July 2024: Afghanistan Overflight Update

Chris Shieff
9 July, 2024

Key Points

- **Read to the end for an OPSGROUP Team report from a recent flight over Afghanistan.**
- **Afghanistan's procedural Notams for overflights have been re-issued: the entire airspace remains uncontrolled.**
- **The US FAA has amended its airspace warning for the OAKX/Kabul FIR: US operators are still permitted to overfly at FL320 or above but they can now use airways P500/G500 in the far east of the airspace as low as FL300.**
- **For the large volume of traffic now using Afghanistan as an air corridor connecting Europe, the Middle East and Asia, we figured it was time for an update on what to expect, and the risks aircraft are taking to use it.**

A Little Background

For all intents and purposes, the security situation and the safety of the airspace above has not changed since the Taliban re-assumed control of the country in late September 2021.

What *has* changed is the **normalisation of risk** – as more traffic (including major carriers) has been using the airspace without incident, it is important to remember these two facts when considering an overflight (along with your own appetite for risk):

- **The entire FIR is uncontrolled.**
- **There is no guarantee of crew or passenger safety if you have to land.**

With these factors in mind, here is a brief refresher on what you need to know if you do choose to go

ahead and overfly.

With major airlines now regularly overflying Afghanistan, the decision for GA/BA operators to do the same may be murkier than before.

Before You Go

Essentially you need to check three things:

1. **PPR.** All operators need prior approval to enter the Kabul FIR with at least 72 hours' notice. To get that, you need to email flightpermissions.acaa@gmail.com.
2. **Compliance with state-issued rules.** Several states have long-term airspace warnings in place for Afghan airspace. US operators need to check the current SFAR (more on that below) and any applicable KICZ Notams.
3. **Insurance.** Some providers will not cover extended flight through uncontrolled airspace with the risks that apply both in the air and on the ground in Afghanistan.

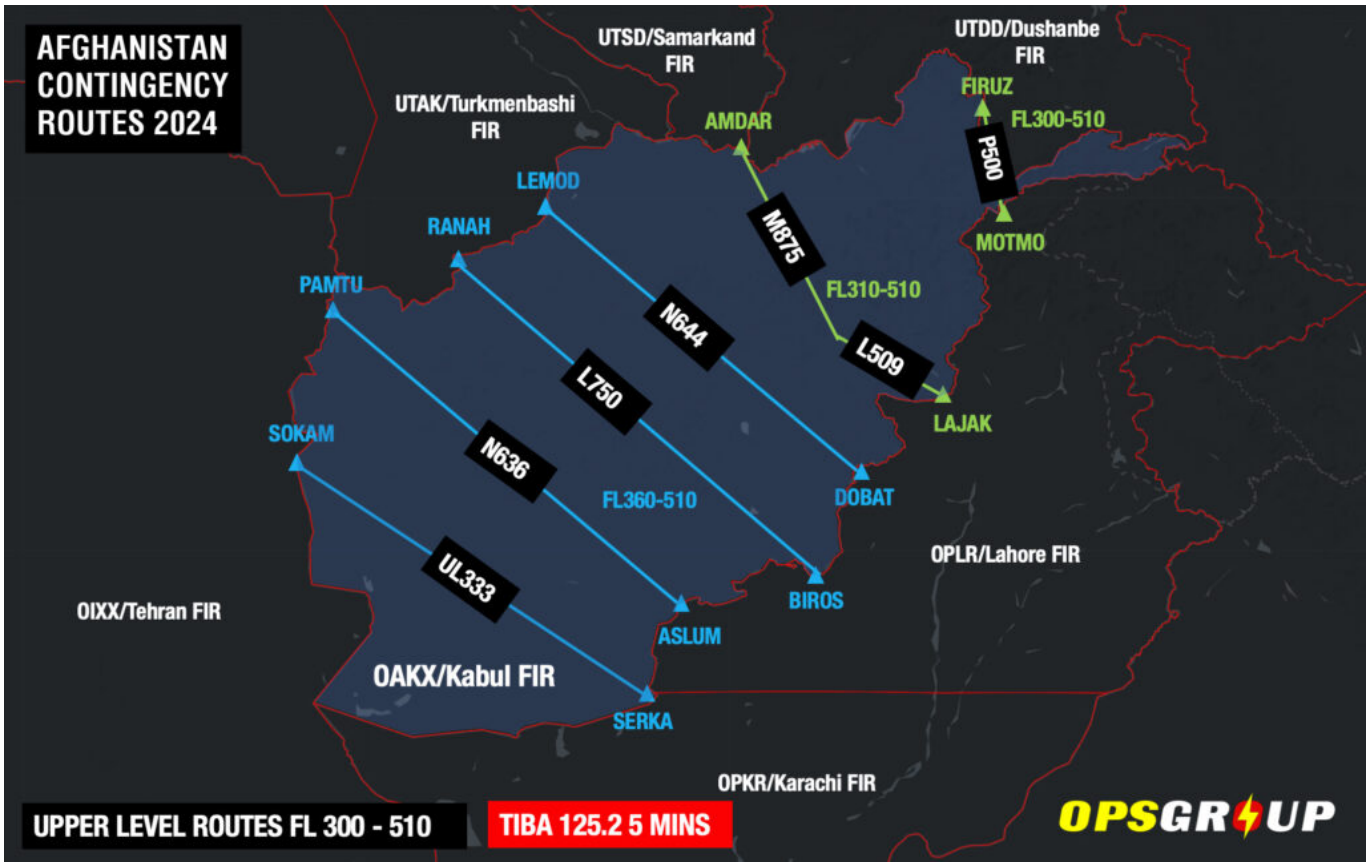
Overflight

The procedures to overfly the Kabul FIR have not changed – they're found in a series of Notams recently republished and extended. We previously took a detailed look at those here.

For the purposes of this article, this is the highlight reel:

- Adjacent FIRs manage the flow in and out of the Kabul FIR and apply 15 minute spacing.
- Only some routes and levels are available.
- **The entire Kabul FIR is uncontrolled**, with TIBA procedures in effect.
- You can't change speed or level once inside the Class G (except to avoid traffic or you have an emergency).

- **ICAO contingency procedures** apply if you need to descend in a hurry.



Unplanned Landings

For traffic deciding to overfly the Kabul FIR, it is critical to have contingency plans in place for a diversion.

For most operators, this would be to consider a landing at an Afghan airport a last resort **(akin to a ditching in oceanic airspace).**

Enroute planning should include ETP considerations for the most **fuel critical scenario** so that aircraft have enough on board to remain airborne and clear Afghan airspace before landing.

As such, be aware of westward diversions into Iran (the **OIIX/Tehran FIR**). US operators are currently banned from entering at any level due to high risk of misidentification, anti-aircraft fire and unannounced military activity. France, Germany, Canada and the UK also hold similar warnings.

