Bogged down in Bogota

OPSGROUP Team
1 November, 2021

Bogota International has a problem. **Severe delays.** It seems they are as long as the airport's official name – *El Dorado International Airport Luis Carlos Galán Sarmiento.*

And it isn't just the airport with the problem – delays cost money, they frustrate passengers, waste fuel, result in aircraft circling in the air, and make pilots angry.

Luckily IATA have a plan.

A set of recommendations were issued by them on October 7, 2021 suggesting how these severe delays might be severely improved.

For those who don't speak Española, here it is (briefly) in English:

- Elimination of the ground delay program.

- Prioritisation of commercial services during peak hours.

- Restriction of non-commercial services to off-peak hours without exceeding allocated quota.

- Ensure ATC centers and control towers are adequately staffed.

Before we get into all that though...

We thought we would take a look at the airport, procedures and current situation, and ask just how bad the "severe" delays are.

How bad are the severe delays?

The main problem seems to be with the **ground delays.**

Since May 2021 the Ground Delay Program (the one that holds aircraft at their departure airport because

there isn't room for them at the destination) has been invoked some **300 times**. On one day alone it resulted in 130 affected flights, meaning 17,600 passengers.

And on average the delays were between 2 and 4 hours.

To compare, this is more than all the US airports combined (the August stat was 63), and more than KJFK/New York, EGLL/London Heathrow or RJTT/Tokyo Haneda which, let's face it, often have delays.

Interesting fact: It isn't just the airport. It is also the most congested city in the world. Drivers lose on average 133 hours of their life to traffic jams every year.


Scheduled, commercial flights will be prioritised.

Elimination of the GDP

This is *normally used at airports that have some sort of bad weather type situation going on, and is designed to **prevent aircraft having to hold in the air** because, you know, *fuel issues...*

If you want to read more about it, then check out this handy article from the NBAA which is all about just that.

The way it is being applied at SKBO unfortunately is not entirely as intended and while it prevents holding in the air, it is having a **knock on effect** at departure airports with blocked stands, and for operators with aircraft utilisation and schedules.

So eliminating the program will hopefully *encourage better ATC traffic planning, or will require **better ATC traffic planning in order to eliminate the program**. Either way, that would be beneficial.
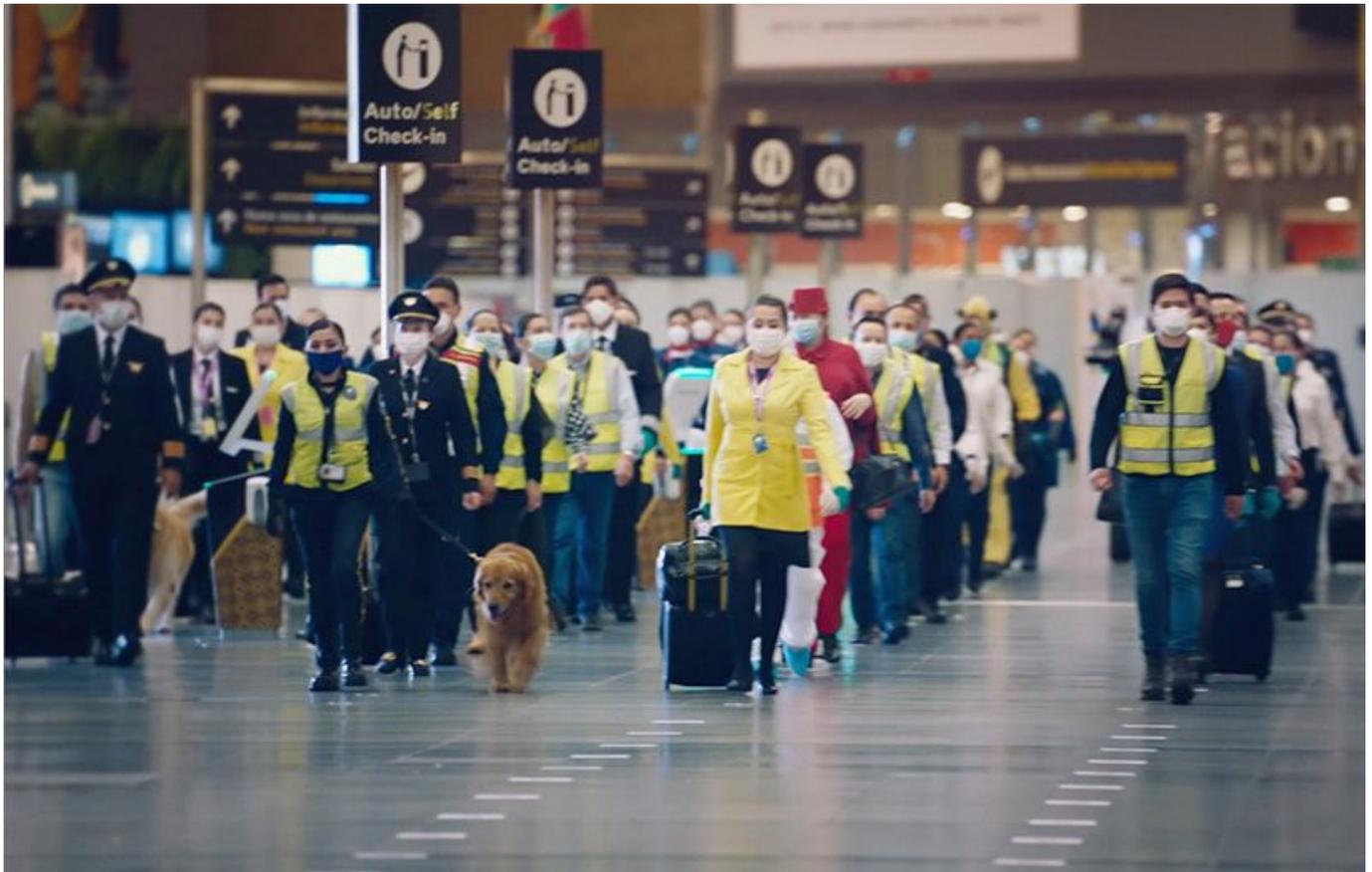
SkyTrax recognised staff at El Dorado as some of the best!

Prioritisation and Restriction

The plan is to **restrict peak hour slots** to scheduled commercial traffic only. The benefit of this is schedules are actually kept. Aircraft routing in will also be **prioritised if they are a scheduled carrier.**

For private or ad-hoc flights this will mean less availability of slots, permits (during peak times) and general flexibility in operation times.

Right now, the permit process for landing is pretty quick. If you are going to spend **less than 48 hours on the ground** at one airport only then you don't need a permit. The CAA is efficient and responsive and you can contact them at **+571 296 2208 /** sobrevuelos@aerocivil.gov.co

ATC

A lack of qualified ATC staff means **efficiency in their procedures cannot really improve.** One of the issues is poor labour and pension conditions – something ATC have previously gone on strike over, back in 2019.

The current shortage has seen shift times increase from **6 to 12 hours** leading to more sick leave and fatigue, leading to a cycle of longer hours.

New radio systems were installed across 36 more airport in Colombia earlier in 2021, adding to the 80 already benefiting from a system which enables a **centralised network area** and **better redundancy** for controllers. In addition, there is a specific plan for ATC at Bogota Airport. It involves installing better navigation communication systems, surveillance and management systems and more automation.

A new El Dorado

El Dorado II was under construction, due to open **2022,** and the new airport would have substantially improved the capacity for the region. In 2018, the government suggested they would scrap this and **expand the existing airport instead.** The expansion plan includes the moving of military operations to a dedicated military base, and new terminals and infrastructure.

Anything else?

- GDP are not the only delays you can expect coming to SKBO. Reports of **3 hour waits for fuel trucks,** issues obtaining departure clearance, and hold-ups in Customs (related to passports, not bandits) are relatively common.

- The "*operational concept of TMA BOGOTA is based on defined trajectories and the homogeneity in speeds to be able to maintain an orderly, safe and efficient flow.*" In other words, **fly the speeds you're told to fly**, they are pretty strict on it.

- The airport is high altitude which means your TAS will be around 15% higher than IAS. Which means you might find slowing down harder.

The Missile that Missed by a Mile (or 25)

OPSGROUP Team
1 November, 2021

On October 6, 2021, a Transavia Boeing 737-800 was routing from DTTJ/Djerba, Tunisia to LFPO/Paris Orly when they **reported seeing a missile explode** in what they thought was close proximity to the aircraft.

The Flight Report

TO-3367, registration F-GZHX was climbing through approximately FL300. Their position was around **80nm**

north west of DTTJ/Djerba, and about 110nm south of DTTA/Tunis when they reported a missile exploding in their 10 o'clock position, **at the same altitude**, and in close proximity. A second aircraft in the area also confirmed seeing an explosion.

When reported, ATC advised there was an active military area approximately 25nm west.

Where did it happen?

The FlightRadar tracking of the flight suggests they were likely routing along the **UZ153 airway.**

Waypoint NEDOS appears to correspond with the approximate position of the aircraft, and this lies to the east of the **DTR-20C/DTR-20D military zone** suggesting this is likely to be the zone where activity was taking place.

What does the Tunisia AIP say?

ENR 5.1 – 4 details DTR 20c and 20D as being active for military exercises in VMC only. It is operational Monday to Friday from sunrise to sunset and on Saturdays from sunrise to 1300. The limits are FL105 to FL245.

Are there other active areas?

Search Notams for the DTTC/Tunis FIR and you will find a **long list of military activities and firing exercises.**

The 'firings' are for guns, rockets or missiles, but at low levels (below 2,500' msl for the most part). The military activities are of more interest because they are not all bounded by published restricted, danger or prohibited areas, meaning you are going to need to check these by plotting them out.

A2070/12 reserves an airspace which reaches from 13,000' to 30,000'. A second some extends from FL100 to FL250, advised via **Notam A2072/21.**

There are also Notams advising that *'due to military activities new corridors are being implemented'.*

While these did not impact the Transavia flight, and do not necessarily mean any risk for overflying traffic, they do pose a threat simply because of the upper limits and the sheer number of spots to avoid.

So was there a risk here?

The *unusual* element of the Transavia incident would be the **proximity of a major airway to an active missile firing zone**, or rather the firing of a missile which may have reached **altitudes above the published upper limits**, *in close proximity to a major airway.*

However, this assumption is based off the crew's observation of the missile altitude. Tunisia does not reportedly possess missiles which are capable of reaching altitudes of 30,000′, and the difficulty in accurately observing the altitude of an 'object' at a distance with little external context is extremely hard.

An investigation is underway but a highly probable explanation is that the **crew misjudged the altitude and proximity of this missile,** and no risk occurred.

Should we watch out for military exercises?

Military exercises are common, particularly across Europe, and **Eurocontrol notifies** of these via its Operations Portal. These often utilise airspace which has some impact on commercial operations.

The airspace closures are advised via Notam and AIP SUP, and where required, alternative routes are

advised to ensure flights are not planned through the airspace.

For the remainder of October 2021 the following exercises are planned:

- **LFO 21** in the Sweden FIR/UIR from ground to FL320. Low operational impact is expected.
- **FLOTEX-21** will impact the LECM/Madrid and LECB/Barcelona FIR/UIRs, with low operational impact.
- **Fusee Sonde-Silene 21** will take place n the EISN/Shannon, EGPX/Scottish and EGGX FIRs. Operational impact is still low, however, it affects some routes through the Shanwick Oceanic region.

Flight planners and crew should be aware of these, but generally flight plans which attempt to route through prohibited or restricted airspace will be rejected, and ATC will prevent flights from entering areas during weather avoidance or other route detours.

What can we do to maintain safety near military zones?

During any operation operators, flight planners and the crew should **remain vigilant in reading Notams and ascertaining which military areas are active**, the altitude of activities and restrictions or prohibitions which might affect their safe routing.

GPS jamming around major military sites is also worth considering.

Safeairspace provides information on conflict zones, and airspace where risks are high for overflying traffic.

North Korea, and certain airways which route close to their airspace and the **Sea of Japan** are worth mentioning because of North Korea's recent number of **un-notified missile tests.**

The Golden (FAA) Rules for a Good Plot

OPSGROUP Team
1 November, 2021

Some people really enjoy plotting. If the other pilot has added some tiny krakens or miniature pirate ships to find on the chart, it can be a fun way to pass the time on a dark and endless North Atlantic crossing. For most though it is an irritating thing not made an easier by the somewhat confusing requirements as to **how, when and why** you need to do it.

So here is a brief summary of the FAA Plotting requirements.

What do the rule books say?

The place to find the info is this – AC 91-70B

It is an advisory circular providing '*general information and guidance for commercial and General Aviation operators ("you") planning flights in oceanic and remote continental airspace'.*

Sounds good until you actually open and discover it is **114 pages long** and the first chunk is a very long list of links to other documents which you also need to refer to for information and guidance. We actually started writing this post in 2019 when the current AC came out…

So, this post is *just* looking at plotting. That's it. Just plotting.

Why do we need to plot?

We plot so that we can check that the airplane is actually going where it should be going, and that we are where we are supposed to be.

The North Atlantic is big and remote and unlike land, there aren't many places to put Navaids, which means you are **relying entirely on your Long Range Navigation Systems** (usually something to do with satellites) to ensure you are in the correct place.

The second problem is we make mistakes – sometimes we put the wrong things in the box (see the section on half degree waypoints below). So plotting can help **catch those navigation errors** before they become really 'gross'.

The FAA say "*you should use a chart, of appropriate scale, to provide yourself with a visual presentation of your intended route, regardless of your type(s) of LRNS.*" (6.3.1.11)

And ICAO say… actually they pretty much say the same. (Position Plotting 8.2.10)

When do we need to plot?

The earlier FAA AC 91-70A had a whole section (3.6) on when plotting is required:

- **Turbojet aircraft:** If you are operating along a route segment where the distance between standards ground based navaids **exceeds 725nm**
- **Turboprop aircraft:** ditto ditto **450nm**

But – this was removed in the new AC. **So, do you still need to plot?**

Well, the simple answer is yes, and the more complicated answer is that "plotting" means something a little different now. **It isn't about drawing it on a map so much as checking and cross-checking** your position.

What is the difference between the cross-checking versus plotting?

Acceptable procedures are outlined in section 6.4.8 of AC 91-70B.

We used to plot manually in order to check we were where we were supposed to be. This cross-check hasn't really changed – we are still cross-checking the FMS and master document (OFP) against the currently effective route clearance to prevent inadvertent deviations from the cleared route. **The big difference is you don't actually have to do it on a paper map anymore (6.4.8.2).**

It is also required regardless of the distance from the nearest NAVAID.

So what do we do it on?

Up until 2019, manual plotting was required, but this changed when the FAA realised FMS-driven navigation displays and what-have-you were actually just as accurate

Opspec/MSpec A061 says you can used an electronic flight bag (EFB) for "interactive plotting" instead of a paper chart (6.3.1.11.2) – in other words an alternate "navigation display", where the alternate means not necessarily a paper plotting chart.

Back to how do we do it…

The aircraft position check should be made at a point approximately 10 minutes after a waypoint.

- Plot your current Lat/Long and record the time.
  - Use the "non-steering" LRNS to find your current lat/long because if your other one is lost it won't really help you to use it.
  - Confirm the circle/cross/miniature airplane symbol you are using (the nav system is using) to mark your current position agrees with your route clearance. I.e. **its on the right track and not out in the middle of anywhere it shouldn't be.**

- Next up, have a look at where you're heading:
  - Check the **active leg** by confirming the **FROM and TO waypoints** of the clearance against the active flight plan

- Confirm what is in the **FMS matches the clearance**

- Check you have the **right autopilot mode** in. LNAV/NAv is good. HDG is not good

- Check the **"expanded" waypoint** to make sure there are no rogue minutes in there

- **Confirm your ETA** over the next waypoint (and check you are the flying the assigned Mach number)

- Check you're still **SLOP**-ing if you should be, and at some point, make sure the SLOP ends when it should as well

- Give the wind a quick check as well. It's just handy to know in case you lose all your LRNS stuff

Re-clearances.

You've done all of the above, prepared a beautiful map ready to go and *horror of horror* ATC send you a new clearance. This is annoying and is the reason most GNE's seem to occur, or rather folk not doing it right is the reason.

- **Confirm the re-clearance** with the other pilot. You both have to "receive" it

- Make sure you tell the aircraft the new clearance otherwise it won't fly where it is supposed to. Both should double check the inputs as well to **catch any finger trouble**

- **Re-plot it** ready for your plotting checks

- It can be a good idea to **check the new distances between waypoints**

- Add in **a little fuel check** in case it is significantly different to your planned route.

A note on half degrees.

Half degree waypoint are fun little things. "Fun" because they are easy to mess up because no-one ever seems entirely sure how to type it into the aircraft computer.

Here is an ICAO paper on it. Well, actually it is on general **waypoint insertion**, but with a focus on half degree ones.

The issue tends to be with the identifiers. For example, ARINC 424 uses an "N-prefix" format which means you might see N5250 and be all *"that looks like half of north 50"* but actually this would mean 52030N 050000W. So you need to potentially check two things here.

- First, if you receive a clearance with a half degree waypoint, confirm the identifier (N5250) has been loaded with the half degree (52030N 050W) like in the picture below

- If you have a clearance with no half degree waypoints and are whacking in pre-loaded Idents, check they **don't** have half degrees – because N5250 night not mean N52000 W050000.

The ident doesn't show the half waypoint – so the full waypoint must be checkedStill confused about what to insert? Read this handy guide from Honeywell.

Watch this space.

The FAA are plotting a new draft – AC 91-70C – which will probably be out towards the end of 2021/ start of 2022.

All done?

We wrote a load of stuff on plotting back in February 2020. Most of it still applies and you can read it here.

We have also made a handy **Opsicle** (refreshing bits of ops info, just for members). This one is called **The FAA North Atlantic Plotting Guide** and if you are a member then you can download it here.

