



FDD/ FCC Breakout Session

Philip Brown

Flight Standards Officer

CAA Air Display Regulation Team





FDD/ FCC Breakout





FDD/ FCC Breakout



Scope

- FCC Construct
- The role of the CFCC
- FCC ROCC
- Assurance Visit Feedback
- Feedback for the CAA/ MAA
- FDD Accreditation: Initial Issue and Upgrades



FDD/ FCC Breakout

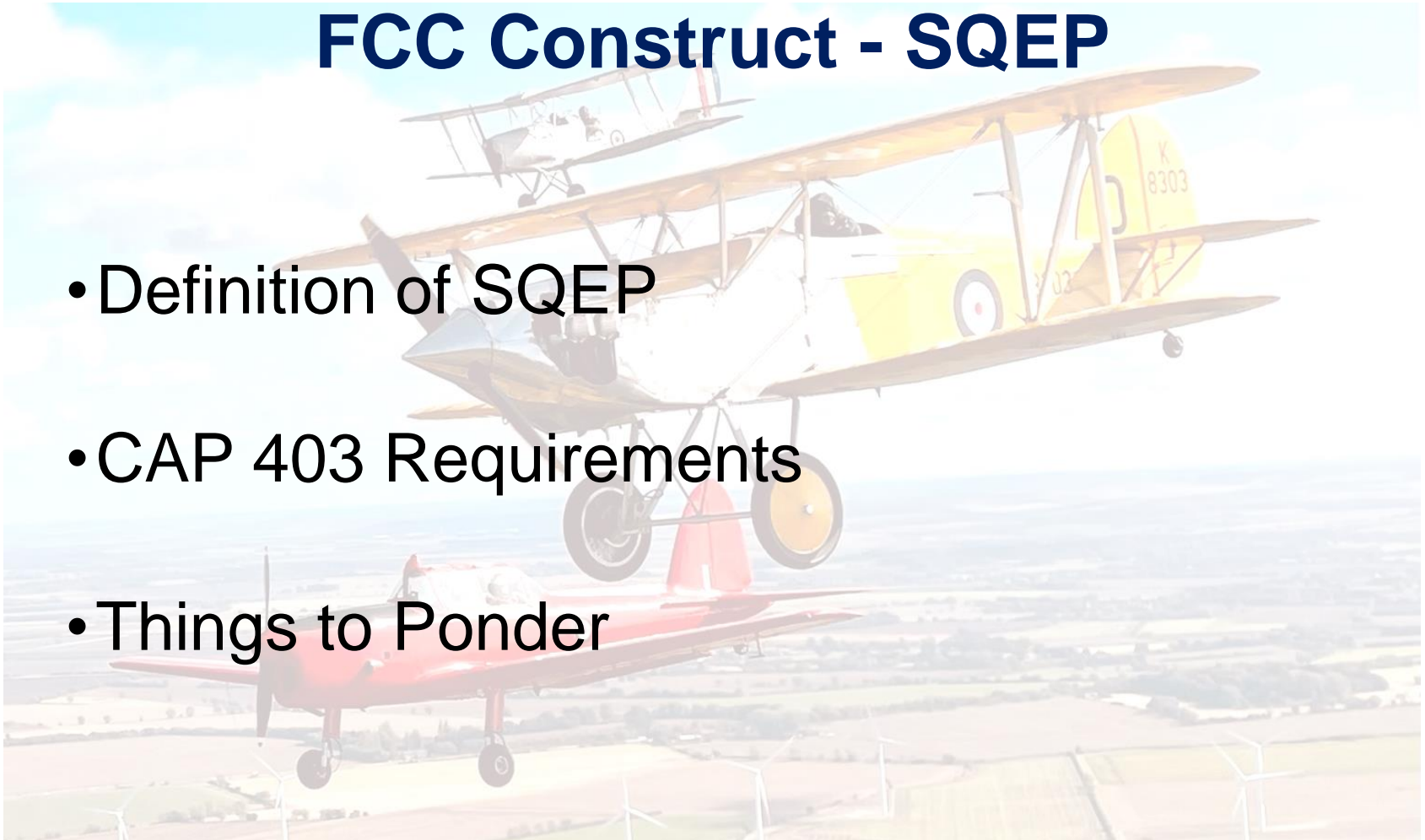
An aerial photograph of three biplanes flying over a landscape with wind turbines. The biplanes are yellow and red, with the registration 'K 8303' visible on the side of the largest one. The text 'FCC Construct - SQEP' is overlaid in the center of the image.

FCC Construct - SQEP



FCC Construct - SQEP

- Definition of SQEP
- CAP 403 Requirements
- Things to Ponder





SQEP – A Simple Definition

A Suitably Qualified and Experienced Person





CAP 403 Requirements (FCC)

8.9 Flying Displays consisting of 7 Display Items or more **must** have a FCC, details of which should be on the application.

Additionally, the CAA **may**, following review of the complexity of an application, require a FCC for Flying Displays with fewer than 7 Display Items.

8.10 In exceptional circumstances, the FDD may apply for an alleviation to the requirement for a FCC by sending suitable justification to the CAA GA Unit.