On the Ground

If you do need to land in Afghanistan, **welcome to the wild west.**

OAKB/Kabul airport is your most likely target and there is no approach control, or tower service in use. As such, weather forecasting and Notams should be considered unreliable at best.

They do provide a phone number you can try and contact for the Kabul Notam Office, +93730006669. Failing that, try +93705769453.

As for crew/pax security, there is none. No country officially recognizes the Taliban as a legitimate government yet.

The Latest US Department of State Travel Advisory is stark – **do not go there**. If you do, you are at risk of

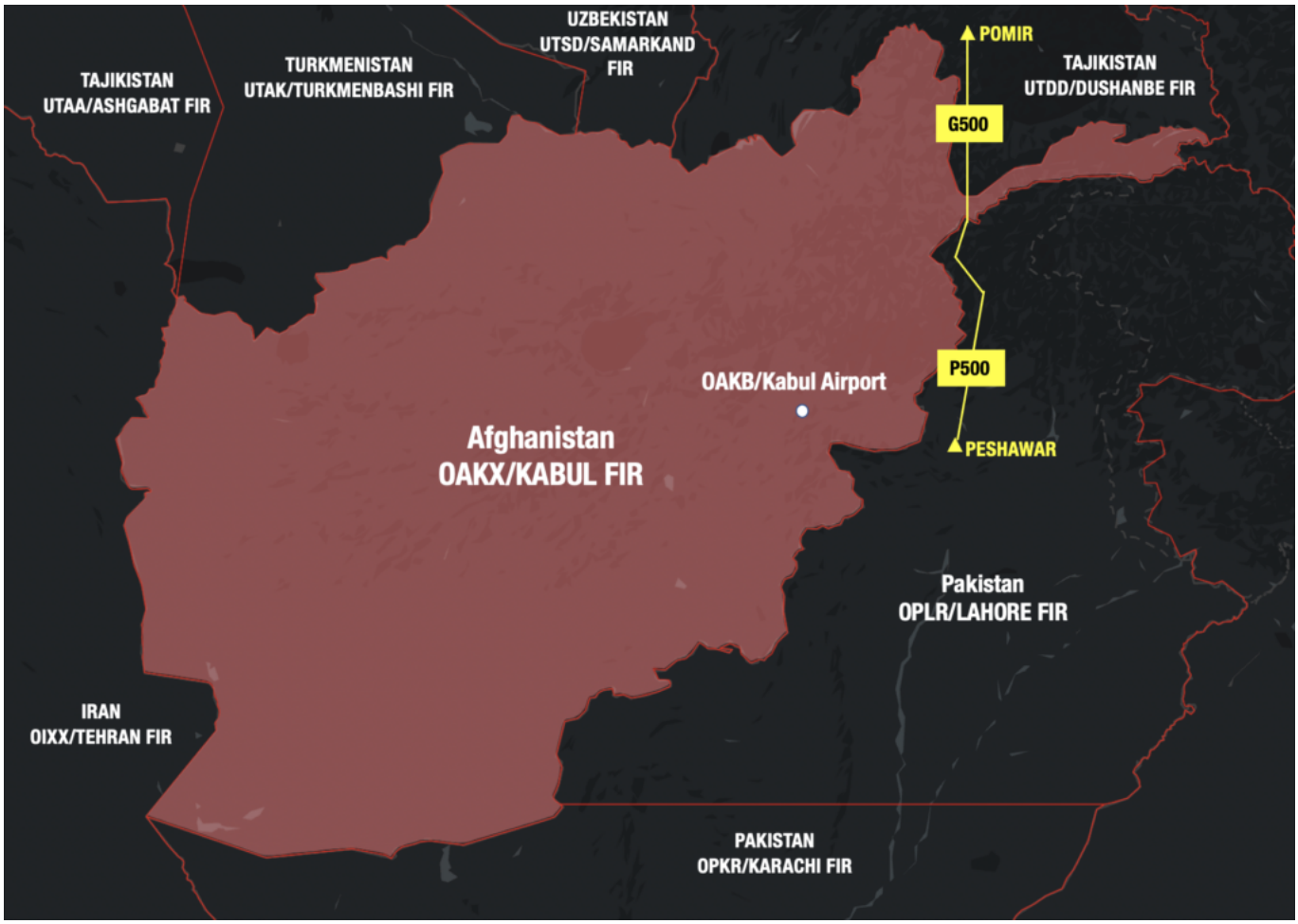
wrongful detention, kidnapping and crime. There is no consular assistance available.

Updated FAA Airspace Warning

Another change to report.

On July 5, the US FAA (slightly) amended its airspace warning for Afghanistan.

US operators are still permitted to overfly the OAKX/Kabul FIR at FL320 or above but they can now use airways **P500/G500 in the far east of the airspace as low as FL300.**



US operators can now use P500/G500 as low as FL300.

The FAA's reason for the change: *some operators were struggling to use these airways at higher levels. There have been no incidents here so far, and you don't spend much time in Afghan airspace while transiting them.*

You can view the updated SFAR here.

Our Pilot Report – here's what we did ...

There is a hefty dose of 'at your own risk' about all of this. The choice to overfly is not an easy one. To give you a much better idea of what to expect, here's an **OPSGROUP Team report from a recent flight over Afghanistan:**

We operated through OAKX FIR on a EHAM/Amsterdam-WMSA/Kuala Lumpur flight

Overflight Permit: *Getting the permit was relatively easy. We emailed flightpermissions.acaa@gmail.com (cc to flightpermission.atm@mota.gov.af) and received a response within 24 hours. They replied to us saying that to cross the airspace is charged a flat fee of $700 USD. You will need to fill out the form provided (this Excel document) and then forward that, plus copies of your Insurance, Airworthiness Certificate, and Aircraft Reg. If you are operating commercially, they also want your AOC. They ask for a minimum of 48 hours' notice, although we put our application in a week in advance.*

Insurance: *Our insurance (like most) doesn't allow operations within certain countries; however, they permit overflights on ATC-approved airways, and if you end up diverting due to an emergency, you are covered. We checked, and L750 was considered OK. Several air routes are "open."*

Routing: *We had planned on L750, which runs from UTAV (Turkmenabat) to OPLR (Lahore). They also sent us the Kabul FIR Contingency Procedure document. The most important thing to read is the broadcast procedures since there is NO ATC service. The flight was very straightforward, and this route saved us a fair chunk of time and fuel.*

ATC Comms: *About 5 minutes before Kabul's boundary, the UTAV controller asked us to "report ATC established with Kabul." We tried calling Kabul on 125.2, knowing full well there was no ATC service. We told UTAV that we were going to continue TIBA procedures in Kabul FIR, and they told us, "Radar services terminated, frequency change approved. Good night." All our external lights were switched on. We used Comm 2 as our TIBA box (125.2), Comm 1 stayed with the UTAV frequency, and Comm 3 (our data link was set to SAT) to monitor 121.5. Revise your TIBA calls; they suggest you broadcast them every 5 minutes. We used each fix, and it worked at about the right time.*

Over Afghanistan: *There was one aircraft departing OAKB/Kabul airport, a commercial jet on its way to Dubai, and aside from that, there was no one else. Up at FL450, we had a great view of the terrain – the word is "inhospitable."*

We could continue to hear UTAV on Comm 1 until about 15 minutes into Kabul when we switched to 124.1, the OPLR (Lahore) FIR frequency; about 15 minutes before we got to the boundary, we could hear calls from other aircraft. We had about 10 minutes of "dead" time on Comm 1.

