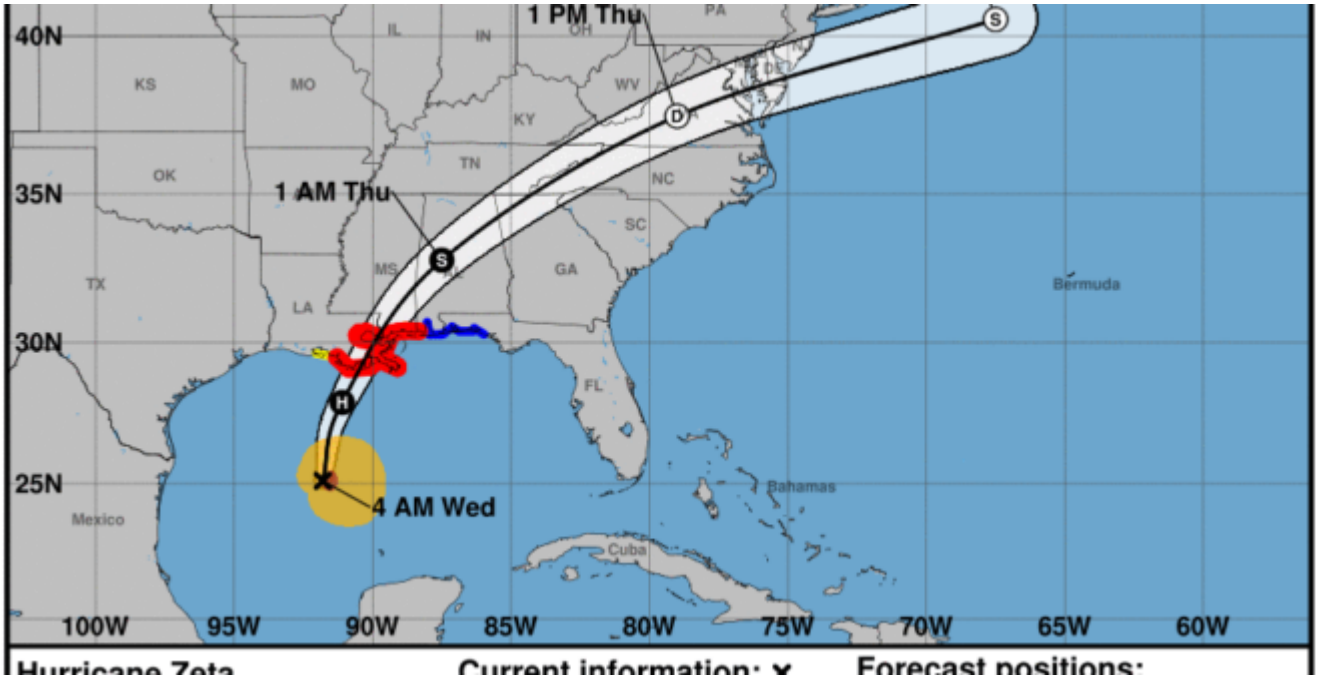
For a full briefing, **the FAA** has recently published a helpful information bulletin which explains how Space Weather Advisories work in more detail. And if you're really brave, more info can also be found in ICAO Doc 10100.

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
19 November, 2020



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 world '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.

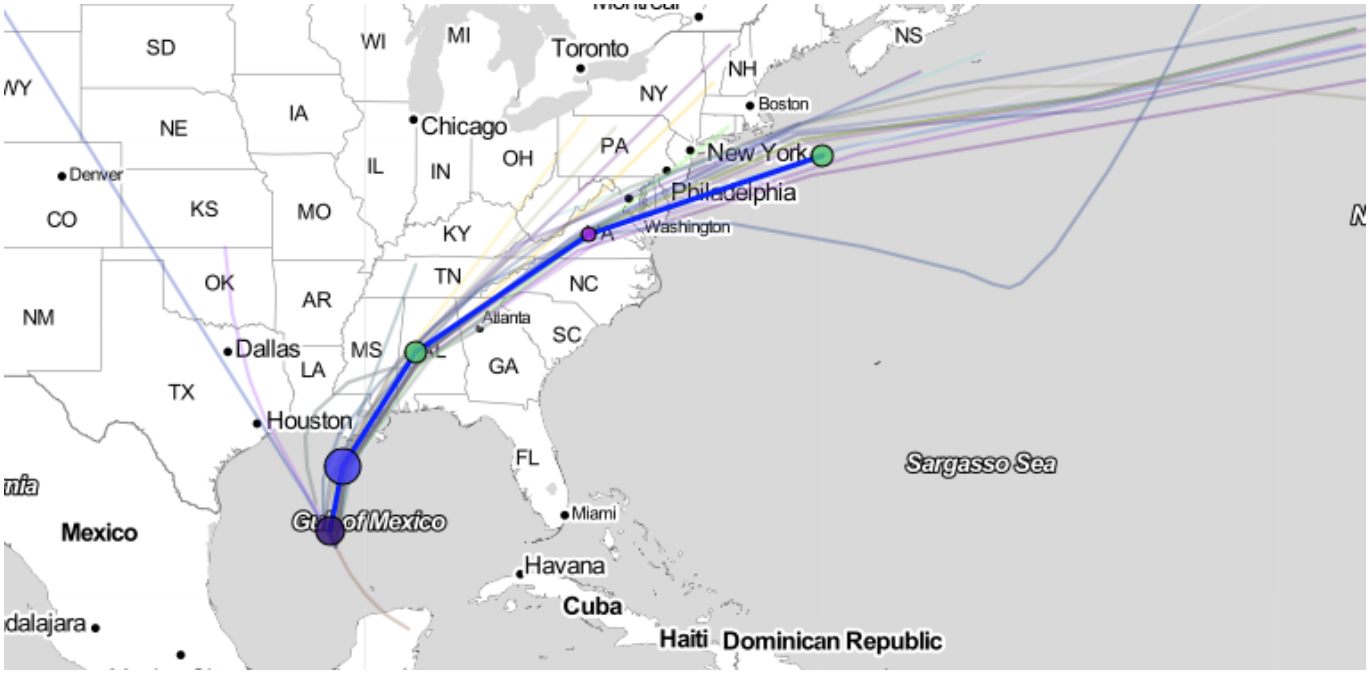
We also check other weather forecast sites, and NOAA for warnings on serious weather which might affect operations.

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
19 November, 2020

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

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, Kīlauea 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
19 November, 2020

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:

<u>Old:</u>
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

<u>New:</u>
GROUP A – ≥136,000kg and a wingspan ≤80m but >74.68m
GROUP B – ≥136,000kg and a wingspan ≤74.68m but >53.34m
GROUP C – ≥136,000kg and a wingspan ≤53.34 m but >38.1m

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 is 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 allowed up to 2nm.

When the lateral separation minima or space between route centrelines is less than 15nm (but more than 6nm), you will be able 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 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
19 November, 2020

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 Deustche 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
19 November, 2020

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 makes 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 Safter 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
19 November, 2020

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.

The Hills Have Ice: Considerations for Himalayan ops

OPSGROUP Team
19 November, 2020

Flying over the Himalayas soon? Read on! From patchy comms to limited alternates to meters that might get your feet in a twist, this briefing will have you covered…

A good place to start might be "Where are the Himalayas?"

