



BEA

Bureau d'Enquêtes et d'Analyses
pour la sécurité de l'aviation civile

General Aviation accidents in adverse weather conditions

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member
of the
network



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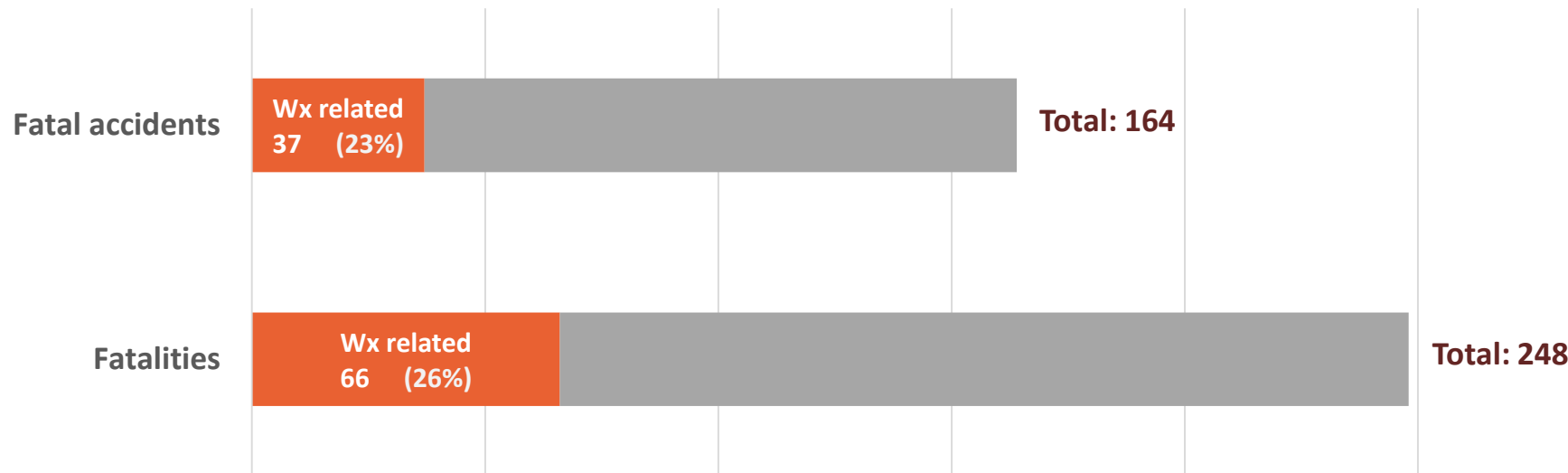
Statistics (BEA database)

Fatal accidents

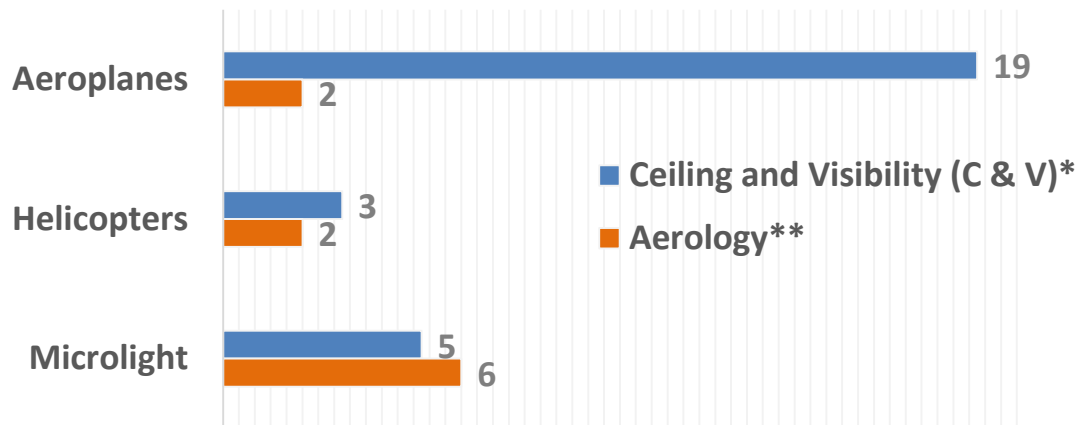
- 5-years period (2014-2018)
 - In France
 - NCO
 - Aeroplanes, helicopters, microlights
 - ➔ *Excluding gliders and balloons*
-
- **164 fatal accidents (248 fatalities)**
 - ➔ *42 investigations still in progress*