8.11 A FCC **shall** be appointed by the FDD who **shall** issue the FCC with appropriate Terms of Reference.

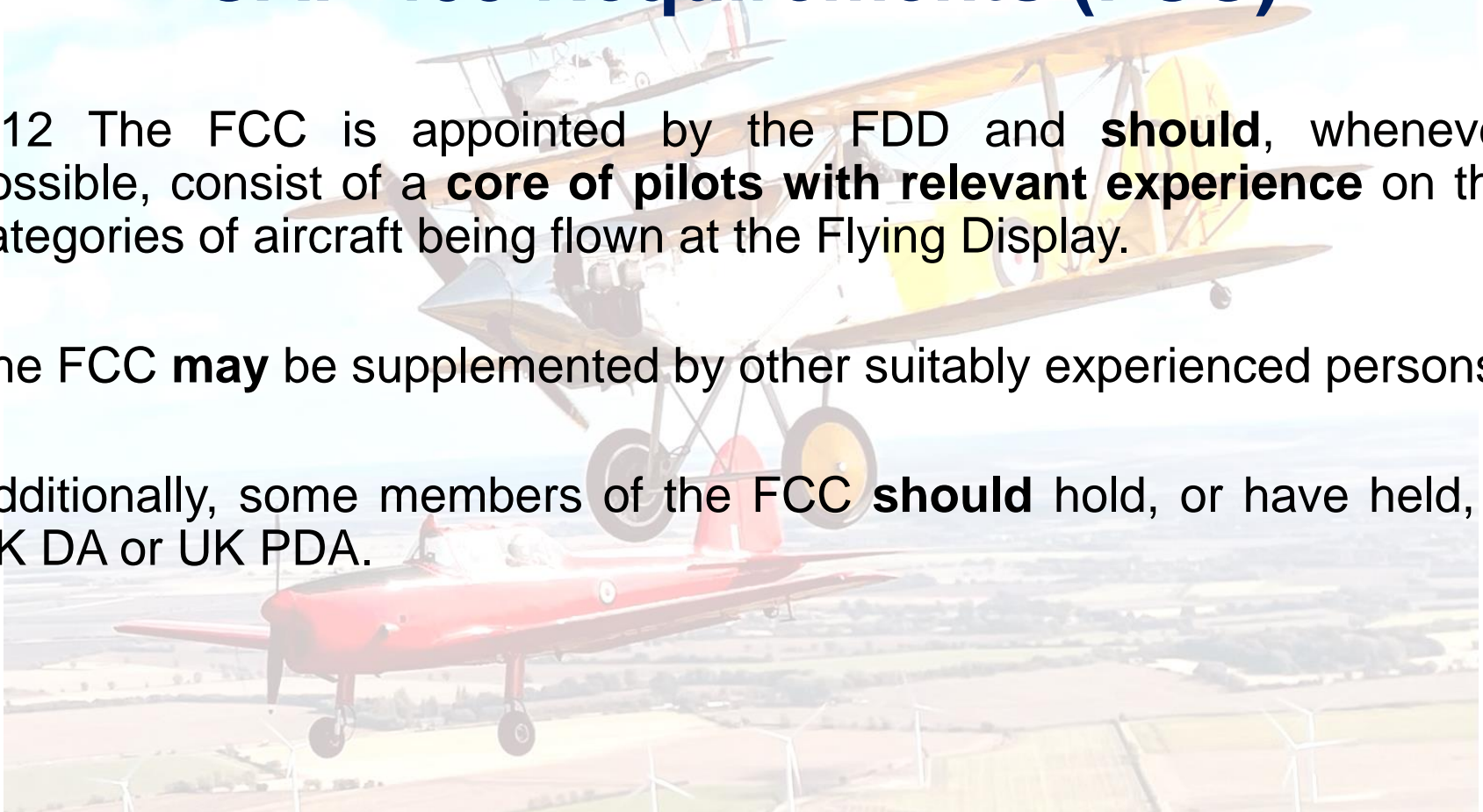


CAP 403 Requirements (FCC)

4.12 The FCC is appointed by the FDD and **should**, whenever possible, consist of a **core of pilots with relevant experience** on the categories of aircraft being flown at the Flying Display.

The FCC **may** be supplemented by other suitably experienced persons.

Additionally, some members of the FCC **should** hold, or have held, a UK DA or UK PDA.





Points to Ponder

1. The FCC is appointed by the FDD
2. The FCC doesn't need to consist exclusively of pilots.
3. Not all pilots in the FCC need to hold DAs.
4. Non-DA, non-pilot FCC members still need relevant qualifications and experience.



Roles of the FCC (CAP403 Para 8.13)

- a) To assist the FDD in the safe delivery of the Flying Display;
- b) To assist the FDD in monitoring the standard and Flying Display related discipline of Participants;
- c) To provide the FDD with specialist knowledge;
- d) To provide the FDD with a specialist opinion in case of any regulatory infringements;
- e) To advise the FDD on restrictions or additional limitations if required;
- f) To monitor the conduct of all display participants for regulatory compliance;
- g) To intervene or stop, on the grounds of safety, any display Participant or, in extreme cases where the FDD cannot be consulted, the whole Flying Display;
- h) To assist the FDD in other duties as directed and agreed.



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What Constitutes SQEP in a FCC Member?

1. They must be 'qualified' in a directly relevant field.
2. They must have extensive experience relating to the flying, displaying or monitoring of specific display items.
3. They need a thorough knowledge of the regulations (CAPs 403 and 1724), to be able to support the FDD in regulatory compliance.
4. They must have previous air display experience as a FDD or FCC member, or as a shadow FCC member.
5. They must have enough aviation experience and confidence to highlight potential issues before safety is compromised.



Final Points to Ponder

1. FCC members must be SQEP.
2. SQEP is defined by the FDD for their particular display.
3. SQEP is gained by building on the person's aviation background with repeated exposure to the air display environment.
4. FCCs need Terms of Reference.
5. You might only need an extra pair of hands.