Military coup in Sudan: Impact to ops

OPSGROUP Team
1 November, 2021
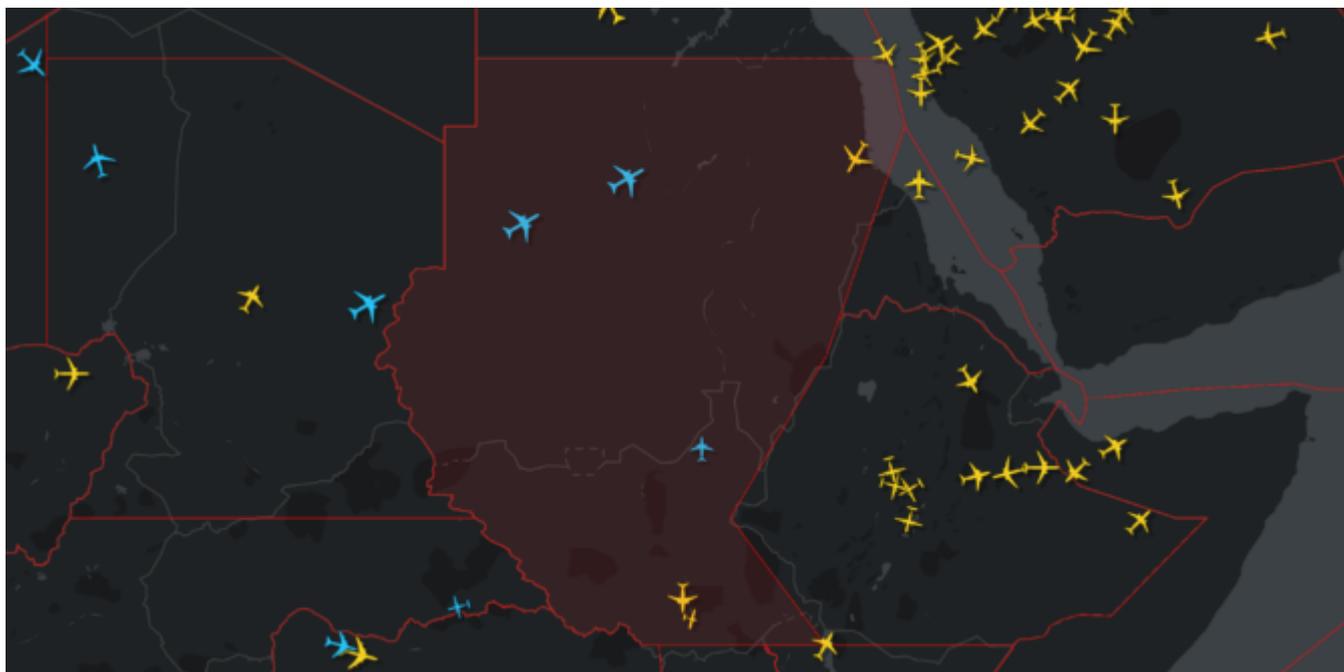
A military coup is underway in Sudan – the second since late September. Troops have been deployed throughout Khartoum and the military chief has dissolved the transitional government.

HSSK/Khartoum Airport is closed and all flights have been suspended (though no new Notams have been issued). Sudan's CAA has told the media that the airport will **reopen on Wednesday 27 Oct at 4pm local time** (1400 GMT).

Phone and internet networks have been blocked making it hard to contact local agents for situation updates. However, security forces clashed with anti-coup protestors on Oct 25 & 26, and there are additional demonstrations and roadblocks planned over the coming days across Sudan.

The US Embassy in Sudan issued a security alert on Oct 26 advising US citizens not to travel to the embassy or the airport. "When commercial flights are confirmed to be departing, an alert will be released" it said.

Overflight impact

HSSS/Khartoum FIR covers the whole airspace. **Overflights are still taking place** but there have been reports of delays due to thirty-minute separation being applied in the HSSS/Khartoum FIR. A coup in 2019 saw the airspace close for 24 hours.
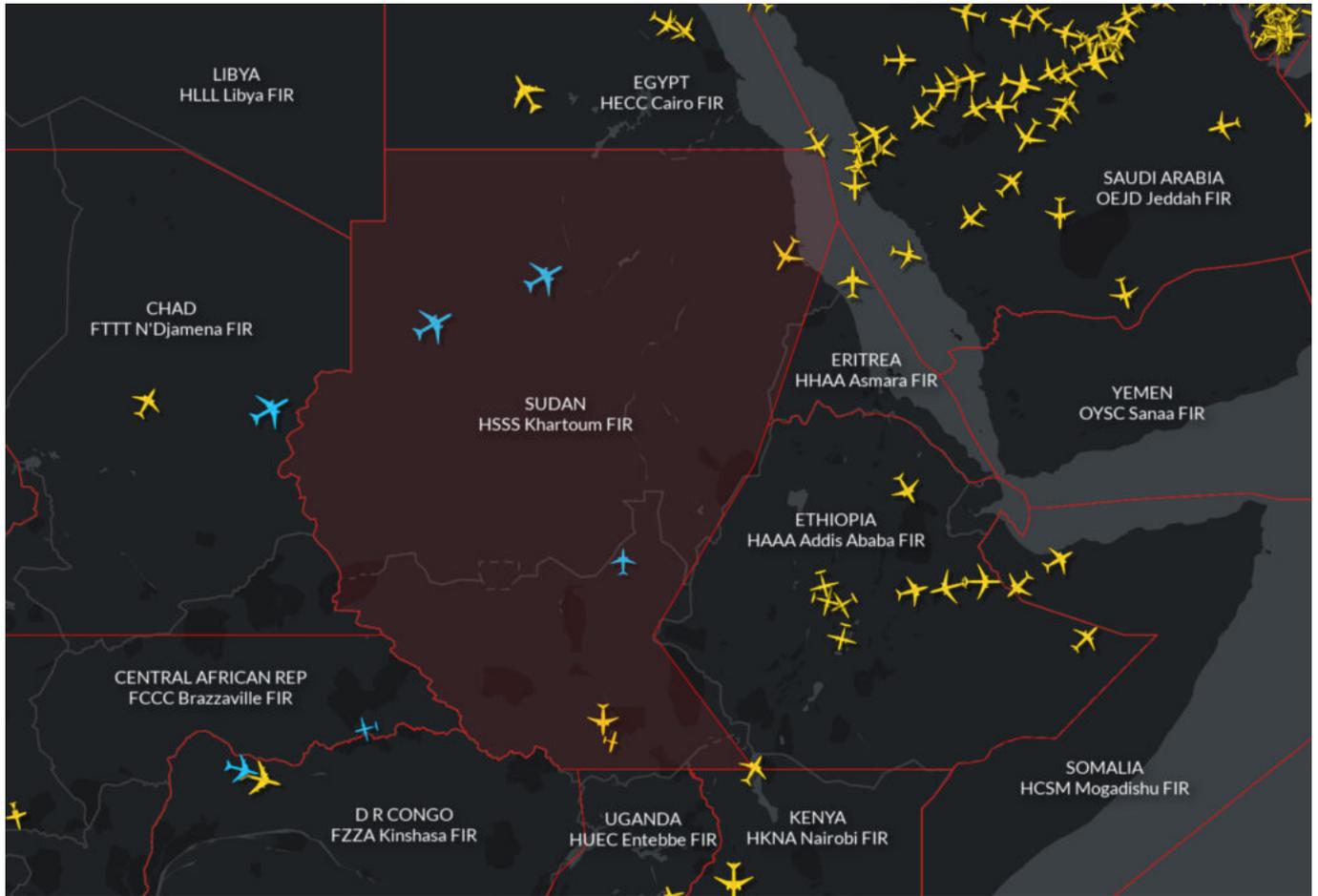
There is **no immediate known risk to overflight safety** due to the military takeover.

However, Khartoum is a main en-route alternate for this part of Africa. With the security situation on the ground now unpredictable here, there is a general risk for overflights in terms of **limited alternative diversion options**, given that there are several **high risk airspaces** including Libya, South Sudan, Eritrea, Somalia and Ethiopia (Tigray region) in the vicinity.

Airspace warnings

There is only **one international airspace warning** (from France) which recommends **overflights above FL260** for the far southern and western edges of the country where it borders South Sudan. The risk is, in part, due to the lack of ATC services and standards below FL245 in South Sudan. Further information on this is available on our Safeairspace page.

For some more background info on the airspace safety concerns for Sudan and South Sudan, you can read our January 2021 update here.

Communication Breakdown on the NAT

OPSGROUP Team
1 November, 2021

Lost comm procedures in the NAT HLA (or when you're trying to get into the NAT HLA) are a complex and confusing thing, so here is our "Natter on the NAT" – **a recap on what to do when nobody wants to talk to you.**

You aircraft has lost everything it uses to communicate.

The likelihood of every communication system you have breaking all at once is fairly minimal, and given the equipment requirements to enter the NAT HLA, you are going to have more than just VHF onboard. You will also have HF, datalink, probably SATCOM…

But if it does happen (maybe a freak bolt of mega lightning or something) then the first thing to do is still **try each system, including back up boxes,** and your headset for that matter.

Still no luck? Don't panic. While you can't hear anyone, or talk to anyone, they can all still hear and talk to each other. So **you are the only uncoordinated thing out there** right now. First up, **let ATC know by squawking 7600.**

The next thing to do depends on where in the NAT you are.

Already in it? Great, simple. You already have a clearance and you already know where you are going, so carry on as you are, transmit blind, and once you exit follow the lost comm procedures for the place you are entering.

Not in it, but have a clearance? This is up to you really. You have your clearance (and have confirmed it) so ATC know that you know that they know that you know what you are cleared to do. So if you want to stick to in and head on in you can, but you are going to have to maintain your speed, level etc all the way through. **And if you have a weather issue or an emergency you are also going to be on your own.**

No clearance yet? This one is a bit tougher. It probably isn't the best plan to head in (following your flight planned route), especially if you are heading into Shanwick. **Shanwick have diversion procedures in place** to take you to Shannon and the best idea might be to head there and get yourself fixed.

The exact wording is *"it is strongly recommended that a pilot experiencing communications failure whilst still in SHANNON FIR/UIR/SOTA/NOTA does not enter SHANWICK Oceanic Control Area"*.

The Irish AIP have the procedures for comms failure if planning on entering and they are worth a read. They have a pretty handy summary of what to do for Shanwick in there.

You have lost HF

If you're already in, there isn't much you can do. Stick to your clearance and keep in contact on CPDLC. Remember, HF frequencies are pretty rubbish at the best of times so if you discovered the failure while trying to make an HF call, then try a different frequency.

Lower ones work better at night, higher ones by day, and always try the middle ones for good measure. Have a quick glance at space weather too because if there are geomagnetic storms forecast it could be there is a general HF blackout going on that is affecting everyone.

Collins Aerospace publish a **daily list of HF frequency assignments** for their side (the US side) of the North Atlantic and you can find them here. Worth a look before you fly, if you're going to be in the US North Atlantic area.

The Comms requirements changed a bit in February 2021, and basically, what they say, is that **you need two long-range comms systems** if routing anywhere outride VHF coverage. **One of these has to be HF.**

Here is a particularly horrible picture of where VHF has got you covered.

You can route through if your HF was already broken and you told ATC in advance (Item 18 on the flight plan) and they gave you the thumbs up, but if you are heading there and it goes suddenly before entry then you are going to need to talk to ATC.

Shanwick OCA needs HF, no exceptions (not even the Blue Spruce routes that fall within the Shackwick OCA) so don't go diverting immediately but do get talking (on whatever else you have available) to sort it out before you enter.

We might as well cover HF blackouts while we're here.

These happen when space weather happens. They aren't super common and they are **usually minor (lasting 10 minutes or less)**. But when they do happen, everyone can lose HF, including ATC.

You probably should **make position reports on 123.45** to be on the safe side because there might be **no coordination between traffic and ATC for the period of the blackout.** Keep trying different methods to get hold of ATC as well (but don't get all crazy at them though – they will be busy and will contact you when able).

Now, because coordination between ATC and everyone else is an issue, they actually don't want everyone diverting all over the place, so stick with your clearances. The big point here is – **if you don't have a NAT clearance yet, you need to stick to your DOMESTIC clearance.** That means you have to stick with what you were most recently told to do, not what you filed for on your flight plan.

Datalink problems.

So your texting system is on the blink? Unfortunately, the **Datalink Mandate is in force** now so you need this to enter. If you ask ATC nicely (and have everything else working) they might still let you in.

You don't need it if you are **north of 80N, in NYC Oceanic, on Tango 9 or 290 route, or in the 'surveillance airspace' over Iceland/Greenland**. So if you can re-route via any of this, that might be a good plan. Otherwise you do also have the option of flying above or below the NAT HLA (so below FL290 or above FL410) if your aircraft (and your fuel) can do that.

Remember, **datalink uses CPDLC and ADS-C** so if either of them is broken, your datalink probably is as well.

SATCOM

Most datalink systems also require SATCOM – so while you don't need it to use it, if your aircraft needs it for the Datalink to work, then what we said above applies.

Let's talk ATC – Strikes.

An ATC strike is *usually notified in advance. The chances of them walking out without warning is fairly remote. So if you know about it beforehand, plan accordingly. If it happens while you're there, **treat it as an ATC Zero event.**

ATC Zero.

There is no-one out there. Maybe they had to evacuate? There was some sort of emergency or major technical issue that's has taken down an entire ATC provider? Occasionally it is Notam-ed, but in that case you won't have been given clearance to head through, so we are talking those **unforeseen sudden zero events.**

Each region has its own **contingency procedures** which you can find in their AIP, or better still in NAT Doc 006, which was also updated in Feb 2021.

These routes are really for when big stuff happens – the entire ATC for a sector is evacuated for example. In most cases, other units will try and manage control as best they are able, but it will be fairly limited.

So, if you're already inside, continue and start trying to make contact with the next sector (as they will hopefully be managing control as much as they can). If it is a big ATC zero event you are probably going to have to follow the contingency routes to exit the NAT HLA (rather than your clearance) but this will be 'activated' by whichever ATC is taking over control.

If you already have your clearance to enter you can, and you can transmit position reports on 123.45, but it is not really advisable. The best plan is to organise a re-routing.

If you don't already have a clearance then you aren't going to be able to enter the ATC zero bit and you will need to plan a re-route around the affected sector.

Feeling the need to read more?

Here are some handy links to things on the subject.

Changes to NAT Doc 006 – our blog post summarising what these were.

The Irish AIP (again) in case you missed the link earlier.

The GOLD Manual (2017 edition) – for all your Datalink info.

Opsgroup Member?

Then click here to download our handy little **Comms Issues on the NAT "Opsicle"** – a refreshing bit of ops info, just for members.

If you're not an OPSGROUP member, but you'd like to be, you can join here.

(Not so) New on the NAT

OPSGROUP Team
1 November, 2021

The helpful NAT OPS elves have put out some new NAT OPS info, so here is a summary on it.

The Sample Oceanic Checklist

First up, the Sample Oceanic Checklist which was effective from October 5. Here it is if you want to read it yourself.

Page 2 of this is actually really handy if you are not super familiar with oceanic ops because it lists everything you need to think about and do for each stage of the flight. The main change here is a clarification of SLOP (and micro slop) which is up to **2nm to the right, never go left, and in increments of 0.1nm.**

Page 5 has updated the info on **Long Range Nav Systems (LRNS)** saying ya need two of 'em, a single FMS doesn't count even if it is receiving from two separate nav sensors, and as far as your **LRCS (long range comm systems) go you need an HF** as one of them.

'Prior to Oceanic Entry'

A reminder here that both pilots must obtain the clearance. *This does not mean both have to do it separately.* It means both have to be there, check it, confirm it. They actually say that **dual checking of the oceanic clearance must be SOP**. So no toilet breaks in the middle of it.

Generally if you are going to get your **clearance by voice then give it 40 minutes**, if you're using Datalink (which you most likely will be now with all the mandates in place) then **25-90 minutes before entry will work.** The time varies from entry region to entry region so you'll need to confirm the exact timing. Reykjavik for example actually says 15-45 minutes.

Oceanic Errors

The second update, also effective October 5, is all about Oceanic Errors, and it starts out with a **'Safety Snapshot'.** We've posted on the safety reports each year and you can read last year's here.

This bulletin looks at the main issues that have been cropping up in the NAT – namely gross navigation errors, separation problems, weather deviations, and issues with CPDLC – and it provides some top tips on how not to mess up.

Here's our version of the *Top Tips.*

CPDLC

It seems some folk have been getting confused with **conditional clearances.** A conditional clearance means it isn't as simple as a "climb now" – it will have some sort of delay in it, like a climb after 20W, or a "to reach it by…", or even a "maintain FLXX, at 14:03 descend and maintain FLXX"

There is a lot of explanation on what these mean, what is expected and how to think about it. Really, it goes back to that infamous saying we all had drilled into us through school – **read the (insert swearword) question.** Or in this case, clearance. RTC.

Gross Navigation Errors

These seem to be happening because clearances are differing from flight plans and folk aren't checking and are missing the amendments. **You have to fly the clearance.** Which means you need to make sure your box (FMC, navigation thingamajig) has the new route programmed in.

Erosion of Longitudinal Separation

People aren't flying the speed they've been been told and are getting too close up the… of another aircraft. Or another aircraft is getting too close to them.

Stick to your assigned Mach. If you have to change it because of turbulence, or you messed up and can't actually fly that fast/slow by more than .01 of a mach, then tell ATC. ATC will tell you when you don't need to stick to it anymore by saying something like "Resume normal speed".

Contingencies

These came in back in March 2019. Check for convective activity early on, that way you have time to pull out the handy picture below and work out what you are going to do.

Also remember: **if you have to deviate *at all*, then you need to tell ATC.** Even if that deviation means a tiny little dog-leg around a storm that will move you off your track less than 5nm, you still need to tell them. They will see if you don't and they will get angry. If you can't get hold of them then that is when you will want to apply the weather contingency procedure.

Here is a picture to help.

Terrain, Tehran, Terrain, Tehran

OPSGROUP Team
1 November, 2021

If you are operating to OIII/Tehran Mehrabad airport then watch out – **the minimum height thresholds might not be adequate.**

Sounds serious!

Well, earlier in the year it was.

A Zagros Airlines A320 operating from OIAW/Ahvaz to OIII/Tehran Mehrabad was cleared the SAVEH 1N arrival and descended, under radar control, to 6000 feet. They were then vectored to the KAZ NDB in order to intercept the ILS for runway 29L.

Which was when they received a **terrain alert and "pull up" order.**

A quick look at the radar minimum altitudes and there are a lot of high ones – there is a lot of terrain. The adjacent sector is 7,500′ but ATC take aircraft down to the 6000′ (which covers the sector over the airport), and depending on where you arrive from this can be an issue.

There is a **5,036 foot hill** sitting in close proximity to the ILS approach, called *Bibi Shahrbanoo.* For ATC to ensure you are not too high for the ILS, they manage your descent down to 6000′, but that **6000′ doesn't actually provide the typical 1000′ separation** if you are near *Big Bibi.*

Combine all this with a higher rate of descent and you might get yourself a GPWS warning. The Zagros airlines incident was not the first.

Have they fixed the problem?

Well, Tehran's runway positions and terrain make it a complex spot to decide what heights should be used, but it does appear that they have looked into it a bit more since a significant number of new charts have been published of late, with **validity dates of October 1, 2021.**

So let's play spot the difference…

Let's take a look at the ILS 29L chart from August 2018 and the new October 2021 chart.

First up, **some of the MSA's actually appear to have shrunk.** The northerly sector from 090-270° used to be 17,000' but now it is divided into two sections of **15,000' and 16,200'.**

The circle-to-land restrictions have been revised, and they have also **amended the FAP** – it is now set to D7.5 and 6,500' as opposed to D4.2 and 5265' which was pretty low given the hills around.

You might also notice (at least on LIDO) a certain 5,600′ point from just beside the inbound course has now been removed… surprising given the hill is, presumably, still there.

This is a tricky airport anyway

The glide slope here is a **slightly steeper 3.3°**, and you only have precision approaches for runway 29 – runway 11 involves a fairly hideous circling approach.

The area is riddled with both high terrain, and also **restricted and prohibited areas,** so accurate navigation is important.

The conditions in Iran can be hot, and your **elevation is high – 3965ft,** leading to higher speeds, and higher rates of descent required. Having this in mind, monitoring your ROD and being aware of the GPWS risk is probably the best mitigation against warnings.

Runway 11R/29L is **currently closed for "recarpeting"** (not a Persian rug joke, it really is what they call it). So keep an eye out for temporary charts and WIP notams. **The runway is closed until March 2022** and the latest AIP SUP 27/21 covers it.