Fatal accidents / adverse Wx conditions

➔ *Based on data available (closed and opened investigations)*

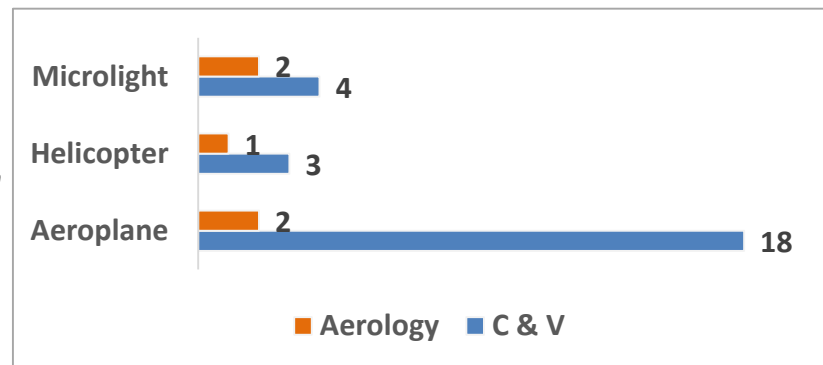
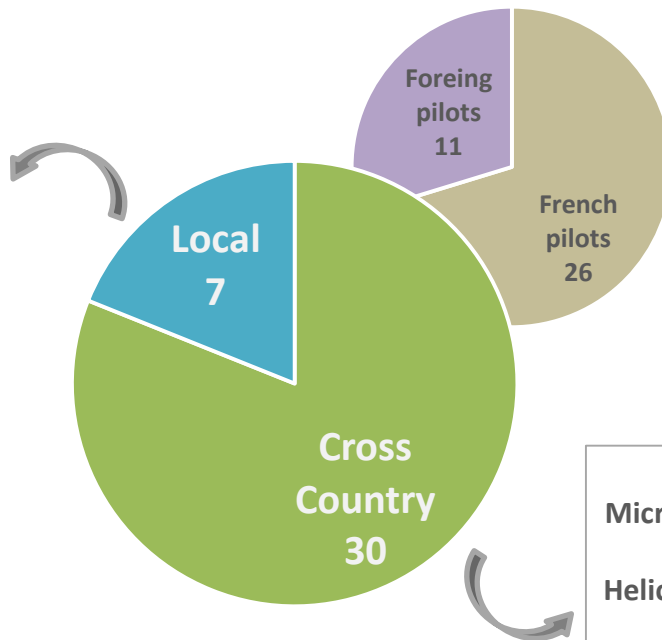
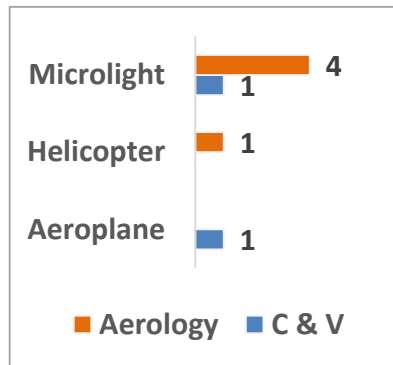


Fatal accidents / adverse Wx conditions



- ➔ Remark: 1 **icing** related fatal accident
- ➔ *Specific cases included in **C & V** category
 - **IFR flights** (3 accidents)
 - **Thunderstorm** (1 accident) ➔ **C & V and/or aerology** (not determined precisely)
- ➔ ** Some cases with **tailwind** effects on take-off or landing included in **Aerology** category