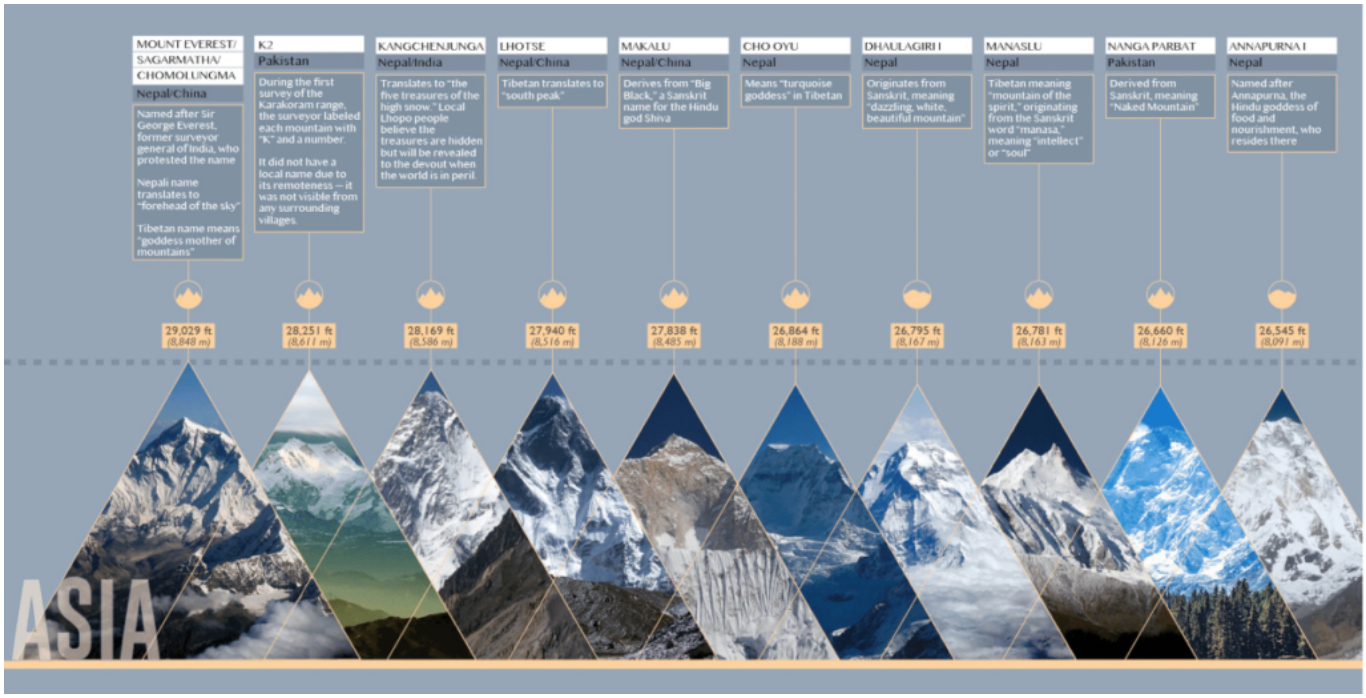
The Himalayas border a bunch of countries, but the bits we are generally interested in lie in Pakistan and China – along the primary flight routes between the Middle East and Asia.

Interesting fact – they are the fastest moving mountains in the world, thundering along at a right old pace of 67mm a year (so don't worry, they will still be in pretty much in the same spot when you route over them).

Are they a big deal?

They are the biggest mountains in the world so "big" – yes. "Big deal"? – well, not so much if you are cruising happily at altitude, but if for some reason you suddenly need to descend then they can become a very big deal very quickly.

With 30 peaks higher than 24,000', and stretching over 200 miles, they are a pretty significant obstacle.



There are some good-to-know and some need-to-know points about these parts, so read on…

The Basics

Limited Alternates – Not many people live in the Himalayas, (not counting Yetis), so airports are few and far between, and are often fairly remote.

The Region – Pakistan has ongoing conflicts with India over the Kashmir region. Afghanistan is also unstable so operating near the border is not advised, particularly into OPPS/Peshawar and OPQT/Quetta airports.

Weather conditions – 'Himalaya' translates as 'abode of snow' so that should be something of an indication. The airports are remote and facilities are not always up to standard. Significant mountain waves can be experienced when crossing.

Communications – Big mountains block radio signals and this can be particularly bad around the point where you transfer from Pakistani airspace into Chinese. Which leads us onto the next point…

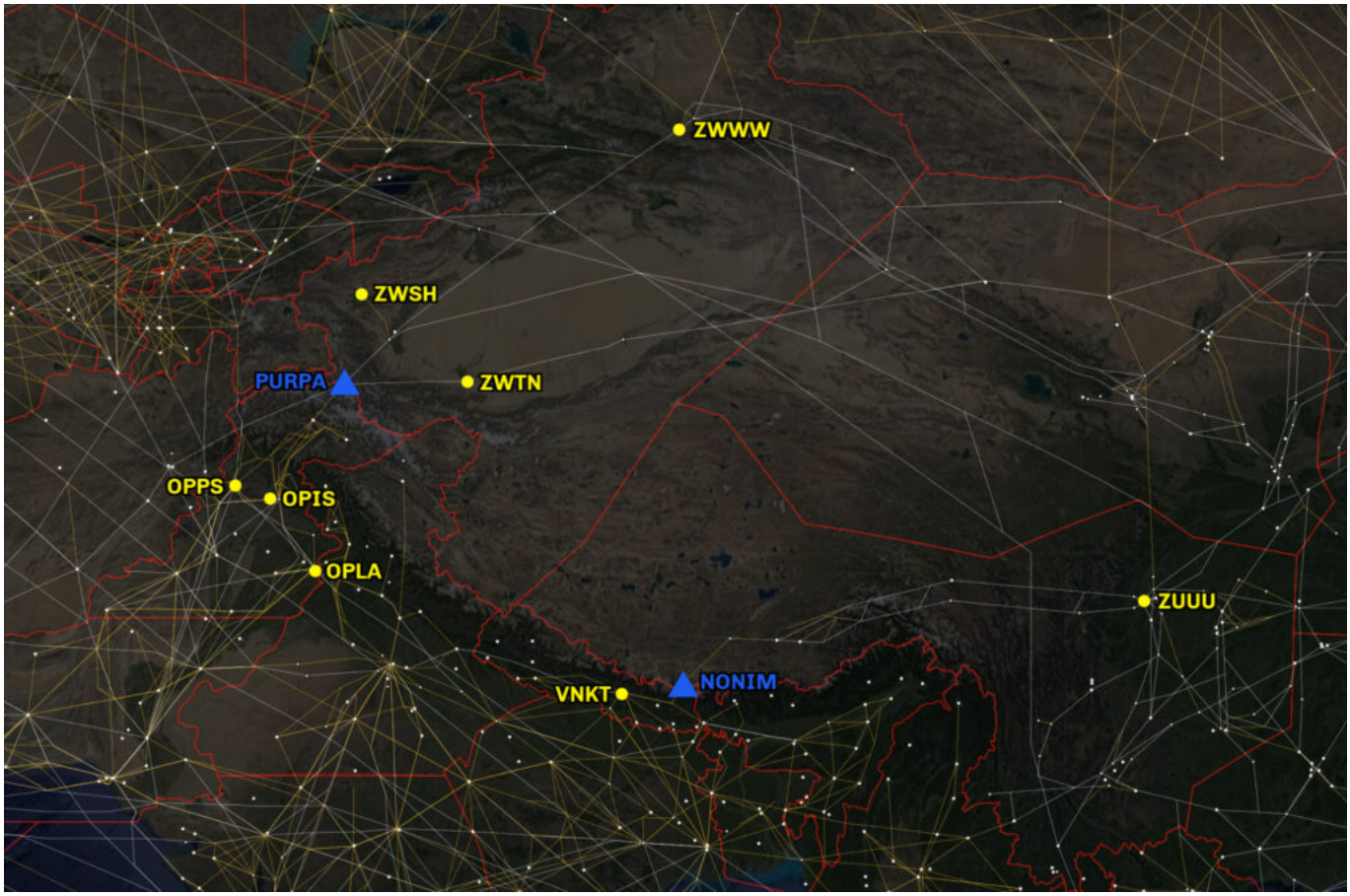
China – They have their own procedures including different sized airways, different contingency procedures, and of course…

Metres and Feet – China operate in metric. Keep reading for a handy feet to meter conversion table!

Oxygen – Airplanes have oxygen in them, unless they suddenly don't anymore and then you are going to have to find some pretty rapidly. Unfortunately, oxygen is generally at its most plentiful lower down which can be problematic if routing over high terrain…

The Alternates

There are two published crossing points for the Himalayas – **PURPA** on the Pakistan/China border to the north, and **NONIM** on the Nepal/China border to the south. So the alternates you're going to be interested in very much depends on which route you're going to take.



ICAO/ IATA	Airport	Open	RWY (m)	ELEV	PCN
OPIS/ISB	Islamabad	H24	3658	1761	110FCXT
OPPS/PEW	Peshawar	H24	2743	1211	068FCXU
OPLA/LHE	Lahore	H24	3360	712	085RBXU
ZWSH/KHG	Kashi	H24	3200	4528	074RAWT
ZWTN/HTN	Hotan	HS	3200	4672	052RBXT
ZWWW/URC	Urumqi	H24	3600	2126	080FBWT
VNKT/KTM	Kathmandu	0045-1845Z	3050	4390	054FAWT

OPIS/Islamabad, Pakistan – There are two parallel runways with RNP and ILS approaches, including a CAT II on 28L. 10R has an offset final track (VOR approach). This is a destination for some major airlines and so likely has good handling and ground services, an is an RFF Category 10.Where you decide to divert to will depend on what your problem is and whether you can stay up over the mountains. Peshawar, Islamabad and Lahore are each accessible from each other and all lie south of the mountainous zone.

