

SAFETY PROMOTION NOTICE

SUBJECT: GENERAL

Understanding and preventing Inadvertent Instrumental Meteorological Conditions (I-IMC)



AIRCRAFT CONCERNED	Version(s)	
	Civil	Military
EC120	B	
AS350	B, BA, BB, B1, B2, B3, D	L1
AS550		A2, C2, C3, U2
AS355	E, F, F1, F2, N, NP	
AS555		AF, AN, SN, UF, UN, AP
EC130	B4, T2	
SA365 / AS365	C1, C2, C3, N, N1, N2, N3	F, Fs, Fi, K, K2
AS565		MA, MB, SA, SB, UB, MBe
SA366		GA
EC155	B, B1	
SA330	J	Ba, L, Jm, S1, Sm
SA341	G	B, C, D, E, F, H
SA342	J	L, L1, M, M1, Ma
ALOUETTE II	313B, 3130, 318B, 318C, 3180	
ALOUETTE III	316B, 316C, 3160, 319B	
LAMA	315B	
EC225	LP	
EC725		AP
AS332	C, C1, L, L1, L2	B, B1, F1, M, M1
AS532		A2, U2, AC, AL, SC, UE, UL
EC175	B	
H160	B	
EC339		KUH/Surion
BO105	C (C23, CB, CB-4, CB-5), D (DB, DBS, DB-4, DBS-4, DBS-5), S (CS, CBS, CBS-4, CBS-5), LS A-3	CBS-5 KLH, E-4
MBB-BK117	A-1, A-3, A-4, B-1, B-2, C-1, C-2, C-2e, D-2, D-2m, D-3, D-3m	D-2m, D-3m
EC135	T1, T2, T2+, T3, P1, P2, P2+, P3, EC635 T1, EC635 T2+, EC635 T3, EC635 P2+, EC635 P3, T3H, P3H, EC635 T3H, EC635 P3H	

No. 3767-P-00

I-IMC (Inadvertent Instrument Meteorological Conditions) is a prominent contributor to rotorcraft accidents. Airbus Helicopters proposes the following content from various sources to raise awareness on this topic.

How do you recognize I-IMC?

The following is an excerpt from the Skybrary.

“Pilots should assume they are in IMC conditions anytime they are unable to maintain aircraft attitude control by reference to the natural horizon, regardless of the circumstances or the prevailing weather conditions. In addition, a VFR pilot should accept that they are effectively in IMC anytime they are unable to navigate or establish geographical position by visual reference to landmarks on the surface unless they have planned and are legally able to operate “VFR on top”. Such situations must be accepted by the pilot involved as a genuine emergency, requiring immediate action.”

[LINK](#)

Key risk areas identified in the EPAS

I-IMC is prominent in the rotorcraft accident contributing factors as it can quickly lead to disorientation, loss of control and/or impact with obstacles and terrain. The EPAS is the European Plan for Aviation Safety and it includes a separate study for Rotorcraft. Here below are the 3 top key risk areas identified for various types of operations: Aircraft upset and collisions are systematically at the top.

CAT operations helicopters

KRA 1	KRA 2	KRA 3
Aircraft upset	Terrain collision	Airborne collision

The aircraft upset accident scenario is still the top key risk area, both in terms of number of occurrences and aggregated risk. Terrain collisions, airborne collisions and obstacle collisions in flight form the other main key risk areas of the commercial air transport helicopters domain. Also, it should be highlighted that even if, over the 5-year timeframe considered, aircraft upset and terrain collision present the highest cumulated risk, airborne collision becomes the top key risk area if we consider only the last 3 years (2018-2020), due to the increase of fatalities caused by airborne collisions in 2018 (4 fatalities) and in 2019 (10 fatalities).

SPO helicopters (aerial work)

KRA 1	KRA 2	KRA 3
Aircraft upset	Terrain collision	Obstacle collision in flight

In SPO there were 1 fatal accident, 9 non-fatal accidents and 3 serious incidents in 2020, leading to 2 fatalities.

Non-commercial operations helicopters

KRA 1	KRA 2	KRA 3
Aircraft upset	Terrain collision	Obstacle collision in flight

In non-commercial operations, there were 2 fatal accidents, 15 non-fatal accidents and 7 serious incidents in 2020, leading to 6 fatalities and 3 serious injuries.

The safety issues identified for all KRAs, for the different types of operation, are listed in the ASR 2021 (refer to Table 18 – CAT, Table 21 – SPO and Table 24 – Non-commercial operations).