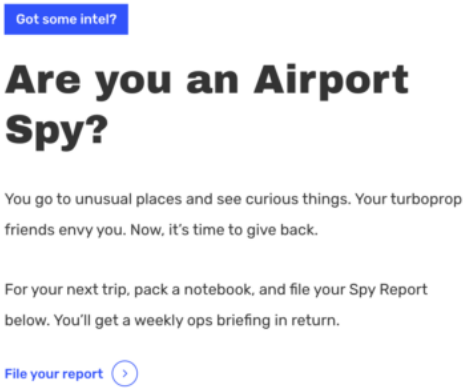
I had an ETP using UTAV/Turkmenabat and OPIS/Islamabad and did not consider using any of the airports within Kabul FIR as available airports. This was treated just like a NOPAC or NAT crossing. There is nowhere to go, so if something eventful happens, you can keep going or turn back based on your ETP.

We checked in with Lahore about 10 minutes before reaching BIROS, and they told us to call overhead BIROS.

Key Points: *It is relatively straightforward; brush up on the TIBA calls. There is more traffic nowadays as several airlines are using the routes for daytime flights, so it was a bit busier the last time I used it. However, at best, you will have a couple of airliners in the mid to high FL300s. There was no GPS Spoofing / Jamming or bad ATC, so I would use this route again, considering the other options in that region.*

Let's help crew make a **more informed decision** with more reports from other pilots.

You experience is invaluable – if you are overflying Afghanistan and have some operational advice, please share it with the group. You can reach us on team@ops.group, or **file an Airport Spy report anonymously** here.



Aug 2023: Who wants to overfly Afghanistan?

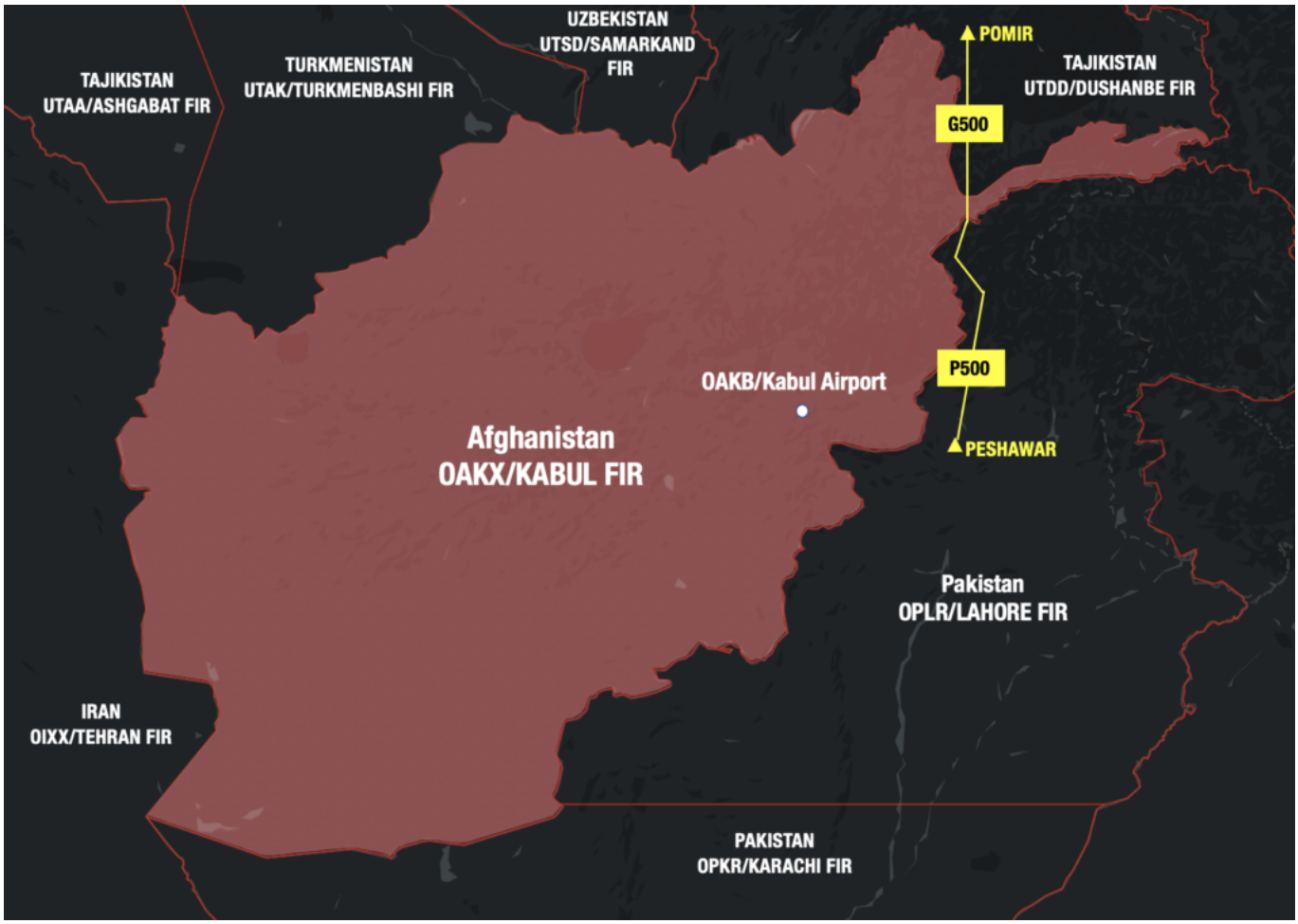
David Mumford
9 July, 2024

No one! There's **no ATC service** across the entire country, there's a seemingly endless list of surface-to-air weaponry they **might start shooting at you** if you fly too low, and **if you have to divert** then good luck with the Taliban.