OPPS/Peshewar, Pakistan – This airport is situated near a No Fly Zone and is close to the Afghan border. It has CAT I capability, but report of GS fluctuations are common. Ground handling is available, but engineering and other support is likely to be limited.

OPLA/Lahore, Pakistan – This is another major airport in the area with multiple runways, and Cat IIIb approaches onto 36R. Terrain is relatively low, but the airport lies close to the border with Indian airspace.

ZWSH/Kashi, China – The airport is CAT I. There is serious terrain to the north and west of the airport. Particularly if you are landing onto runway 08, wind off the terrain might be a factor. Runway 08 may require a 180 degree turn at the end with a backtrack due to works. Support here will be fairly limited.

ZWTN/Hotan, China – There is no customs at Hotan so offloading passengers might pose a problem. The closest alternate is not really very close, and the weather here can be a challenge. The MSA is 16,000’ and terrain lies predominantly to the south of the airport, but close to the ILS intercept for runway 29. Runway 11 only has a VOR/DME approach. Both runways require a 180 degree turn and backtrack to vacate. Engineering support is available here.

ZWWW/Urumqi, China – Urumqi is a better equipped airport, with CAT I and II approaches available, and likely to have better ground support and engineering services. However, there is significant terrain in the vicinity of the airport, and it's also a long way to have to go in an emergency (around 700nm from Pakistan/China crossing point PURPA).

VNKT/Kathmandu, Nepal – Down south, Kathmandu is really the last decent diversion airport before the endless mountains of the southern Himalayas come into view. If you don't stop here, it's a good 3 hours of flying time before you reach ZUUU/Chengdu on the other side. VNKT is not 24 hours (has quite specific hours), no engineering facilities but fairly good ground support as it is quite a "major" tourism spot so a fair few airlines route in there. Does not have precision approach (only VOR and RNP), and they have a lot of diversions due to weather and higher minimus due no precision approaches. Very difficult approach because you route between mountains into a sort of bowl to land.

Communications

The mountains can cause serious interference with radio comms so keep the following SATCOM codes handy in case you need them:

Urumqi 441208
Lanshou 441205
Kunming 441204
Beijing 441201
Lahore 446302

China

China has some pretty specific procedures and requirements which should probably be looked over before you route this way, but here's a quick summary.

Contingency/ Emergency Procedures if deviation from level required:
– Aircraft must turn RIGHT and track out to 10km/ 5nm from the airway centerline.
– Once parallel with the original route climb or descend as required.
– Switch your lights on, keep talking on 121.5, and keep a good eye out.

Any deviation or reroute requests in China usually needs some serious coordination, and they are strict about any routes that take you off commercial airways or close to military airspace. ATC often send airplanes in random directions, or refuse to clear them to the flight levels they have filed for, without much explanation so be prepared for a lot of extra fuel burn.

Meter to Feet Conversion:

180-359			000-179		
m	ft	FL	m	ft	FL
15500	50900	FL509	14900	48900	FL489
14300	46900	FL469	13700	44900	FL449
13100	43000	FL430	12500	41100	FL441
12200	40100	FL401	11900	39100	FL391
11600	38100	FL381	11300	37100	FL371
11000	36100	FL361	10700	35100	FL351
10400	34100	FL341	10100	33100	FL331
9800	32100	FL321	9500	31100	FL311
9200	30100	FL301	8900	29100	FL291
8400	27600	FL276	8100	26600	FL266
7800	25600	FL256	7500	24600	FL246
7200	23600	FL236	6900	22600	FL226
6600	21700	FL217	6300	20700	FL207
6000	19700	FL197	5700	18700	FL187
5400	17700	FL177	5100	16700	FL167
4800	15700	FL157	4500	14800	FL148
4200	13800	FL138	3900	12800	FL128
3600	11800	FL118	3300	10800	FL108
3000	9800	FL98	2700	8900	FL89
2400	7900	FL79	2100	6900	FL69
1800	5900	FL59	1500	4900	FL49
1200	3900	FL39	900	3000	FL30
600	2000	FL20			

Oxygen

The most critical route is **PS-G325-Purpa-B215** where the MTCA is the highest. Confirming your aircraft is equipped with suitable passenger oxygen systems and awareness of the depressurisation strategies and MSAs for each route is extremely important before operating into this area.

Permits

Pakistan requires overflight and landing permits. These must be requested by an agent. They require one day notice to arrange the permit. Operating into Pakistan airspace required an ADC at least 15 mins prior to entering Pakistan Airspace/ADIZ, and flights operating in need to establish communication at least 15 mins prior to entering.

China also require permits. These can be intimidating. They require use of AFTN/SITA, have specific routing, and are only valid for the exact timing given. Commercial landings require a sponsor later written in Mandarin by the receiving party. We recommend applying direct to a Chinese agent, as the authorities aren't very patient and it can become frustrating at how short they'll be on the phone. If you want to apply direct, you'll send your application through AFTN and SITA, in the specific format required.

China requires aircraft to be ADS-C, CPDLC and SATCOM capable on some of their routes over the

Himalayas, and operators need to verify their equipment with them at least 60 days in advance! So they recommend that only regular scheduled flights apply to use these airways. For more on that, check out our dedicated article here

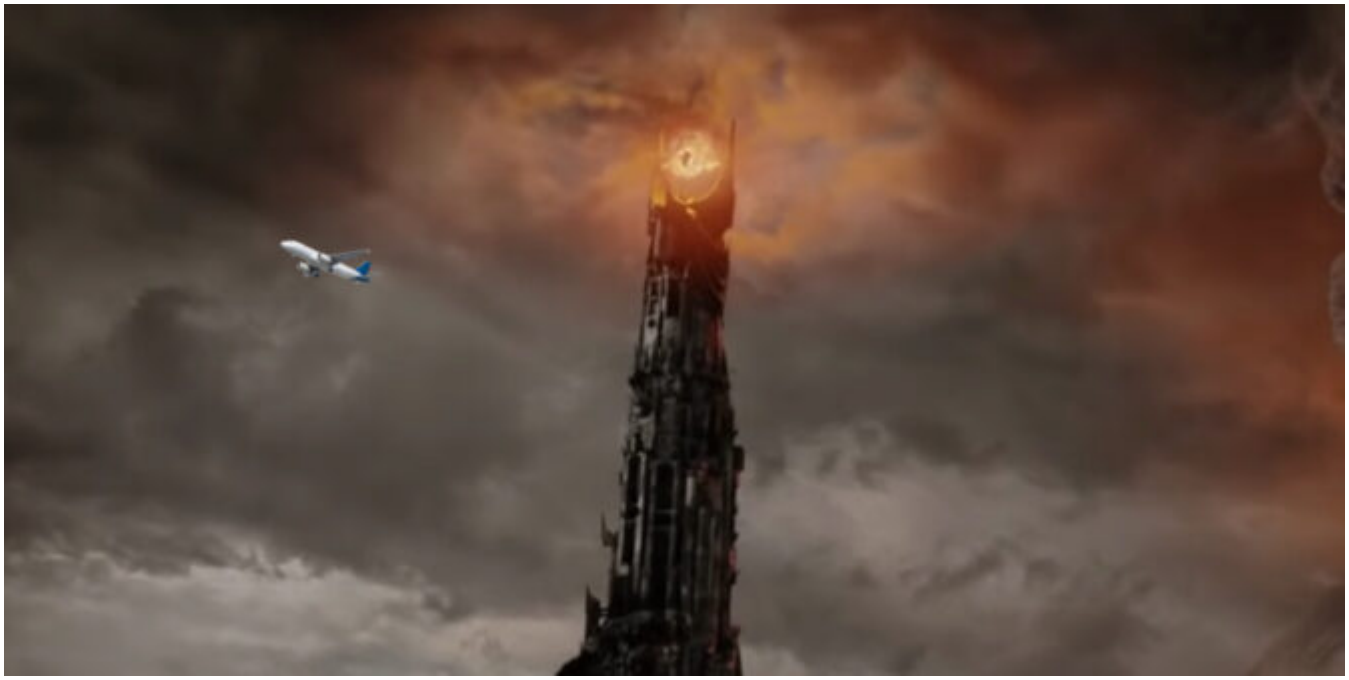
---

For some great insights into escape route planning, check out this doc from Flightsafety.org

And finally, don't forget to take your camera because when the air is clear the views can be amazing!

One Contingency Procedure to rule them all

Chris Shieff
19 November, 2020



From 5 Nov 2020, 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 FAA has already published a Notice to say that these procedures will take effect in US oceanic airspace from 5 Nov 2020, and ICAO is expected to formally publish the Standard in an update to PANS-ATM (ICAO Doc 4444) to take effect from the same date.