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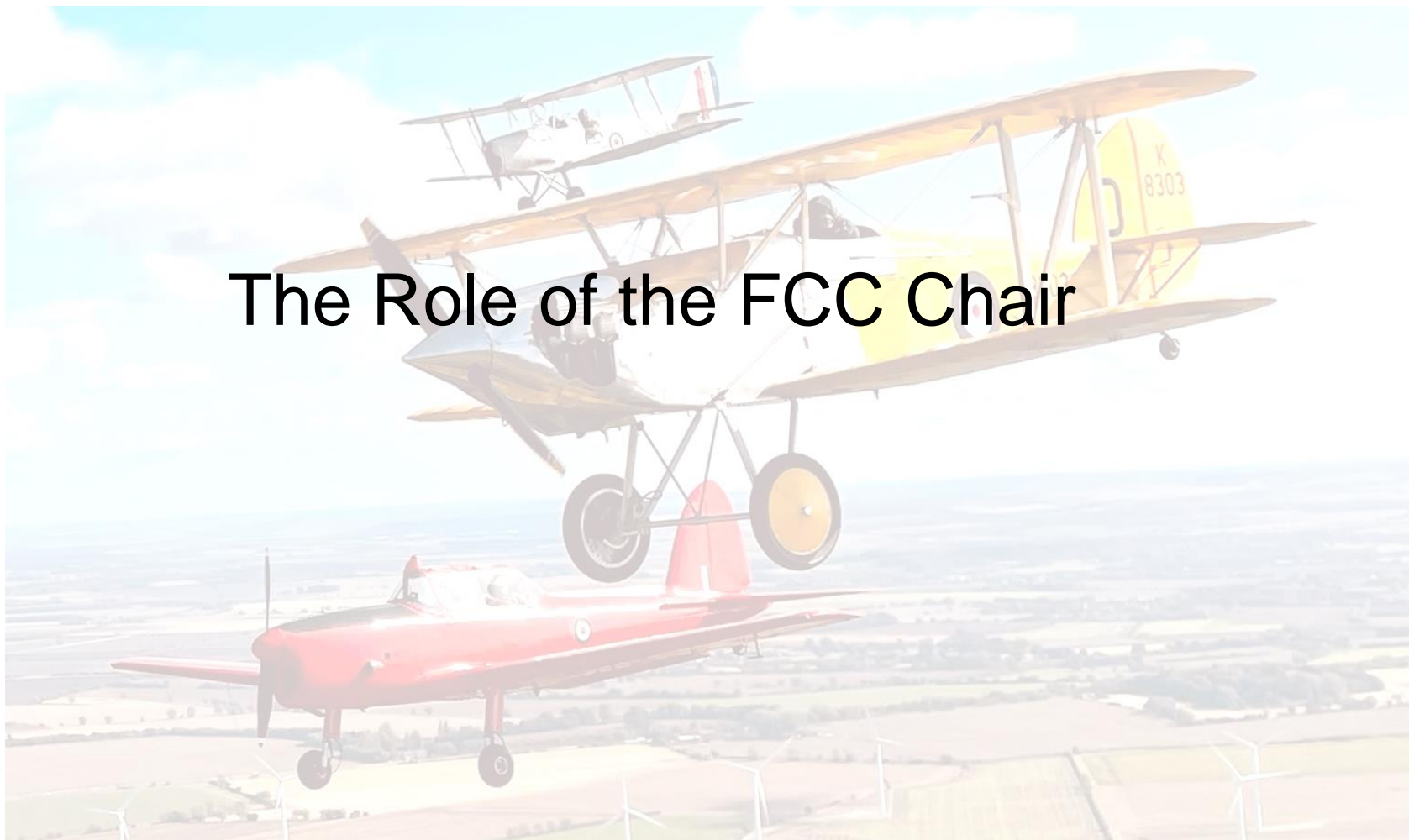




FDD/ FCC Breakout



The Role of the FCC Chair





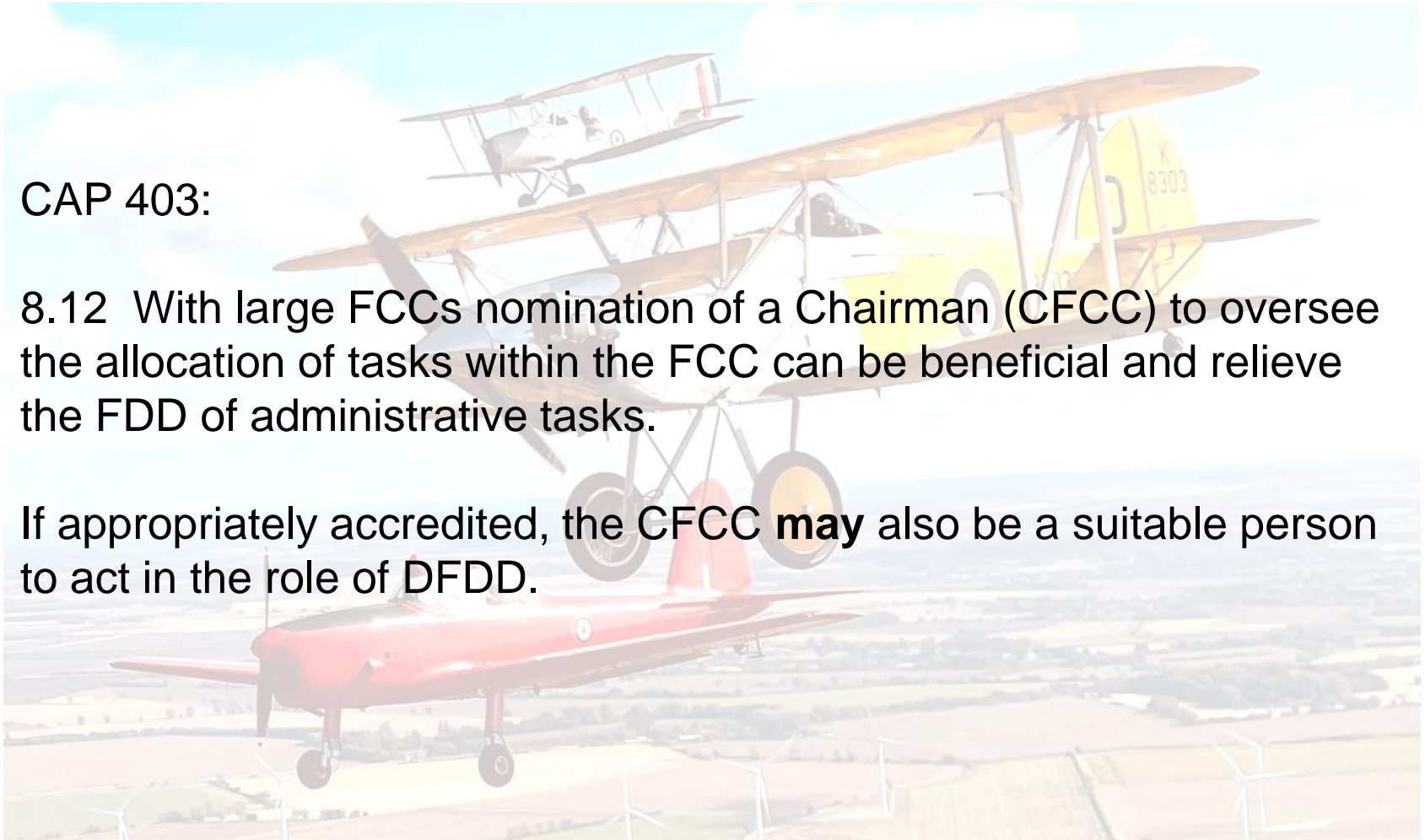
The Role of the FCC Chair



CAP 403:

8.12 With large FCCs nomination of a Chairman (CFCC) to oversee the allocation of tasks within the FCC can be beneficial and relieve the FDD of administrative tasks.