There is also a lot of GPS Jamming across Iran and there are some significant airspace safety concerns to take into account.

It's not the only spot to worry about

OIIE/Iman Khomaini is the "main" Tehran airport and to be honest, if you are heading to OIII/Mehrabad airport (a.k.a the "other" Tehran) it is probably because you are using it as an alternate for OIIE. The terrain threat at OIIE is marginally lower than OIII, but still requires prior consideration before jetting in – as do most airports in Iran.

While you're at it, checking the Notams is a good idea too – OIKK/Kerman, for example, has no less than 34 cavities on one side of one of its runways. OIII/Mehrabad is better maintained (just 1 hole related Notam to be seen).

Hong Kong: King of the Airports

OPSGROUP Team
1 November, 2021

What is happening at Hong Kong airport?

They are working on something...

They are indeed. Hong Kong is adding a new runway and they've just finished building it! Six years in the making and due to open 2022, the new runway is set to *transform Hong Kong from a city airport* to an *airport city.*

What's it got now?

Hong Kong currently has two runways **07L/25R and 07R/25L, both offering 12,467' (3800m)** and a bunch of CAT II/III approach options.

The new one will be no less decent – planned to be the same length, and 60m wide.

Why do they need it?

Hong Kong is a major hub and currently sees around 419,795 traffic movements a year, which amounted to 71.5million passengers and 4.8millions tonnes of cargo moving through it (back in 2019).

Here is the bit you are probably more interested in – it can handle just under **70 flights an hour at peak time** and has 119 passengers stands, 55 cargo, 26 maintenance and 12 temporary stands.

The airport expansion will enable them to handle an **additional 30 million passengers and will add 57 new parking spots.**

We mentioned the slot and parking issue a few years ago. It is deceptively green at the moment, but this is probably more to do with a certain pandemic than any real improvement.

The current runways also do not run 24/7 though, there are **regular maintenance closures.** AIP SUP 08/21 updated on October 13 2021 has the info.

- 07L/25R closes 3 nights a week, and 07R/25L closing for 4, between 1601-2315 UTC

- 07L/25R also closes daily between 0116-1025 UTC.

So more runway and more parking will mean a big improvement on your chances of ad-hoc ops in.

(OK, we'll slot in a quick slot summary)

This was issued in June 2021: The Hong Kong slot getting guide.

In brief, you probably want to do this:

- Apply for a landing permit www.cad.gov.hk/english/efiling_home.html

- Apply for parking https://extranet.hongkongairport.com/baps/

- Apply for Ground Handling http://www.hkbac.com/en

- Apply for your slots http://www.hkgslot.gov.hk/Online_Coordination.ht

It it a confusing a frustrating process so if it is your first time you might want to get some help from an agent. Hong Kong Business Aviation Centre (HKBAC) are based at Hong Kong (and you'll be talking to them for your ground handling anyway.

Email: hkbac@hkbac.com

Phone: +852 2949 9000

Back to the expansion plan: What stage is it at now?

The runway work is complete. This will be **designated the North runway**, while the current north (07L/25R) will become "Centre". The re-designation will happen at **0000 UTC on December 2** so don't get confused!

The full 'three runway system' is only due for completion in 2024 as the new terminal is yet to be constructed.

What about arrivals and things?

The new charts are likely to only be introduced from 2022, however, the current set up bring aircraft into common points which link to approaches for either runway, so chances are they will just add the 07L/25R (new) to these as well.

The plan is to equip all three runways for takeoffs and landings, but primarily use the **northerly for landings,** the **central for take-offs** and the **southerly for both.**

The Hong Kong CAA is also working with the Chinese and Macao CAA to re-develop and **improve efficiency in the Greater Bay Area airspace.** This airspace refers to the areas utilised by Macao, Guangdong and Hong Kong airports which is high density.

VHHH/Hong Kong's traffic is restricted by the so called "air wall" between Hong Kong airspace and Pearl River Delta region airspace, and this will also be improved for better traffic efficiency.

The point of control handover is BEKOL, and traffic must reach set altitudes by this point.

Improvements to the airspace are not *un-needed* – separation issues have cropped up a few times in the past. So watch this space for changes to routings and handover procedures through to 2024.

Want some more to read?

A full rundown of the expansion plan is written up pretty decently here.

Or read about it on the official HKIA Three Runway System website here

The main page for all things slot is here.

GPS Outages: The Hotspots

OPSGROUP Team
1 November, 2021

We are talking about it again. Satellite signal disruptions. Jamming. Issues with your navigation equipment…

IFALPA have just released a new "watch out for it" paper so we thought we'd have a mini recap on what it is, where it is and what you can do about it.

Here's what we said earlier about the problem.

The Big Problem

A big rise in GNSS radio frequency interference occurred in 2018 and since then (with voluntary reporting) there has been a **2000% increase** sustained ever since.

A Eurocontrol Think Paper published in March 2021 suggests that **38.5% of European en-route traffic** operates through regions intermittently but regularly affected by RFI, and **5% of these needed special assistance,** which doesn't sound like much until you check out the number of en-route traffic to Europe each day!

The Big Hotspots

The big hotspots remain around the **Mediterranean, Middle East and Caucasus** where they see, on average, 3,500 outages or so a year. Traffic routing along the UM860/688 airways in Iraq, and en-route crossing borders in **Turkey/Iraq/Iran** or close to the **Syrian border** are the most commonly reported areas of issue.

Reports from aircraft overflying regions near major Turkish airports have also reported signal jamming, while aircraft operating into **LCLK/Larnaca** or airports in the **Egypt/Israel/Jordan and Lebanon** areas have reported jamming during the climb, descent and approach phases.

Back in 2019, **LLBG/Tel Aviv Ben Gurion airport** was seeing a high number of issues with their RNAV departures and arrivals. Or rather, issues with aircraft not having the internal accuracy required (due to jamming through the Tel Aviv FIR) for them to fly RNAV procedures. Crew were advised to **plan for alternatives.**

IFALPA also reported on issues in Central Mexico, particularly in the area around **MMLO/Guanajuato airport.** The issue was further compounded by a lack of any Notams warning of potential signal disruptions. A heads-up so you know to watch out for it is always helpful.

Other spots to watch

US Military tests on systems designed to block enemy signals are unfortunately indiscriminate in what they block – and so they often impact commercial aviation as well, sometimes affecting signal as far as 400nm and up to FL400. While Notams are issued for these tests, they often cover large areas and are overlooked by crew because of this.

A test back in 2019 in Washington state highlighted the big impact these can have – the possible area affected covered 67 airports including KSEA/Seattle-Tacoma.

The FAA is working with the military to find a solution to this. They previously made 25 recommendations including a requirement that N**otams be issued at least 120 hours** in advance. Here is what we mentioned on this before.

What to do if it happens to you

Your aircraft is going to have checklists covering it, but in a nutshell, if you think your aircraft's ability to accurately fly an RNAV procedure has been impacted then **plan for another approach and let ATC know.**

IATA and ICAO both have GNSS Interface Reporting Form which you can send to help them track areas of significant anomalies, and follow up with authorities to try and mitigate the problems.

If you experience an issue in **FAA airspace** then use their dedicated reporting site.

And keep up to date with outage areas here.

Any final thoughts?

The range of RFI jamming is a lot bigger than folk realise. While it is usually centered around conflict zones, it seems to go "*well beyond simple military mission effectiveness.*"

A cigarette light powered (illegal) personal privacy device is enough to disrupt the signals in an aircraft if the device is relatively nearby.

Thankfully ICAO, Eurocontrol, the FAA etc are on the case but until solutions are found, it will remain with the pilots to stay safe when signals are disrupted.

Kazakhstan: Improving Safety

OPSGROUP Team
1 November, 2021

Kazakhstan have been working with the UK CAA and ICAO to **improve their safety and compliance**, and they've done well. ICAO's recent audit of them, in August, noted an 84% effective implementation of ICAO standards and recommended practices.

So, what does this mean for you practically if you are operating into Kazakstan?

Some background info for you

Before all this, they were not doing so well.

The previous audit carried out in 2016 had them scoring pretty poorly on a bunch of areas, most noticeably their **Civil Aviation Organisation** was lacking and their **Accident Investigation** skills were poor, both scoring less than 50%. The operational impact of this was safety – a lack of information to operators and crew, and a lack of regulation and oversight.

Their Aerodromes and Radio Aids also fell short, scoring 60%. Which probably meant you would often see Notams advising of unserviceability, and potentially reduced approach or low visibility capabilities at airports, amongst other things.

And now?

Now they are 15% higher than the global average.

To improve their audit rankings they have done things like implement:

- better operational regulations

- improved oversight from the authority

- better trained technical personnel

Tell us what we need to know operationally

The new (and improved) Aviation Administration of Kazakhstan have **implemented legislation which aligns with EASA/EU legislation.** Their new regulator is bringing better technical control and is improving safety levels across the country to be more in line with international requirements.

This means **big changes to basic aviation law**, including 61 new by-laws and a bunch of legal acts. But if you operate into Kazakhstan, don't stress – this won't mean huge changes and new laws for you to learn – since they now are aligned with ICAO SARPs and EASA legislation it should be fairly familiar.

Airport names are changing

In June 2020, **UACC/Nursultan Nazarbayev** International Airport amended its **IATA code from TSE to NQZ** – the former code being one harking back to the old Soviet Union days when the capital city was called Tselinograd.

There are 25 certified airports in the country, including 18 international ones (although there are 9 main ones you would probably be interested in.) The point is – other airports may well follow suit and update their names and codes, so double check those IATA codes carefully.

They are implementing GRF

The new ICAO Global Reporting Format will be implemented meaning pilots should receive better contamination reports and standardised Snowtam info.

How else is safety improving?

They have done a big review of risks at airports. They've listed the problems, the risk scores, their targets and the trend for improvement.

The biggest problems seemed to lie in:

- Wildlife and habitat management seemed to be a big issue at some of the airports

- De-icing procedures, facilities and equipment was another high scoring risk

- Ground ops resulting in potential collisions, and FOD on the runway

- Contaminated fuel and general fuel and handling services

And all these are improving across the major airports.

I think I would like to head there now?

Great, well you are going to need an **overflight permit or a landing permit**, depending on what you want to do. They are easy to get direct from the authority.

Technically, the overflight permit requirement doesn't apply anymore, but it is easier if you do get one because they want all navigation fees paid in advance or they won't let you into the FIRs.

You can use **AFTN: UAAKQFNS / +7 7172 704 345 / caf@ans.kz**

Any recommendations on where to go?

The main airports used for **Tech Stops** (if overflying) are:

- **UAAA/Almaty** Open H24 with a 14,764′ / 4500m and 14,436′ / 4400m runways with CAT III approaches
- **UACC/Nur Sultan (Astana)** H24 (but restricted) 11,483′ / 3500m runway with CAT III approach capability

Both airports apparently have Jet A1 fuel, although you might find TS-1 at other airports (the Russian "Jet A1′ with a -50°C freezing point).

You also have some decent ones in neighbouring countries:

- UBBB/Baku
- UTTT/Tashkent
- UTAA/Ashgabat

Anything else to know before I go?

The airspace is safe, with no warnings. It does border **Russia** which has some specific procedures and comm requirements.

It also **borders China** so for flight planning there are specific waypoints and airways to use, and you will need to change to **metric flight levels** (metres from feet) as you cross into Chinese airspace.

Kazakhstan uses an (almost) standard Contingency Procedure – **30 degrees off route and offset at 20km (which is 5.4nm).**

China steps up incursions into Taiwan's ADIZ

OPSGROUP Team
1 November, 2021

Relationships between Taiwan and China have become increasingly strained over the last month and officials are starting to question whether this might be impacting aviation safety in the region. Here is a look at the conflict and the potential impact it may have on commercial operations.

The background.

Taiwan and China have a long and ongoing dispute over whether Taiwan is *Taiwan – an independent country*, or *Taiwan – a breakaway province that is still part of China.* China is officially known as the People's Republic of China (PRC), while Taiwan refers to themselves as the Republic of China (ROC).

Similar to Hong Kong, Taiwan has retained a **high level of independence from mainland China**, and effectively governs itself, having its own constitution, democratically-elected leaders, and own armed forces.

Unlike Hong Kong however, **Taiwan rejected China's "one country, two systems" formula** which would have enabled them to retain autonomy, while reunifying with China. It remains a disputed country with few countries around the world recognising it as a sovereign nation independent of China.

This is at the root of this conflict, and in recent months China has become more assertive in their control over Taiwan.

Here is a good summary of the political situation.

What are China doing?

China have been "re-asserting" themselves over Taiwan by carrying out **repeated incursions into the Taiwanese Air Defense zone.** A recent incursion saw 39 military jets fly into the zone, for the second day in a row. The aircraft included 2 Y-8 anti-submarine aircraft, 26 J-16 fighter jets, 10 Su-30 fighters and a KJ-500 early warning and control aircraft.

They are reports of a 52 aircraft incursion which included 16 nuclear-capable H-6 bombers.

Where is the airspace?

Taiwanese national airspace is the airspace over Taiwanese land, extending to 12nm off their coast over the territorial waters. **Military aircraft are not allowed to enter any national airspace** without

express permission from the state. **China did not violate the national airspace**, but did violate the ADIZ.

An ADIZ is different to national airspace, and is specifically declared by a state for **reasons of military air defence**. Some states designate their entire airspace as an ADIZ (Iran being a good example).

Taiwan's ADIZ sits between Taiwan and continental Asia, over the South China Sea (the Taiwan Strait), shown (approximately) below. The ADIZ itself is disputed as well though since it overlaps and includes disputed territories.
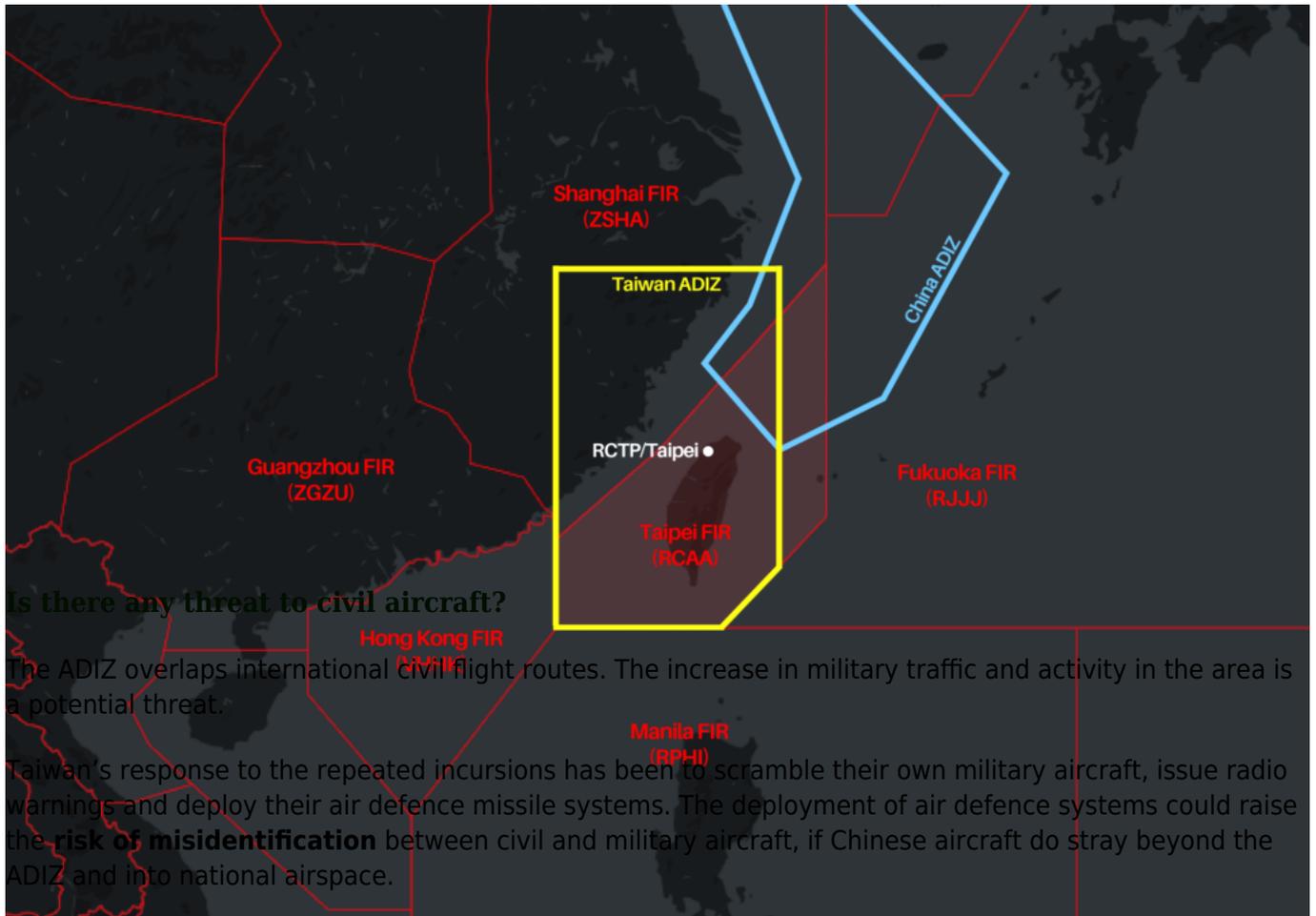
The Vice Defense Minster for Taiwan suggested the incursions "*are affecting the safety of international flights,*" but the statement was possibly political and as yet there has been no report of civil aircraft being impacted by the situation.

Procedures in Taiwan's ADIZ.

You can read the procedures in full in Taiwan's AIP ENR 1.12.1, or download a PDF here. But here's a summary of how it works:

- There are restrictions for non-tactical aircraft in the area including **no flight below 4000'**, and to **maintain flight along designated airways.** ATC contact must be obtained prior to entry.

- Aircraft will be intercepted by the Chinese Air Force if they fail to follow ADIZ procedures, or if they exceed 5 mins ETA of a designated reporting point, deviate more than 20nm from the airway entrance or have greater than a 2000' difference from assigned altitude.

- Basically, if you are flying in the ADIZ, make sure you're in contact with ATC, and don't do

anything without telling them first. Pretty standard stuff for operating through an ADIZ.

General ops.

We wrote about operations to Taiwan back in 2019 and it is worth having a quick read because **if you are a foreign registered aircraft** because:

- You are not allowed to operate directly between China and Taiwan

- If you need to make a tech stop between the two then aim for VHHH/Hong Kong or VMMC/Macau

- You probably aren't going to get permission to overfly China if you are routing to Taiwan from anywhere else.

You can read more on this here.

Back in 2018, there was also a dispute over **China's M503 airway.** The airway is a main north-to-south route for aircraft heading to Hong Kong or Macau from Southeast Asia. Taiwan didn't like it because it lies so close to the FIR boundary separating Chinese and Taiwanese airspace.

The result of the dispute seemed to be a sort of "tough luck" from China, and aircraft still regularly use the airway. More on this here.

The risk level?

While the ongoing conflict and aggressions do threaten the general peace and stability of the region, there is no immediate threat to commercial operations. Maintain a good listening watch if operating in the area and ensure you are in contact with ATC if operating through the ADIZ.

Introducing MEL: A guide to Minimum Equipment Lists

OPSGROUP Team
1 November, 2021

Setting up your MEL can be a tricky business. It is definitely not something we know anything about. Thankfully though, we know some folk who do. AviationManuals have just issued an updated version of their **MEL guide** for clear info on what you need, how to use it, and how to maintain it.