Rarely do we see worldwide oceanic contingency procedures undergo a formal revision. The last time a major revision occurred was in 2006 when ICAO standardized a 15 NM offset executed with a turn of at least 45 degrees. Prior to that, the North Atlantic and the Pacific had used different offset distances and a 90 degree turn.

Wait… what are "contingency procedures"?

These are basically any time you have to do things differently if you need to deviate from your cleared route, and for one reason or another you cannot get permission from ATC first.

Why would you need to bust your clearance? You may not have the ability or capacity to communicate with ATC, or they may not be able to respond to your request quickly enough for a variety of reasons – meteorological conditions (severe turbulence and weather avoidance), aircraft performance, loss of pressurisation, immediate diversion, or a loss of navigational accuracy.

What are the new procedures?

The short answer
Contingency offsets that previously were 15 NM are basically now all 5 NM offsets with a turn of at least 30 degrees (not 45 degrees).

The long answer
Read the FAA Notice.

The slightly less long answer

– Turn at least 30 degrees (reduced from 45) to the left or right of track and establish yourself on a parallel track that is offset by 5nm (reduced from 15).
– The direction of turn is up to you, but you should consider airways around you – the likely direction of other aircraft, the applicable SLOP procedures, the direction of your diversion airport and of course terrain. (If going left or right is a 50/50 choice, going right is probably better – it gets you out of the way of all the SLOP offset traffic that might be coming at you from the opposite direction!)
– When established on your offset track, maintain an altitude that is vertically offset by 500 feet from normal levels (or 1000 feet if above FL410).
– In areas of parallel airways, it is recommended you descend below FL290.
– Watch your TCAS, and if possible, keep your eyes outside for other aircraft.
– Make sure your transponder is set to TA/RA (if able).
– Be seen – turn on as many exterior lights as possible.
– Squawk 7700.
– Try and talk to ATC via voice or CPDLC, and declare a PAN PAN, or MAYDAY.
– Establish comms with other aircraft on 121.5 MHz or 123.45 MHz. Make a position/intention report as you would in TIBA procedures.

The best answer
A picture! So often the best answer. And this one's pretty neat. Not least because you can click on it, download it, print it out, and put it in your flight bag to take with you. (If you'd also like to laminate it, we're ok with that).

Weather deviations

If you have to deviate from your assigned track due to anything weather-related, there's a whole different procedure to follow.

Here's what to do:

- In the first instance, up the urgency with the phrase "WEATHER DEVIATION REQUIRED." ATC will attempt to provide separation, and if they can't they will ask you to advise your intentions.
- If you intend to deviate, let them know. Say something like – "I am deviating under PIC emergency authority. At 5 NM from course I will employ the Weather Deviation contingency."

Then apply the following:

- Declare a PAN.
- Deviate away from other airways if practical.
- Talk to other aircraft on 121.5 and 123.45.
- Keep an eye on your TCAS and outside.
- Turn on all your exterior lights.

For deviations of **less than 5 NM**, remain at the flight level assigned by ATC.

For deviations of **5 NM or more**, when you are at the 5 NM point initiate a change as follows:

If flying **EAST**, **descend** left by 300ft, or **climb** right by 300ft.

If flying **WEST**, **climb** left by 300ft, or **descend** right by 300ft.

In other words – **SAND!** (**S**outh of track = **A**scend, **N**orth of track = **D**escend; Up/Down by 300ft)

Once you are back on track, resume your cleared level. If you're already deviating and cannot get a clearance to deviate further. Change your level immediately in accordance with the table above.

Turnback procedure

The new guidance has left out any specific reference to how to divert across the flow of traffic or turn-back procedure, and instead simplified it to just "proceed as required by the operational situation". Turning back would assume you either employ the 5NM offset as per the new contingency procedure, or else get a new revised clearance.

Bottom line

Download the pic, and give the new procedures a good read (they're not actually *that* long). Beginning 5 Nov 2020, the new procedures are expected to be implemented. You might want to prepare changes for your ops manuals and checklists too.

US no longer limiting international arrivals to 15 airports

David Mumford
19 November, 2020

From September 14, the US **is no longer limiting international arrivals from higher risk countries to specific airports.** Under previous rules, any passenger from China, Iran, the Schengen area of Europe, the UK, Ireland and Brazil had to enter the United States through one of **fifteen centralised airports** capable of providing enhanced health screening. **This is no longer be the case.**

The previous system was deemed ineffective because so many people who transmit the disease don't show symptoms. A new approach is being launched, which authorities say will better mitigate the risk of

Coronavirus by focusing more on the individual passenger. **Here's how it will work:**

- Pre-departure, in-flight and post-arrival health education for passengers.
- Robust illness response at airports.
- Voluntary collection of contact information from passengers using electronic means as proposed by some airlines to avoid long lines, crowding and delays associated with manual data collection.
- Potential testing to reduce the risk of travel-related transmission of the virus that causes COVID-19 and movement of the virus from one location to another.
- Country-specific risk assessments to assist passengers in making informed decisions about travel-related risk.
- Enhancing training and education of partners in the transportation sector and at U.S. ports of entry to ensure recognition of illness and immediate notification to CDC.
- Post-arrival passenger recommendations for self-monitoring and precautions to protect others, with enhanced precautions, including staying home to the extent possible for 14 days for people arriving from high-risk destinations.

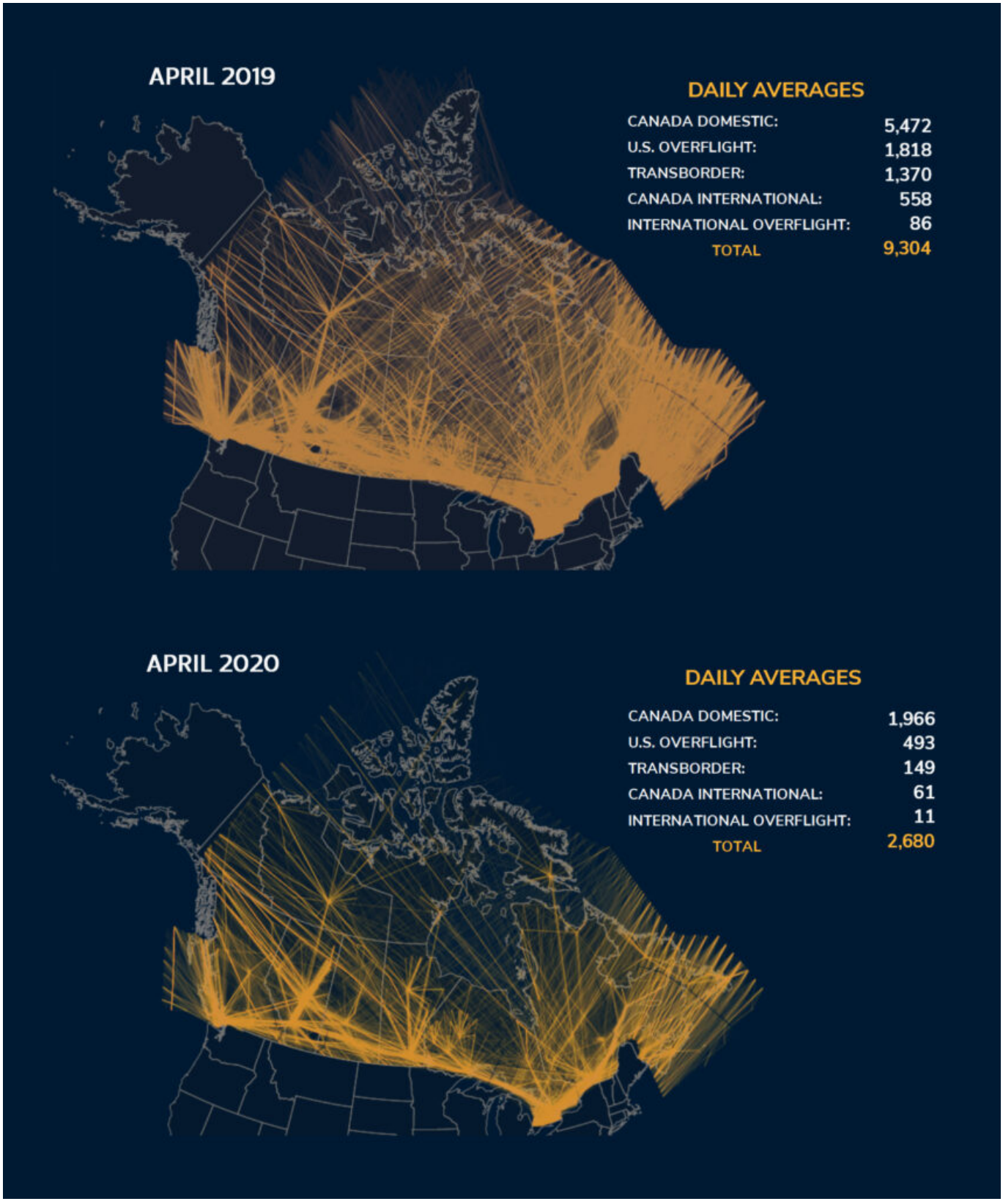
You can read the announcement by the Centers for Disease Control and Prevention here, and confirmation from US CBP here.