If appropriately accredited, the CFCC **may** also be a suitable person to act in the role of DFDD.





The Role of the FCC Chair



Questions?



The Role of the FCC Chair



Other roles and responsibilities of the Chair of the FCC:

1. Provision of safety oversight.
2. Directing the FCC in its duties.
3. Allocating geographical positions for FCC members.
4. Ensuring that display items are monitored by the FCC for safety, discipline and regulatory compliance.
5. Scrutiny of the Terms of Reference (ToRs).
6. Scrutiny of the Pilots' Written Brief.
7. Ensuring the well-being of the FCC members.



The Role of the FCC Chair



Questions?



FDD/ FCC Breakout



FCC ROCC



FCC ROCC



FDD ROCC:

- For FDDs without ATCO, FISO or AGCS qualification
- For FDDs intending to use an aeronautical radio station
- Calls limited to CAP403 Warning calls
- Safety, but not CAP403 Warning Calls – SRG1305
- Prefixed with 'From the FDD'
- Issued to accredited FDDs by GAU
- Apply via SRG 1413A



FCC ROCC



FCC ROCC:

- For FCC Members without ATCO, FISO or AGCS qualification
- For FCC Members intending to use an aeronautical radio station
- Calls limited to CAP403 Warning calls
- Safety calls, but not CAP403 Warning Calls – SRG1305
- Under supervision of FDD
- FDD to record attestation of FCC members using SRG1413B



FCC ROCC



ROCC and ATC

Trevor Graham

Tier 3 Flying Display Director



FCC ROCC





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Assurance Visit Feedback

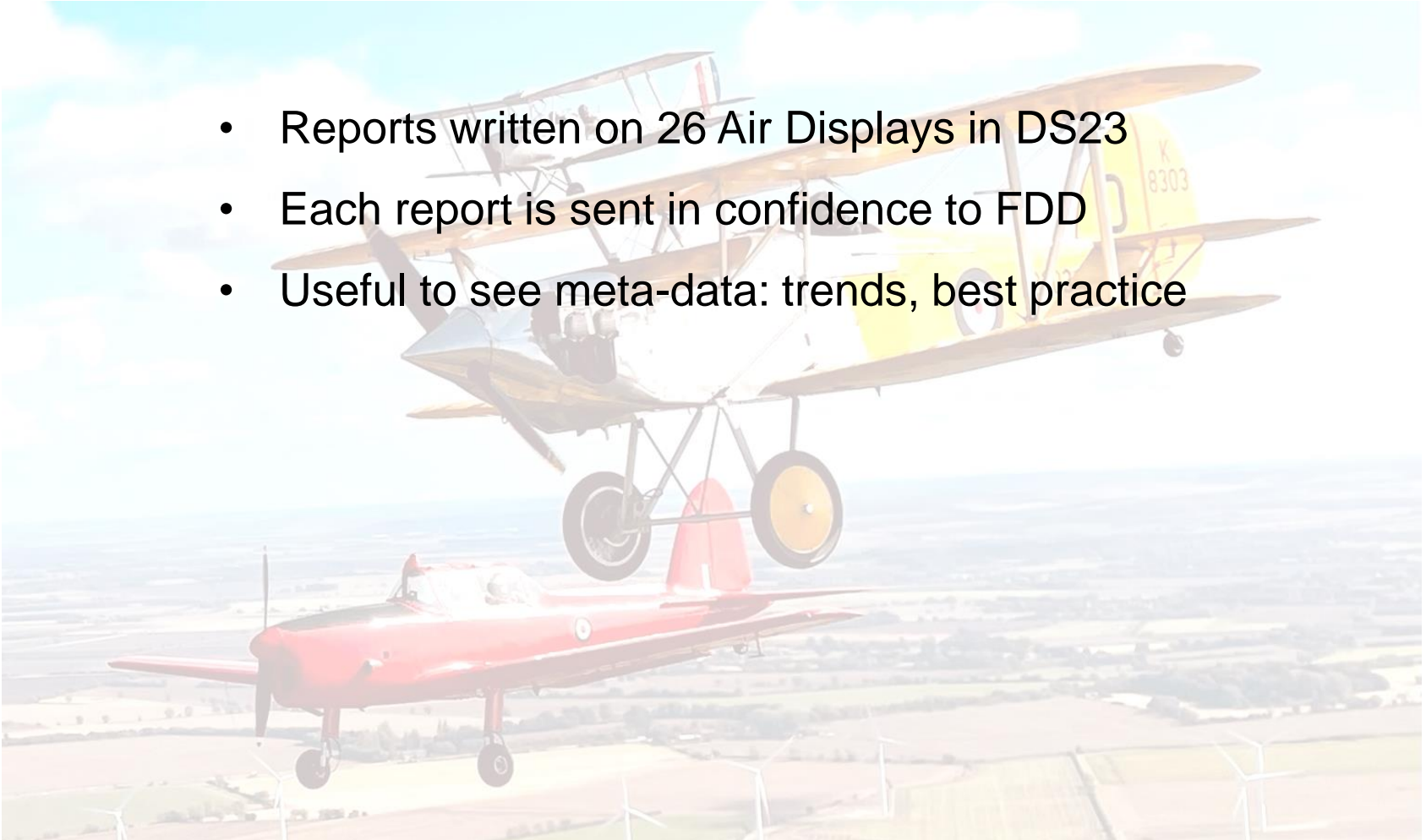




Assurance Visit Feedback



- Reports written on 26 Air Displays in DS23
- Each report is sent in confidence to FDD
- Useful to see meta-data: trends, best practice

