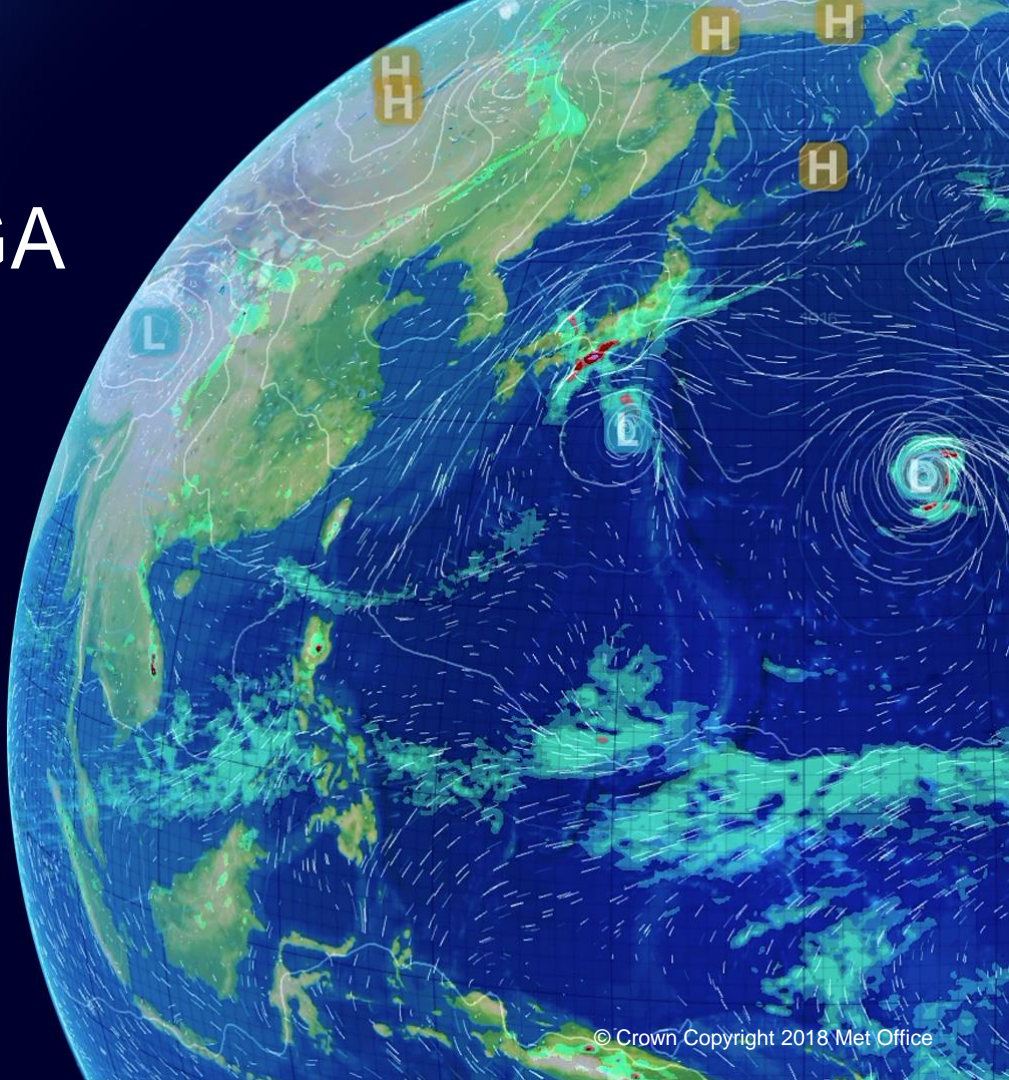


Helping to make UK GA safer

General Aviation & Low level Weather Seminar,
EASA, Cologne

Wednesday 17 July 2019

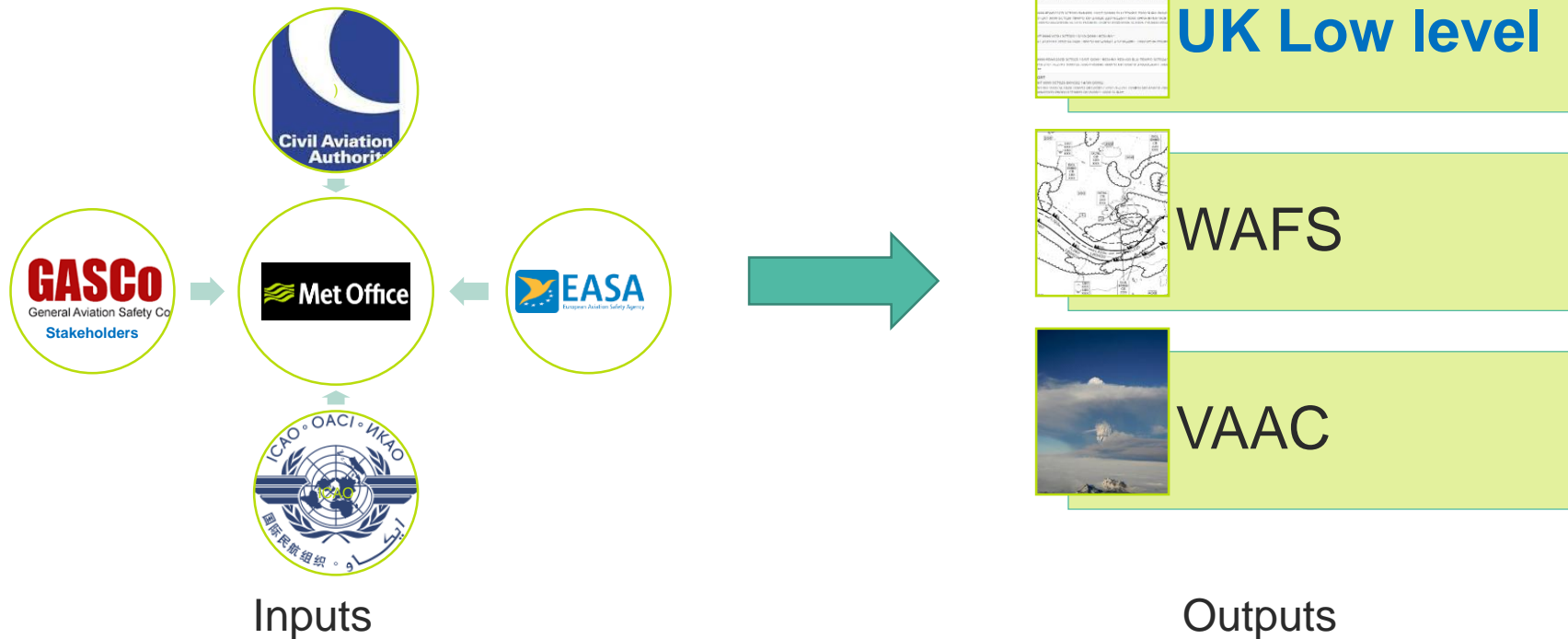
Darren Hardy
Senior National Aviation MET Advisor
UK Met Office



Purpose of this presentation

- Summarise the arrangements & provisions for weather information to GA pilots operating over the UK
- Meeting the evolving requirements of the GA community
- Promoting the application of TEM principles as a way to make GA safer

Regulatory Context



GA Users of weather information



- What is GA?

'an aircraft operation other than a commercial air transport operation or an aerial work operation' ICAO