Although the 15-airports rule has gone away, all other US rules on inbound travel remain in place. The main one is this – **with specific exemptions, foreign nationals are not allowed to enter the US if they have been in any of the following countries within the past 14 days: the European Schengen area, the UK and Ireland, mainland China, Iran, and Brazil.** 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, check the US Government webpage here.

Increased ATC charges in Canada

David Mumford
19 November, 2020

Nav Canada has proceeded with its earlier proposal to **significantly increase ATC service charges**. The new fees were implemented on September 1. The price increase is to cover the loss of income caused by dwindling traffic levels during the Covid pandemic.



Terminal fees have increased by 30 percent; **en-route** by 26 percent; **North Atlantic Track** by 48 percent; and **international communications** by 41 percent. The good news is that the added cost to operators can be deferred over time to help absorb some of the impact.

Movement-Based Charges

Charge	Base Rates Prior to September 1, 2020	Base Rates Effective September 1, 2020
Terminal Charge	$ 24.36	$ 31.86
Enroute Charge (including Overflight)	$ 0.03008	$ 0.03802
NAT	$ 155.03	$ 230.22
International Communications		
Data Link	$ 19.99	$ 28.19
Voice	$ 53.14	$ 74.93

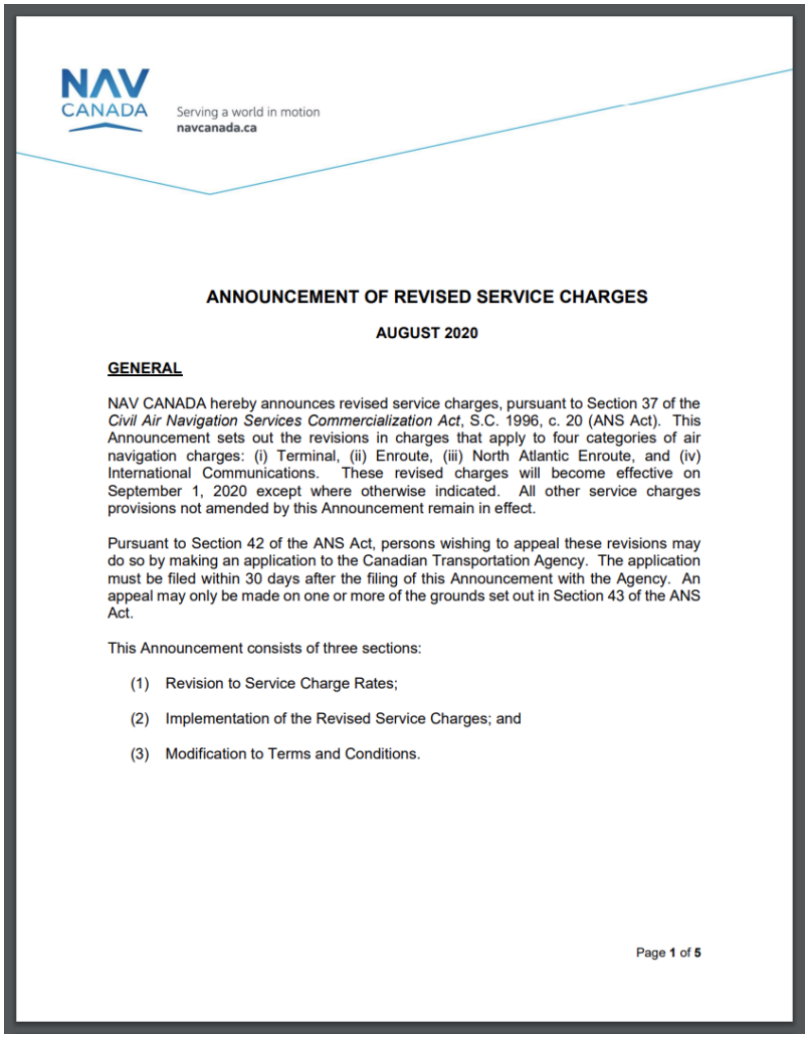
The **NAT** and **International Comms charges** are not really a big deal – those are just flat fees charged per flight. It's the **Terminal Charge** and **Enroute Charge** where the pain will most be felt; don't be fooled by the figures in the table above – these are just the base rates that get incorporated into bigger equations and multiplied by other factors (MTOW, distance flown, etc).

If you want to test your math skills and take a deep plunge into how these equations work, check out Nav Canada's Guide To Charges. But if not, here's a basic example of how the charges have changed:

Aircraft: B777-300
Route: CYUL/Montreal to LFPG/Paris
MTOW: 344.5 metric tonnes
Distance: 1,550 km

NAV Canada is a private company and not government-funded, and is therefore entirely reliant on the fees it charges to operators. And since most of its costs are fixed, it appears there wasn't much alternative than to increase these fees, given the huge drop in air traffic over the past few months.

You can view the full schedule of revised fees here:



NAV CANADA
Serving a world in motion
navcanada.ca

ANNOUNCEMENT OF REVISED SERVICE CHARGES

AUGUST 2020

GENERAL

NAV CANADA hereby announces revised service charges, pursuant to Section 37 of the *Civil Air Navigation Services Commercialization Act*, S.C. 1996, c. 20 (ANS Act). This Announcement sets out the revisions in charges that apply to four categories of air navigation charges: (i) Terminal, (ii) Enroute, (iii) North Atlantic Enroute, and (iv) International Communications. These revised charges will become effective on September 1, 2020 except where otherwise indicated. All other service charges provisions not amended by this Announcement remain in effect.

Pursuant to Section 42 of the ANS Act, persons wishing to appeal these revisions may do so by making an application to the Canadian Transportation Agency. The application must be filed within 30 days after the filing of this Announcement with the Agency. An appeal may only be made on one or more of the grounds set out in Section 43 of the ANS Act.

This Announcement consists of three sections:

(1) Revision to Service Charge Rates;

(2) Implementation of the Revised Service Charges; and

(3) Modification to Terms and Conditions.

Page **1** of **5**

Jetpack Hazard at LAX!

David Mumford
19 November, 2020

Mystery in LA! There were two separate reports of **a man in a jetpack flying uncomfortably close to arrivals** at KLAX/Los Angeles on Sunday evening. The airborne offender was spotted by jets who were on approach at 3000 feet, and estimated to be at a distance of 300 yards. Unsurprisingly, he or she successfully evaded authorities and their identity remains unknown…

Listen to the actual radio transmissions between the pilot and the tower here:

American Flight 1997: "Tower, American 1997, we just passed a guy in a jetpack."
Tower: "American 1997, OK, thank you. Were they off to your left or right side?"
American Flight 1997: "Off the left side, maybe 300 yards or so, about our altitude."

Fox 11 reported a Skywest pilot also confirmed the sighting:
Skywest Flight: "We just saw the guy passing by us in the jetpack."

Then the tower alerted an incoming Jet Blue flight to the reported hazard:
Tower: "Jet Blue 23, use caution, a person in a jetpack reported 300 yards south of the LA final at about 3,000 feet, 10 mile final."
Jet Blue 23: "Jet Blue 23, we heard and we are definitely looking."

Another pilot chimed in: "Only in LA."

At the time of the sighting, it was still light with plenty of visibility. There are a number of jetpack-like models out there on the market, but all have very limited range, and so some reports have suggested this was possibly some sort of drone that was made to look like a jetpack. Or a small helicopter. Or a flying car. Or some guy in a lawn chair with helium balloons tied to it (ok, probably not this one!)

Regardless of the specific technology, **this incident is concerning** – particularly given that the airspace around LAX is some of the **busiest in the US**, and that the craft was flying at the **same altitude** as the aircraft as it was making its approach to the airport. The FAA has reportedly referred the incident over to the LAPD for investigation.

Yves "Jetman" Rossi hasn't accounted-for-his-whereabouts-on-the-night-of-the-crime yet. But we can probably rule him out, as his flights normally take place in highly controlled environments and in airspace clear of any other traffic. LAX really isn't his scene – he prefers the Swiss Alps.