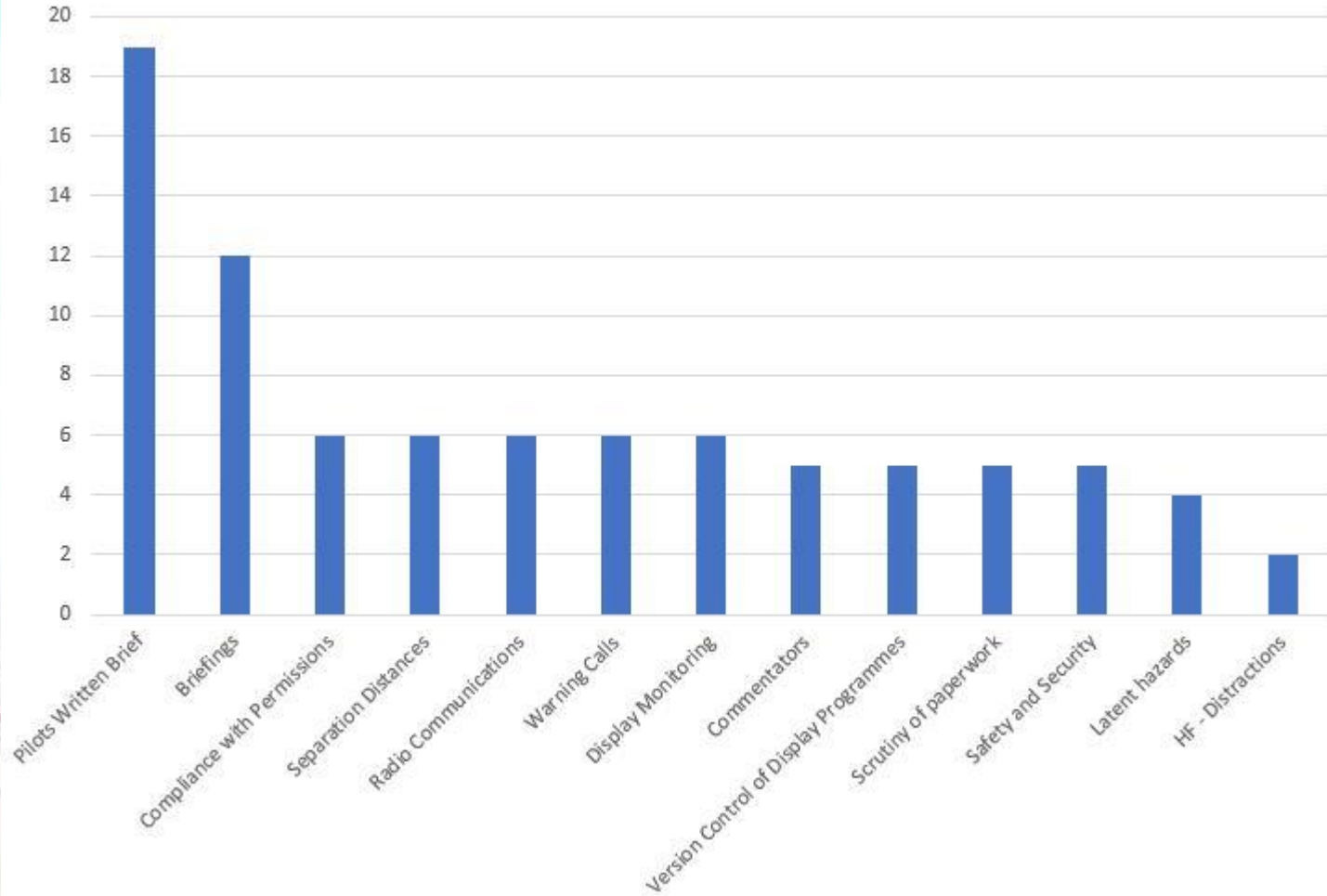




Assurance Visit Feedback



Observations from Assurance Visits





Assurance Visit Feedback



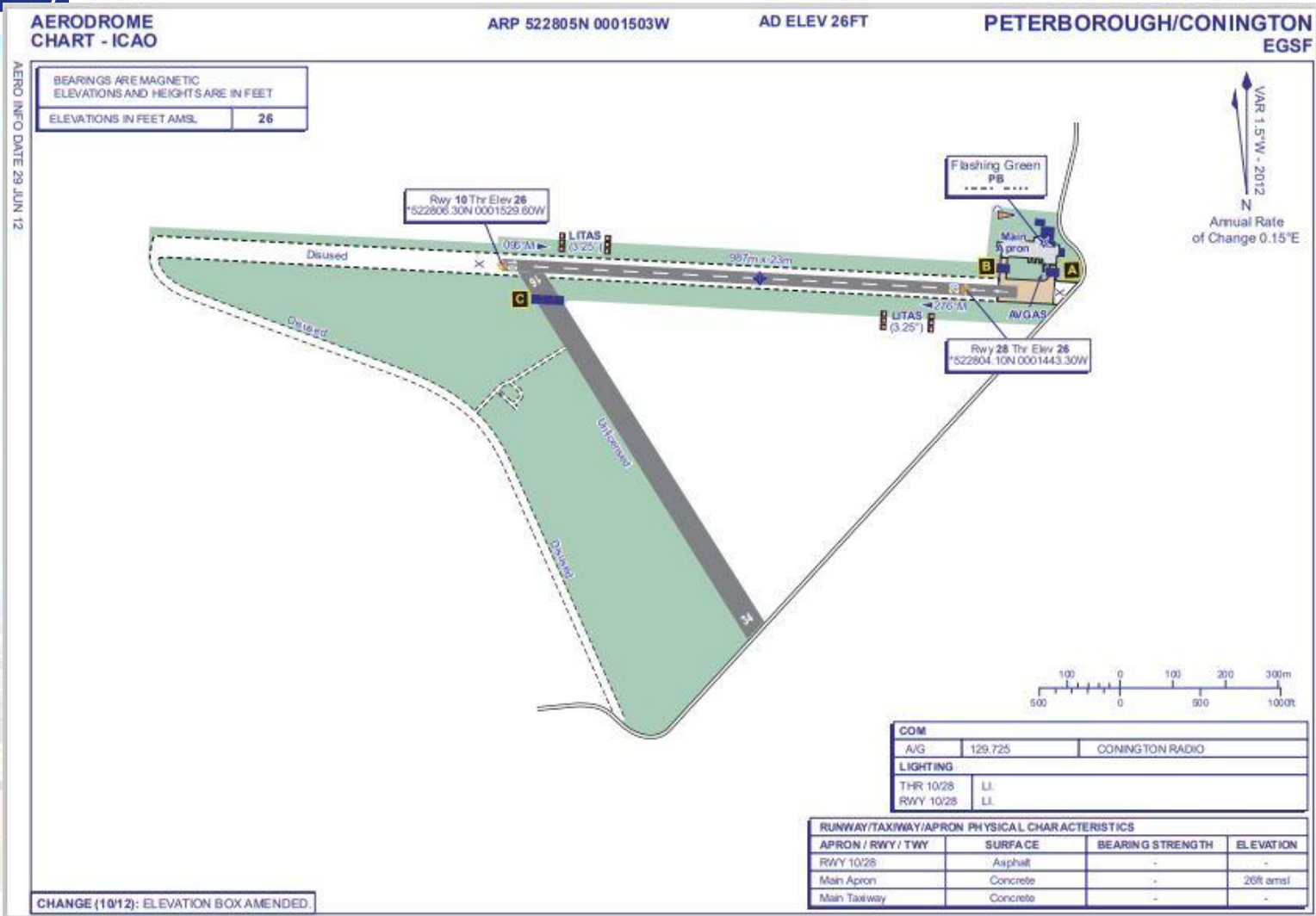
Pilots' Written Brief

- Put your details at the front!
- Use CAP403 Appendix B for details
- Do not cut-and-paste from old PWBs or RAs*
- Use the CFCC to error-check.
- Version control the PWB
- Be factually correct e.g. timings, telephone numbers and frequencies
- (Mass) Diversions*



Assurance Visit Feedback

Pilots' Written Brief





Assurance Visit Feedback



Pilots' Written Brief

- Put your details at the front!
- Use CAP403 Appendix B for details
- Be wary of cut-and-paste from old PWBs: the CAPs change and old inaccuracies are missed
- Version control the PWB
- Be factually correct e.g. timings, telephone numbers and frequencies