Fatal accidents / adverse Wx conditions

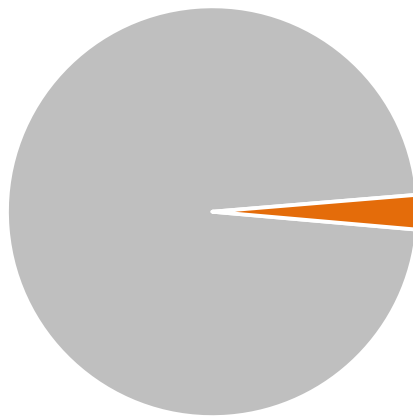




Investigations findings

BEA Access to / interpretation of weather information

37 Wx related fatal accidents
(29 completed investigations)

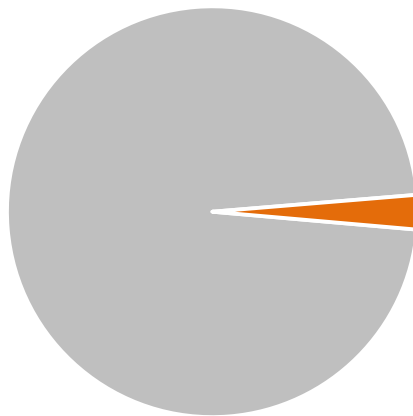


Only 1 investigation concluded that the weather information available before the flight did not predict the adverse conditions encountered

- In other cases, **no mention** is made of :
 - ➔ Difficulties in **accessing** weather information
 - ➔ **Misinterpretation** of weather information (➔ investigations limits?!)

Pilot awareness

37 Wx related fatal accidents
(29 completed investigations)



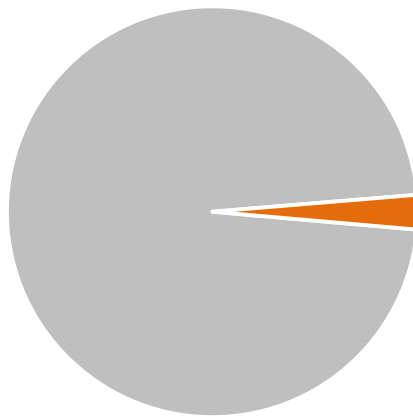
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■ However:

- In one case: the **PIREP** process is discussed, suggesting the need for an **inflight information** → **external/personified warning** needed as well as update/precision
- In another case: pilot possibly **surprised** by **sea fog** → **rapidity of the phenomena** but not lack of prediction

Pilot behaviour

37 Wx related fatal accidents
(29 completed investigations)



Only 1 investigation concluded that the weather information available before the flight did not predict the adverse conditions encountered

- Among the **27 C & V** related fatal accidents
 - ➔ 22 cases with probable contribution of the **“get-home-itis” factor**
 - ➔ +1 more possible contribution of the **“get-home-itis” factor** in an **aerology** related fatal accident (cross country / aeroplane)

- DA42 NG registered F-HFBS (12/09/2017) – 4 fatalities
 - ➔ *Loss of control during approach in turbulent conditions*
 - ➔ *Stay planned in Corsica with his wife and a couple of friends*
 - ➔ *Strasbourg – Cannes (where the couple of friends is taken on board) – Ghisonaccia*
 - ➔ *Weather forecasts available before flight*
 - *TAF mentioning wind gusts to 42kt*
 - *SIGWX chart and SIGMET mentioning severe turbulences and mountain waves*
 - ➔ *During the stop in Cannes, a friend of the pilot called him from Corsica to inform him of the adverse weather conditions and to suggest that he postpone the flight until the next day.*

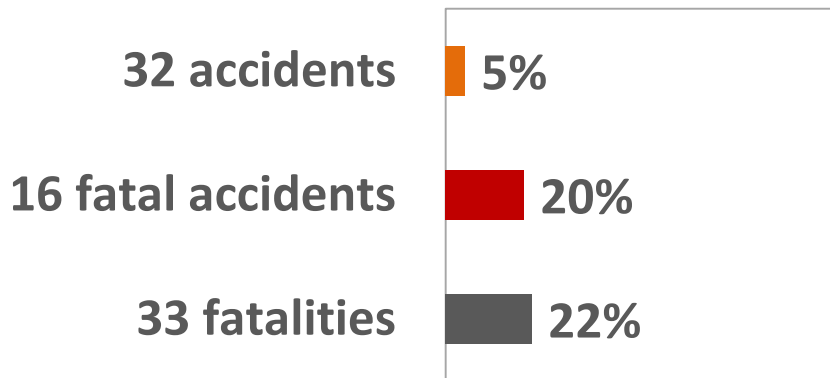
- Aquila AT01 registered D-ERLM (08/05/2018) – 2 fatalities
 - ➔ Approaching destination : *loss of visual references* ; collision with hilly terrain
 - ➔ *Group trip* (24 people in 10 aeroplanes, to visit Airbus plant in TLS) organised by the pilot of the D-ERLM
 - ➔ Trip plan : XXXX (Germany) – *Troyes (Fr) – Albi (Fr)* – Toulouse Lasbordes (Fr)
 - ➔ In Troyes:
 - Based on the available weather information, *several pilots did not take off to reach Albi*
 - Others took off and faced low ceilings and low visibility; some *diverted* and completed their journey by car