US operators can now overfly Afghanistan

The US FAA has just published a new SFAR for Afghanistan which amends its airspace warning for the country. **US operators are now permitted to overfly the OAKX/Kabul FIR at FL320 and above.**

Previously, flights were only allowed on **airways P500/G500** in the east of the country. This made more sense from an airspace-risk point of view, as flights on these routes transit Afghan airspace only very briefly.



But now, if you're a US operator, you're no longer limited to those two airways – you can fly where you like across that big red blob as long as it's at FL320 or above.

The US are not the only ones who have eased their airspace warning in this way. **EASA** also recommend FL320 or above, and **Germany** say FL330 or above. All the other countries who regularly issue airspace warnings – **France, UK, Italy, and Canada** – say that overflights should only be on those P500/G500 airways.

Why the change?

To understand the rationale behind the FAA's easing of the airspace warning, the place to head is the *"Discussion of the Final Rule"* section in the SFAR.

Here's a summary:

- Essentially, the FAA think **the only risk at the higher flight levels is the lack of ATC.**
- After the Taliban takeover of Afghanistan, ICAO made contact with Afghanistan's CAA. Together with neighbouring ANSPs and IATA, they published a **Contingency Plan for the resumption of overflights of the OAKX/Kabul FIR.**
- With this specific risk diminished, the FAA now allows US operators to overfly Afghanistan at FL320 and above.
- **The FAA still considers altitudes below FL320 hazardous for flights** due to ongoing security risks from Taliban and ISIS. They cite the possibility of access to various weapons by terrorist groups, including MANPADS. Cross-border attacks into Pakistan by VEOs pose additional risks below FL320.

How do the Contingency Procedures work?

You can find these on the Afghanistan CAA homepage, or by clicking below:

This Contingency Plan is activated by Notam, and applies when the **Kabul FIR is unattended – which has been the case for some time now.**

In a nutshell it relies on adjacent FIRs coordinating with one another, and with aircraft to make sure they **follow assigned routes and assigned levels** while transiting Afghan airspace to reduce collision risk.

They are effectively broken down into two sections – lower airspace (FL160 – FL290) and upper airspace (FL300 – 510).

Lower Airspace

We're not really interested in this, because we don't want to fly at these lower levels! But anyway, here's how it works:

- OAKB/Kabul, OAMS/Mazar-e-Sharif and OAHR/Herat airports will all provide surveillance services in their terminal areas.
- When outside them, you must follow a published low-level route. When descending or climbing, remain right of track unless you're below MSA on an IFR procedure. You'll also need to make TIBA broadcasts on 125.2.

Upper Airspace

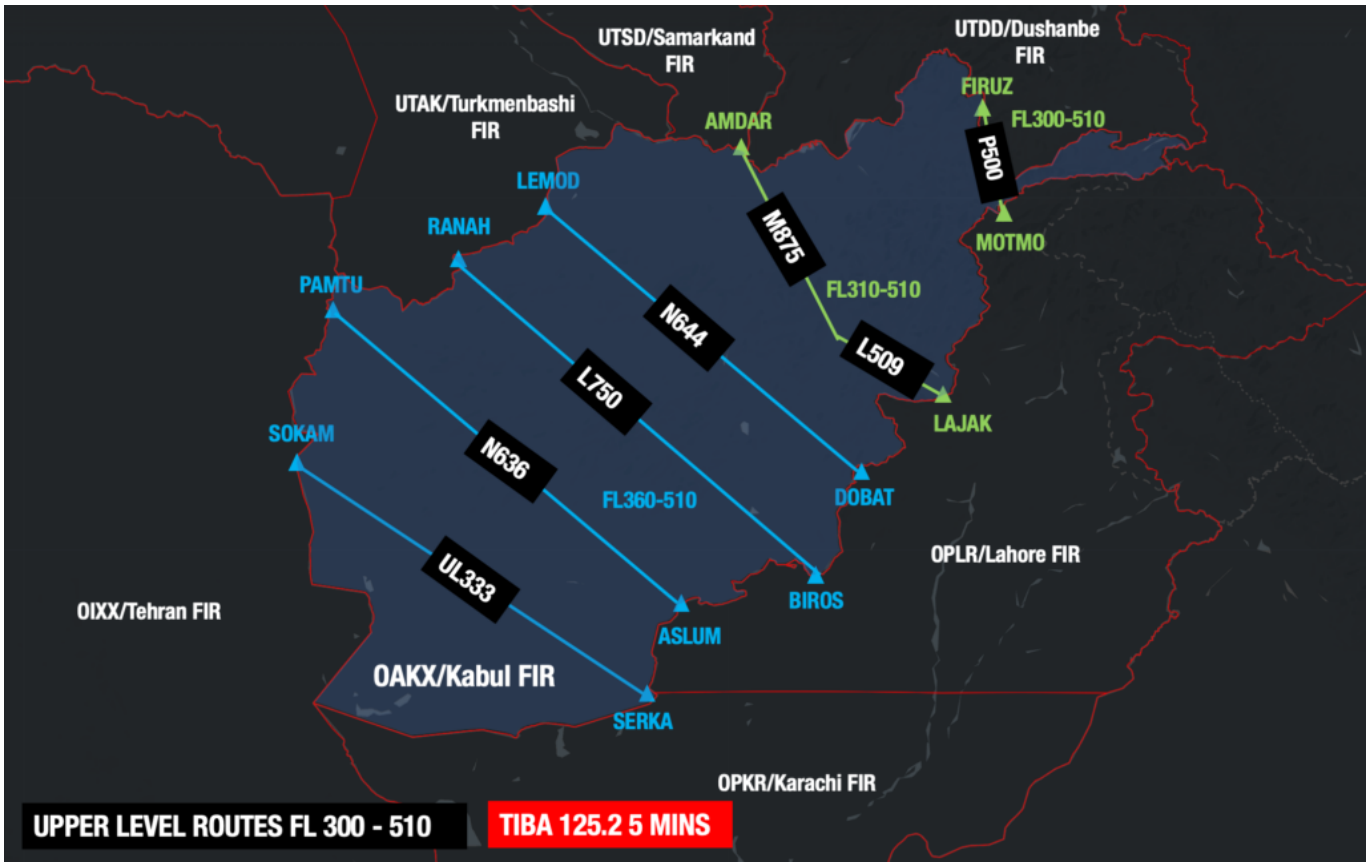
OK, the bit we're interested in!