Update on GA/BA flight requirements to the Bahamas

David Mumford
19 November, 2020

With the lockdowns and flight bans in Grand Bahama and New Providence **now at an end**, all islands of the Bahamas with Airports of Entry have re-opened to international private and charter flights. Prior approval is required – send your request to covid19@bcaa.com and COVID19INTLTRAVEL@bahamas.gov.bs.

Here's the lowdown on ops to the Bahamas right now:

Quarantine

Quarantine rules are changing from September 1. A 14-day quarantine will still be mandatory for all travellers, but they are now allowed to spend it in their own accommodation – a private residence, rental property, hotel or private/chartered yacht, all are considered quarantine facilities.

When quarantine is finished, anyone who wishes to stay must agree to be tested again. It is worth noting that you can leave the Bahamas at any point, as long as you notify authorities first.

Covid test

All travellers must obtain a negative RT/PCR Covid that is less than 5 days old before flying and apply for a Travel Health Visa which can take up to three days to process. Once in the country, all arrivals will be monitored by the 'Hubbcat App' on their phone.

Crew arriving to pick up passengers only, cargo and courier flights who are staying with their plane, military and emergency medical flights must obtain the Travel Health Visa.

If crew will be in the country for less than 24hrs, they need to quarantine in the hotel but do not need proof

a Covid test.

Some OPSGROUP member reports indicate that the Bahamas Travel Health Visa is not working properly, and will not complete the application process. So expect delays for a Health Visa until their systems are fully functional. Submit the form at least 24-48 hours prior to arrival. An automated response will be provided upon completion, only those who receive a green color-coded response can travel. It is essential that travellers present proof of confirmation upon arrival in their destination.

Hours of operation

Hours of airport operations are reduced, and prior approval for after-hours operations is required. A call before flying is strongly recommended. Fees for after-hours ops, restrictions to curfews, and limited availability of hotel rooms are additional considerations.

Local handling agent Odyssey Aviation are open as follows (requests for after-hours operations will be reviewed on a case by case basis):

MYNN/Nassau
Email: info.mynn@odysseyaviation.com
Opening hours: 0700-1800 local (1100-2200z)

MYEF/Exuma
Email: exuma@odysseyaviation.com
Opening hours: 0800-1700 local (1200-2100z)

MYSM/San Salvador
Email: info.mysm@odysseyaviation.com
Opening hours: 0800-1700 local (1200-2100z)

MYEM/Governor's Harbour
Email: frontdeskeleuthera@odysseyaviation.com
Opening hours: 0800-1700 local (1200-2100z)

MYER/Rock Sound
Email: frontdeskeleuthera@odysseyaviation.com
Opening hours: 0800-1700 local (1200-2100z)

Where to look for latest updates

For updates to the rules, the **Bahamas official page** is here, but it tends not to get updated very quickly after new announcements from the government. **The US Embassy** keep a dedicated page on the Bahamas updated here, but that can sometimes lag behind a bit too. The most up-to-date source seems to be the one published by **the UK FCO**, which you can view here.

Odyssey Aviation also posts the latest updates on requirements and changes for Private Aviation on their Facebook page, and check out the **Association of Bahamas Marinas** website too – they work closely with the authorities and are often faster at getting their info out than other government entities!

Oh, and **OPSGROUP** too – the quickest way to get all the latest info we know on something is to head over to the **#george** channel in Slack. George is our friendly Ops-Bot. Ask him something, and he'll dig into the OPSGROUP vault to see what the group knows. He understands a whole load of commands: permits, weather, ICAO codes, airport names, countries, keyword searches. If you're still stuck for an answer, ask other members in the group in the **#questions** channel, or shoot us an email and we'll see what we can dig up.

Massachusetts exempts 4 more states from quarantine requirement

David Mumford
19 November, 2020

Massachusetts has added four new states to its quarantine exemption list. Passengers from Colorado, Delaware, Pennsylvania and West Virginia **no longer have to self-isolate on arrival or present a negative Covid test**.

A reminder of how the rules work there: Anyone arriving from a “high-risk” state must either present a PCR Covid test that is less than 72 hours old or enter quarantine for 14 days, while there are no requirements for travellers from “low-risk” states. There’s a travel form to fill in too.

Aviation is considered an essential business by the U.S. Federal Government. The guidance issued by Massachusetts states that flight crew are “exempt from quarantine while they are commuting to or from or while at work”, but goes on to say that “for the first 14-days after arrival, when the worker is not at work or commuting to work they must quarantine.”

The classifications change frequently, so be sure to check the latest info on the official government site.

EU delays alcohol testing on ramp checks to 2021

David Mumford
19 November, 2020

The EU had some changes planned for Ramp Checks and Pilot Mental Health which were due to take place on 14 Aug 2020, but these have now been delayed to 14 Feb 2021.

The three big changes

1. EASA regulations will be updated requiring **alcohol testing during ramp checks.** This will take effect across all SAFA participating countries. However, a lot of countries have already started doing this anyway: Austria, Belgium, Czech Republic, France, Germany, Greece, Iceland, Ireland, Italy, Netherlands, Portugal, Spain, Switzerland, UK, and Singapore. In most places, local authorities have the power to carry out breathalyzer tests at any time – not as part of ramp checks. For more on SAFA ramp checks, see our article.
2. All pilots working for European airlines will have access to **mental health support programs**.
3. European airlines will perform a **psychological assessment of pilots** before the start of employment.

Despite the delay to the implementation date, it's still something worth looking at now. The UK CAA has published a Safety Alert with the following recommendations:

1. Operators are strongly recommended to continue to introduce Flight Crew Support Programmes as required by the Regulation and to maintain existing programmes despite the deferred implementation date.

2. Operators should also consider the impact of the Covid-19 crisis on cabin crew and other safety-sensitive personnel as well as flight crew. It remains essential that senior management of operators, mental health professionals, trained peers and staff representatives work together to enable self-declaration, referral, advice, counselling and/or treatment, where necessary, in cases where there may be a potential safety issue resulting from a decrease in medical fitness.

3. Additionally, operators are encouraged to use this delay to develop their policies on the prevention and detection of the misuse of psychoactive substances and on the psychological assessment of flight crew.

Unreliable Airspeed and the Hidden Risks of Aircraft Storage

Chris Shieff
19 November, 2020

The dramatic effect that Covid-19 has had on the aviation industry has **grounded an unprecedented number of aircraft**. They have been placed into storage whilst the world waits to recover. The pandemic emerged without warning, and some operators were likely not prepared for what was coming.

Now travel bans are lifting, airports are reopening, and airlines are **scrambling to return aircraft to the skies.**

EASA recently released a disturbing Safety Information Bulletin. There has been an alarming trend in the number of aircraft experiencing unreliable speed and altitude indications during first flights after storage, caused by **contaminated air data systems.**

The result has been multiple rejected take offs and airborne returns. Most of the events have been caused by nesting insects in the pitot static system – **even after covers were installed.**

Modern flight instruments provide large amounts of information to crew with great precision, while automation makes flying transport category aircraft almost routine. Flight envelope protections and aural/tactile warnings keep us safe even in most abnormal scenarios.

At the heart of all of this is the **air data computer (ADC)** – a small piece of hardware that **needs accurate information from outside of the aircraft to work correctly**. They are the "Achille's heel" of modern electronic flight information systems. In a nutshell, these small computers obtain and process information from the aircraft's pitot static system, and supply critical systems with information such as airspeed, altitude and temperature.

Like all computers, they don't think for themselves. They are only as accurate as the information they receive. So, when the pitot static system is contaminated, they can only respond to what they sense. **They can't look out the window.**

History has shown that unreliable airspeed events are dangerous:

February 6, 1996. Birgenair Flight 301, a Boeing 757, departed Puerto Plata in the Dominican Republic, on a routine flight. During the climb out, the Captain's airspeed indicator began to increase dramatically. The autopilot reacted as designed, and increased pitch to reduce airspeed, while the auto-throttles reduced power.

In the meantime, the co-pilot's ASI indicated a dangerously slow airspeed which was decreasing. Almost

simultaneously, an overspeed warning was generated. The autopilot reached the limits of its programming and disengaged. The stick-shaker activated, warning the confused crew that the aircraft was flying critically close to a stall.

The Captain responded by applying full thrust. The excessively high angle of attack resulted in insufficient airflow to match demand and the left-hand engine flamed out. The right-hand engine developed full power and the aircraft entered a spin. Moments later the aircraft became inverted, before impacting the Atlantic Ocean. The three pilots had 43,000 hours of experience between them.