So here is *a little guide to their guide*, plus some other things we think you might find helpful as well.

Why are we telling you about MELs?

Because it's easy to get confused about **what equipment is needed in certain areas**, or to do certain things, or to go certain places.

So, first up, a quick **"what's the difference?"** – when do you consult your MEL, and when do you consult the AIP or some other regulation document?

The MEL is all about your aircraft.

Actually, probably a better way to put it is it is all about your **aircraft's ability to fly *safely,*** *a*s opposed to being about **specific operations** it might want to do. The MEL can tell you whether, if you try to get airborne, it might become a bit of a *Lethal Weapon...*

More accurately, it is what **"makes it possible to temporarily operate with inoperative equipment or instruments."**

Can it safety fly without Datalink? Yes. Can it safely fly without the nose wheel attached? No. The MEL will make that clear. It will also tell you **how long you can operate** without something being fixed, provides **amended procedures** (if needed) and **maintenance guidance.**

So – the MEL is a "Can I fly?" tool.

What you need to remember though is even if your MEL allows you to go fly, you still need to check that **where you are going to fly** doesn't need that bit equipment or instrument. This is the gotcha.

Can I safely fly without Datalink working? Yes, the MEL says I can. So I am good to go on my flight through the NAT HLA? Well, hang on, that's a different thing you're asking. Your aircraft can can fly perfectly well without it, but you are going to have some **planning considerations.**

Do you have anymore examples of this?

We said it once, and we'll add it in again – even after establishing via the MEL that it is safe to go, you still need to confirm you are **capable and compliant in the airspace you are planning on flying through**, and that is not what your MEL is telling you.

The NAT HLA is probably the best and clearest one, but there are a lot of places and situations that this might be the case.

Your autopilot for example is not necessarily an **MEL items**, meaning you could take that airplane without it functioning. It would be annoying. It would make drinking coffee more difficult, but you could. However, if you want to fly through **RVSM airspace then an autopilot is a requirement.** So what the MEL might let you go without, the airspace you want to go to might not.

So, the MEL is confirming what your airplane needs to safely fly, but it is not (necessarily) confirming that your aircraft will meet all the capability requirements for where it is planning to fly.

When should you use your MEL?

Basically anytime before you start your takeoff roll, because it is the document that is going to guide you on whether your airplane needs what just broke to safely get up (and stay up) in the air. Once rollin' though, your failure warning system is what you're going to want to be consulting.

But an MEL is also a handy reference to consult in the air (when you've done everything else) because it will help you plan for the other end – can you dispatch without that 'whatever just broke' working. When you're back on the ground the MEL is going to become the "controlling" document once more, so it is worth a look.

OK, I understand the MEL's purpose, but…

We have gotten to the bottom of how, and what, to use the MEL for, and what its intentions and limitations are. But I know what your next question will be –

*"I already have an **MMEL**, so why can't I just use that?"*

The MMEL is a Master Minimum Equipment list. This is made by the authority and the aircraft manufacturer for the aircraft type *in general.* Some of what is in it might not be useful for you though because you might not actually have all the equipment installed. Maybe you didn't want it, or maybe your airplane is just a way more modern version of the *type* that the massive all inclusive MMEL is covering.

Which is why you want an MEL.

It is tailored to your actual aircraft, and your operation and procedures. This makes it shorter, easier to use and more relevant (but not less restrictive).

Now, the FAA do allow **Part 91** operators to use their MMEL as an MEL. You need a **D095 LOA** and some other paperwork for this. But a lot of places don't allow this, or just aren't used to it, so you're probably going to need an MEL (not just the MMEL) if you're heading abroad.

An MEL is actually a requirement for dispatch so if they don't accept your MMEL as an MEL you could be in for some lengthy debates and delays if you're ramp checked.

Here's something we wrote about it back in 2019 when it started to become a thing.

The FAA are also planning to do away with the D095 in the possibly not too distant future, meaning all US operators will need a D195 – the custom MEL.

In case you aren't familiar with the terms, **Part ORO** *"establishes organisational requirements to be followed by an **air operator conducting specialised and non-specialised commercial air operations** and specialised and non-specialised non-commercial air operations with complex motor-powered aircraft."*

Part NCC refers to *"non-commercial operations with complex motor-powered aircraft."* So chances are this is going to apply to you and your aeroplane.

Our Guide to their Guide

The AviationManual folk put it better than we can so go check out the website for info on what is involved in the MEL setting up process.

It does look fairly simple though:

- Complete a simple questionnaire
- Get a copy of the draft manual for your review
- Send feedback (and probably some money at some point) and receive your Final Copy. And off you go.

That's it!

A summary of who to ask?

"I need an MEL written up" – Talk to the folk at AviationManuals, they can help. Here is the link direct to their guide.

"I am on my airplane, ready to go on a flight and something has broken" – Consult your MEL.

"I am flying and something has broken, is my MEL useful now?" – Check your checklist and read through your FCOM. When you've done that, know the plan and have a few minute to spare, take a look in the MEL as well to see if it will cause issues for the return flight.

"I am a Flight Planning Person and I've just been told that an aircraft is flying tomorrow but its *insert something random* isn't working, can it still fly on the usual route?" – Check the AIP, or drop us a quick email and we'll see if we can fathom it out for you.

Oct 2021: Iraq Airport Closures

OPSGROUP Team
1 November, 2021

Please note the date on this story – Oct 2021. We're keeping the info here for reference purposes only.

Iraq is closing for a few days while their elections take place.

Here is a quick look at what this will mean for traffic who are planning to operate over or into Iraq over the closure dates.

Why and what are they closing?

They are closing all airports and border crossings for **security reasons.**

The election will take place Oct 10th. **The closures will run from 2300LT on Saturday Oct 9th to the morning of Oct 11th.** You will not be able to operate in or out of Iraq during this time.

Any further information on this has not yet been provided, but when elections took place in 2018, there were a number of strikes which reduced public services to nearly zero, as well as violent protests and riots across the country. This resulted in a 24 hour closure in May 2018.

In September 2018, several Katyusha rockets were fired directly at Basra airport during further protests against the government and elections.

It is volatile at the best of times.

ORBI/Baghdad airport is situated around 100nm southeast of a **major airbase** which is **often targeted by rockets and weaponised drones.** Baghdad itself is a target for rebel groups, and while attacks are generally low level, they do pose a risk to civil aviation and also heighten the **risk of misidentification** by air defense systems.

But can you still overfly?

The Notam published by ORBI/Baghdad Airport suggests you can:

A0239/21 - AD CLSD DUE TO IRAQ ELECTION DAY. WITH EXEMPTION TO EMERGENCY SITUATIONS DECLARED BY FLIGHTS OVERLYING IRAQ. 09 OCT 18:00 2021 UNTIL 11 OCT 03:00 2021. CREATED: 30 SEP 19:11 2021

ATC through Baghdad is provided by a large, international air traffic services provider, Serco, and you often hear US accents on frequency. Kuwait also provide some control of the southern sector when they hand over. So ATC control is not thought to be impacted.

The days leading up to and following the elections may well see some **increased traffic across Iraq** as dignitaries, government officials etc fly in, out and about.

Iraq and the ORBB/Baghdad FIR are a main connection between the Middle East and Far East to Europe. There are really only 4 options –

- Via Iraq

- Via Iran

- Via Saudi Arabia

- Via Pakistan into Eastern Europe

ORBB/Baghdad FIR Notams A0235/21 and A0236/21 advise on the routes available for civilian aircraft overflying the region. This is also covered in their AIP ENR 1.10-2 section 4.5.3.

Heading Northbound you can file TASMI SEPTU ROXOP UM860 NINVA

Heading Southbound you can file RATVO SISIN UM688 SIDAD

Airports

The airports will be closed. All international airports (ORER, ORSU, ORNI, ORMM) have published identical Notams to the one for ORBI/Baghdad, saying that they will remain available for emergency diverts, but they will not be available for "general" en-route alternates.

Iraq borders **Iran** (another region with airspace warnings in place) and **Syria** to the other side (which is a No Fly Zone) so you may be limited on where you can go – turning around and heading back to Kuwait and Saudi, or routing to Turkey (depending on which direction you are heading from).

Eastern Turkish airports are generally smaller and less capable than the larger ones to the West. There are also often skirmishes along the border between Iraq and Turkey, with military on both sides sometimes **closing portions of airspace during military activities.**

What should you do?

Continue to plan overflights, but be aware that diversions will likely not be supported during this time.

Be aware that government offices and services will likely be closed and unavailable during the election period, so don't submit overflight and permit requests last minute because they won't be handled until afterwards.

What is available (when they aren't closed for elections?)

Check out SafeAirspace – US Operators are banned from operating over or into Iraq, and other authorities **advise against flights below FL260.**

ORBI/Baghdad airport, in the capital, has a decent runway, however they do currently have **works on 15L/33R** and it is closed (when the weather permits) and between 0300-0500z.

Runway 15R/33L is only available during daylight hours and in VMC because the instrument approaches are suspended. 33L also currently has a **displaced threshold (400m)** and the declared distances are now 2901m.

So keep an eye on the weather and be aware of what might or might not be available. **Notams A0222/21 and A0193/21** are the ones to read.

Don't snow where to go? Here's an Alps Ski Airports Guide

OPSGROUP Team
1 November, 2021

Winter is coming, and that means two big things to think about in aviation. Operating in **cold, wintery conditions** and operating into **cold, wintery ski destinations**.

So, to help you avoid getting 'piste' with airport restrictions, parking problems and other annoying operational obstacles, here is a look at some of the main Alpine ski destination airports which you might be thinking about flying into later in the year.
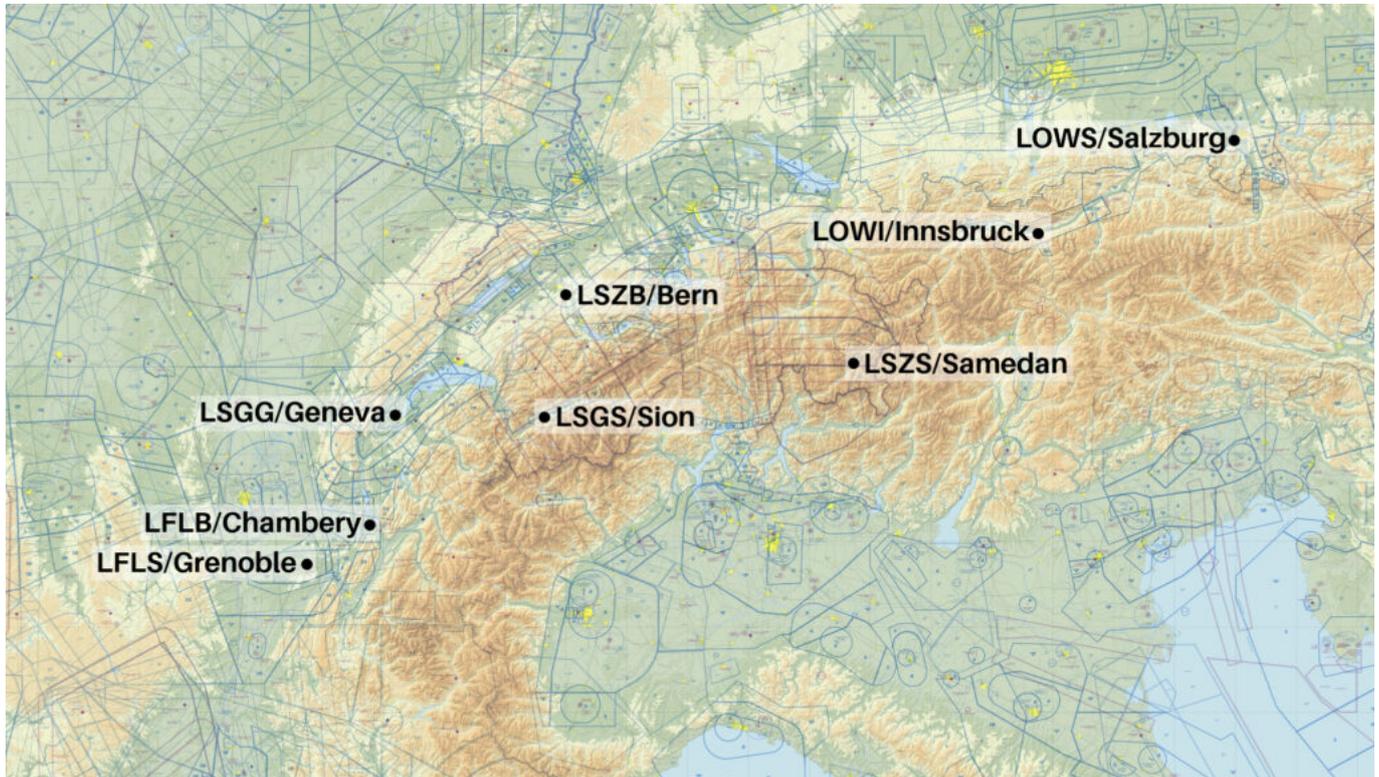
Innsbruck – Austria

LOWI/Innsbruck will get you as close as you can to **Lech, St Anton, Zurs and Kitzbuhel.**

It is 1hr 15 from Kitzbuhel by road, 90 minutes from Zurs or Lech, and 70 minutes from St Anton. Or about 25 minutes by helicopter from them all.

Innsbruck is one that you need to be familiar with, and have briefing material set up for, prior to operating in. The airport administration can provide a sample briefing, but you'll need to tailor it for your operation. ernst.wieser@austrocontrol.at / ernstwieser@hotmail.com can help with that.

The full info is available in the Austria AIP, but you basically needed to have **practiced in an FSTD before heading in** with weather less than 3000' ceiling or 5km visibility.

Slots are required here and the best folk to talk to are operations@innsbruck-airport.com

Innsbruck is not a big airport so parking is likely to be limited.

Airport Spy reviews give this a **3.5/5 rating.**

Salzburg – Austria

LOWS/Salzburg requires **special permissions** from Austrocontrol – special.procedures@austrocontrol.at

This is a larger airport with a **9022´ runway, ILS to 15 and CAT III capability.** However, terrain at the end of runway 15 means there is a specific and challenging missed approach procedure fo runway 15, and a very challenging RNP procedure for runway 33.

Historically, a PPR has been required during the busy season from mid-December. Notams are usually issued in November confirming this, along with confirmations of charter and corporate slot availability.

Get your requests in early with +43 662 8580-261 / sas.ops@salzburg-airport.at

Chambery – France

LFLB/Chambery is best used if you want to head into **Courcheval, Meribel or Val d'Isere.**

You have probably heard of **LFLJ/Courcheval Airport** – it is the one in the mountains that is always on the top 10 scariest airport list. Chambery is *less of a challenge but you're still going to need some training before heading in here, particularly if you plan to head in after dark, if the ceiling is less than 3500 or visibility is below 5000m. The airport has some terrain challenges of its own, sits at an elevation of 779′ and offers an **ILS (in only one direction) to a 6627'/2020m runway.**

The AIP says *"Due to mountainous terrain in the vicinity of Chambery APT, it is considered essential that pilots are well familiar with approach, missed approach, circling maneuvers, and departure procedures. Therefore, concerned operators have to set specific operational instructions for the use of Chambery APT as well as provisions for their pilots' training. The responsibility for the preparation of such information rests on the operator (or pilot-in-command for non-commercial flights)."*

If you need ops assistance, the main business aviation FBO is available at +33 4 79 54 49 52 / fbo@chambery-airport.com

All the fees and charges are available here on the airport website.

The first 60 minutes of parking are free, after which they start to charge you 0.36 euro per ton (MTOW) per hour. Parking is arranged though SEACA (handling@chambery-ariport.com).

There is a **dedicated business terminal** and a good 30 parking spots at the airport, however, during peak times where forecast traffic exceeds capacity, they do ave scheduling in place. This means **any take-off needs a PPR from the COHOR association.**

Peak time is weekends (and some Fridays) from mid December to April, and the first week of January. You can email hdqcoxh.scr@cohor.org or slots@chmbery-airport.com to organise, or cy.myhandlingsoftware.com if you are a general or business aviation operator.

Contact the BRIA de Bordeaux : +33 5 57 92 60 84 and ensure you have a gendec for customs at least 24 hrs before arrival/departure.

Airport Spy reviews give this a **4/5 rating.**

Grenoble – France

LFLS/Grenoble airport is well situated for at least **10 different ski resorts.** It is an hour's drive from Saint Pierre de Chartreuse, Chamrousse and Lans en Vercors, and up to 2 hours from other major resorts.

The airport has a **3050m runway and no specific qualification requirements** for the ILS or RNAV procedures. They also up their RFF to a level 7 during the peak winter season (normally an RFF 5 with 7 on request).

The opening hours during the winter season will be **0700 to 2100 local time** and can offer full security and customs without PPR.

However, it gets busy! It is the second most convenient after Chambery and particularly during February tends to fill up fast so you are going to need PPRs, slots and to confirm parking in advance. Slots and apron space are handled though the same myhandlingsoftware.

You can find the fees and charges on their main site.

We got in touch with businessaviation@grenoble-airport.com / +22 4 76 93 49 24 and they are very

helpful and can assist in handling support.

We don't have any Airport Spy reports for here yet! Send us one!

Bern – Switzerland

LSZB/Bern airport will get you close to **Gstaad.**

They have a very handy airport site with info for GA flights including an airport manual.

They don't require slots and advised that they **rarely see restrictions or capacity issues** even during the busy season. As with many of these airports, they are not H24, but can offer different hours on request if required.

There is **no pre-training required, but the airport is challenging**. They have **cold temperature corrections** for the terrain (highest MSA is 15,800') and the airport elevation itself is 1675'. The arrivals also take you through **Class E airspace and VFR traffi**c without transponder and radio is common in the vicinity.

Reports for the airport suggest you may get terrain alerts, and preparing for the circle to land runway 32 with waypoints is a good idea. Our **Airport Spy** reviews gave it **4/5 stars** and called it 'tricky'.

Ground handling is mandatory here so get in touch with groundservices@bernairport.ch / +41 31 960 21 31 for info.

Gstaad does have its own airport – LSGK/Saanen – which, like so many, requires pre-training before you head there. You will need a PPR as well, but only a few hours before. The airport can handle jets up to at least a **MTOW of 15,000kg** and requiring up to RFF 5, but in winter they don't have jets landing because of runway condition. So if you're anything other than a Pilatus PC-12 or equivalent, stick with Bern.

You can get in touch directly with them at +41 33 748 33 22 / info@gstaad-airport.ch

Engadin (Samedan) – Switzerland

LSZS/Engadin, also known by some as Samedan is the closest airport for the **St Moritz** ski spot. It is actually a **dedicated private jet airport *just* for St Moritz**, and is barely a 10 minute drive from the ski chalets.

Parking here can get tight during Christmas, New Year and White Turf (weekends in February). There are limitations for jets with fire & rescue category 4 and higher.

Engadin was built, literally, into the mountains and you need **prior training** (and have to pass an exam) before going here. The main website provides some good briefing info on all this.

There are also some specific **flight plan filing requirements** for the airport – which you can read about here.