Extract from EPAS 2022 - Vol2 [LINK](#)

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Griffith university study on contributing factors to VFR flights into IMC

Mentioned in this article ([LINK](#)), an interesting study was carried out to analyze psychological factors potentially contributing to VFR flights into IMC.

On top of thinking bias that could skew decision making into making a less safe decision, the study looked into the relationship between 3 items:

- the intention to continue on into adverse weather,
- the perception of risk,
- and perceived ability.

The interesting conclusion reached is unfortunately that the higher a pilot's perception of their own ability, the more likely they were to continue VFR flight into IMC in the adverse weather scenario presented.

The study had another interesting finding: it identified that 8 times more pilots surveyed considered their skills above average than those who considered themselves below average.

Put together, that shows a background situation with a surveyed pilot population highly overconfident and more susceptible to I-IMC.

How to address this?

Teaching Avoidance over Recovery

Teaching avoidance over recovery of I-IMC is the key to the syllabus proposed by several training centers. It is the pragmatic acceptance of the following points:

- Flying IMC relies on a specific training that goes with a dedicated range of certified equipment. If you departed on a VFR flight, these are not necessarily available.
- Recovery techniques would need to be periodically sharpened to remain efficient.
- In risk management, prevention should be preferred to mitigation.

[LINK](#) to the Helisim article and video.

"56 seconds to live" video from USHST

The USHST has created a very good awareness video on the topic.

[LINK](#)

This then triggered a longer discussion on prevention and education: "56 seconds rewind".

[LINK](#)

Loss of Control inflight (LOC-I) video for ESPN-R by Leonardo

I-IMC can result in a Loss of Control Inflight (LOC-I). The Prevention & Mitigation Challenges video is intended for those involved in both Training and Flight Operations. In this video, a Flight Instructor defines LOC-I, describes the risk and provides safety tips to mitigate the risk and avoid accidents.

[LINK](#)

Generate a discussion

The following podcasts from the Airbus Helicopter Inc head of aviation education can be a good starter to hold discussions on I-IMC related points. We recommend:

[Flight Visibility](#)

[Live another Day](#)

[Cautious or Courageous](#)

[Imminent IMC](#)



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Debrief flights

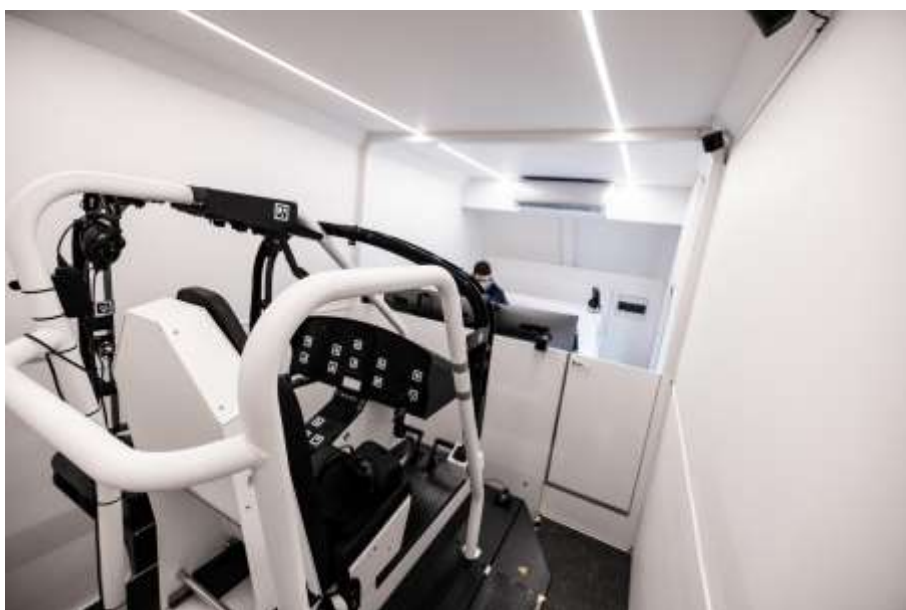
One part of the discussion around I-IMC is “how inadvertent was that event?”. Using HFDM can help identify flights that happen close to IMC conditions. This is a good opportunity to generate discussions on the topic in your organization and to set the tone for your organization on this point.

New training technologies

Since May 2022, VRM Switzerland is the first company to qualify with EASA an FTD level 3 relying on virtual reality devices.

Their simulator is a cost-effective method to standardize safety awareness courses on the topic.

[VRM Switzerland I-IMC prevention video.](#)



And remember: Prevention should be preferred to mitigation.