

Climb for Contrail Prevention - What's Happening in the Maastricht UAC?

The OPSGROUP Team

21 August, 2024



A few weeks back, the following Notam was issued for the **Maastricht UAC** (i.e. the busy airspace above FL 245 over Belgium, the Netherlands and Luxembourg):

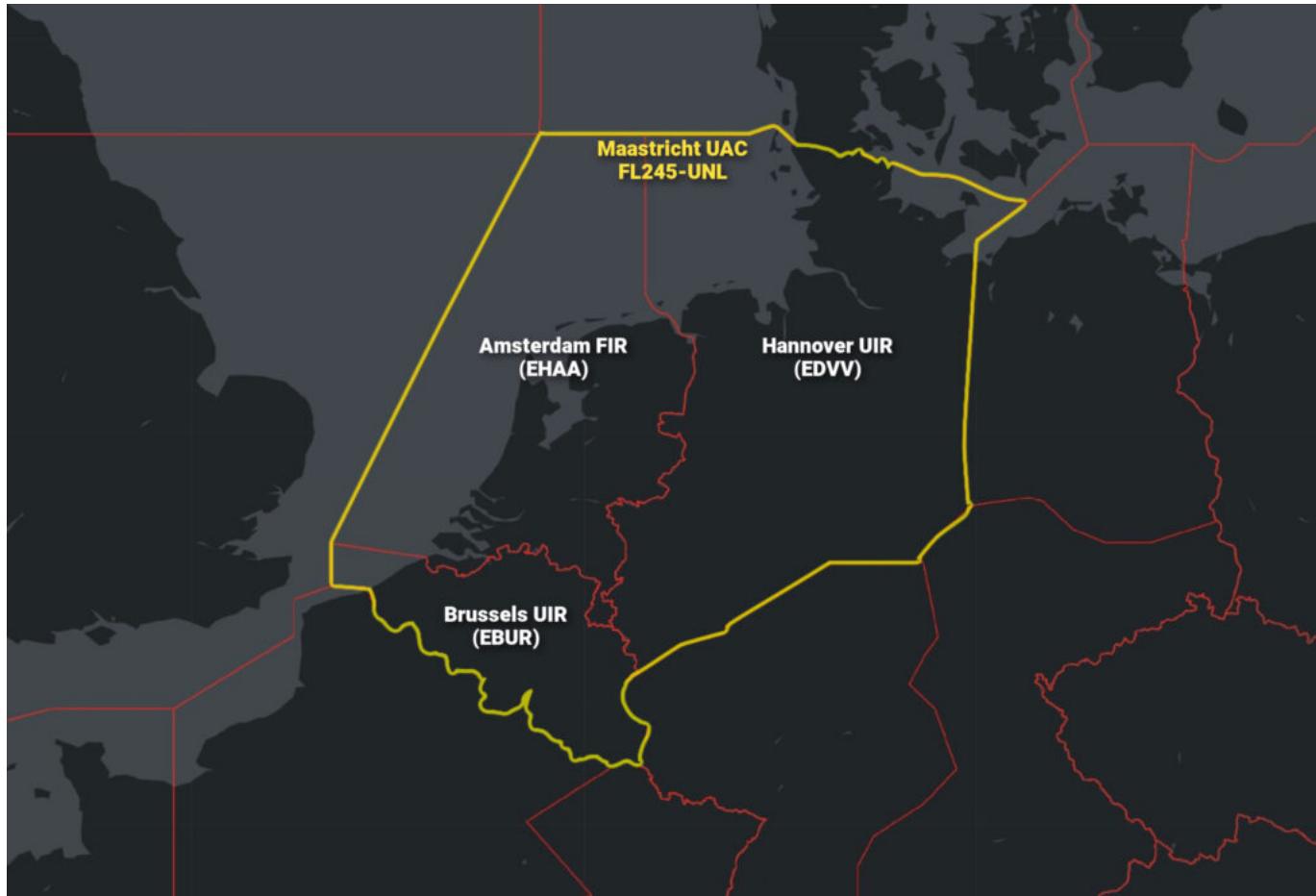
A1832/24 NOTAMN

Q) EHAA/QSUXX/I /NBO/W /245/660/5255N00454E140

A) EHAA B) 2408010000 C) 2409192359

E) IN AN EFFORT TO MINIMISE THE IMPACT OF AVIATION ON THE ENVIRONMENT, MAASTRICHT UAC WILL BE RUNNING A CONTRAIL PREVENTION TRIAL. FLIGHTS MAY BE TACTICALLY REQUESTED TO DEVIATE FROM THE PLANNED/REQUESTED FL BY THE SECTOR CONTROLLER USING PHRASEOLOGY: FOR CONTRAIL PREVENTION CLIMB/DESCEND. ANY FLIGHT FLYING VIA MAASTRICHT UAC MAY BE CHOSEN. THE TRIAL WILL GO AHEAD DEPENDENT ON WEATHER CONDITIONS. FOR TACTICAL ENQUIRIES CTC MAASTRICHT UAC 0031 43 366 1428