The Contingency Plan mentions all the available routes, and the Notams make it clear what levels are available:

OAKX G0306/23 - ALL OVER FLIGHTS SHALL USE THE FOLLOWING
LATERALLY DE-CONFLICTED HIGH ROUTES (HIGH SECTOR) STARTING
AT FL360-FL510 EXCEPT ON M875/L509 ROUTES SHALL USE
FL310-FL510 AND P500 SHALL USE FL300-510
TRANSMISSION SHALL TAKE PLACE EVERY 5 MINUTES ON TIBA
FREQ 125.2MHZ FOR THE TEMPORARY PURPOSE ONLY.)
1.FIRUZ-P500-MOTMO(FL300-FL510)
2.AMDAR-M875-TAPIS-L509-LAJAK(FL310-FL510)

3.LEMOD-N644-DOBAT(FL360-FL510)
4.RANAH-L750-BIROS(FL360-FL510)
5.PAMTU-P628-ASLUM(FL360-FL510)
6.SOKAM-UL333-SERKA(FL360-FL510).
10 JUL 06:50 2023 UNTIL 05 OCT 23:59 2023 ESTIMATED.
CREATED: 10 JUL 11:34 2023

So here's what that looks like:



- **These are bi-directional routes, and only available between certain levels** (as per the map above!).
- **Try and avoid using FL300.** It is sometimes reserved for military traffic as advised by Notam.
- **On entry to the Afghan airspace:** adjacent FIRs will apply in-trail spacing of 15 mins on each route at each level. The routes provide at least 50nm lateral spacing. As per usual, westbound traffic should be at an even level, and eastbound at an odd one.
- **While inside the Class G airspace:** TIBA procedures will apply at all times on 125.2. Expect to contact the next FIR at least 10 minutes before the boundary on VHF.
- The good news is that the 'up-stream' FIR will also coordinate with the 'downstream' FIR to let them know you are coming.

Other Gotchas

- Despite being Class G, **flight plans must still follow the rules** found in Afghanistan's AIP. This includes the requirement for RNAV10 or better, and the submission of your plan to the

Kabul FIR via AFTN.

- **Priority will be given to 'long haul' international flights in the higher levels.** Regional and domestic operators needs to remain in lower airspace.

What are most operators doing?

Avoiding Afghanistan! Just like they did before.

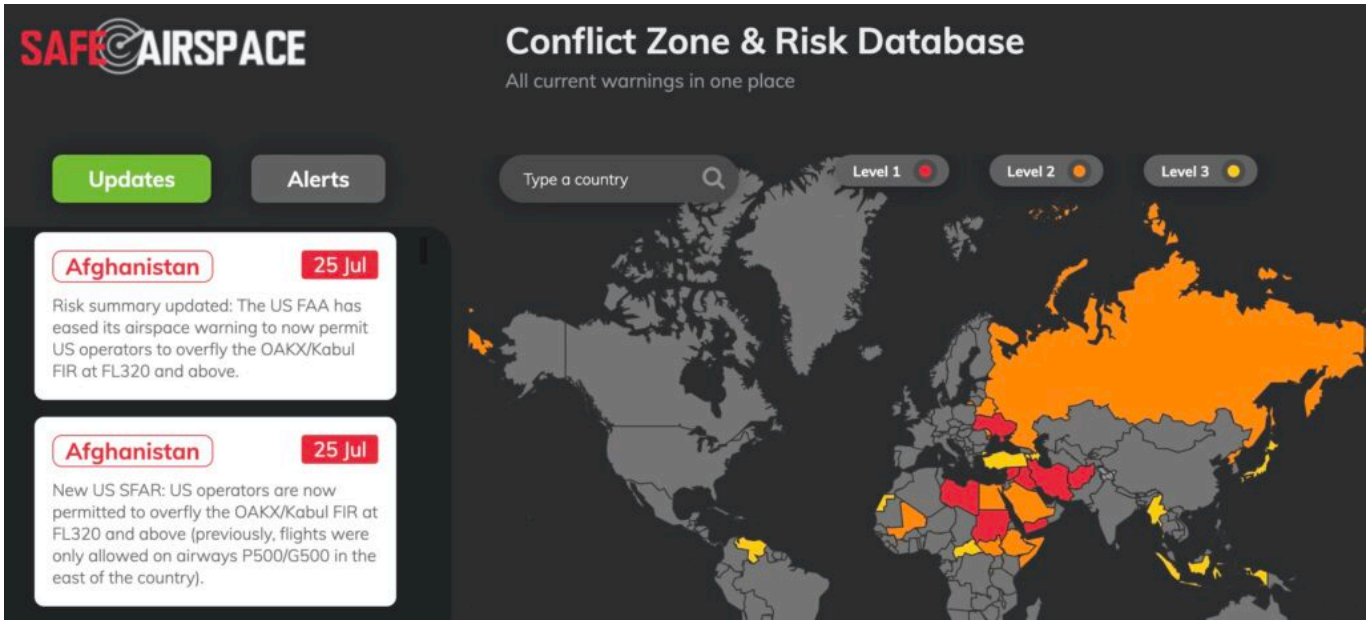
- Most major international airlines still appear to be **avoiding Afghanistan's airspace for overflights,** although some are **still using airways P500/G500** in the east of the country like they did before.
- Most traffic continues to **route south** via Pakistan/Iran, or even further south via the UAE and Arabian Sea.
- There are **risk warnings** to consider for the airspace on this southerly routing too. Several countries have warnings in place for **Iran's airspace** (the OIIX/Tehran FIR), including a total flight ban by the US. The southern part of **Saudi Arabia's airspace** (the OEJD/Jeddah FIR) carries risk as well, although there have been no reported drone strikes from Yemen in the past year.
- **To the north of Afghanistan:** the options for overflights are fairly limited – via Turkmenistan, Uzbekistan and Tajikistan, avoiding Russia – potentially useful if operating from **Europe to the Far East** (China, Hong Kong, Japan, etc.)

Should I overfly Afghanistan?

Despite there being contingency routes now in place, and despite the easing of the airspace warning by the FAA, there are still **several risks here:** lack of ATC, and serious safety and security risks at both the lower flight levels and on the ground.

If you have an **engine failure or depressurization**, will you be able to stay above FL320 all the way across the FIR? If you had to **divert to an airport in Afghanistan**, how confident would you be that you would be able to get out again in one piece?

For more info, check Safeairspace.net – our Conflict Zone & Risk Database.



Afghanistan Update – September 2021

OPSGROUP Team
9 July, 2024

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.

Afghanistan: Do Not Fly

David Mumford
9 July, 2024

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.