« Get-home-itis » factor (reminder)

*Results of a study over the period 2010-2015,
presentated to EASA GA workshop in 2016*

« Get-home-itis »: contribution to accidents



■ Criteria

- *A cross country flight or a local flight with a localized sightseeing objective*
- *A threat that a PPL owner would normally be able to identify and a risk he would normally manage by renouncing to the objective*
- *Possible/identified motivation/stress factors*

« Get-home-itis »: types of events

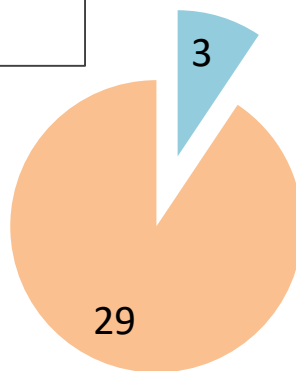
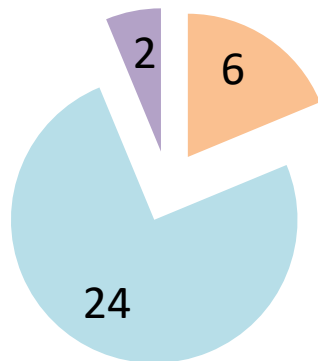
32 « Get-home-itis factors »	22 Flights within adverse meteorological environment <i>Including 2 flights with poor lighting conditions due to nightfall</i>	16 losses of visual references	11 Controlled flight into terrain (CFIT)
			3 Losses of control - inflight (LOC-I)
			2 CFIT or LOC-I (undetermined)
		3 aerological phenomena encountered	2 LOC-I
	6 Flights undertaken despite an uncertain technical reliability of the airplane	2 flights continued at low height to maintain visual references	1 CFIT (antenna)
		1 flight into or close to thunderstorm	1 (LOC-I)
		2 inflight engine shutdowns	1 inflight structural failure
		1 erroneous flaps configuration for takeoff	1 ditching
	3 Flights undertaken or continued despite insufficient fuel autonomy	1 CO poisoning	1 forced landing
		2 flights back undertaken after an accident for which the structural damages have not been assessed	1 runway excursion (RE)
		3 inflight engine shutdowns	1 offside touchdown (USOS)
	1 contaminated RWY	1 takeoff with inadequate configuration (wheels iso skis)	No consequences on the undertaken flights back despite substantial damages that have been observed afterwards
			3 forced landings
			1 LOC-I

« Get-home-itis »: flights features

Pilot alone

With passengers
(avg. ≈ 2 PAX)