Essentially if you are flying through that airspace between now and September 19 you may be instructed to climb or descend using the phrase 'for contrail prevention.'



Maastricht have teamed up with DLR (the German Aerospace Center) in a bid to lower aviation's '**non-CO₂ climate impact**'. In other words, the effect aviation is having on the environment *beyond* fossil fuel emissions.

In that sense, this trial is one-of-a-kind and has been running on-and-off since 2021.

If you're wondering why you're being asked to deviate from your desired level, and what that has to do with contrails, read on.

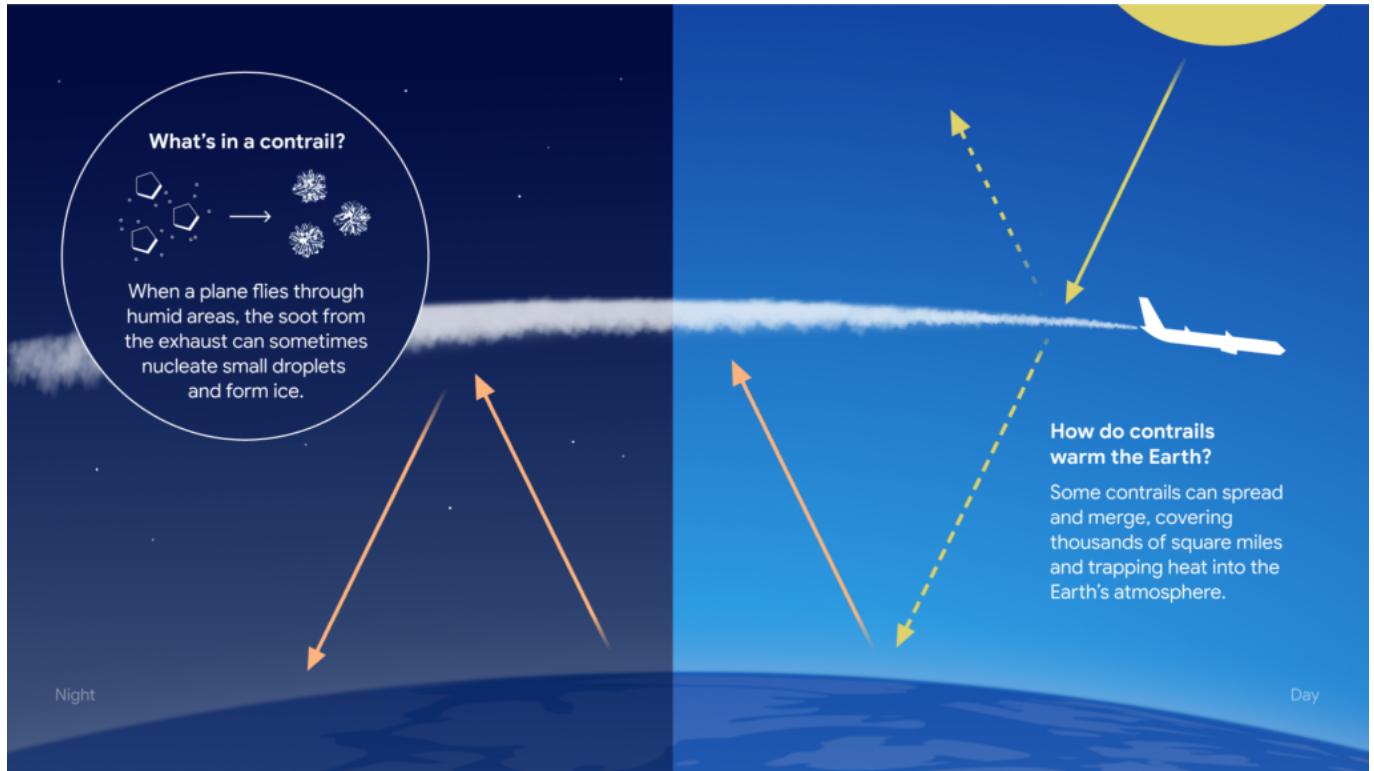
What does any of this have to do with contrails?

