



Wake turbulences induced by Airbus A400M and associated hazards to light aircraft in the Class G airspace

INTRODUCTION

Since 2020, the Belgian Defence is operating the Airbus A400M, a heavy turboprop aircraft used as a transport aircraft. This Airbus weights 120 tons (empty weight) and therefore produces extremely large vortices.

With the present leaflet, the Belgian Civil Aviation Authority (BCAA), in collaboration with the Belgian Defence, would like to caution the General Aviation community about the **risks associated with the vortices produced by the A400M** and the possible consequences for nearby light aircraft.

WHAT ARE THE RISKS?

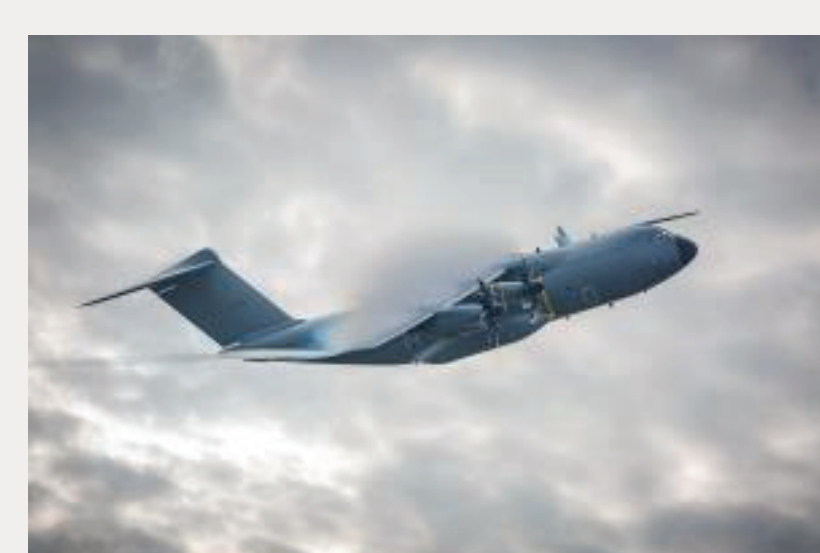
The Airbus A400M is based at Melsbroek Air Base, in the controlled traffic region (CTR) of Brussels. When flying out and in the CTR, it makes use of the surrounding uncontrolled class Golf airspace (with an upper limit of 1.500 ft above sea level, or AMSL), below Brussels TMA One.

The aircraft is not only used by the Belgian Defence for long-range transport, but also for tactical flights which are often trained at (very) low level, e.g. in the low flying areas in the Ardennes where it can operate down to 1.000 ft above ground level (AGL) and near parachute drop zones such as Schaffen. This means that, as a General Aviation pilot, you might very well come across an A400M at low level in uncontrolled class Golf airspace.

The vortices, also called wake turbulences, produced by the A400M are **extremely large**. Its impact on light aircraft can be catastrophic, leading for example to:

- induced roll;
- negative vertical acceleration;
- variation of altitude;
- loss of control.

The BCAA as well as the Belgian Defence would like to caution the General Aviation community that neither the Aeronautical Information Publication (AIP) nor the International Civil Aviation Organization (ICAO) can give clear rules regarding **wake turbulence** separation in the uncontrolled class Golf airspace.



HOW TO AVOID WAKE TURBULENCES

Vortices are present during take-off, during the flight and at landing. In order to avoid those wake turbulences, the ICAO prescribes:

- a **minimum of 6NM** (Nautical Mile) distance separation for light aircraft that would follow or cross the flight path of a heavy aircraft like the A400M;
- **3 minutes of separation** for a light aircraft that would follow a heavy aircraft during take-off as well as landing;
- the use of the word **"heavy"** by A400M in the R/T during its first contact with the air traffic control (ATC) units.

GOOD PRACTICES

Since the trajectory of a A400M is not predictable in the uncontrolled class Golf airspace, there are no set rules. Nonetheless, here are some **good practices** to follow in order to enhance the safety of light aircraft:

- check the **NOTAMS** (Notices to Airmen);
- pay attention to **active drop zones**;
- **stay away** from any Airbus A400M flying in uncontrolled airspace;
- avoid flying at the **same altitude (or lower)** as well as **behind the path** of an A400M;
- **adjust your position** laterally, preferably **upwind** (as wake turbulence vortices will move downwind), if you are on the same track as an A400M.

If you ever experience wake turbulences, you are encouraged to [report to the European Aviation Reporting Portal](#), the European Coordination Centre for Aviation Incident Reporting System. This report would help to have a better understanding of the phenomenon.



MORE INFORMATION

For more information regarding the wake turbulences:

- Read the [previous BCAA leaflet \(ASIL 2018-01\)](#) regarding wake turbulences.
- Read [EASA's leaflet \(SIB 2017-10\)](#) on wake turbulences encounters.
- Go on the [Skybrary website](#) for more information about wake vortex hazard.
- Read the Belgian Defence [leaflet](#) regarding A400M vortices.

Questions? Suggestions?
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WHAT IS AN ASIL?

ASIL stands for Aviation Safety Information Leaflet. These leaflets are created and published by the Belgian Civil Aviation Authority (BCAA) in order to raise awareness and to promote aviation safety. These leaflets are often based on the safety analysis of occurrences reported in accordance with Regulation (EU) 376/2014 on the reporting, analysis and follow-up of occurrences in the civil aviation. For more information about the leaflets themselves, visit our website in [French](#) or in [Dutch](#).