For handling support, get in touch with +41 81 851 08 51 / info@engadin-airport.ch

Airport Spy reports rated this airport **4.5/5 stars.**

Geneva – Switzerland

LSGG/Geneva is the closest airport for the **Chamonix** resort, and is about 1 hour 20 minutes drive away, or has multiple helicopter transfer options.

There is no particular pre-training required to operate into Geneva, however it is a relatively challenging airport with very high terrain in close proximity. Check out our Airport Lowdown here.

Geneva is busy in the summer and busy in the winter. All year around really. But it does get *particularly* busy from December 15 to the end of April, and there are generally restrictions (and Notams) issued around this time.

You will need a **PPR slot for arrival and departure**. In the past there has been a maximum slot reservation window of 21 days.

This is where you need to head to check for info on all things PPR at Geneva.

Geneva has a **dedicated business aviation terminal** which is pretty convenient for the main terminal. There are three big hangars here, however, hangar space is limited during peak times and in the busiest part of winter often only the hangar run by the airport is available to "general public". So get in touch and make arrangements early if you need them!

The main FBOs are:

- Dassault Aviation Business Services +41 22 710 4434 / fbo@dassault-business.com
- Signature Flight Support +41 22 817 0123 / gva@signatureflight.ch
- Swissport Executive +41 22 306 1250 / eva.privatport@swissportexecutive.com
- Jet Aviation +41 58 158 1811 / gvafbo@jetaviation.com

You can find full details of Geneva Airport charges direct from the airport website.

Our **Airport Spy** reviews gave it **4/5 stars.**

Sion – Switzerland

LSGS/Sion is the main airport for the **Verbier, Zermatt and Villars resorts.** The really posh ones.

Before we go any further into planning and operating there, you need to know that **Sion does require special authorisation from the Swiss Authority** because of the challenging procedures due terrain.

This authorisation requires pilots to undergo training before operating there, but there is a decent list of places where you can do this training, including **training facilities in the US**. They also have some great airport briefing info on their website.

Possibly because it is so challenging (guessing less folk fly there), the FBO we contacted advised that they **don't have any parking limitations at the airport**, and that aircraft can stay for as long as they like, in a hangar too if needed.

For queries on handling, try Signature Flight support +41 27 305 2424 / sir@sigantureflight.ch

Our **Airport Spy** reports only rate this **3.5/5 stars.** The VFR traffic makes it tough, but less challenging than some.

Where else?

We haven't covered some of the **bigger European airports** which can be used for parking and to reach Alpine ski destinations.

LSZH/Zurich and the Milans (LIML/Milan Linate and LIMC/Milan Malpensa), as well as EDDM/Munich are all relatively convenient for ski destinations in the Alps and are larger airports which offer better parking, hangarage and easier operating options.

If you are familiar with other airports which are good options for winter ski destinations, then please share those "gotchas" or need to know "heads ups" – and we will share them on to everyone in the group. **You can file an Airport Spy report here:** ops.group/blog/spyreport

Canary Islands Volcano: What's the Operational Impact?

OPSGROUP Team
1 November, 2021

Eruptions have been ongoing since Sep 19 at the Cumbre Vieja volcano on La Palma in the Canary Islands.

Volcanic Ash

The latest VAAC report (eff 29 Sep 08:55z) shows the **ash cloud only up to FL050** around the vicinity of the volcano and GCLA/La Palma airport.

If the wind changes it may impact GCTS/Tenerife airport and arrivals from the south of Tenerife may be impacted.

GCLA/La Palma Airport

Operations were suspended at the airport on Sep 19 and again on Sep 25 after ash fall reduced visibility at the airport.

The volcano continues to release ash at low levels, and further short notice closures are possible.

La Palma is an international airport which also serves as an alternate for GCTS/Tenerife and GCLP/Gran Canaria.

The Airspace

UN741 is a major airway for routing south southwest. Currently the ash cloud is not impacting this area.

UN981 is a major northerly routing airway crossing the area of ash, but the level of the ash cloud is not impacting it.

GCCC/Canarias ACC, who control the airspace, have said they currently do not plan to close any airways due to the volcanic activity, but recommend using specific SIDs and STARs if operating to airports in the area – check the 'Latest News' section on the NOP homepage for details.

Mount Etna Operational Impact

OPSGROUP Team
1 November, 2021

Mount Etna erupts a lot! Opsgroup have issued about 20 alerts in 2021 because of its continued activity.

Here is a brief summary on the airspace sectors and contingency procedures to know about for if (when) it next erupts.

The Airport

Mount Etna is situated approximately **33km in a straight line from LICC/Catania-Fontanarossa** international airport. Which is why, when she blows her top, it often results in an alert for the airport and surrounding airspace – the main issues being ash in the atmosphere and the potential risk to engines, and ash fall at the airport reducing visibility.

Mount Etna, on a good non-exploding day, is still a 10,922' hulk of a hill requiring an **MSA for LICC/Catania airport of 13,300'** in the North quadrant.

The volcano also causes **an area of magnetic abnormality.**

LICR/Calabria airport is a smaller, domestic and VFR traffic airport on the SW tip of Italy which is also impacted by ash from Mount Etna when the wind is from a westerly direction.

The Airspace

The airspace surrounding LICC and Sicily is broken down as this rather tidy chat from Jeppesen shows. The sectors are centred on Mount Etna and allow ATC to close those which ash drifts into.

The 21 Sep 2021 eruption has **initially closed sector A3** and is impacting sector A2 BIS and low level traffic into Calabria airport.

The ash cloud often reaches altitudes above FL150 impacting both local traffic, and overflight traffic at lower levels.

Contingency Procedures - Arrivals and Departures

Arrivals and Departures to LICC/Catania avoid overflying Mount Etna entirely – **the 13,000' MSA area is from radial 300° to radial 050°** based off the CTF VFR.

However, variable winds in the region mean forecasting the impact of ash clouds is difficult.

The sectors help establish which SIDs/STARs can be utilised on a given ash day. The full list is fairly long, but worth having a look over in advance to ensure you are aware of which arrivals, departures and approaches are being suspended or utilised.

Notams

Eurocontrol publish and share Notams advising of airspace closures and contingency procedures. You can view these in the 'Latest News' section on the NOP homepage.

What's the news at Newark?

OPSGROUP Team
1 November, 2021

KEWR/Newark Liberty International is the *other,* other international airport serving the New York metropolitan area – the busiest airport system in the US – along with **KJFK/New York JFK** and **KLGA/La Guardia**.

Whilst JFK airport is the largest, Newark is actually the busiest in terms of number of flights. It is also the 6th busiest airport in the US in terms of international traffic, and 15th busiest in general in the country.

So, what is happening now?

Runway works. And a general redevelopment program which includes a plan to replace Terminal A, due to be fully finished by 2022. You can read about that here.

But it is the runway rehabilitation we are most interested in, because it involves **runway 04R/22L**. The runway was last upgraded in 2012 so this is long overdue, particularly given that it **serves 47 percent of the airport's traffic load.**

Of course, there is a Notam to warn everyone about the closure.

Does anyone remember AC Flight 759?

Air Canada Flight 759 is the one that, in 2017, *very nearly* had a very nasty accident at KSFO/San Francisco. By *very nearly*, we mean **avoided it by less than about 14 feet**. That was the reported distance between the bottom of the Air Canada aircraft and the tail of a Phillippine Airlines A340 sitting on Taxiway C.
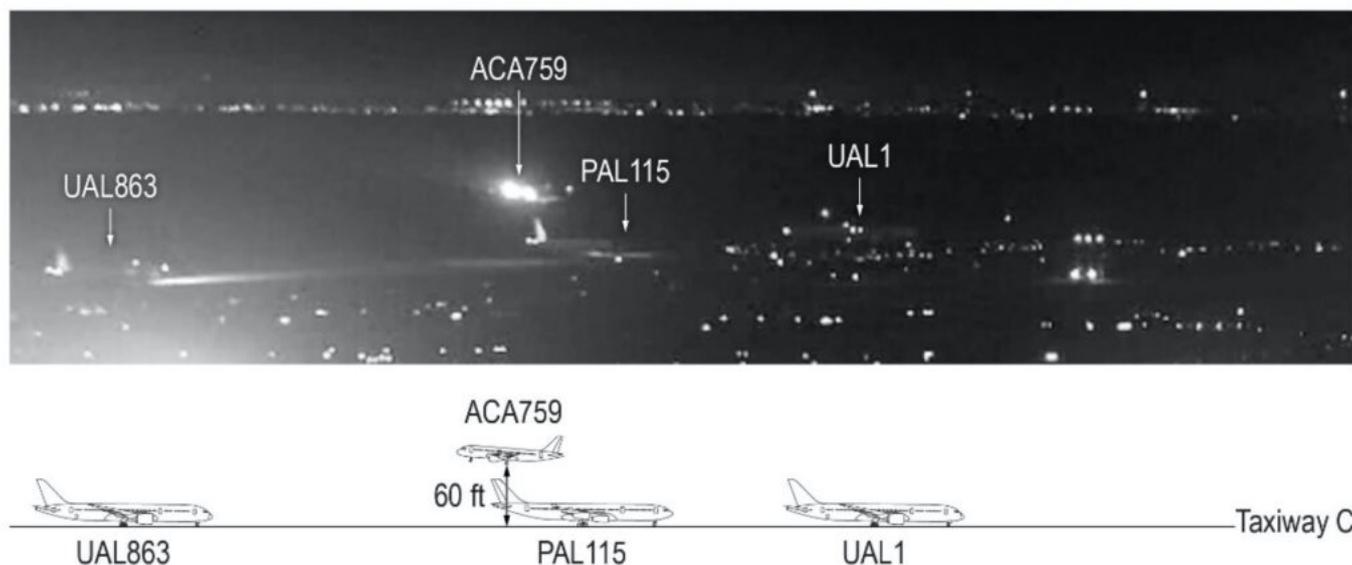
One of the probable causes the NTSB cited was the pilots mistaking taxiway C for runway 28R because they had **overlooked the closure of runway 28L in the Notam report.**

So, let's take a look at the Notams you will see for KEWR/Newark should you operate in there today.

We downloaded a report straight from the FAA Notam site, and it is here if you would like a look.

This may well differ to what you would receive in your flight plan pack, we have not included any filters and the layout is a little less user friendly. It is possible your flight planning department / system / whatever you use does present this in a clearer way, but it is also possible it does not.

We had this highlighted to us by a member whose exact words were *"Talk about getting lost in the weeds – that's just crazy."*

So, what is the concern?

Well, there are **5 pages,** with **108 Notams** in total and hidden away on page 4 is **Notam 07/045**

Which is why we mentioned the KSFO incident.

Newark's runway layout looks like this –

San Fran's runway layout is this –

And while KSFO's layout, with taxiway C to the outer side of runway 28R led to a more likely visual mistake, **the mixing of this Notam within a swamp of over 100 others** does mean it might be

missed, particularly by an operator who is not familiar with the airport.

Notam 07/045

The Notam advises that runway 04R/22L will be closed from 06 July 2021 until 01 October 2021.

There is, if your filter includes it, also a construction plan.

What about the other 107 notams?

Nothing can substitute flight planners and pilots reading the Notam packs thoroughly.
However, faced with 108 Notams for an airport (especially if you're not familiar with it), it might be daunting.

So here is a summary of what to look out for, (as of September 15 2021).

In the air:

- Rwy 11 has PAPIs but no VASIs. The **visual glide slope indicators should not be used** as they do not coincide with the ILS of RNAV glide paths
- There are a lot of **VORs which have been permanently taken out of service,** but many of the arrivals and some of the missed approaches require them. If you don't have a suitable **GPS equipped RNAV system** then you are not gong to be able to fly a fair few arrivals and departures to the airport, or the ILS or VOR DME approaches for runway 11

    - TEB, COL, CRI, OTT, SBJ

- The ILS and the LOC/DME **procedures for 04L are not available**
- You **cannot circle** to runway 29 or 11 **at night.** The RNAV visual for 29 is also unavailable
- There are a lot of **cranes** in the area. Some as high as 150′
- The approaches for 04R/22L are not available… probably because the runway is closed
- **Runway 04R/22L is closed**

On the ground:

- A lot of the ground markings are faded so watch out while taxying.
- The centre line markings for 11/29 are also in pretty poor condition. Actually, a lot of lead off lines and other runway markings for the other runways are faded too
- And a lot of signs are missing or are missing lights, or are non-standard. **So a general caution while on the taxiways.**

Any other notices to know?

There is a long list of **Letters to Airmen** published for Newark. If you have not been there before, or seen these, then they are worth a read because they give helpful info on operations for the airport, and for the general NY area.

LTA-EWR-47 highlights the procedures for *engrossing* and *egressing* the ramp. So in plain English, entering and exiting. If you have just arrived then call ground control with your ramp entrance once you've crossed 04L/22R. If you're departing then let ground control know which ramp exit you want when you request your taxi clearance.

LTA-EWR-44 talks about the big Hotspot at the end of 22R/04L. A lot of GA flights make the mistake here. You're going to be told to taxi PAPA, cross runway 11 then turn left on SULU and hold short runway 04L". The turn is tight and the hold short is right there so don't go too far!

And the others…

- LTA 51 is warning operators about non-visible areas – basically where ATC can't see you so be extra careful of other traffic.

- LTA 45 says be ready for takeoff when cleared, don't dawdle on the runway.

- LTA 46 is about helicopter departures.

- LTA 48 is your info on LAHSO.

- LTA 49 warns that ATC might issue multiple runway crossings using various different taxiways. Watch out for other traffic, but its not a race!

- LTA 50 is all about line up and wait clearances at night.

- LTA 52 is about simultaneous intersecting runways ops for arrives to 4Rand 29 – and the fact ATC are allowed to do it.

- LAT 53 is your available distances for intersection departures.

- LAT N90-67 warns to watch your climbs and descents in busy NY airspace.

- LAT N90-73 It is really busy and aircraft often get vectored in and out of Class B airspace. This lists the airspace "hotspots" for traffic in the areas surrounding each major airport.

Any other things to share?

Aircraft are reporting they have been given the **Stadium Visual** when heading in from the North. One to look over if not familiar, particularly if you're not familiar with visual approaches and are expecting a nice straightforward ILS of some sort.

We only have one Airport Spy review for KEWR/Newark and yet it is a challenging airport in a challenging region where we know a lot of folk have flown. **So here is our call for your operational hints and tips!**

If you are familiar with KEWR/Newark then please share those "gotchas" or need to know "heads ups" – and we will share them on to everyone in the group. **You can file an Airport Spy report here:** ops.group/blog/spyreport

Afghanistan Update – September 2021

OPSGROUP Team
1 November, 2021

The situation in Kabul remains dynamic. An update was issued today regarding ongoing changes within the OAKX/Kabul FIR and at OAKB/Kabul airport.

The full notice **issued by ICAO** following their most recent video-teleconference is available here.

The ongoing situation

Qatar and Turkey continue to work with the new Afghanistan government to help bring **Kabul airport back to operational status**, and to restore safe overflights. This includes the repair of damaged radar and other facilities, as well assisting in restructuring the CAA.

Qatar officials are coordinating with the Afghanistan CAA are conducting assessments on capacity and needs. They have apparently **deployed a technical team** to Kabul to carry out work. The DME has been

re-established but notams suggest the VOR remains out of operation.

Turkey maintains a military presence at Kabul airport to assist and is apparently in discussions to help run the airport again – having done so for 6 years previously.

ICAO remain in contact with the Afghanistan Civil Aviation Authority who have provided updates confirming newly appointed members, and a designated point of contact.

Operational updates

- **OAKB/Kabul airport** and **OAMS/Mazar-e-Sharif airport** are both reported to now have **limited ATS services.** There is a limited tower service to support VFR operations at Kabul between 0330-1330 UTC. Mazar-e-Sharif has an FIS available, but the scope of this is unknown.

  - A shortage of ATC staff continues to reduce capability.

- **Pakistan** is assisting Afghanistan in the **restoration of the Afghanistan NOTAM service**. The service has been **partially restored as of Sep 6**, and is available via **https://www.afgais.com/**

  - Out of date Notams remain in the system so caution is advised using the site.

- The Kabul FIR remains effectively **closed to overflights** – the OAKX/Kabul FIR is uncontrolled.

Updated OAKX Notams

The following Notams are the up-to-date Notams issued by the restored office.

- **A0721/21** address **contingency procedures** and advises that aircraft requiring emergency descent should follow ICAO Doc 4444 procedures, but rather than advising ATS, should **broadcast on the relevant TIBA frequency.**

- **A0720/21** advises flights will encounter **delaying action prior to entering the Kabul FIR** to ensure **15 minute separation.** This is as per Notam A0715/21 which requires all traffic below FL280 to be spaced at 15 minutes prior to the FIR entry point.

- **A0719/21** advises that the AIS services including Notam office is now operational 24/7.

- **A0718/21** advises that all **flight plans must be filed at least 24 hours prior** to the flight. The contact email is permissions.acaa@gmail.com.

- **A0717/21** advises **PSR and SSR are now available** at OAKB/Kabul, with an advisory information service only.

- **A0716/21** advises that OAKB/Kabul is open for domestic and international flights. **Operating hours are 0330-1330 UTC.**

Our previous post covering the background to the situation can be read here.

The ICAO presentation from the recent video teleconference is available to view here.

IFALPA have updated their Safety Bulletin

Following the notice issued by ICAO, IFALPA updated their safety bulletin for the OAKX/Kabul FIR.

Here are the key changes:

- Unknown aircraft have been observed on random tracks between FL220 and FL250.

- There is limited ATS at OAKB/Kabul – radar services are advisory only.

- The ILS is working, but should be monitored closely.

- People and vehicles have been seen entering the runway.

- The status of other airports isn't known.

Germany have changed their warning

EDWW has issued a new Notam B1244/21 valid from Sep 13. **German operators are prohibited from entering the OAKX/Kabul FIR, except for overflights above FL330 on airways P500-G500.** The only change is the exception of those airways which connect Pomir in Tajikistan to Peshawar for alternate routing from Europe to Pakistan and Asia.

The US has published some new background info

On Sep 14, the US FAA published a new **Background Information** note for Afghanistan, following their flight ban issued in August as per KICZ A0029/21.

The primary risk on the ground and at lower altitudes relates to the ongoing threat of weapons activity and terrorist attacks – and following the withdrawal of US and coalition forces there are no longer any risk mitigation capabilities available at OAKB/Kabul airport. Although it is unlikely that Taliban would target civil aviation now that they have assumed control of the country, ISIS and other militant group are still operating in Afghanistan outside of Taliban control.

The primary risk for overflights relates to the lack of ATC service, functioning CAA and air navigation service provider.

Bottom line, US operators are banned from the OAKX/Kabul FIR except for airway P500/G500.

To view all current published airspace warnings for Afghanistan, head to SafeAirspace.net.

What's SATVOICE I can hear?

OPSGROUP Team
1 November, 2021

SATVOICE. Easy peasy. Well, until until you're routing from San Francisco to Tokyo for the first time in your shiny new G550 and its 2am, you're passing W177°, you think you filed M3 but aren't sure if you're actually M2, and there is a full moon and now you're not so sure anymore…

Here is a look at **some common questions about SATVOICE** which we have seen come up.

Feel free to send us more. We aren't experts but know one folk who are.

What is SATVOICE?

Satellite voice communications. Sometimes it is lumped in with SATCOM but this can include messaging systems as well (your Datalink type things). The 'VOICE' bit is the giveaway – we are specifically talking about *talking.*

What is it used for?