The concept of **non-CO₂ impacts** may be less familiar to operators. Non-CO₂ effects have to do with complex interactions between aircraft emissions and their effect on the surrounding atmosphere.

This includes **soot particles** – a byproduct of combustion. It may come as a surprise that contrails are not (as is often misrepresented) *just* water vapor. When water vapor exits the exhaust nozzle of a jet engine, it condenses and freezes to these soot particles creating tiny ice crystals.

These crystals form **contrails**. They are in fact a type of cirrus cloud with a fancy name that sounds like a bad cold – homogenitus. And if conditions are right, they can persist for hours – long after the aircraft that created them has disappeared over the horizon.

At night in busy airspace (such as the Maastricht UAC) these contrails can have a warming effect by trapping heat in the atmosphere, just like naturally occurring clouds.



This process occurs across quite a shallow band – around FL300 in Winter and FL360 in Summer.

So, contrails are important. Why do I need to change levels?

The strength and persistence of contrails has a lot to do with the state of the atmosphere around them. Part of the industry's approach is **predicting when the atmosphere is favourable to form contrails** and making **small flight path adjustments** to avoid the worst of those conditions.

Enter the Maastricht UAC Contrail Prevention Project.

Covering your tracks

The airspace of Maastricht often experiences conditions favorable for the formation of contrails. Therefore, it is the **ideal testbed for the trial**.

The project focuses on identifying those conditions and preventing prolonged level flight through them. In a nutshell, the German Aerospace Center identify when conditions in the Maastricht UAC are favorable for the formation of contrails by looking at satellite data.

Taking predicted traffic levels into account, the duty supervisor then gives the thumbs up for controllers to conduct **'contrail prevention activity.'**

If it goes ahead, it will begin **after 4pm local and run through the night until 6am local**.

Affected aircraft will be **directed by air traffic control to change flight level** using the phrase '*for contrail prevention.*'

What about fuel burn?

EUROCONTROL advise that **ATC will only request the minimum level change required** – i.e. will keep you as close as possible to your chosen level as conditions permit.

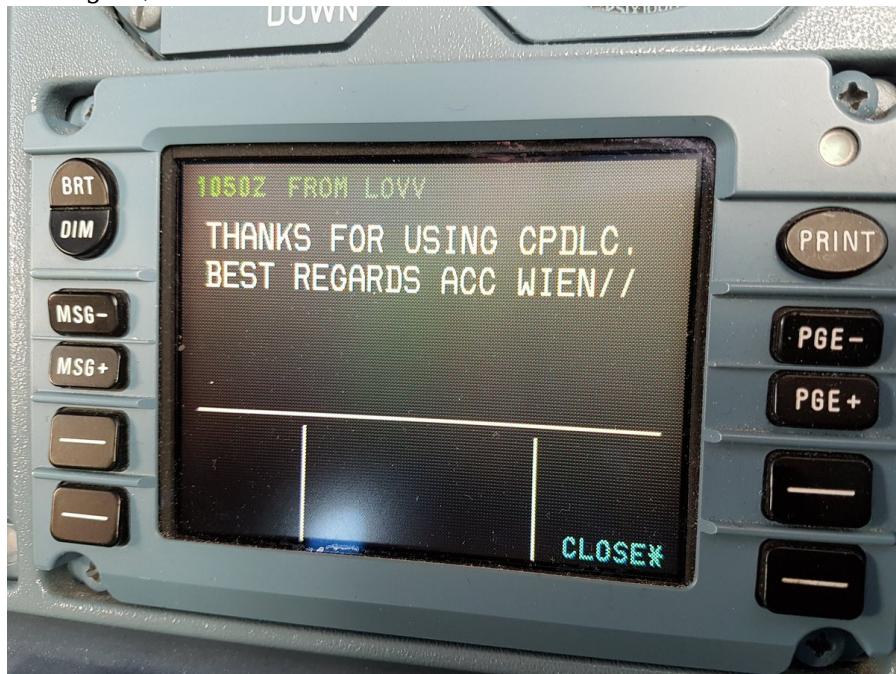
Anyone operating in Maastricht airspace may be selected to participate in this trial. It is important to