Fixed wing aircraft <5,700ft KG MTOW



Threats - How weather can ruin your day



Threats - How weather can ruin your day



En-route

- Low cloud (hill FG)
- Poor vis
- Icing
- Low level Turbulence
- Rotors
- Hail



Aerodrome

- Strong/cross wind
- Thunderstorms
- Fog
- Frost

Hazards



CFIT



Airspace
infringements



Carb/airframe
icing



Airframe
damage



Runway
excursions



Disorientation

Impacts

Threats - How weather can ruin your day

Key Figures

Total Occurrences

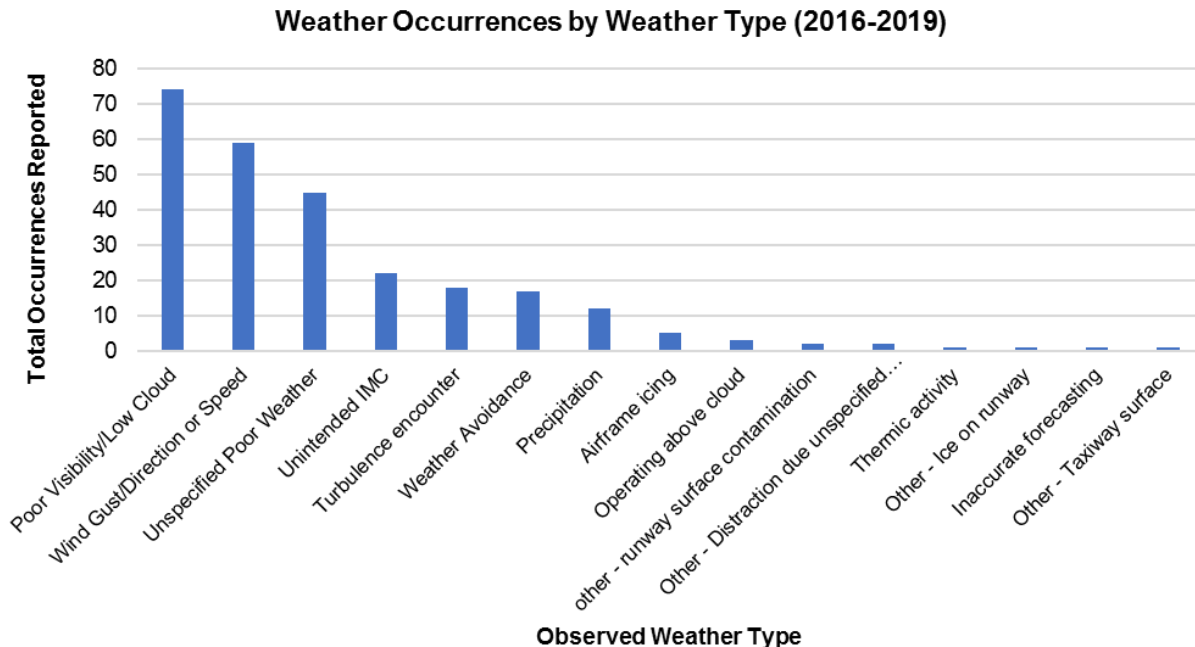
263

High Severity Occurrences

31

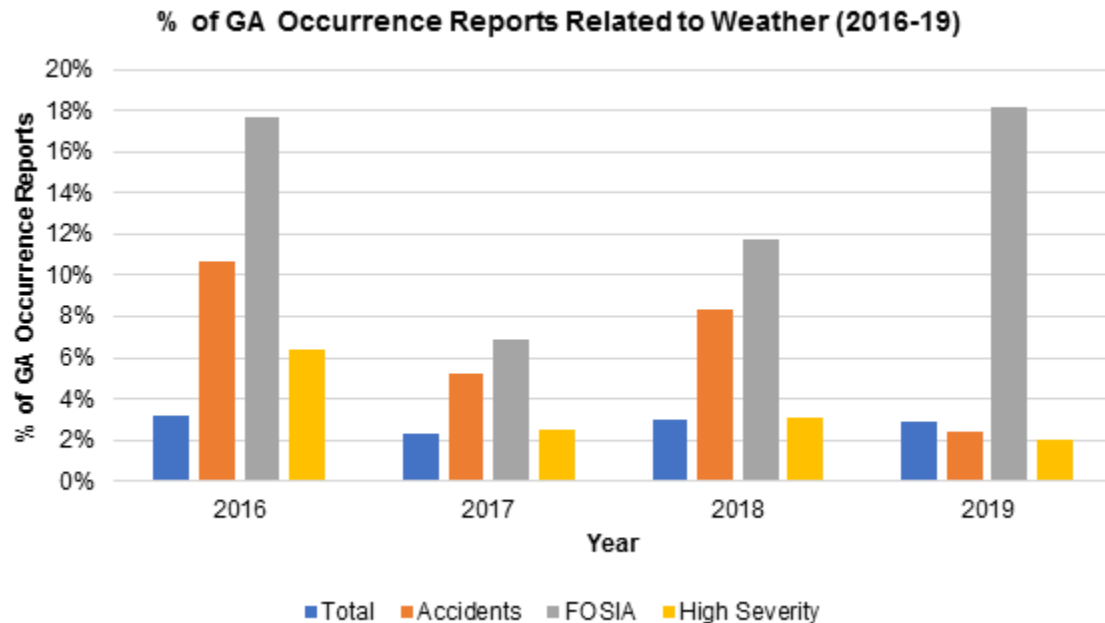
Fatal or Serious Injury Accidents

12



Source: UK Civil Aviation Authority – Safety Intelligence Team

Threats - How weather can ruin your day



Between 7-18% of all
fatal or serious accidents
result from the weather

Source: UK Civil Aviation Authority – Safety Intelligence Team

Assets - Helping GA to meet these challenges

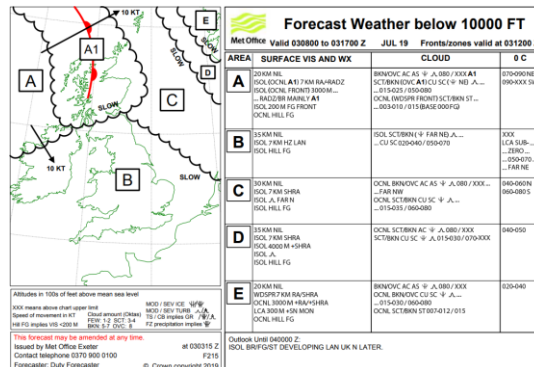
GA briefing service

Education seminars

Products

Guidance material

Contact with meteorologists



Ballooning forecast - Bristol

Issued: Tue 04 September 2018 0830 UTC

[View balloon report](#)

Tue AM Tue PM Wed AM

Area Forecast: SOUTHWEST

Forecast period: 04 SEPTEMBER 2018 1600-2100 UTC

Regional Summary

For most areas moderate northerly or north-northeasterly winds. For West Wales and the north coasts of Cornwall, strong northerly winds. In western areas cloudy, with broken or overcast stratus, hill fog and patchy drizzle.

See Breeze: N

Inversions Min/Max (ft)

In the far west, a weak inversion with base at 3000ft and top 5000ft.