Overflights

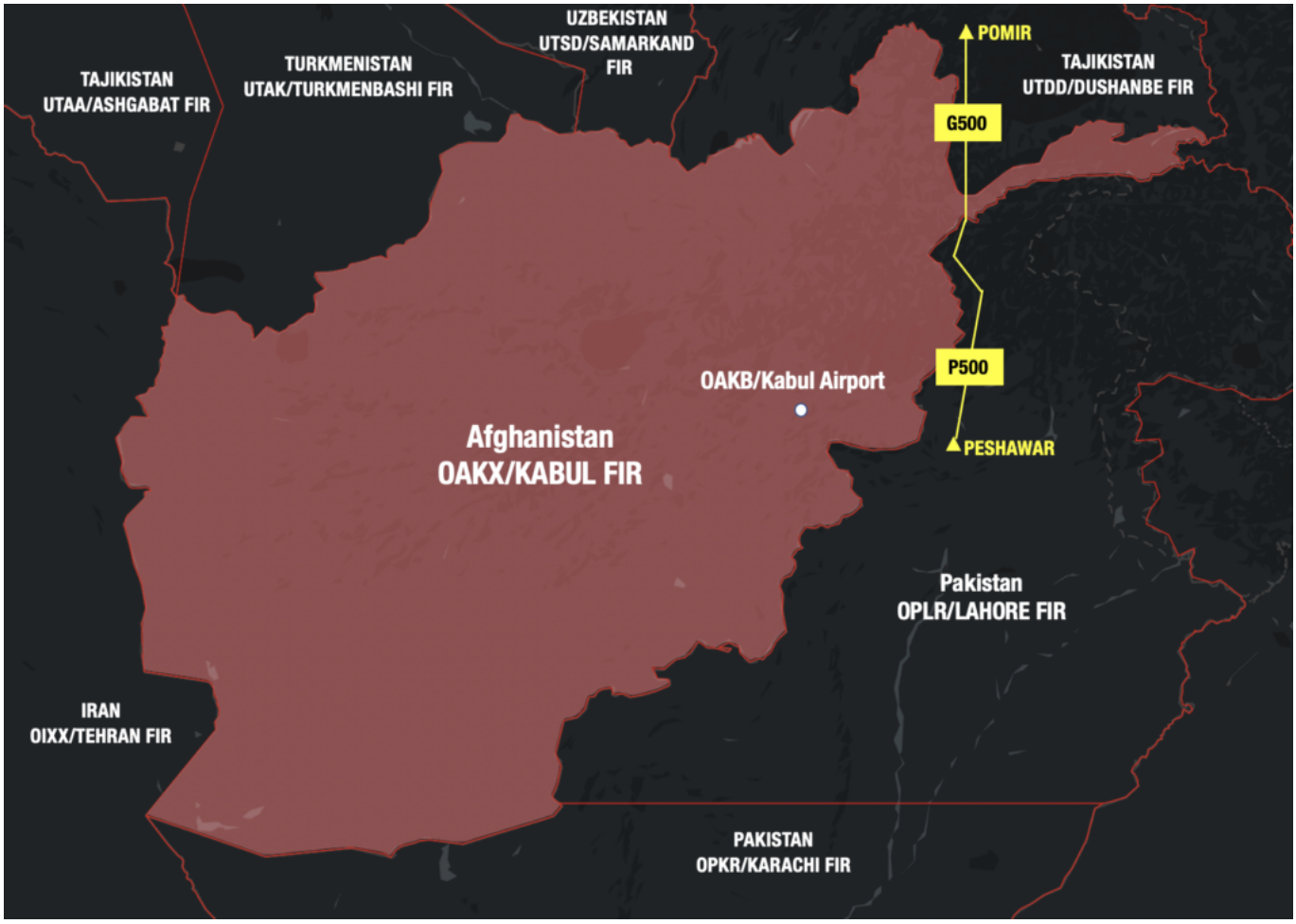
For overflights of the region, flights between Europe and parts of Asia will be those most affected by the effective closure of the OAKX/Kabul FIR. All major international airlines have now stopped using Afghanistan's airspace for overflights, most electing to route **south via the airspace over the United Arab Emirates and Arabian Sea** off the south coast of Pakistan.

However, there are **risk warnings** to consider for the airspace here too. Several countries have warnings in place for **Iran's airspace** (the OIIX/Tehran FIR), including a total flight ban by the US, which were issued following the shoot-down of Ukraine Int Airlines flight 752 over Tehran in Jan 2020. The southern part of **Saudi Arabia's airspace** (the OEJD/Jeddah FIR) carries risk as well, with increasing Houthi drone and missile attacks over the past year.

To the north of Afghanistan, the options for overflights are fairly limited – via Kyrgyzstan, Kazhakstan, or even farther north via Russia. So these are not really practical unless operating from northern Europe to China, Hong Kong, Japan, etc.

Airspace Warnings

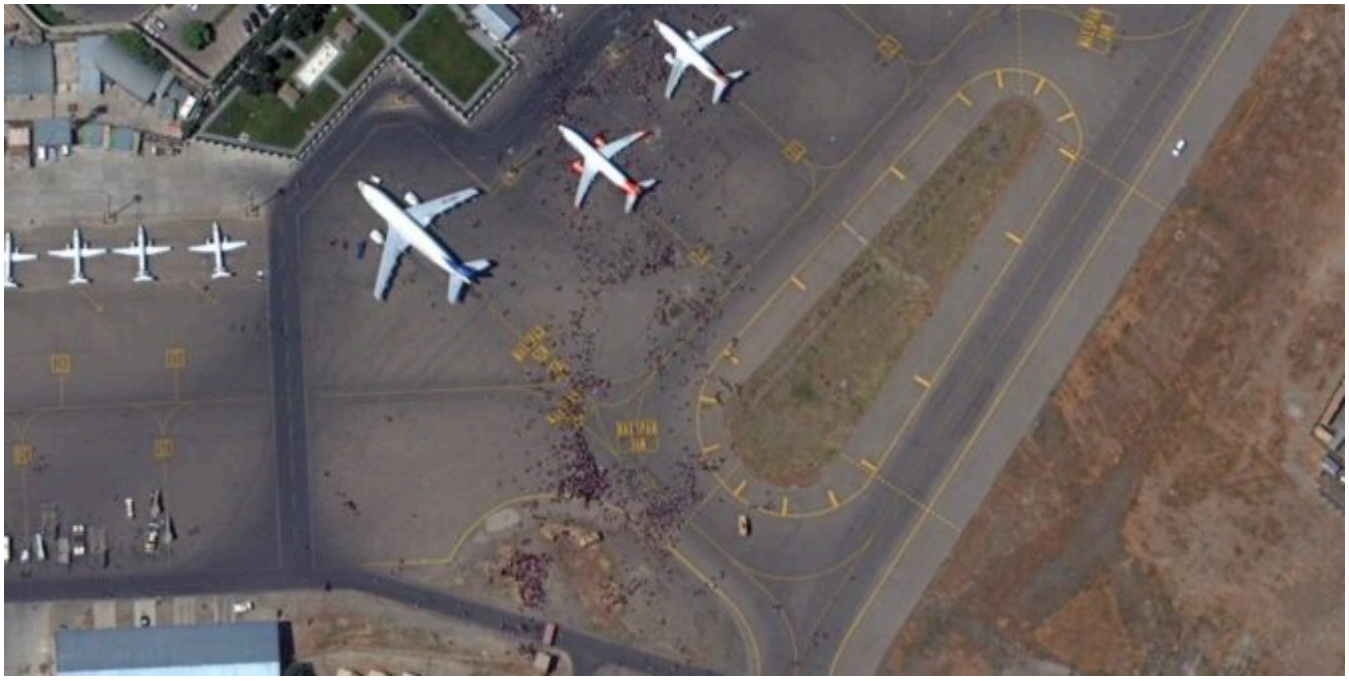
Following the Taliban takeover, several countries have updated their airspace warnings for Afghanistan. **The FAA now bans US operators from Afghanistan's airspace**, only permitting overflights on **airways P500 and G500** in the far east of the OAKX/Kabul FIR. EASA, along with authorities in several western countries, are now advising operators to avoid Afghanistan's airspace entirely.