inform the controller if the level change will affect flight safety for which all levels will remain available.

Most GA/BA aircraft now exempt from Europe's 2020 Datalink Mandate

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Europe's datalink mandate takes effect today - 5th Feb 2020!

The original plan was that datalink would be required for all aircraft operating in Europe above FL285 from this date, but then the EU announced that this would **not be required for several categories of aircraft**, the main two being:

- Aircraft with a certificate of airworthiness first issued before 1 Jan 2018 and fitted prior to this date with FANS 1/A.
- Aircraft with 19 seats or less and a MTOW of 45359 kg (100000 lbs) or less, with a first individual certificate of airworthiness issued before 5 Feb 2020.

In other words - **most GA/BA aircraft!** (You can read the rule here - latest version in 2023).

Added to that, in early December 2019 the EU Commission approved plans to pass an additional resolution that makes a bunch of other aircraft exempt too:

Aircraft permanently exempt:

- Aircraft in Annex I
- Aircraft in Annex II with a CofA issued before 5 Feb 2020

Aircraft which have up to 5 Feb 2022 to do the avionics retrofit:

- Aircraft in Annex II with a CofA issued after 5 Feb 2020
- Aircraft in Annex III

On Feb 3, EASA issued a Bulletin which says that operators who are **exempt from the mandate** should include the letter "Z" in Field 10 and the indicator "DAT/CPDLCX" in Field 18 of their flight plan. If you don't, ATC won't know you're exempt, and you may struggle to fly above FL285!

Bottom line, for operators who are exempt from the mandate, these flights should not be restricted to the lower flight levels below FL285. Logged-on traffic might just get better directs and faster climbs, that's all.

It should be noted that the Datalink Mandate is not the same thing as the **Logon List**. The Logon List is the thing you need to get registered on if you want to get CPDLC when flying in Maastricht, France, Switzerland and Portugal. And it only applies to ATN CPDLC aircraft. If you've only got FANS1/A, Maastricht will let you log on, but France, Switzerland and Portugal will not.

The Backstory...