Lee waves generated over Snowdonia

Height at strongest wave activity (ft): N/A

Wave amplitude (ft/Moderate/Severe): N/A

Risk of Rotors: N/A

Outlook for period:

DAWN TO DAWN+3 HOURS, 05 SEPTEMBER 2018. Over most areas moderate northerly winds but remaining strong over west Wales. Light to moderate winds over east Wales and the southwest Midlands.

Time (UTC)	1600	1700	1800	1900	2000	2100
Surface wind direction	020	020	020	020	020	020
Surface wind speed/gusts (kts)	7/14	7/14	7/14	6/13	6/14	6/13
Surface air temp °C	PS16	PS16	PS16	PS16	PS16	PS16
500ft wind direction	020	020	020	020	020	030
500ft wind speed (kts)	11	11	11	11	11	10
500ft air temp °C	PS14	PS15	PS15	PS15	PS15	PS14
1000ft wind direction	020	020	020	020	030	030
1000ft wind speed (kts)	11	11	12	14	14	14
1000ft air temp °C	PS13	PS13	PS13	PS13	PS13	PS13
2000ft wind direction	030	030	030	030	040	040
2000ft wind speed (kts)	8	10	11	13	13	14
2000ft air temp °C	PS11	PS11	PS11	PS11	PS12	PS12
Thermal strength	Weak	Weak	Weak	Weak	Weak	N/A
Thermal height (ft)	1500	2000	1500	1000	0	0
Wind shear	No	No	No	No	No	No
QNH (hPa)	1022	1022	1022	1022	1023	1023
Humidity (%)	80	80	80	80	80	80

Helping meet the evolving requirements of GA



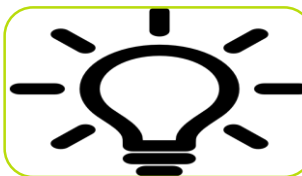
- Develop APIs for hi-res Met data & regulated aviation products
i.e. Dynamic data to apps & cockpit
(! Beware – human factors !)



- Improved briefing practices
i.e. Promote TEM principles



- Improved harmonisation/collaboration across States
i.e. KNMI (HeliBrief, NAFS & LWC), SIGMET coordination



- We are open to ideas!

Met Office and finally...