At **SafeAirspace.net** we are now listing Afghanistan as **Level One: Do Not Fly**. Check here for a full briefing.

FAA issues Emergency Order for Afghanistan (Updated)

Mark Zee
9 July, 2024



On August 30, the FAA revised its **Emergency Order** for Afghanistan, with a new **KICZ Notam.**

Effective immediately, **US operators and flight crew are prohibited from operating in the Kabul Flight Information Region** (OAKX) at all levels. The FAA cites three specific risk factors: extremist/militant activity, limited risk mitigation capabilities, and disruptions to Air Traffic Services.

The main change is that flights to and from **OAKB/Kabul** airport are **no longer exempt.**

Therefore the only exceptions are now as follows:

1. **You can** operate in the **Kabul FIR** (OAKX) if another US government agency authorizes it together with the FAA, or by way of "deviation, exemption, or other authorization" issued by the FAA Administrator. If you do plan to fly, you must call the FAA Operations Center in Washington.

2. **You can** overfly on one airway: Use of airway P500/G500 is authorized for transiting overflights. (That airway cross the sliver of Afghan airspace in the east of Afghanistan between Pakistan and Tajikistan)

3. If you are experiencing an emergency.

The NOTAM is issued with permanent validity, and is presented in full below.

For further on Afghanistan, pilot and local situation reports, procedures, and assistance:

- OPSGROUP ALL CALL: Information post.
- Share your updates in #flightops on Slack.
- Read our post from Aug 18 on airspace risk: Afghanistan: Do Not Fly
- Review the Safe Airspace risk summary for Afghanistan

Satellite image via Washington post, Maxar Technologies 2021.

KICZ Notam A0029/21

Issued Aug 30, 1955 UTC
Valid until: Permanent

SECURITY..UNITED STATES OF AMERICA PROHIBITION AGAINST CERTAIN FLIGHTS IN THE KABUL FLIGHT INFORMATION REGION (OAKX)

THOSE PERSONS DESCRIBED IN PARAGRAPH A (APPLICABILITY) BELOW ARE PROHIBITED FROM OPERATING AT ALL ALTITUDES IN THE KABUL FLIGHT INFORMATION REGION (FIR)(OAKX), EXCEPT AS PROVIDED IN PARAGRAPH B (PERMITTED OPERATIONS) AND PARAGRAPH C (ALLOWANCES) BELOW, DUE TO THE RISK POSED BY EXTREMIST/MILITANT ACTIVITY, LACK OF RISK MITIGATION CAPABILITIES, AND DISRUPTIONS TO AIR TRAFFIC SERVICES.

A. APPLICABILITY. THIS NOTAM DOES NOT APPLY TO THE UNITED STATES DEPARTMENT OF DEFENSE. IT DOES APPLY TO: ALL U.S. AIR CARRIERS AND COMMERCIAL OPERATORS; ALL PERSONS EXERCISING THE PRIVILEGES OF AN AIRMAN CERTIFICATE ISSUED BY THE FAA, EXCEPT WHEN SUCH PERSONS ARE OPERATING U.S.-REGISTERED AIRCRAFT FOR A FOREIGN AIR CARRIER; AND ALL OPERATORS OF AIRCRAFT REGISTERED IN THE UNITED STATES, EXCEPT WHEN THE OPERATOR OF SUCH AIRCRAFT IS A FOREIGN AIR CARRIER.

B. PERMITTED OPERATIONS. THIS NOTAM DOES NOT PROHIBIT PERSONS DESCRIBED IN PARAGRAPH A (APPLICABILITY) ABOVE FROM CONDUCTING FLIGHT OPERATIONS IN THE ABOVE-NAMED AREA WHEN SUCH OPERATIONS ARE AUTHORIZED EITHER BY ANOTHER AGENCY OF THE UNITED STATES GOVERNMENT WITH THE APPROVAL OF THE FAA OR BY A DEVIATION, EXEMPTION, OR OTHER AUTHORIZATION ISSUED BY THE FAA ADMINISTRATOR. OPERATORS MUST CALL THE FAA WASHINGTON OPERATIONS CENTER AT 202-267-3333 TO INITIATE COORDINATION FOR FAA AUTHORIZATION TO CONDUCT OPERATIONS.

C. ALLOWANCES. USE OF JET ROUTES P500-G500 IS AUTHORIZED FOR TRANSITING OVERFLIGHTS.

D. EMERGENCY SITUATIONS. IN AN EMERGENCY REQUIRING IMMEDIATE DECISION AND ACTION FOR THE SAFETY OF THE FLIGHT, THE PILOT IN COMMAND OF AN AIRCRAFT MAY DEVIATE FROM THIS NOTAM TO THE EXTENT REQUIRED BY THAT EMERGENCY.

THIS NOTAM IS AN EMERGENCY ORDER ISSUED UNDER 49 USC 40113(A), 44701(A)(5), AND 46105(C).

ADDITIONAL INFORMATION IS PROVIDED AT:

HTTPS://WWW.FAA.GOV/AIR_TRAFFIC/PUBLICATIONS/US_RESTRICTIONS/

SFC – FL999, 30 AUG 19:55 2021 UNTIL PERM. CREATED: 30 AUG 19:59 2021

Helping you fly when it’s Hot & High

OPSGROUP Team
9 July, 2024

Here's a look at some of the hottest and highest airports out there, and the challenges you might want to think about if operating into them.

Airplanes like to play it cool

What is it about hot and high airports that our airplanes don't like? The obvious one is the air density – engines like their air cold for better performance, and wings like air nice and thick for better lift.

What can you do to keep them happy?