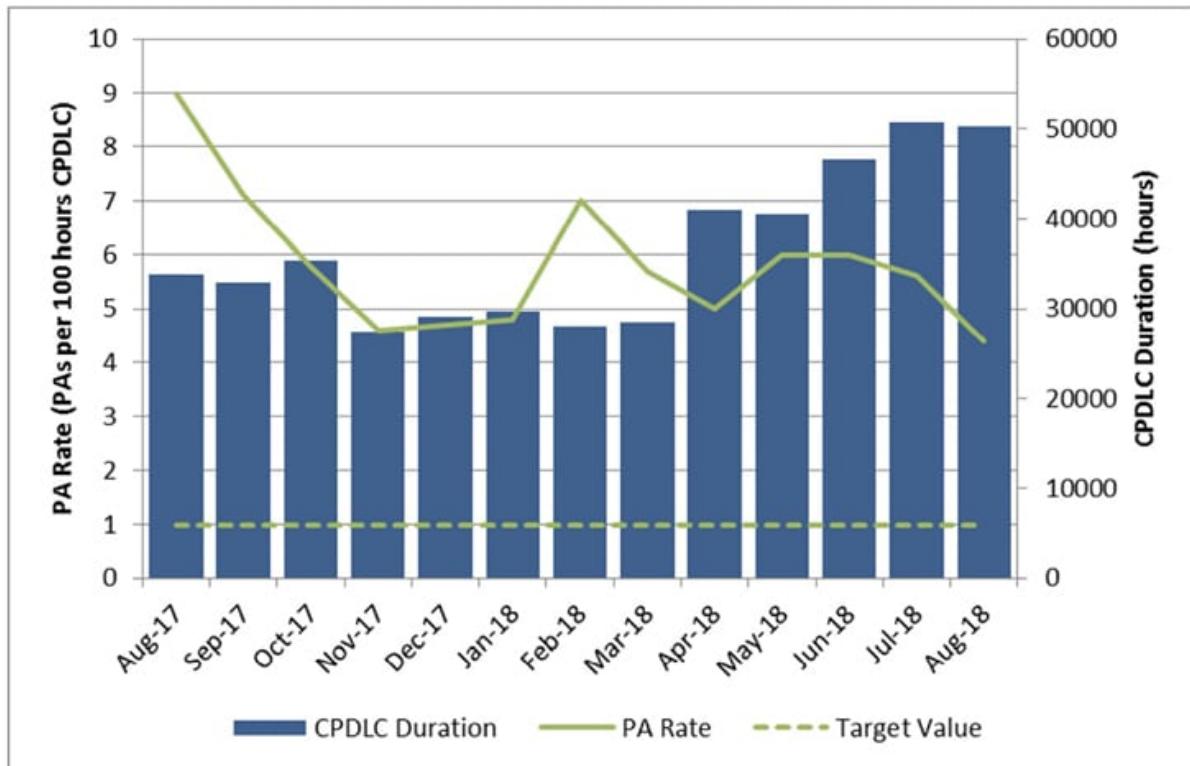
This mandate was actually supposed to come into force back in **Feb 2015**, but got delayed to Feb 2020 due to technical issues with the system, particularly disconnections, known as '**provider aborts**' - which is where an aircraft loses datalink connection with the ground for more than six minutes.

The high amount of these provider aborts has led some sectors (Maastricht UAC, France, Switzerland, and Portugal) to implement the Logon List (formerly known as the "White List"), which effectively means that CPDLC is **only** provided to those aircraft with avionics that are known to suffer a lower provider abort rate. The Logon List only applies to ATN B1 equipped aircraft, not those with FANS1/A - Maastricht are planning to introduce a similar list for FANS1/A aircraft at some point in the future, to ensure that only aircraft that have the latency timer feature will be able to log on.

In their original postponement of the mandate back in 2015, the EU said the following:

"This excessive rate of random provider aborts causes a degradation in the network performance potentially presenting aviation safety risks by increasing the pilots and controllers' workload and creating confusion leading to a loss of situational awareness."

Their goal was to get the number of provider aborts down to 1 per 100 flight hours. By mid-2018, the number had dropped to a rate of 4.4 per 100 flight hours, and data from this year has that figure down to 3.9 per 100.



Added to that, they wanted to get at least 75% of flights across the network filing with datalink. Current data suggests this is still lingering at around the 40% mark. So if the datalink mandate had been implemented as planned in Feb 2020 **without** these new exemptions, that would have meant that approximately 60% of the traffic would have been **restricted to below FL290!**

As the EU make clear in their new ruling, that is ultimately why the new raft of exemptions has now been brought in, ahead of the Feb 2020 mandate:

"Acknowledging the ongoing data link implementation issues and corrective actions taken and recognising the objective that at least 75 % of the flights should be equipped with data link capability, the criteria for exemptions should be amended. Those criteria should remain effective, without placing an undue economic burden on specific operator categories which contribute significantly less to the overall number of flights. Such categories should include operators of aircraft with Future Air Navigation Systems (FANS) 1/A systems installed, operators of older aircraft, and of aircraft designed to carry 19 passengers or less."

Ultimately, when the datalink mandate comes in on 5 Feb 2020, it now looks like most GA/BA aircraft will be exempt from this, meaning that those without CPDLC will be able to **continue to operate above FL285.**

Thanks to the European Business Aviation Association for their help with this article!

Article header photo by @Zelgomat