Communicating.

More specifically, **communicating over big areas** where there are not many ground stations (which you need for VHF comms). SATVOICE systems *can be (and note the asterix there) used as a **Long Range Communications System (LRCS).**

So, SATVOICE is talking, via satellites, and it can be used to do things like **give voice position reports**. It is also sometime used as a backup when HF is not functioning. **What it is not (currently) is a replacement for HF.** Just as CPDLC isn't allowed as a replacement because it is not suitable for emergency of non-routine comms.

Where can I use it?

Anywhere where there is satellite coverage. And anywhere where ATC are using it as a means of LRCS. They may not be capable.

For example, the FAA provide Inmarsat and Iridium SATVOICE services for air-to-ground (and vice versa) calls directly with Oakland, NY and Anchorage ARTCCs, and New York and San Fran radio. These are, again, supplemental to HF which means **they don't expect you to use it unless there is some issue with HF**. Times of bad HF propagation like HF blackouts would be a good time to give SATVOICE a go.

Right now, **SATVOICE is not the primary means of communication** in many spots. VHF and HF remain the main ones, with Datalink comms (CPDLC). So it is unlikely you will be using it all that much, unless something else is not working. When you are in CPDLC/ADS-C airspace, the controller is normally going to communicate via Datalink. They might elect to use SATVOICE, but **it is not a replacement for ADS-C/CPDLC or HF/VHF.**

So you also need to check out the airspace you're flying into. The AICs will generally contain info on whether an airspace/ ATS has SATVOICE capability.

ICAO says – *"Some ANSPs may allow the flight crew to use SATVOICE only for certain types of communications (e.g. of an urgent nature) or may place limitations on use of SATVOICE directly to the controller. Other ANSPs may allow its use only as an additional capability to existing radio equipment carriage requirements." (Section 3.4, SVGM).*

So, where CAN'T I use it?

Inmarsat satellites are geostationary and orbit around the equator which means **above a latitude of 82° North (and South)** you are in a satellite-less areas because of the (often debated, definitely real) curvature of the earth means a lack of line of sight which is required for your communications to be able to bounce back and forth from the satellites.

Some manuals suggest you **might start to run into a bit of trouble from 70°N**, and that trouble is **most pronounced on the W120 longitude.** It is also dependant on atmospheric conditions, where your antenna is and what services are contracted though.

Iridium satellites do not suffer the same SATCOM shadow because they operate in a low earth (as opposed to geostationary) orbit.

So, in the **NAT HLA** where HF is mandatory, and where Datalink is also mandatory (except for the bits where it isn't), **you are going to need HF and Datalink**. Not one or the other. If an airspace requires two LRCS then one can be SATVOICE, but the other must be HF.

If the airspace requires 1 LRCS then that means HF.

So, you cannot use your SATVOICE system as a "get out of cancelling a flight" free card if your HF is broken and you are routing through somewhere which requires LRC systems onboard.

Which brings us to the asterix…

The Asterix

*SATVOICE can be approved as a Long Range Communications System (LRCS) but whether it qualifies is something you will need to check, and that is most easily found in your MEL. It comes down to the **Required Communications Performance (RCP)** of your system.

In other words, just because you have a SATVOICE system onboard and are in a spot where ATS utilises SATVOICE, does not mean you are automatically allowed to do so. Not even if you put it on your flight plan.

RCP240 is the number to know – to be PBCS (performance based communication and surveillance) eligible your aircraft system must achieve **RCP240 (and RSP180) standards.** RCP240 is the max number of seconds (the transaction time) taken for a controller to issue an instruction and receive a response.

Your RSP180 is the surveillance standard, the RCP240 is the comms standard. We wrote all about PBCS here if you need a recap.

What do I need to do to use it then?

Go back up to our bit about having an approved system and it being in your MEL…

And read this bit as well.

So, **you need it in your MEL/MMEL**, and what that means is having a system which meets the requirements laid out by your authority.

The FAA put out this info on getting approved. AC 20-150B – 'Airworthiness Approval of Satellite Voice (SATVOICE) Equipment Supporting Air Traffic Service (ATS) Communication.

It is an AIC about getting airworthiness approval for SATVOICE, and contains all the design considerations, software requirements, minimum performance requirements, CVR, and a lot of other things you probably need to know about.

ICAO recommend that Operators need to establish policy and procedures for crew involved in SATVOICE ops. This includes descriptions of the system operating procedures, limitations, flight planning requirements, what to do if it doesn't work… Check out **section 3.3.3 of the ICAO SVGM manual** for more on this.

In summary – your system needs to be approved. To be approved it needs to meet certain standards and criteria. You also need to have procedures and policy in place for the operation of the system.

Where is all the official info on this?

In **ICAO Doc 9869**, also known as the **PBCS manual**, also known as the **GOLD manual** (because its full title is Global Operational Data Link). You can find the 2017 edition of this in our Doc Library if you want to take a look.

Here is the ICAO SVGM (Satellite Voice Guidance Manual) which we mentioned.

Then there is **ICAO Doc 7030** which contains regional supplementary procedures and will contain some info on Datalink, for example, over the North Atlantic.

I have the system and the approval, but need to find a number?

Well, this is where it can get a little tricky. There are different systems. **Inmarsat** and **Iridium.**

There is also **MTSAT**, the Japanese geostationary satellite network.

If you have Inmarsat satellite compatible system then you can use those **SATCOM short codes (the six digit ones starting with a 4).** You can also dial the 10-digit PSTN phone number. The 6 digit numbers are converted to the PTSN number as they wiggle through the Inmarsat system.

PTSN, incase you're going to ask, is the **Public Switched Telephone Network** which is what the aeronautical SATVOICE system uses. So these are what you want to call via your Iridium system.

Numbers are generally to be found in places like the AICs, in your Jeppesen, LIDO, or whatever other chart and manual provider you are signed up to.

One tip, when you do dial up – don't be yakking away like you're on a normal telephone. The operator the other end is going to expect standard radio etiquette. Callsigns, readbacks and all that.

What do I put in my flight plan?

You need to include your SATVOICE capability and you do this in **Item 10** by inserting either:

- **M1** for Inmarsat RTF capability;

- **M2** for MTSAT RTF capability;

- And/or an **M3** for Iridium RTF capability.

In **Item 18** you insert the aircraft registration and also the **indicator code** and the **aircraft address** expressed in the form of an alphanumerical code of 6 characters.

If you are operating through airspace requiring HF and yours is broken, then you may be able to file with only your SATVOICE system as the LRCS if it is a flight to return the aircraft for HF maintenance.

Again, just having a system and whacking the info about it onto a flight plan does not qualify you to use it. **It needs to be approved.**

What if I get a random SATVOICE call?

You should only act on the clearances or instructions given to you if a SATVOICE call has a priority level 2/High/Q12 or 1/EMG/Q15. You might have to disconnect and initiate a new call to get confirmation that it is something to act on, and not just some rogue person who has discovered a way to call you on it.

I am not signed up to any provider. Can I still just sort of call?

If you can answer this then please send us your info

Coming soon: a new global format for runway surface conditions

OPSGROUP Team
1 November, 2021

ICAO's new Global Reporting Format methodology comes in on November 4, 2021, but a few authorities have decided to implement it sooner than that.

So here is a quick rundown on what GRF is, and what the requirements are for implementing it.

Runway Excursions

We have talked about these before. So have ICAO. They are a big deal, but they shouldn't be. Or rather, **they shouldn't still be happening.**

Despite numerous incidents, accidents, reports, mitigation plans, you name it, runway excursions are still one of the most common (and often most dangerous) aviation events that are occurring.

A runway excursion is any lateral of longitudinal overrun (not due to any system or component failure of malfunction, or because of an abnormal runway contact).

The primary causes for runways excursions are pretty much an unstable approach was flown, or proper performance calculations weren't done. **Or a combination of both.**

A study of commercial aircraft accidents between 1999 and 2019 showed that **16% of all fatal accidents and 36% of all hull loss accidents** were due to runway excursions.

So, if we can stop them from happening, a lot of aircraft and people will be saved.

What is GRF?

GRF stands for **'Global Reporting Format'** and it is a new methodology which ICAO are implementing which aims to standardise how **runway surface conditions assessments and reporting** is done.

The issue in the past is that some places still give braking coefficients (not really handy because it means different things for different aircraft). Some places were not really assessing surface contamination properly, and some pilots were not really understanding the implications of what they were being told.

RCAM

So GRF will use **RCAM – a runway condition assessment matrix** – and this will give pilots a runway

condition code.

1-6. Nice and easy.

The code is determined by an assessment of what it is contaminating the runway. Snow, ice, water, spilt tomato soup… and then a downgrade assessment criteria is applied. This looks at how the contaminant will impact the deceleration and the directional control of aeroplanes.

It is simplified. No more coefficients and frictions. Just simple "yep, that's slippery and slide-y" assessments. Pilots will also give braking action reports, rating the action they experience from "Good" down to "Less than Poor".

This matrix ties in with the new Snowtam reporting format which you can read about here.

Who does it impact?

It impacts a lot of people because it is not just a case of "here is a new format, go".

Airport authorities will be required to train their staff to ensure they are aware of how to carry out the assessments and to ensure reporting is standardised.

Operators will need to ensure their staff (flight planners and pilots) are aware of the new format, and more importantly – that they are aware of why and how to use it!

Pilots will also need to familiarise themselves with it, and ensure they have a decent grip on what the assessments mean, how to apply them to their performance calculations, and also **how they too can assist in the reporting.**

What's the official source?

ICAO Annex 14. Or rather **amendment 13-B to Annex 14.**

Here is the amendment letter.

Here is the main ICAO page for all things GRF.

The U.K. CAA GRF page has a nice summary of all the official references too.

November 4, 2021

This is the date to know because this is the implementation date. However, familiarising yourself with all the info on it before then might be a good idea because **several authorities have already implemented this.**

NAV CANADA and EASA have both brought it in on **August 12, 2021**

EASA have a bunch of handy info on it from how it was developed to Q&As.

And here is NAV CANADA's page on it.

The FAA have their own project – TALPA – which has pretty much already implemented exactly this so you might not notice much of a change.

Bottom line

- **Pilots** should familiarise themselves with the new format and understand what it means and how to use it.

- **Operators** should ensure all their staff are trained on it (and throw in some additional unstable approach, excursion mitigation and performance calculation training and awareness too if you fancy).

- **Airports and authorities** should be ensuring they are implementing the new format, and training their staff on its use and importance.

Hopefully this helps **reduce the number of runway excursions** due contamination and performance issues. Of course, for this to work we need to make sure we are also flying a stabilised approach, and flying one to the runway we did the performance calculation for…

The India-Pakistan Conflict: Impact on Flight Operations

OPSGROUP Team
1 November, 2021
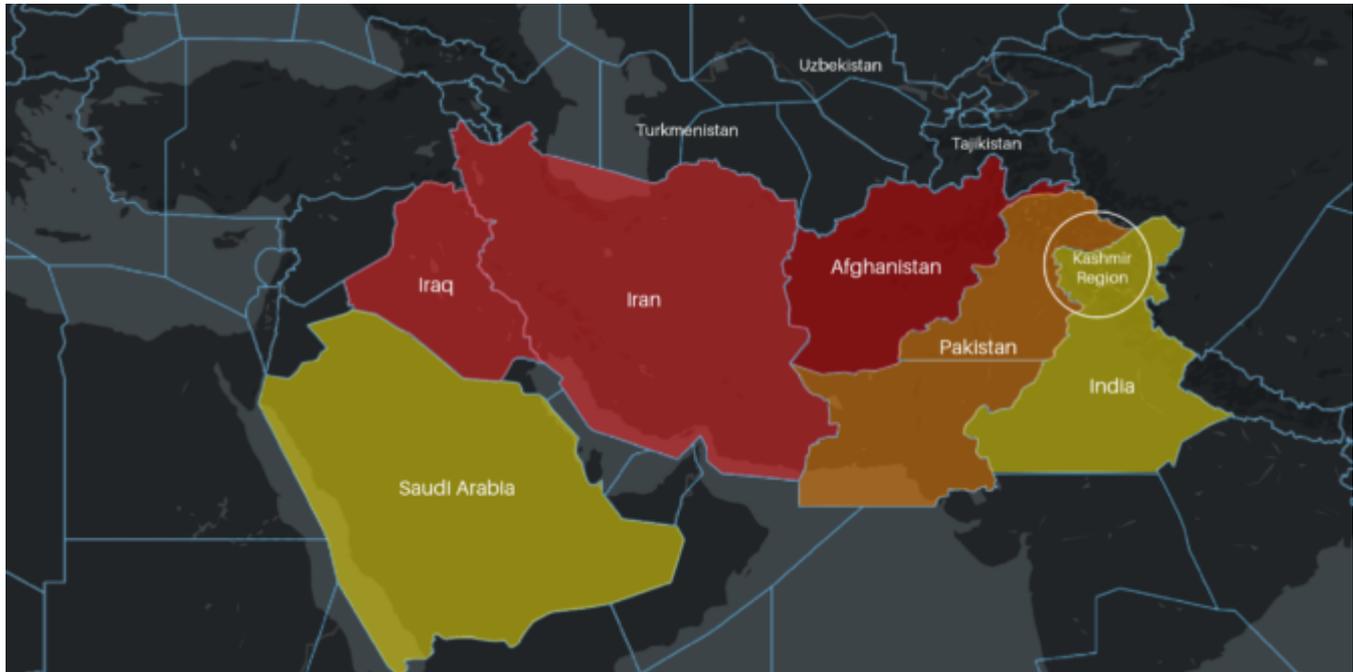
The current situation in Afghanistan has led to the **effective closure of the OAKX/Kabul FIR to overflights**, which means that some traffic routing between Europe, India and the Far East may now need to **plan routes which cross the northern Pakistan/India border.**

This post will take a look at the additional operational threats and info to be considered here, particularly due to the ongoing dispute over the Kashmir region, and the airspace warnings in place for Pakistan because of this.

The conflict in brief.

This conflict is rooted in **who controls the region**, with both India and Pakistan laying territorial claim to it. In fact, this **conflict has been ongoing since 1947** and shows no signs of resolving in the near future.

Currently India control around 55% of the area, Pakistan approximately 35% and China have a third party hand in the remaining 20%.

There is also a secondary focus on the region from both sides due to **cross-border terrorism and security and safety issues**. Pakistan's border with Afghanistan on the other side poses a similar threat.

The route structure of the region.

Aircraft routing from Europe and across to India and beyond have historically had **3 general routing options** available to them:

1. Via **Saudi Arabia** and then east direct to India. This avoids Pakistani airspace, or crosses just the most southerly portion of the airspace;

2. Via **Turkey** and down through **Iraq/Iran** and then east via southern Pakistani airspace and into India;

3. Across **Eastern Europe** via Azerbaijan, Turkmenistan and then south east crossing Afghanistan's central airspace, avoiding the northerly Kashmir region.
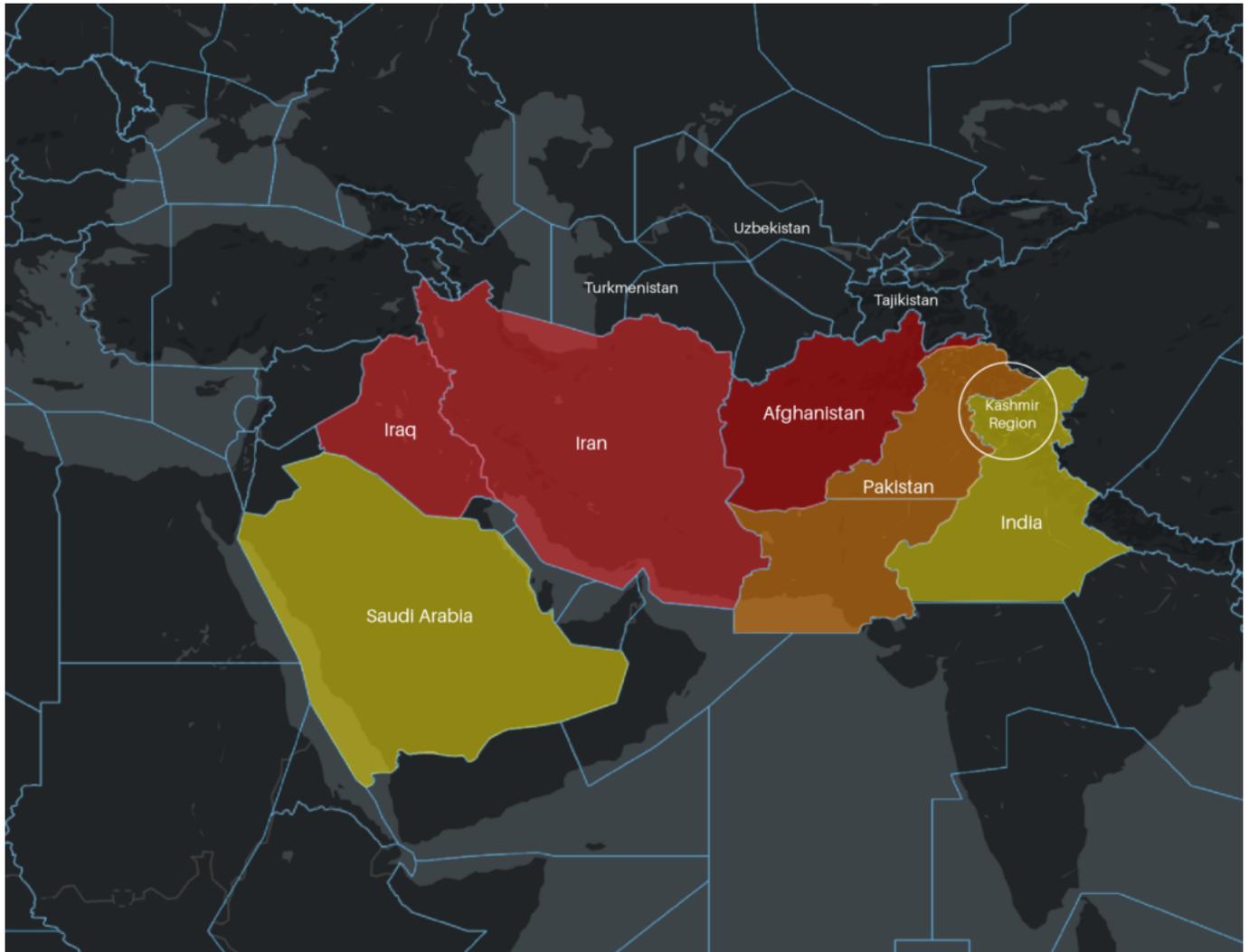
That third routing option which utilised Afghanistan's airspace, bypassed Saudi Arabia, Iran and Iraq – all of which have airspace safety considerations. Overflights across Iran and Iraq, for instance, are prohibited to US operators.