- **Think about how you start the engines** – If it is hot out, the air is thin, and you start throwing things like tailwinds into the mix, then it is going to be a recipe for some grumpy engines
- **Consider towing** – move to a different start point for better air flow
- **Check that ground power unit** – You might want to ask the engineer to see if two might be better (they can over heat too!)
- **Check that take-off performance** – and check it early. If it is limited you're going to have to throw some passengers or cargo off, or put less fuel on to keep the weight down
- **Watch you altitude constraints** – If you are particularly heavy your climb performance is going to suck and where the airport is high, there is often other high stuff to think about too
- **Once you're in the air** – if you are struggling to meet restrictions then keep the speed back, make sure you're using all the thrust available to you and if that still don't work – let ATC know!

People like to play it cool

People get grumpy when they are stuck in a jam-packed, sweaty tube. And I am not just talking about your passengers. **Think about the poor F/O too.**

If you've sent them out into the sweltering heat to do the walk around then it might be kind to have an APU running and some cool air blowing for their return. It will help with the rest of the flight too – you

probably don't want to be sat next to someone who is sweaty up a stinky storm for the next however many hours.

Jokes aside, it can be a safety thing too. A performance study by NASA showed operators in temperatures of **80°F (27°C) made approximately 5 errors an hour,** 29 errors over 3 hours. At **90°F (32°C) this increased to 60 in 1 hour** and 138 in 3 hours. So 1 mistake a minute. If you consider how many critical tasks a pilot carries out in that hour on the ground prior to departure that's concerning.

When your environment heats up above 95°F usual cooling methods like radiation and convection stop working. Your body's only option is to pump blood to the skin to release heat and get you to perspire. Up to 48% of your blood is pumped to the surface level, which means useful things like your brain which are less close to the surface are getting nearly 50% less than normal.

Brakes break

High OATs means hotter brakes, and longer cooling times. But it is the high elevation that really causes issues here because your groundspeed is going to be much greater for the same IAS. The result is much more work for your brakes which have to slow down that big hunk of metal.

If you are lucky enough to have brake fans then switch them on as soon as possible. If you don't, then **keep an eye on those temperatures**, especially during the taxi out.

How long it will take your brakes to cool down is dependent on your type of brakes, type of aircraft, how hot it is outside, how hot the brakes actually got. Aircraft will have their own max temperature for takeoff limit which is important because retracting your gear with hot brakes is an increased fire hazard, and aborting the take-off with already hot brakes is an even bigger hazard.

A (very) general rule of thumb is something like **2 degrees every minute** (at 15°C OAT) will give you a (very) rough estimate.

Energy Management

Make sure you have some coffee and a snack. Oh, sorry, the airplane energy. Also worth thinking about because it is going to be harder to slow down and cranking out the old speed brake will have less affect with thinner air because, well, something to do with drag.

This can all get really critical really fast on the approach. A higher groundspeed also means a higher rate of descent, again making slowing down tough. Plan that configuration and manage the energy early.

At very high elevation airports (especially if they have terrain around) you might be trying to reduce your speed above your flap limiting altitude so keep an eye on your minimum clean speed and your flap operating limits.

FLARE!!

A higher ROD, reduced lift, turbulence from thermals can all mess with your flare. We aren't here to tell you how to fly, so will leave it at a "have a think about it before you get there" top tip. Especially if your FO is taking the sector and hasn't landed in these conditions before.

One more tip…

Celsius to Fahrenheit Formula: (°C x 1.8) + 32 = °F

Fahrenheit to Celsius Formula: (°F – 32) / 1.8 = °C

Which airports are highest on the list?

Topping the list is **ZUDC/Daocheng Yading Airport** which sits at a whopping **14,472ft**. ZUBD/Qamdo Bamda airport holds the number two spot at 14,216ft closely followed by ZUKD/Kangding airport at 14,042ft.

These airports are so high that the hot bit is less of a factor, but the altitude is a major one – **14,000ft is a limitation on some aircraft.**

Airports at these altitudes will have special procedures for take-off and landing and you are unlikely to be operating into them without prior training. **So, which should we pay attention to?**

The Hot and the High

FAOR/Johannesburg airport sits at an elevation of **5558ft**. Predominantly NW winds on the ground often lead to a tailwind for the approach to runway 03L/R which makes the energy management more challenging.The runways are 14,505ft and 11,171ft (so you have enough).

Johannesburg can heat up to the high twenties (80°F) in the summer.

HAAB/Addis Ababa Bole airport has an elevation of **7625ft** and also some very high MSAs in the near vicinity. There are high altitude constraints for the departure due to close in terrain, and they need to be monitored (particularly if you are heavy and it is hot out). A challenging RNAV approach makes flight path and energy management more challenging.

The radar at Addis is fairly intermittent so you are going to have watch that terrain avoidance and energy management yourself.

MMMX/Mexico City This spot has an elevation of **7297ft,** and MSAs of 19,400ft, 14,800ft and 12,100ft. The terrain surrounding the airport means some interesting arrivals and departures and the need for some accurate tracking. The tight arrival also means some low platform altitudes. The ILS for the 05 runways are slightly steeper (3.1°) adding to your energy management concerns. We've also heard that **ATC sometimes keep you fast until 5000**′, which can make slowing down last minute more tricky.

OAKB/Afghanistan I know what you're thinking – there are probably bigger threats at this airport than the elevation, but despite the security risks here, it is a fairly frequented airport. Kabul tips the big three boxes – it has an elevation of **5877ft**, an **MSA of 17,500ft** and it can get toasty warm in the summer months. The ILS for runway 29 starts from 14,000ft and the need to keep aircraft high due terrain can mean you suddenly find yourself diving down, while trying to slow down, with not many track miles to go.

You will probably want to keep you speed back on the departure to meet the minimum climb rate of 450ft per 1nm.

The just plain high

SLLP/La Paz Ok, we will add this one because its a fairly major international airport. The Bolivian airport has a **13,124ft runway which lies at an elevation of 13,314ft** making this an Overall Top Ten winner. The surrounding terrain (it sits in the Andes Mountains) means MSAs up in the flight levels – FL220, FL230 and a paltry 18,000ft.

Your **TAS here is going to be around 25% higher than your IAS.** The high elevation means it is generally cooler, but the density is still going to be low leading to lower performance.

The just plain hot

Basically anywhere in the Middle East in the middle of summer is going to tick this box.

OMDB/Dubai has been known to hit temperatures of 50°C. Hot means bumpy – you can expect some crazy thermals on the approach and an easy tendency to mess up the flare and float when that thermal catches you at 30 feet. Some airports (Dubai being one of them) temperature correct the ILS to account for the extra heat, so if you are doing height checks be aware of the discrepancy because of temperature.

OEJN/Jeddah is another spot known for getting very hot. It is also a very large airport with looooong taxis so keep a good eye on those brake temperatures for departure.

Where else?

Let us know any airports you think deserve to be on this list! Leave a comment or send us an email.

OPSGROUP members can check out AirportSpy – we have started to add Airport Lowdowns in here which cover the big threats (like hot and high!)