*The cause of the accident was a **blockage of a single pitot tube**. The likely culprit was the black and yellow mud dauber – a small wasp known to nest in artificial cylindrical structures. **The aircraft hadn't flown in 20 days.***

The threat of similar events is greatly increased by **improper storage techniques** and **rushing to return to service.**

Getting aircraft flying again is a **complex process** and presents **major risks**. It is up to operators to ensure adequate procedures are in place to accomplish it safely. They must anticipate the difficulties and rapid adaptation to internal procedures that this entails.

Don't know where to start? We don't blame you. Thankfully, EASA has published guidance which can help mitigate some of these risks. Here is a brief rundown of their recommendations:

- **Assemble your A-team.** Everyone needs to be onboard. Flight operations, CAMOs, maintenance organisations, type certificate holders and aviation authorities are your first port of call. Find out what needs to be done for each individual tail number and communicate with human resources for manpower, supply chain for the tools, and flight ops for hangar spacing and crewing. Think about who you need to talk too and get started early.
- **Similar aircraft stored in similar conditions will invariably behave in the same way.** Safe return to service begins with **good data**. It is vital that defects are reported and linked. If a nest is found in an aircraft's pitot tube, the odds are there will be many more. The data needs to be analysed, and operating procedures (**such as additional checks**) need to be changed to reflect it.
- **Storage Procedures.** It is possible that aircraft were not fully stored in accordance with manufacturer procedures. Implement a **rock-solid audit programme** to make sure things are being done properly. EASA recommend extra inspections, ground runs and flight testing of **at least ten percent** of aircraft before release to service.
- **Storage Environment** The storage environment presents significant hazards to airworthiness. Insects, sand, salt, dust and humidity can all damage aircraft. There may not have been enough protective covers to go around. Was there biocide in the fuel? Is it even useable? It is advised that extra checks be carried out on aircraft parts that are susceptible to contamination, **particularly pitot/static systems**. Get additional support to add those inspections.

- **Remote Storage** This presents unique challenges. Engineering services may be limited, and staff may become overwhelmed with the large number of aircraft waiting to become airworthy. You may need to send additional manpower or require ferry permits to move aircraft around. Is enough equipment on hand to complete extra checks?

- **Time.** Nothing happens in a day. **Commercial time pressure is a major risk factor.** Getting an airplane airworthy can cause delays and rushing has a profound effect on safety. Plan ahead and make sure your deadlines are realistic. Communicate them with your staff to ensure confidence.
- **Inappropriate decision making.** This is hazardous, particularly with unfamiliar procedures. Storage on this scale has never happened before and **answers may not be in existing manuals.** Key personal may not be immediately available to help. Remind staff not to act alone and create a team responsible for making decisions in this challenging scenario
- **Limited staff experience.** Remember that **this has never happened before** and you may need the help of staff who are new to your organisation. Make sure they are aware of internal procedures that they need to know beforehand. It is a good idea to **properly supervise them** and assess their work.

- **The elephant in the room. Covid-19.** The virus has changed the way we can work. Staff can't move around as freely and there may be restrictions on how many people can work together. You may need to plan ahead and establish isolated teams who work remotely if practical.
- **Overdue maintenance.** Airworthiness directives, MELs, routine maintenance, inspections, ground runs, test flights. There is a lot to do**.** Start with comprehensive **airworthiness reviews** of each individual tail number.
- They will be under the same pressure that you are. Communicate with them ahead of time and **check their availability**.
- **Pilot training.** It is likely they are uncurrent, and operating aircraft which have just come out of long-term storage. **Simulator training should be relevant to the challenges they will face in the current operating environment.** Consider critical systems vulnerable to damage in storage and the affect that these might have on the first flight. In other words, expect the unexpected and provide them with the ability to **react quickly and with confidence.**

Covid-19 has created a lot of unknowns in our industry. Amongst the noise of statistics and global media, it is important to **remain vigilant** to the risks specific to aviation that the virus has created. Most of us will have heard by now that aviation itself is not inherently dangerous, but terribly unforgiving of complacency. Never has this been more important than when returning 75% of the world's fleet from storage to the skies.

New Covid testing rules in Iceland

David Mumford
19 November, 2020

There are new rules for **all crew and passengers** from August 19 regarding Covid testing on arrival.

The rules for crew have not been officially published yet, but local handlers have confirmed that if crew stay for more than 24 hours **they will need to take a Covid test**.

The process is different for passengers – all arriving pax will be able to choose between 14 days of self-quarantine, or a Covid test at the airport. However, those who choose to be tested will **still have to enter self-isolation** and be retested again 4-5 days later before they can be released. This was not previously the case. The rule applies **regardless of whether or not their first test was negative**.

All passengers must also complete a pre-registration form before travelling at covid.is. Iceland's borders are currently open to all EU/Schengen States in addition to those countries on the EU's "safe list."

Bamako Airport reopens following military coup

David Mumford
19 November, 2020

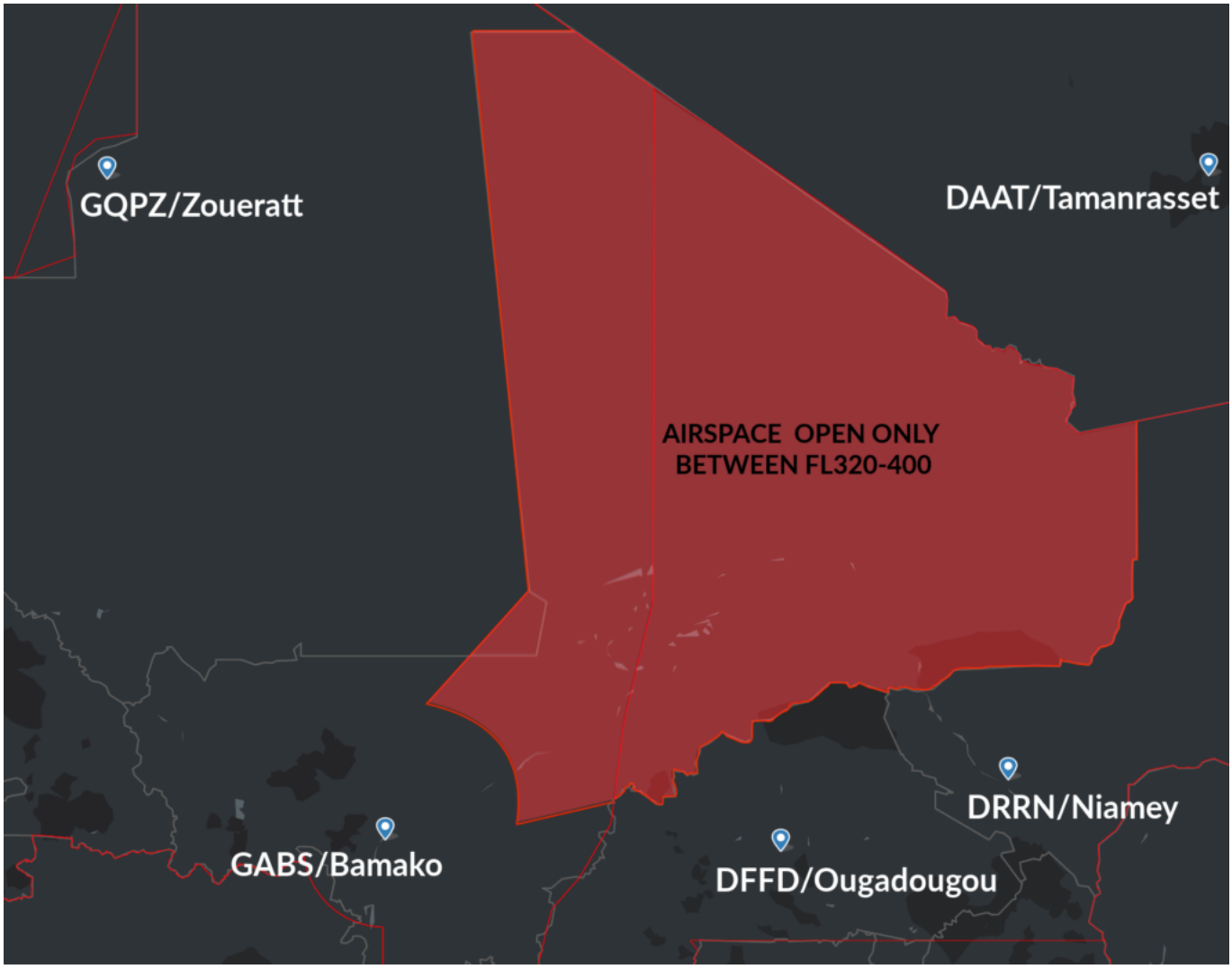
Bamako Airport has **reopened** following last week's military coup which overthrew the government, though monitor GOOO/Dakar FIR and GABS/Bamako Airport Notams for further – **it may change**.