While Afghanistan also had airspace safety risks associated with it, these were previously generally low level and not "all altitude" concerns. **That has recently changed with the Taliban takeover of Afghanistan.** However, though the US and several other countries have since issued airspace bans and warnings for Afghanistan, **overflights are still generally allowed on airways P500 and G500** which run along the eastern boundary of the Kabul FIR.
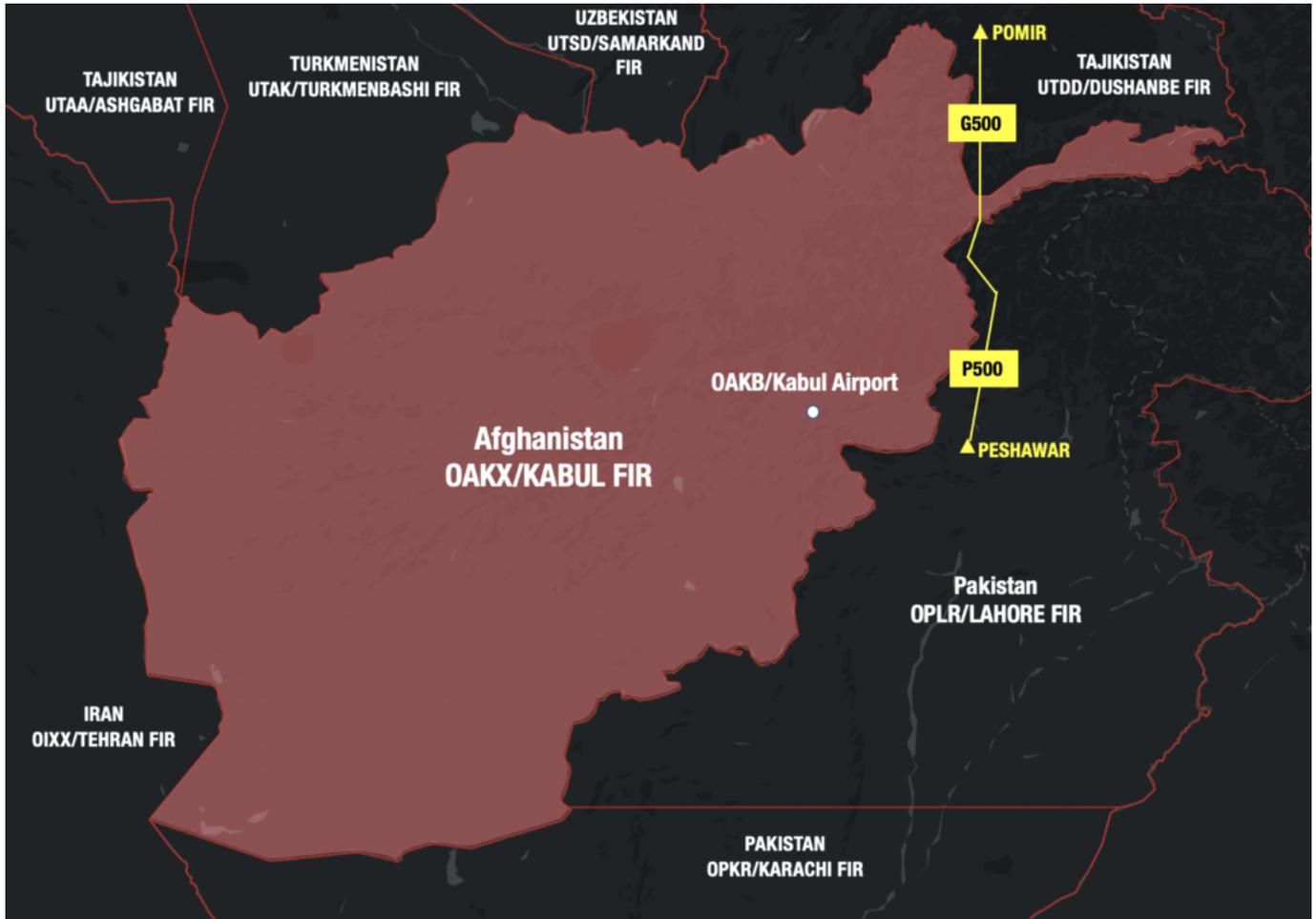
Aircraft now needing to re-route to avoid Afghanistan's uncontrolled OAKB/Kabul FIR, and who do not wish, or are unable to utilise Saudi, Iran or Iraq airspace, **may now be limited to this more northerly routing** – via the G500/P500 airway in eastern Afghanistan, the northern portion of Pakistan and into India, potentially through the Kashmir region.

What is the risk in this region?

Several countries have long-standing airspace warnings for Pakistan which **advise against overflights below FL260,** due the risk posed by small-arms fire and indirect weapons fire. There is also a potential anti-aircraft fire risk, and there have been previous attacks against airports.

What is the current situation?

An escalation in activity across the border has been seen of late, with the number of drone attacks and activity across the line of control increasing, including several attacks against Indian Air Bases since 2019.

India possess strong air defense systems and an active air force. Historically, they have employed both fighter jets and conventional SAM systems to mitigate attacks. With the increase in both drone size and capability, and the escalation in number of attacks, there is **a risk they will resort to SAM systems and fighter jets** once again. If this happens, this will lead to a **higher risk at all altitudes for aircraft mis-identification.**

General considerations for operating over or into Pakistan.

Operators to **OPIS/Islamabad** have been reporting an increase in security measures and crew procedures. Crew can expect more stringent security and ID checks. Pakistan are actively guarding against

terror threats at the airport and passengers may experience stricter security and ID controls as well.

Pakistan is an ADIZ and requires crew to check-in prior to entry. **Comms handover between India and Pakistan** can also be difficult so an advance confirmation of next frequencies is advisable when routing across any part of the border.

There traffic levels in Pakistan's airspace have also increased recently, and crew should be aware of **potential separation and traffic conflict concerns.**

Pakistan airspace closures.

Pakistan have previously closed sections of their airspace. In Feb 2019, **conflict between India and Pakistan** resulted in Pakistan closing its airspace to overflights. The conflict was a result of escalating clashes between the two countries in the **disputed Kashmir region**, with numerous airstrikes on both sides. The airspace slowly reopened, and only became fully open again in August 2019.

Diversion options.

Both India and Pakistan **allow tech stops (up to 24 hours)** and are **accommodating of diverting and emergency aircraft**, however, avoiding Indian Military Air Bases (unless a dire emergency) will save you a fair amount of extra security checks, paperwork and grief on the ground.

OPIS/Islamabad is a major Pakistani international airport close to the border, and is used as a southerly Himalayan diversion airport. It offers two well equipped CAT II/III runways of 12,001′.

OPST/Sialkot has a single runway, 11,811′, with an ILS and an RNP approach available.

VISR/Srinagar on the Indian side has s single 12,090′ runway.

VIAR/Amritsar also offers a single CAT II/III equipped 12,001′ runway.

There are also several other smaller airports which serve domestic routes.

Permits and overflights

Both India and Pakistan **require overflight and landing permits.**

For **India**, the lead in time for overflights is 3 days, while for landing it is 7 days. All permit applications are sent to the Ministry of Civil Aviation (MOCA) and then pass through several other government departments for security checks. You need your PPR overflight number available before reaching Indian airspace and they do often ask for it so have it handy.

India have fairly strict slot policies at several of their airports. During peak times they also might change your slot at short notice, or give you lengthy delays (2 hours+).

We recommend the use of an agent to assist with the permit process:

Freedom Air +91 11 2981 3311 / ops@freedomair.aero / freedomair@airtelmail.in

The CAA of India contact info is +91 11 2462 0784 / +91 11 2462 9221 / dgoffice.dgca@nic.in / irsec.dgca@nic.in

For **Pakistan,** overflight and landing permits are issued through the Pakistan CAA. These take around 96 hours for overflight and 6 days for landing.

An agent can also assist with the process:

Aircraft Aviation Services (ACAS) +92 213 468 0109 / ops@acas.com.pk / ops1@acas.com.pk

CAA of Pakistan contact info – +91 21 997 1111 extn: 2288/2289 / +91 21 9924 2004 / support@caapakistan.com.pk / AFTN: OPHQYAYX

In summary

With the exception of US operators, flights between Europe and India/the Far East generally opt for routings via **Saudi Arabia, Iran or Iraq.** While routings via Tajikistan are possible, the lack of coordination between Pakistani and Indian ATC, and with few established airways, presents a **planning and potential safety risk**.

Pakistan has airspace safety concerns, particularly in the northern airspace (OPLR/Lahore FIR). With the closure of Afghan airspace, flights routing from Europe to Pakistan may benefit from routing via Tajikistan. However, most international flights continue to **use the southerly routing for overflights.**

Further Information

Information on Pakistan airspace can be found on the Pakistan CAA website.

If any operators or crew have experience of overflying this region please send us any insights you have on it so we can share the information team@ops.group.

Thunderbolts and Lightning, Very Very Frightening

OPSGROUP Team
1 November, 2021

Aircraft sometimes fly too close to storms which means they sometimes get hit by lightning.

Here is a refresher on the signs you're probably too close to a storm, things to do to prevent a lightning strike, and what the risks are if you do get struck.

Avoid the flash boomers.

Not flying too close to a storm is probably your best bet for avoiding a lightning strike.

Here is a quick recap. If it is big, growing bigger and has an anvil, avoid it.

If it has lightning come out of it, definitely avoid it.

If all you can see outside is this –

Once you have turned your weather radar on, it might look like this –

Keeping away is Plan A.

Avoiding smaller ones by a **good 10 mile**s (preferably upwind so they don't move towards you) will keep you clear of lumps and bumps, thus avoiding coffee spillages and puking passengers.

Big ones should be given at least a 20nm berth. If you want to route **over the top, 5000'** seems to be a good recommendation, and **never fly under the anvil.**

You might also want to **avoid flying between large storms.** They move, and sometimes they move together. They can also combine into mega super cell storms and you really don't want to be caught in that sandwich, especially since lightning can move sideways!

Let's get back to the weather radar.

This is probably one of the **most misused pieces of equipment** on an aircraft. Reading the manual on it is the best place to start, but if you are like most pilots and prefer to learn through practice, then here is a quick guide on how best to twiddle them knobs.

In general, your standard aircraft weather radar is going to have some sort of **a tilt function, an azimuth knob and a gain knob.**

- **Tilt – for the ups and downs.** This is handy for seeing how high a storm might have grown. If it is particularly active, you are going to want to avoid flying too close above because there will be a lot of turbulence even over the cloud tops.

- **Azimuth – for the side to side.** If you need to go around one, it is probably wise to check there isn't another one you might run into.

- **Gain – to see inside.** Well, sort of. It adjusts the sensitivity of the receiver. If you slowly turn it down, it will help identify the threatening bits a bit better.

If it is really rainy out, your radar might be saturated – reducing the gain will help show where there is the heaviest precipitation in a convective cloud. Heavy precipitation can also cause **"storm shadows"** – basically a black hole where the radar signal has been blocked. **If you see a black hole on your display, be suspicious.** There could be something lurking behind whatever the radar is bouncing off in front.

Now, weather radar can't really "spot" lightning, but some do have predictive functions. If not, you'll have to use your judgement when looking at the size of the red or magenta bit. And failing even that, **your eyes are pretty handy instruments** to use.

Back to the point of this post…

Lightning. First up, what is it?

Lightning is electricity.

OK, that's a bit of an over-simplication.

In more sciencey terms (but still very basic), it is negatively charged electrons in a storm which get attracted to the positive protons on the ground, and this all results in a big FLASH BOOM.

The electricity part of a lightning 'strike' can actually go from the ground up. The 'light' part is everything in the air getting mega hot, and the thunder part is because of the rapid expansion of the air due to the sudden mega increase in temperature and pressure change.

Why are we talking about it?

Well, we all know the threats of flying into a storm. The bumps, the ice, the hail…

And we all know what lightning is.

The highest ever recorded thunderstorm power level came from a mega flash boomer in India. This behemoth of a storm had an electric potential of 1.3 billion volts. That's 10 times the previous record holder. Generally household voltages are generally 100-240V so 1.3 billion is… a lot more.

We could all do with a bit of a refresher on what the **RISK** of lightning is.

Why?

Because aircraft keep getting hit by it so obviously folk aren't avoiding it quite as well as they maybe could be.

A study estimated that an aircraft, on average, gets hit around **once every 1,000 flight hours.** So about once a year. Most of these are 'self-triggered' – meaning they occurred because the aeroplane was flying through a heavily charged cloud.

Lansa Flight 508, in 1971, is considered the worst crash due lightning of all time. Because of crashes like the Lansa flight, a lot of research has been done on improving aircraft resilience against lightning damage.

A deadly strike by lightning has not happened in years.

But that doesn't mean there aren't still other risks.

The Risks (and the fixes).

The three most 'explodable by' or 'mess up-able by' lightning parts of your airplane are your **fuel tanks, avionics** and the **skin**.

STRIKE 1: Your fuel tanks are protected by the skin, which must be robust enough in the tank area not to easily burnt through by lightning. The design also protects from any possible arcing and static. Fuel developments have reduced vaporisation which reduces the changes of it combusting uncontrollably.

Pan Am Flight 214 in 1963 (possibly) crashed due fuel vapours igniting from lighting, but in recent decades there have not been any accidents attributed to lightning making fuel tanks explode.

One more thing – those little sticks poking out from your wings and tail are your **static wicks.** They help

discharge static electricity. So during your walk-around, make sure they are attached!

STRIKE 2: Modern aircraft are filled with wires. Wires which control the aircraft, the avionics, the everything really. **One thing wires don't like is too much electricity** zooming through them, and that is exactly what lightning is. So aircraft wires are shielded – conductive layers around them act like Faraday cages, and these help reduce transients (oscillations caused by the movement of the lightning across the exterior of the aircraft).

Systems also contain surge suppressants to help mitigate against big surges of voltage.

But equipment, particularly the **avionics**, can still be damaged by lightning strikes even with protections in place.

STRIKE 3: Older, aluminium framed aircraft were actually better at withstanding strikes because they are nice and conductive – the metal skin is like a slip 'n' slide for the lightning. **Composite skins** on the other hand are not, which makes them more susceptible to damage.

They generally contain a fine mesh of aluminium to help lightning flow by providing a continuous conductive path of low resistance across the aircraft exterior, but it isn't uncommon for **burn marks and even holes** to be left as a result of a strike.

Holes in the skin , if big enough, can cause decompression. Unlikely but not impossible.

Here are a few other risks to think about:

STRIKE 4: You. Not because you're in the airplane (you're protected by it due that whole Faraday Cage thing again). But your eyes are not – if flying near a storm turn your **storm lights** in the flight deck up to full bright to help protect against **flash blindness.**

Startle is the second big risk. In 2019, a Russian aircraft crashed in Moscow following a severe lightning strike. However, it wasn't the strike itself, or the subsequent loss of instruments which led to the crash, but the crews reaction and "rush" to land.

STRIKE 5: Ball lightning. You know how I said it travels across the external skin of the aeroplane? Well, sometimes it can also come inside the cabin or flight deck, in a big ball.

Fact or fiction? An analysis of ball lightning in aircraft was carried out in 2009. The researchers wanted to find out if this was just "lore" or "for reals". They analysed reports from 1938 to 2007 discovered 87 occurrences of ball lightning being witnessed in or from aircraft.

It is described as a "metastable, rare lightning type" – basically, a horrifying ball of electricity around 25cm in size that can come swooshing through the cabin. The big mitigation here is, again, to just avoid storms.

How else to tell if you're too close?

- Be on the look out, or rather sniff out, of an **Ozone smell.**

- If you start to experience **strong static on frequencies** this might be an indicator or electrical activity outside.

- **St Elmo's fire** on windscreens occurs as static charge builds up – a sign you are in a highly charged area.

What else can you do to avoid?

- Check your **weather radar** as you line up for departure. Request an early turn to avoid and if ATC cannot accommodate then delay your take-off. **Most strikes occur between 8,000 ft and 14,000 ft** so think about the departure routing too.

- Check up ahead and **plan weather avoidance early** – double check your planned route won't lead you towards more weather, or into prohibited or unsafe airspace. Or too close to a volcano as an Air France flight accidentally did.

- Check the charts – **see what is forecast** before you get there.

- Certain areas, and certain times of year, get **more storm activity**. If you're routing through the ICTZ then be ready! If you are heading into a known region, make sure that radar is on and you are looking out!

- Use sites that show **live lightning activity** when planning your flight. Eurocontrol provides cross border forecasting and recommends Lightning Maps as a top site for tracking storm activity.

- Blitzortung has worldwide **lightning strike maps** (and they look pretty cool).
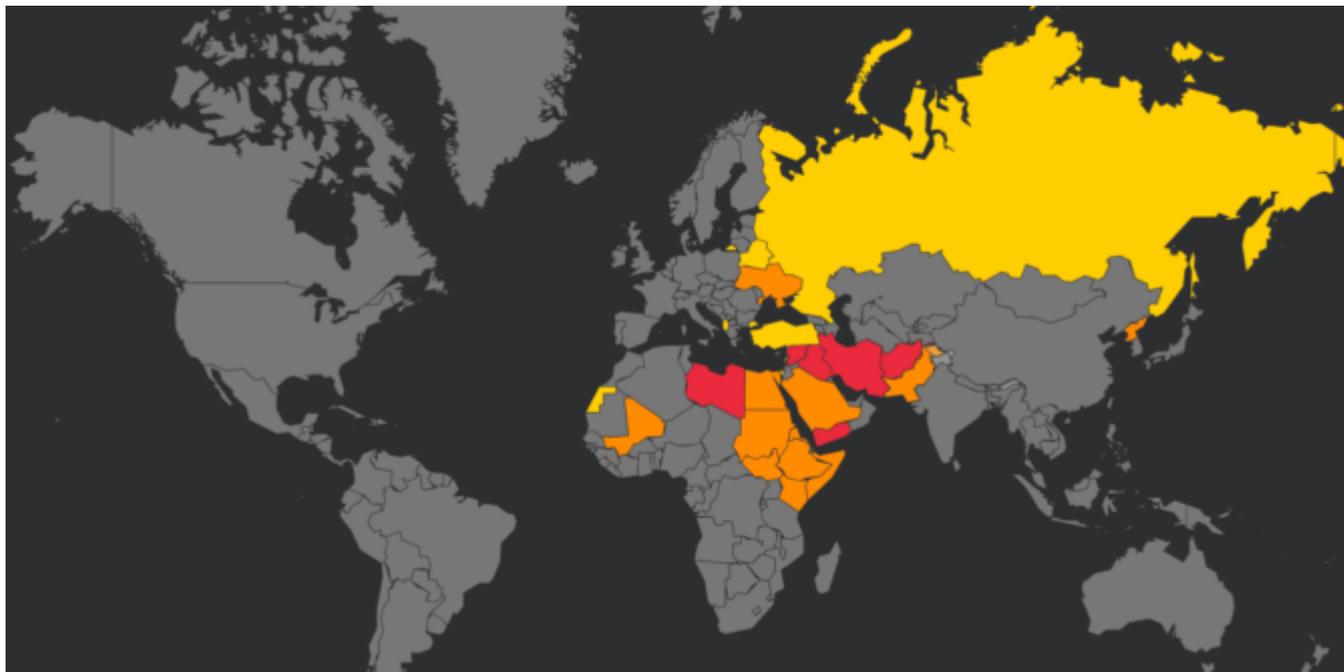
Struck by a need to read a bit more?

- This article on lightning protection in aircraft, by FlightSafety, is interesting.

- A handy piece by AOPA on using the weather radar (and deciphering what it is showing you).

Get your FAA Airspace KICZ here

OPSGROUP Team
1 November, 2021

Our SafeAirspace website contains **all the current airspace warnings** from major authorities for various airspace regions around the world.