- (Mass) Diversions
- Include all elements of the Art 86 Permission
- Don't replicate CAP403 – you'll get it wrong!
- Send early!



Assurance Visit Feedback



Briefings

- Use CAP403 Appendix B for details
- Detailed met brief required, especially on-crowd wind
- Run through the display items
- Mass brief should mirror any phone brief
- Be aware of timing between briefing and first item
- Full Art 86 Permission must be available to pilots
- Rule 10(1)*
- Local Airspace requirements
- Air Traffic brief*
- Parking and refuelling requirements

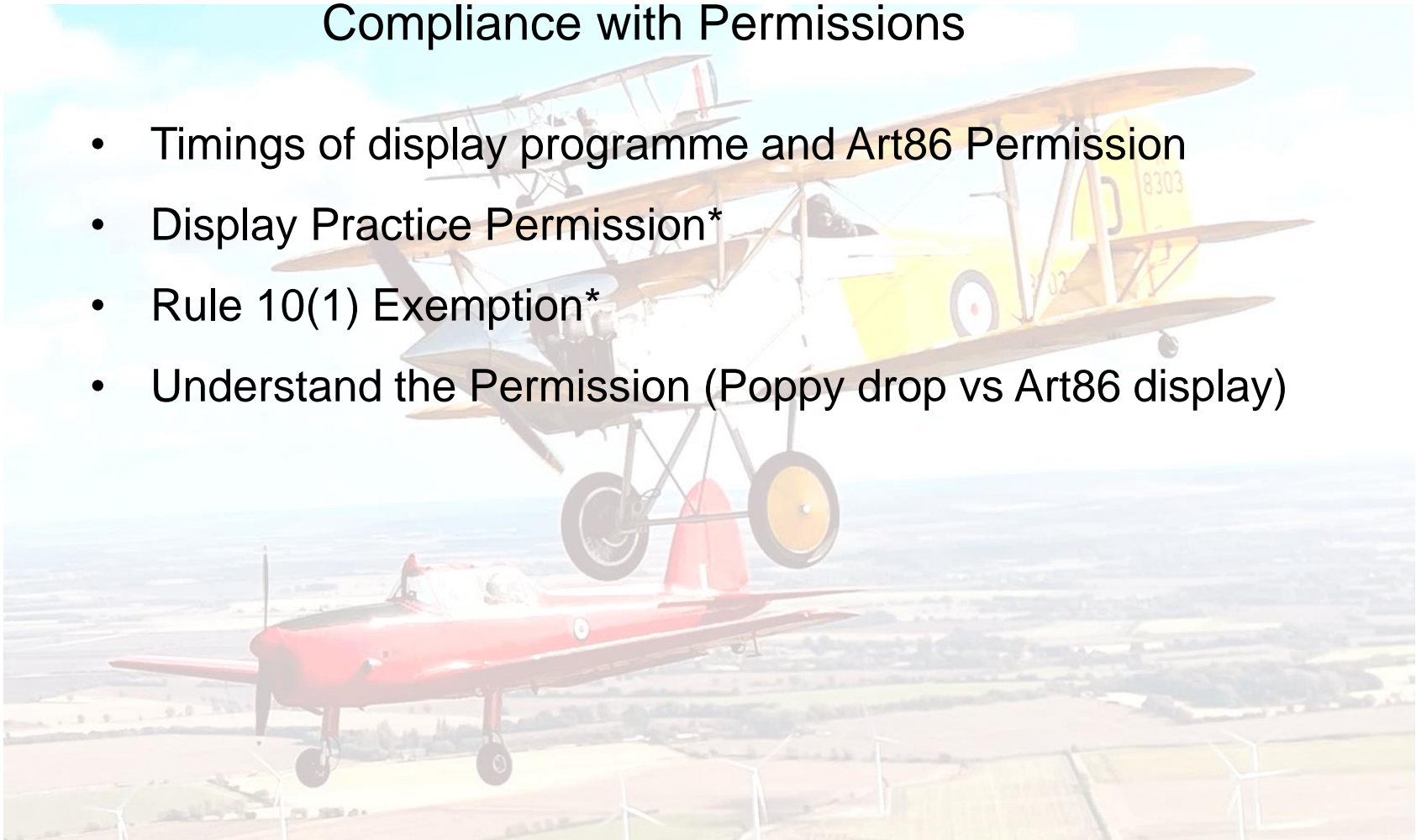


Assurance Visit Feedback



Compliance with Permissions

- Timings of display programme and Art86 Permission
- Display Practice Permission*
- Rule 10(1) Exemption*
- Understand the Permission (Poppy drop vs Art86 display)