Instructional
flight - dual



Local flights with localized
sightseeing objective

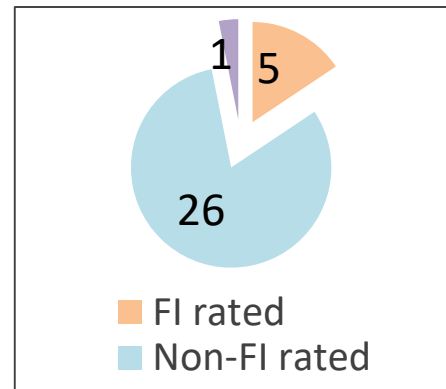
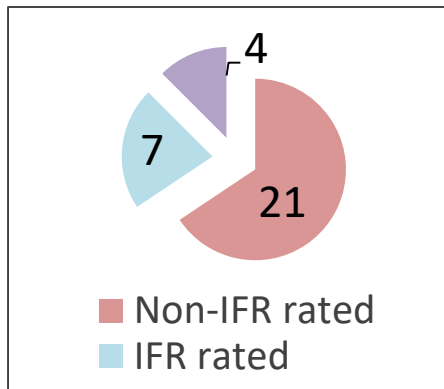
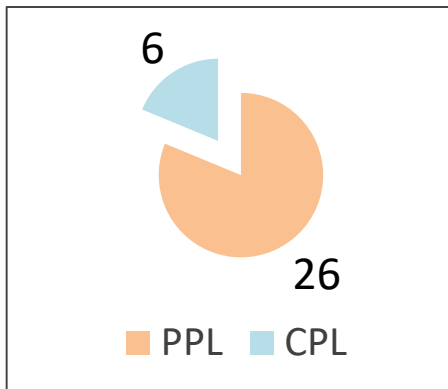
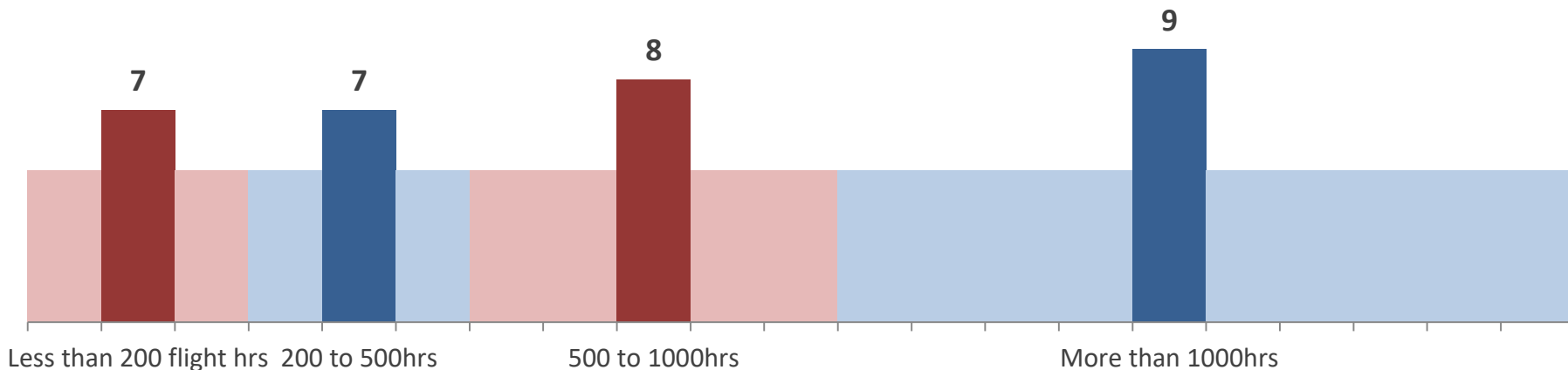
Cross-country flights

17
outward
flights

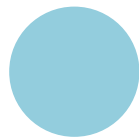
12
return
flights



« Get-home-itis »: pilots features



« Get-home-itis »: motivation / felt pressure



Reluctance to organize an alternative solution: *accommodation, transportation, impacts on personal/professional agenda, ...*



Pleasure or intention to please/satisfy passengers: *to fly, to fly to destination, to fly over this site...*



Consideration of constraints for the flying club: *unavailability for the next pilots who have booked, travel of an engineer or of another pilot, ...*



Motivation to attend a personal appointment: *family meal, show/performance with tickets already purchased, ...*



Emulation between pilots: *group trip*



Aeronautical compliance/deadlines: *scheduled a/c maintenance program, pilot licence expiry date, ...*



Pressure to attend a business meeting



Open analysis and questions

BEA Additional weather information in the cockpit

■ To answer which issue?



- **Accessibility** to **relevant** weather forecasts/observations before flight?
 - ➔ *No major deficiencies in investigated fatal accidents*
- **Interpretation** of relevant weather information / **pilot awareness**?
 - ➔ *Investigations limits to assess knowledge*
 - ➔ *Some examples indicating that the threat was identified before the flight*
- **Behaviour** with regard to forecasted/encountered adverse weather?
 - ➔ *Lots of flights undertaken/continued in adverse weather until the accident*

BEA Additional weather information in the cockpit

■ New issues to be considered?

- More “**let’s go and see**” behaviour to the detriment of the flight preparation?
 - ➔ *Already the case in some of the fatal accidents...*
 - ➔ *The flight preparation should be a favorable phase in order to analyze and to decide (low stress, possible discussions with other pilots, instructors, ...)*
- New source of **dispersal of the (VFR) pilot's attention**? Focused within the cockpit?
 - ➔ *Control of the aircraft? Navigation? Anti-collision?*
- Technology exists and is becoming more democratic
 - ➔ *Its deployment must be **supported**, particularly in terms of **training**, including TEM*



Thanks for your attention

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