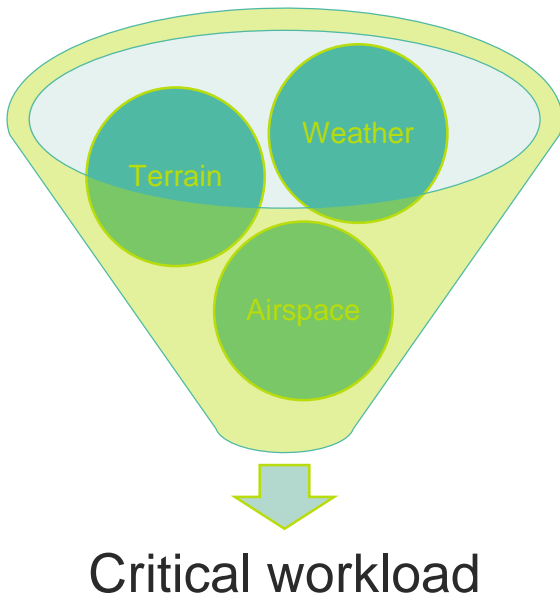
Improving briefing– a quick look at TEM

- 7-18% of aviation accidents directly related to weather
- TEM can help to maintain flight safety
- It is all about understanding the threats for any flight (weather, airspace, terrain) - all pressures that can create unsafe workloads), and having a plan to maintain safety by anticipating & recognising these known (or any unknown) risks.
- TEM principles are well covered by EASA, but how many GA pilots routinely apply it?



Improving briefing– a quick look of TEM

Weather is a **Threat**



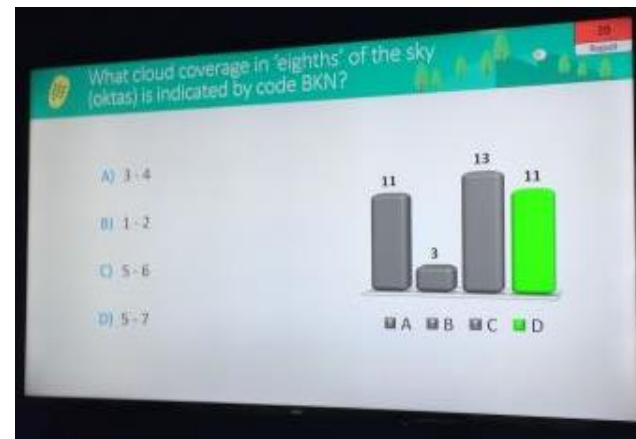
- Threats are events that occur outside the influence of the pilot
- Threats can conspire to create critical & unsafe workloads
- Require immediate attention if flight safety is to be maintained

Improving briefing – a quick look of TEM

Errors are events under the influence of pilots that can reduce flight safety

Possible causes of errors:

- Unsuitable or misinterpreted briefing
- Poor planning for anticipated weather
- Failure to recognise changes in weather
- Human Factors (starting or pressing on in significant weather)

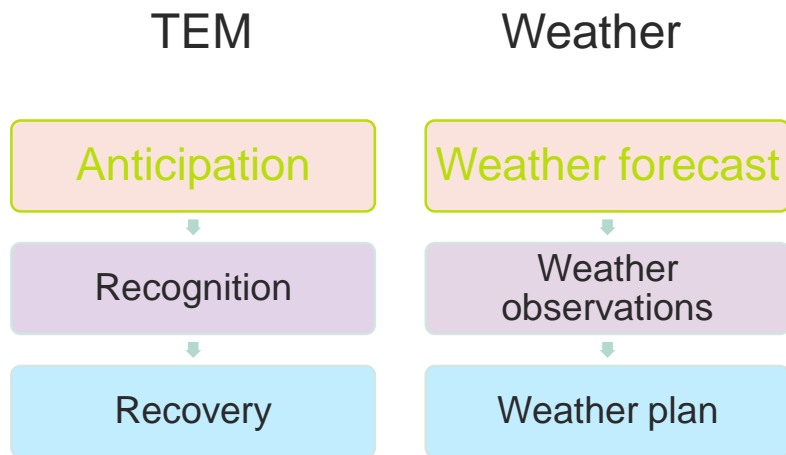


We have a way to go...

Improving briefing – a quick reminder of TEM

Management – have a Weather Plan!

Basic approach for pilots



Anticipate weather threats before flight through interpretation of weather forecasts

Recognise weather threats using observations before & during flight

Recover – do something about it; take the decision to implement a 'weather plan' to manage the threat

Summary

- Extensive briefing information available to pilots
- The important thing is to help ensure GA make the best use of it
- Improved science & technology offers up exciting new ways to convey information
- Engagement with GA community is key!



It's time for questions...

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