If you are a **US registered operator**, then you can find info on the **FAA warnings** here too.

But we thought we would make a **brief summary** for you here, just as a refresher on what the current KICZ status is for each country.

Where can I find them?

SafeAirspace pulls all the latest info from the US FAA's dedicated webpage which contains all their 'Prohibitions, Restrictions and Notices'. This is where you can find their **International Security NOTAMs (KICZ)** and **Special Federal Aviation Regulations (SFAR)**, plus information relating to the background of the situations and the prohibitions/restrictions.

A summary

Here is a summary of the **countries with a US FAA airspace prohibition/restriction** in force, and what it (very briefly) says for each one.

Afghanistan

US Operators are **prohibited** from operating in the **OAKX/Kabul FIR.** Overflights are still allowed on airways P500 and G500 which run alongside the eastern boundary of the Kabul FIR.

Why? There is a risk of direct and indirect fire targeting airports and from surface-to-air fire targeting aircraft operating at low altitudes. Additionally, the recent Taliban takeover has led to zero ATC control across the entire airspace and an extreme threat to aircraft and crew safety and security on the ground. Air defense forces in all neighboring states are likely at high alert status within respective border regions – target misidentification by military air defense operators remains a credible scenario.

Belarus

US operators are to exercise **extra caution** when operating over, within, in or out of the **UMMV/Minsk FIR.**

Why? Well, they recently "caused" a commercial aircraft to land and it is not entirely clear how secure the region is and if there are any safety implications for US operators at this time.

Egypt

US operators are to exercise **extra caution** when operating over, within, in or out of the **Sinai Peninsula within the HECC/ Cairo FIR below FL260.**

Why? There is ongoing fighting between military and extremist forces and they have anti-aircraft capable weapons.

Iran

US operators are **prohibited** from operating **in the OIIX/Tehran FIR.**

Why? There are signifiant security and safety issues in the region and the US and Iran are not on the best of terms. There was also an aircraft shoot-down due to mis-identification of their anti aircraft defence systems.

Iraq

US operators are **prohibited** from operating in the **ORBB/Baghdad FIR.**

Why? Similar to Iran, there are heightened military activities and increased tensions which present and inadvertent risk to US civil aircraft due **potential for mis-identification.**

Kenya

US operators are to exercise **extra caution** when operating over, within, in or out of **Kenyan airspace east of 40 degrees East longitude (the border region with Somalia)**, at altitudes **below FL260.** The caution applies to the ground as well.

Why? Because there's possible militant activity and with it a threat of damage to aircraft from mortars, rockets and anti-aircraft capable weapons.

North Korea

US operators are **prohibited** from operating in the **ZKKP/Pyongyang FIR,** including the oceanic part of the ZKKP/Pyongyang FIR over the Sea of Japan.

Why? Because there are hazards and risk to civil aircraft safety from North Korea due their military capabilities and activities, including unannounced missile and air defense weapons testing.

Libya

US operators are **prohibited** from overflying the **HLLL/Tripoli FIR** except for altitudes at or above FL300 "outside of Libyan territorial airspace" – which is basically the international airspace over the southern Mediterranean Sea that is managed by Libya.

Why? Because of ongoing conflict between the government and the Libyan National Army over territory, government control and resources – and all this means fighting, often with weapons which could damage aircraft.

Mali

US operators are to exercise **extra caution** when operating over, within, in or out of **Mali below FL260.**

Why? There is a risk of militant and extremist activity and mortars, rocket and anti aircraft fire.

Pakistan

US operators are to exercise **extra caution** when operating over, within, in or out of Pakistan.

Why? There is a risk of militant and extremist activity and mortars, rocket and anti aircraft fire.

Persian Gulf

Exercise **caution** operating in overwater airspace above the Persian Gulf and Gulf of Oman in the OKAC/Kuwait, OEJD/Jeddah, OBBB/Bahrain, OOMM/Muscat and OMAE/Emirates FIRs.

Why? There is a lot of military posturing and political tensions in the region and this bit is particularly close to the OIIX/Tehran FIR which is prohibited for US operators.

Somalia

US operators are **prohibited** operating **below FL260** in the airspace of Somalia.

Why? There are active extremists in the region which pose a threat.

Syria

US operators are **prohibited** from entering the **OSTT/Damascus FIR,** and should **exercise caution if within 200nm** of Syrian airspace.

Why? It is a complex and ongoing conflict there, and it poses a risk to US operators.

Ukraine

US operators are **prohibited** from entering the **UKDV/Dneptropetrovsk** FIR (the UKFV/Simferepol FIR is ok).

Why? There is ongoing military action and the potential for aircraft misidentification there.

Venezuela

All operations below **FL260 are prohibited** unless specifically approved or they need to for an **emergency.**

Why? Mainly poor infrastructure, and political conflict between the two countries.

Yemen

US operators are basically **prohibited** from overflying the landmass of Yemen, but certain offshore routes within the **OYSC/Sanaa FIR** are allowed.

Why? Because of ongoing fighting, instability and possible terrorist activity.

An even briefer summary

For further information on the situation in each country and to see the prohibitions and restrictions recommended by other authorities, visit the SafeAirspace site.

The concept of SafeAirspace is this: to have **a single source for all risk warnings** issued about an individual country, independent of any political or commercial motivation, so that a pilot, flight dispatcher,

security department, or anyone responsible for flight safety can quickly and easily see **the current risk picture**.

Travel Advisories

Travel Advisories and Airspace Warnings are **different things**. But for US operators flying internationally, it's worth checking out the latest country-specific Travel Advisories issued by the US Dept of State. Each country's Travel Advisory also has a link to the local US Embassy website in that country – these will show announcements on all the latest security-related news and incidents there.

Further reading

- US and allied forces have now pulled out of **Afghanistan**, and the Taliban have taken control of the country. Afghanistan's airspace is now effectively closed to overflights – the OAKX/Kabul FIR is uncontrolled, and overflying traffic should route around the country. Here is our latest update on what is happening.

- The US reissued their **Ukraine** warnings in 2021. However, certain regions are Ukrainian airspace are now deemed safe for overflight.

- Information on the aircraft shootdown in **Iran**, and ongoing concerns with their airspace safety.

- **Assessing the risk to routing over or into conflict zones** is much more than just an "is there a weapon down there?" question. Gathering and sharing information on airspace risk is still one of the biggest barriers to safety. Are we actively seeking this information, or simply waiting for it to come our way? Read our article.

Is Aviation in South Africa Going South?

OPSGROUP Team
1 November, 2021

Two South African airports have recently had their licences revoked.

Why has this happened and does it mean anything bigger for aviation, particularly commercial aviation, in South Africa?

FAPP/Polokwane

Polokwane International Airport in the Limpopo Province had their airport status downgraded in April 2021, moving it from a Category 7 to Category 2 after the SACAA determined they were non-compliant in safety standards.

Category 2 means it is unable to provide the minimum level of emergency services required for commercial aircraft. FALA/Lanseria and FAOR/Johannesburg are now the closest major airports for this province.

FAPG/Plettenberg Bay

Plettenburg airport had their licence revoked August 2021, following a downgrade from category 4 to category 2, also due non-compliance with safety standards.

FARB/Richard's Bay

The municipal airport in Richard's Bay lost its status in 2020 as the airport management company were unable to finance the necessary emergency and fire services to support commercial operations.

FAUT/Mthatha

Mthatha airport (formerly Umtata) was downgraded in 2019 due a lack of emergency services and emergency systems which need technology upgrades.

What are the regulations?

The SACAA applies standard ICAO licensing requirements to their aerodromes. These are laid out in **ICAO Annex 14** (Aerodrome Design and Operations), **Doc 9774** (Manual on Certification of Aerodromes) and **ICAO Annex 19** (Safety Management).

The oversight and ability of the authority to monitor is also monitored.

ICAO audit countries through the **Universal Safety Oversight Audit Program (USOAP)**. It is a little less in-depth than the **FAA's IASA program** (which recently saw Mexico downgraded) but looks at the *"effective implementation of the critical elements of a safety oversight system and conducts a systematic and objective review of the State's safety overs…. something something… implementation of ICAO SARPS, procedures and aviation safety best practices."*

Basically, is the authority checking everything is up to scratch in their region of jurisdiction, and if not, do they do something about it.

ICAO only have 8 countries red flagged. South Africa comes out pretty well in it.

So the downgrades are necessary?

Unfortunately, yes, but it means a Catch 22 situation for these aerodromes because without traffic, they do not have the finances to improve their capability.

Aviation is a **major contributor** to the South African economy.

IATA published a report on aviation's contribution to the South African economy (it is not clear when this was published). What is evident is South Africa is, like many countries, struggling with the Covid pandemic. The South African variant has seen them **cut off to most of the rest of the world**, and this is having a longer term impact on their aviation infrastructure.

The downgrading of airports unfortunately points at a **lack of funding** within the country. There are also questions of corruption within the government and the airport management companies. Whatever the reason, funds are not reaching (or are not available) to the **airports which need investment,** particularly those which do not not benefit from cash flow from international flight operations and so facilities and services are not being maintained.

In 2020, the SACAA released this (rather odd) statement regarding rumoured ILS issues across the country. It isn't immediately clear why or where the rumour started from.

A NOTAM check actually shows surprisingly few issues at the major airports.

Political problems

The country is undergoing moderate levels of civil unrest and political divide. King Shaka airport was targeted in attacks in July 2021, and there do not seem to be signs of it improving in the near future.

Power problems

South Africa is undergoing **continuous load shedding** due issues with their power supplier, ESKOM. The Airports Company South Africa (ACSA) confirmed however that **all nine of its airports have the ability to operate on diesel generators** covering essential loads for between 18 and 72 house – so load shedding should not impact their operations.

Fuel problems

A NOTAM search brings up fuel issues at several airports, however, they are **all small domestic ones** – FAEL, FAUT, FABE and FAUP

The Big Picture

South Africa is, like many countries, struggling with the long term impact of the Covid pandemic. However, the standards at the major international airports remain good and the aviation infrastructure is still more than able to support international flight operations.

Additionally, reports suggest general aviation is going strong within the country.

Cape Town was the top tourist destination for UK travellers in 2016, and regularly tops the top tourism destinations lists.

As the world reopens, hopefully the situation will improve. For now, all the global aviation industry can do is look to support countries like South Africa once they are able to again.

Fire Onboard: A Pilot's Worst Fear?

OPSGROUP Team
1 November, 2021

Ask a pilot what their worst fear is and one of the responses you will probably hear the most is FIRE! Ironically, an aircraft's engines only actually work when they are "on fire" so not having a fire "onboard" could be problematic...

But a fire in the cabin or cargo hold is a rather different deal. So, here is a look at what many consider to be one of the most challenging and concerning problems they could encounter in-flight.

For those who don't think it is that scary.

A CAA study back in 2002 looked at aircraft crashes due to fires onboard and discovered a rather fearsome statistic – the average time it took for an aircraft to become **catastrophically uncontrollable was under 20 minutes.** Various fire tests saw that a fire allowed to spread through the aircraft's overhead area could become uncontrollable in just 8-10 minutes.

The average time for a crew to get their aircraft onto the ground was around the **17 minute mark.**

So, not much time to spare.

The infamous Nimrod ditching (a favourite CRM example of decision making) shows how quickly a fire can disable an aircraft.

The problem is aircraft are built to burn.

Well, not literally, but there is a significant amount of flammable, combustible and generally burnable bits onboard. Add in the fact there are very hot bits (the engines) linked to big chambers full of fuel and the risk of an un-contained fire suddenly seems a lot worse.

Un-contained being the important word here.

Engines have fire identification and protection systems in them. So do cargo bays. So do cabins for that matter (Cabin Crew make wonderful fire detection and fire suppression systems). Aircraft interiors, and cabin fire fighting procedures, and the monitoring of Dangerous Goods transit have also developed significantly over the last decade or two.

So, the means to prevent or control fires before they become uncontrollable have increased.

Unfortunately, though, **so have the number of devices coming onboard which could start a fire** in the first place.

Lithium Ion batteries burn hot. They are hard to put out, and every passenger on your flight probably has at least one, probably nearer three of them (phone, second phone, computer, tablet, smart luggage, spare power banks, watches, electric toothbrushes...)

And of course phones are not the only potential fire hazard onboard. There are ovens (hot), hydraulic fluid (thankfully not in the cabin, but very flammable), electrical things (seats, tvs, lights), waste bins (in toilets for hiding illegally smoked cigarettes in), oxygen systems (a food delicacy for fires) and a multitude of wires.

An FAA study from 1995 to 2002 found reports of **nearly 400 wiring failures**. 84% of these were burned, loose, damaged, shorted, failed, chafed or broken. And this is probably not a representative number given how many might go unreported.

The Swissair accident was due to faulty wiring, with a secondary prominent factor being the flammability of materials that ignited and propagated the fire. The crash occurred just 16 minutes after the first alert message.

Let's take a look at what can burn in the cabin.

Seat coverings, blankets, cushions, other furnishings, clothes... basically everything inside the cabin can burn.

In 1993 a Northwest Airlines B727 had a fire in the cabin and it turned out they were using 100% polyester blankets. Polyester actually melts more than burns, but it gets really hot when it does and tends to set alight to everything else around it. The incident led to the FAA developing new fire performance test methods and criterion for all blankets.

Interesting fact: Emirates actually make their economy blankets out of recycled plastic bottles. 28 of them per blanket.

Actually, the burning ability of everything onboard is now monitored.

Since 1990, aircraft interiors have had to comply with a **maximum total heat release of 65 kilowatt minutes per square meter**, and specific optical smoke density of 200. Basically *burn less, burn less hot, and put out less smoke if they do burn.*

The current rules for what everything should be made of, and how burny/smoky/toxic they can be are contained in FAR/JAR/CS 25.853.

Crew training is important as well.

The training and ability of the crew to both fight the fire, and evacuate the aircraft is strictly monitored. The FAA require that an airplane can be **evacuated in 90 seconds.** For big commercial aircraft (these are Boeing stats) this means the **slides have to be able to inflate within 10 seconds** (15 if it is a big wing slide), and they need to be able to support 60 people sliding down at once.

It doesn't take into account the huge heap of people at the bottom of the slide, but once they are out and away from the fire all bets are off.

But accidents still happen.

Between 1990 and 2010 there have been **18 major accidents involving in-flight fires** which resulted in fatalities. During the 1990's, the US saw, on average, one flight a day diverting due to smoke; and a report by IATA suggests there are more than 1,000 smoke related events annually.

That's about 1 in 5,000 flights which is a pretty big number when you consider how many flight you will do in your career, or how many movements there are worldwide every day.

In 2010, a UPS B747 freighter crashed in Dubai following a main cargo deck fire which ultimately led to loss of control of the aircraft. The pilots were incapacitated earlier however due to the rapid build up of smoke in the flight deck.

What to do. The important bit.

1. Troubleshoot.

Finding the source should be a top priority. That means working out where the smoke is coming from.

If it is coming from something **avionics** related then you are going to want to **switch it off.** If it is something in the **cabin** then it might be locatable, reachable and extinguishable. Don't forget to get your crew to check the lavs.

2. Communicate.

One of the biggest challenges in dealing with a fire in the cabin is the communication between the cabin and the flight deck.

- Ensure there is a communicator in place who can pass messages to you and keep you updated.
- If you are trying to establish the severity of the situation, ask open, non-leading questions:
  - "How much smoke?" could lead to *"lots/loads/not as much as you'd see at a rock concert in the 60s..."* . Instead, try "How many rows of seats can you see?"
- Establish whether they can see where the smoke is coming from, if they can get to the source,

and if they can put it out:

- ○ Ask about the colour, the smell, and while troubleshooting make sure you leave enough time for them to identify a change (after turning stuff off or on).

3. Keep flying!

Don't forget to keep flying – one pilot should focus on the fire procedures (or on the comms with the cabin) while the other flies the aircraft! This probably means aiming for an airport.

Declare an emergency – this can be downgraded later if the situation improves, but get the support you need early on.

If there is an autoland option you might want to set up and plan for that in case the smoke in the flight deck builds up too much.

4. Don't forget…

You have **two procedures –** one for sourcing and "fighting" the fire, and one for dealing with smoke (and fumes). If you need to, suck that smoke out!

On the ground.

Your Ops Manual will have a required **RFF category for airports**. However, this is based off the equipment available at an airport (and the response time). A Captain can chose to disregard this if the only option does not meet their RFF requirement.

The emergency isn't over until you and the passengers are safely off. If the cabin is filling with smoke then a top priority is getting those engines switched off so your cabin crew can evacuate. If in doubt, evacuate!

Depending on where the fire is (and how the wind is blowing) you might need to avoid evacuating through certain doors. **Getting folk away from the aircraft is critical.** The main injuries resulting from the Emirates B777 accident in Dubai were some inhalation from passengers and crew, and heat stroke from the firefighters – it took 16 hours for them to bring the fire under control.

What to do earlier…

1. Have a plan

This means knowing what airports are around that you could go to if you suddenly, urgently need to.

- Check the weather and Notams en-route.

- Have something in the box ready (if it is a difficult airport to route to, or there is airspace to avoid, or if a straight in visual might not be an option).

2. Know what equipment you have onboard.

Know what it is, where it is, and how to use it:

- **Halon:** Great for electrical fires, not so good for you. If you are using this in the flight deck, get a smoke hood or oxygen on first.
    - Remember **PASS:** Pull the pin, Aim at the base of the fire, Squeeze the handle or lever, Sweep it about from side to side like an aggressive elephant.
    - EASA are recommending the removal and substitute of Halon Extinguishers because of their mean effect on the environment, and also on people.

- **Oxygen masks:** If there is smoke in the cabin, don't drop these thinking it will help your passengers breathe better. Oxygen + Fire = not a good result, and their masks are not designed to keep smoke and fumes out anyway.

- **Smoke hood:** You look like a weird spaceman in it, and sound like Darth Vader, but this is a very important bit of equipment.
    - If you are on the ground and evacuating, use this before doing the cabin checks.

- **Fire Sock:** For putting things in. Usually has some gloves nearby for picking the hot burning thing up with.

False Alarms

These do happen.

An IATA study saw **2,596 reports of fire/sparks/smoke or fume occurrences**. Of these, **20% were false warnings**, which meant 11% of the in-flight diversions were due to false warnings. 50% of cargo compartment fire warnings were also false.

Air spray is a common culprit for causing false alarms in toilets.

But – if you get a fire warning, treat it as real unless there is some very, very obvious something to suggest it is not.

FIRE!

They critical thing is to be prepared. Have that airport option in mind, know where to find the procedures (and familiarise yourself with them), and make sure that if it does happen, you and your team are ready.

A fire onboard is a time issue. Being prepared and ready will hopefully give you those extra minutes that could make a big difference.

Burning desire to read some more?

- The **RAeS** have two papers entitled 'Smoke, Fire and Fumes in Transport Aircraft'**.** Part 1 is a reference paper with a lot of scary accidents discussed in it. Part 2 covers training

recommendations. If you never read anything else on this subject, at least read these – most of the reports referenced in this article are pulled from these.

- Boeing's Evolution of Airplane Interiors is quite an interesting read on the testing and cabin interior requirements.
- A briefing on Bad Air, Fumes and Contamination takes a look at other dangerous fumes that might be swilling about in your aircraft.