The Bamako TMA (which sits under the GOOO/Dakar FIR) remains operational with **overflights unaffected**.

ICAO is actively monitoring and ensuring that there is a timely flow of information on continued airspace/ATC service availability. MedAire have given us a local situation update: with the continuing uncertainty they **recommend against overnights** until things settle. There is likely to be a high demand for emergency/evac flights in the coming days, and they recommend those to be quick in and outs for now.

Meanwhile, the Northern Mali conflict continues, and there have been no improvements in stability. The US, Germany, France and the UK all have **airspace warnings** in place, advising to operate FL250/260 or higher, and avoiding GATB, GAGO, and GAKL airports. We would suggest, as usual, that a higher level closer to FL300 is more sensible.

Senegal and Niger control the airspace over Mali, and they have long-standing Notams (published under the GOOO/Dakar and DRRR/Niamey FIRs) warning that **you can only fly between FL320-400 through the entire airspace in Mali north of the GABS/Bamako TMA** due to military ops across the region. Here's what that looks like:



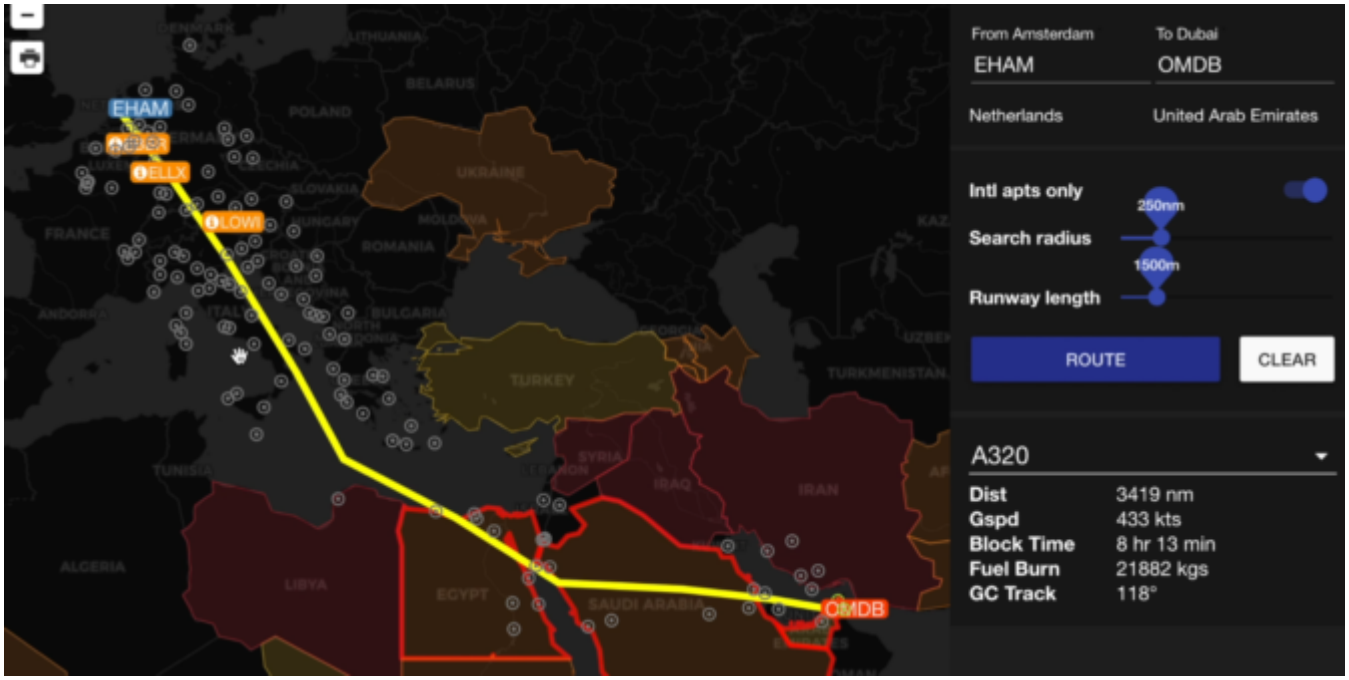
The UK recommend against all travel to northern Mali, and against all but essential travel to the south of the country, including Bamako. The US advice is more straight-forward: **do not travel to Mali** due to COVID-19, crime, terrorism, and kidnapping.

For more info on operating in this region, check out SafeAirspace.net

---

GoCrow planning map – 2020 update!

Mark Zee
19 November, 2020



Hi again members!

There's a new version of **GoCrow** – the OpsGroup route analysis and planning map…

There's some cool new stuff:

- **SafeAirspace warnings** are now on the map, you'll see them very clearly. Click on a country for more info.
- All OpsGroup **Alerts** will show on the route
- **Permit information** is fed directly from the Permit Tool in your dashboard
- New underlays – all kinds of maps
- You can print a **route briefing**.

All of this is still in beta, there are still a few bugs and some design issues to work out, but it's pretty solid. Have a play with it! **Watch the video** above to get a better idea of what it can do.

GoCrow is here: https://ops.group/dashboard/gocrow/

Comments welcome!

Jobs: our shared spreadsheet

Mark Zee
19 November, 2020

Jobs

Share the open positions you know about

Flying jobs

Ops jobs

Choose one to get started

Hi all! This is a shared document that all OPSGROUP members can edit. If you know of a position not listed, just add it. Very simple concept! Just make sure this is an **active position** that is **available now**.

Hi members!

A very simple **new little thing** in OPSGROUP is now alive …

The idea is wonderfully easy. **It's a shared Google Sheet**. All group members have access to add and edit.
If you are looking for a new Flying or Ops job, browse the jobs listed.

If you know of a Flying or Ops job, add it …

Jobs

Share the open positions you know about

Flying jobs

Ops jobs

Choose one to get started

Hi all! This is a shared document that all OPSGROUP members can edit. If you know of a position not listed, just add it. Very simple concept! Just make sure this is an **active position** that is **available now**.

There are a handful of jobs in there to get us started, but we need your help to add more.

Got one to add? Jump in and add that job. Just make sure it's an active position available now, and not some kind of hiring agency resume-collector …

	A	B	C	D	E	F	G	H	I
1	Country	Location	Company	Job Title	Ops jobs	How to apply	Apply link	Date added	Notes
2	**USA**	Florida	**XOJet**	Flight Ops Analyst	Flight Ops Analyst (FOA) is our entry level operations position in the Operations Control Center (OCC) the position does require an FAA Dispatch License but we do not currently release our flights from a regulatory nature. That	**Web**	https://jobs.jobvit	Aug 1, 2020	
3	**USA**	Qunicy, MA	**Magellan Jets**	Trip Manager	Hybrid customer service/operations position. Flight Support Trip Manager will be responsible for not only executing the day to day flight operations on behalf of Magellan Jets' clients but also delivery exceptional service and care to a	**Web**	https://magellanj	Aug 18, 2020	

	A	B	C	D	E	F	G	H	I
1	Country	Location	Company	Job Title	Flying jobs	How to apply	Apply link	Date added	Notes
2	**Germany**		**MHS Aviation**	CL604 FO	MHS Aviation, Germany. F/O on CL604.	**Web**	https://www.mhs-	Aug 1, 2020	
3	**USA**		**AbbVie**	G600 Capt	We're looking for two sharp professionals to join the Corporate Aviation team at AbbVie. These openings are to support the Q1 2021 addition of a G600 to our current fleet of three G550s and one S76D.	**Web**	https://careers.ab	Aug 1, 2020	**Position filled**
4	**USA**	California	**NASA Armstrong Flight Research Center (AFRC)**	ER-2 Research Pilot	ER-2(U2) & Boeing 747SP, DC-8, Gulfstream III, etc.	**Web**	https://careers-i3	Aug 18, 2020	
5	**USA**	Portsmouth, NH + 32 bases	**PlaneSense**	PC-12 Capt & FO's	PlaneSense is hiring! PC-12 first officers and direct entry captains. Full time Captains have their choice of 32 reporting bases across the U.S., including our headquarters in Portsmouth, NH (PSM). Part time Captains have the choice of	**Web**	https://www.plan	Aug 18, 2020	
6	**USA**	Nashville	**Jet Linx**	SIC Citation Sovereign	Jet Linx operations are under FAR part 135 and 91. Preferred PIC applicants will have at least 3,000 hours of total flight time, 1,500 Pilot in Command time and 250 hours as Pilot in Command time in this aircraft type. Initial or Recurrent 142	**Web**	http://jobs.jobvite	Aug 18, 2020	

And that's it! Hope you find it useful, we'd love any feedback or suggestions for improvement.

Have a lovely week!