Assurance Visit Feedback



Separation Distances

- Off airfield? Brief landmarks





Assurance Visit Feedback



Separation Distances



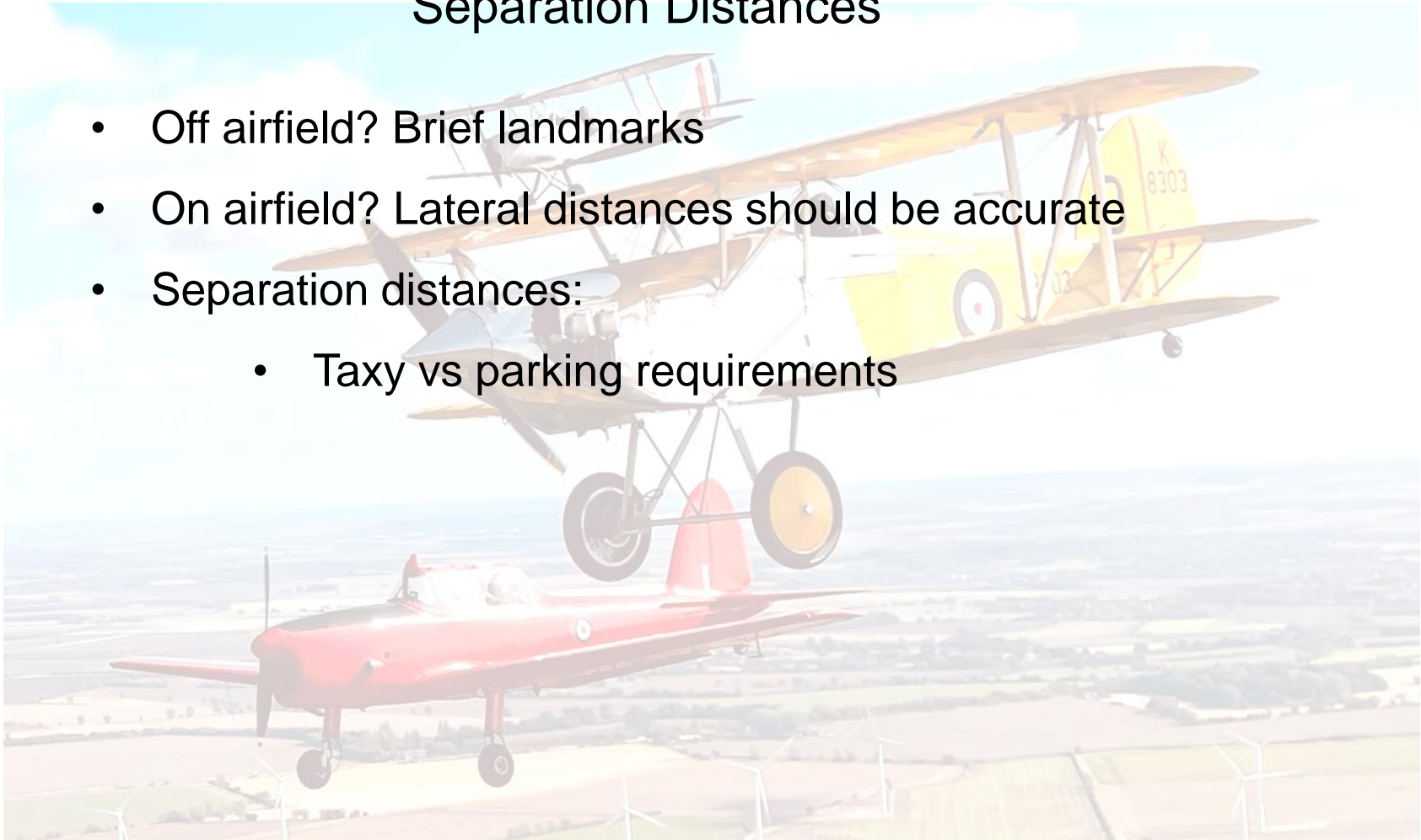


Assurance Visit Feedback



Separation Distances

- Off airfield? Brief landmarks
- On airfield? Lateral distances should be accurate
- Separation distances:
 - Taxi vs parking requirements





Assurance Visit Feedback



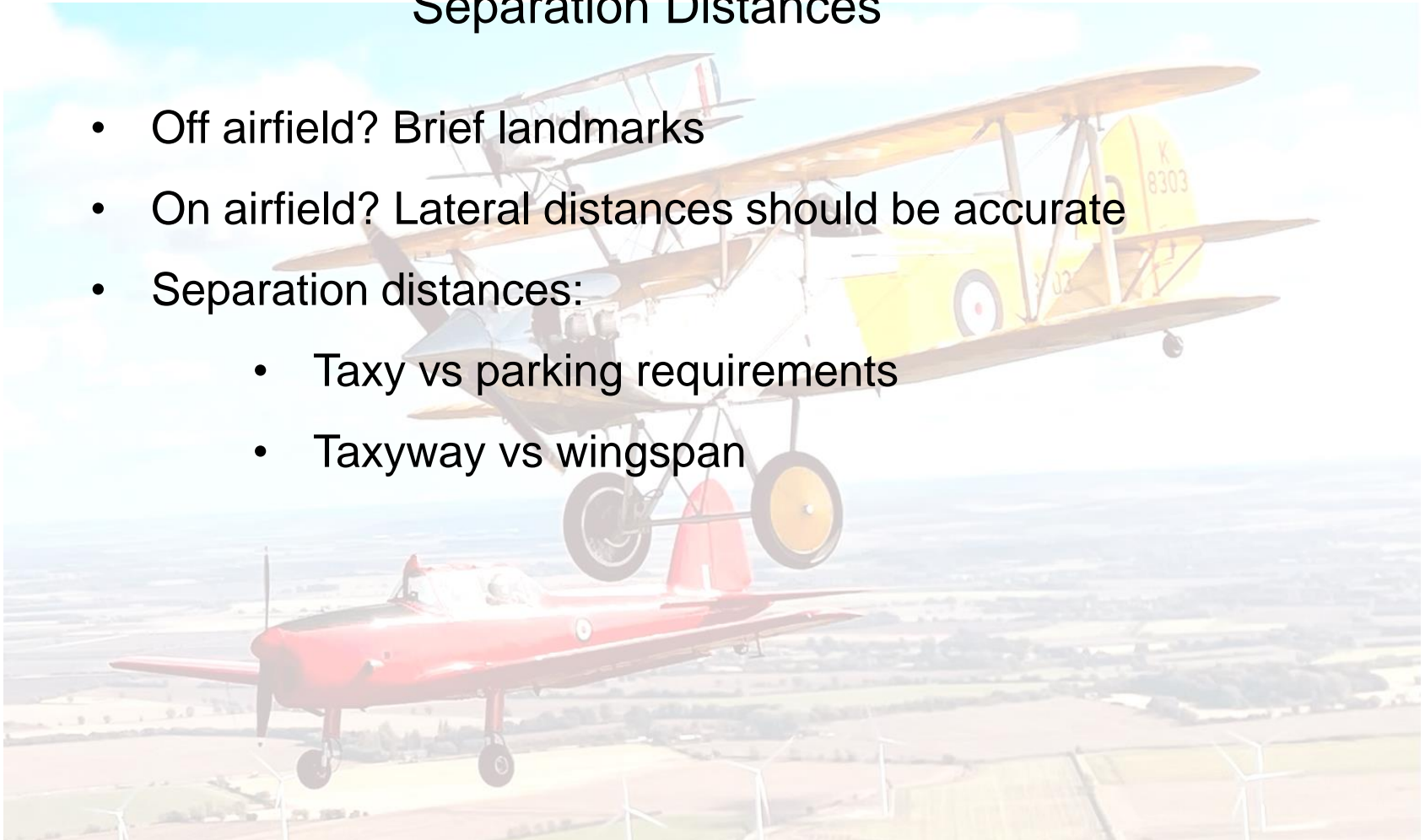


Assurance Visit Feedback



Separation Distances

- Off airfield? Brief landmarks
- On airfield? Lateral distances should be accurate
- Separation distances:
 - Taxi vs parking requirements
 - Taxiway vs wingspan





Assurance Visit Feedback



Separation Distances



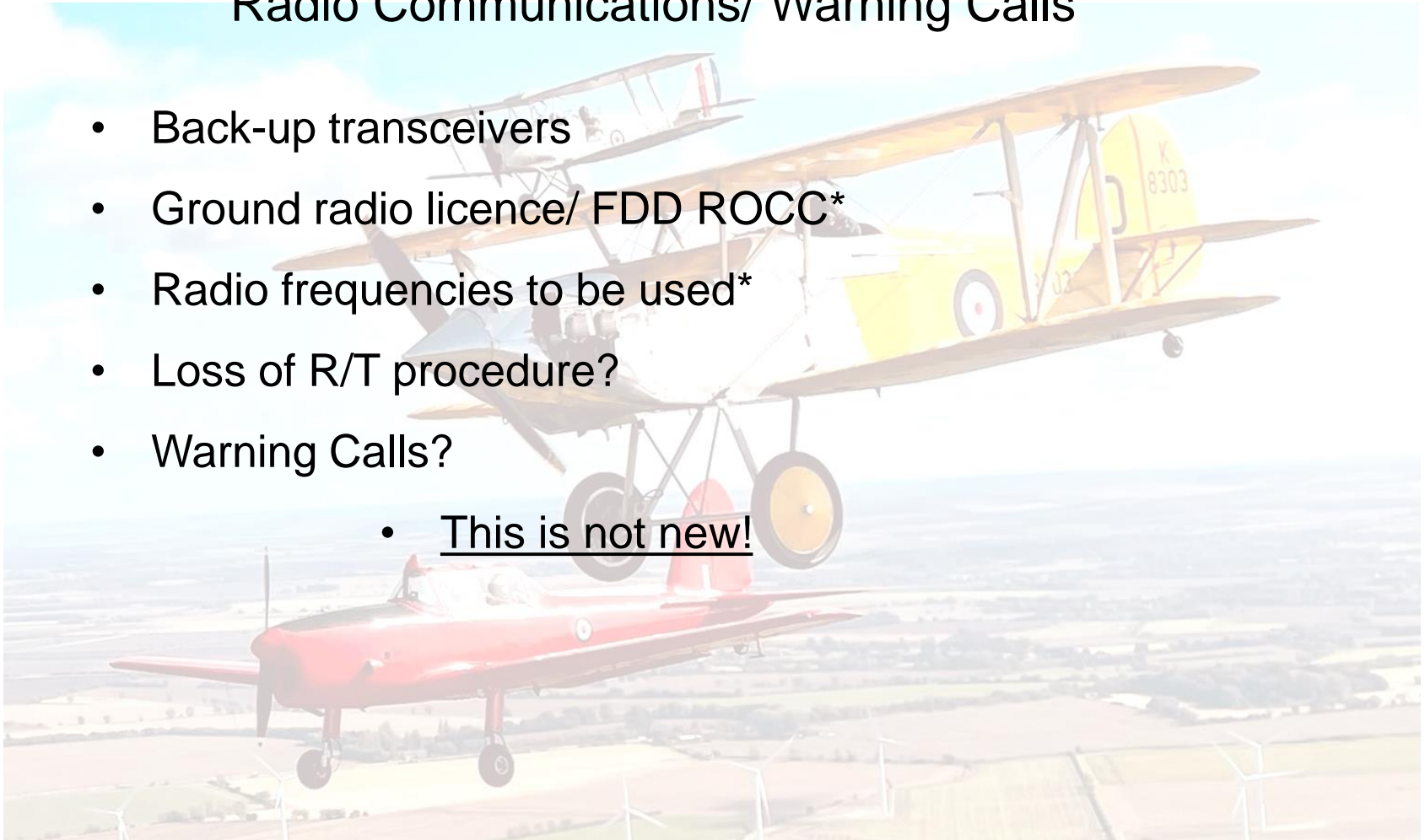


Assurance Visit Feedback



Radio Communications/ Warning Calls

- Back-up transceivers
- Ground radio licence/ FDD ROCC*
- Radio frequencies to be used*
- Loss of R/T procedure?
- Warning Calls?
 - This is not new!



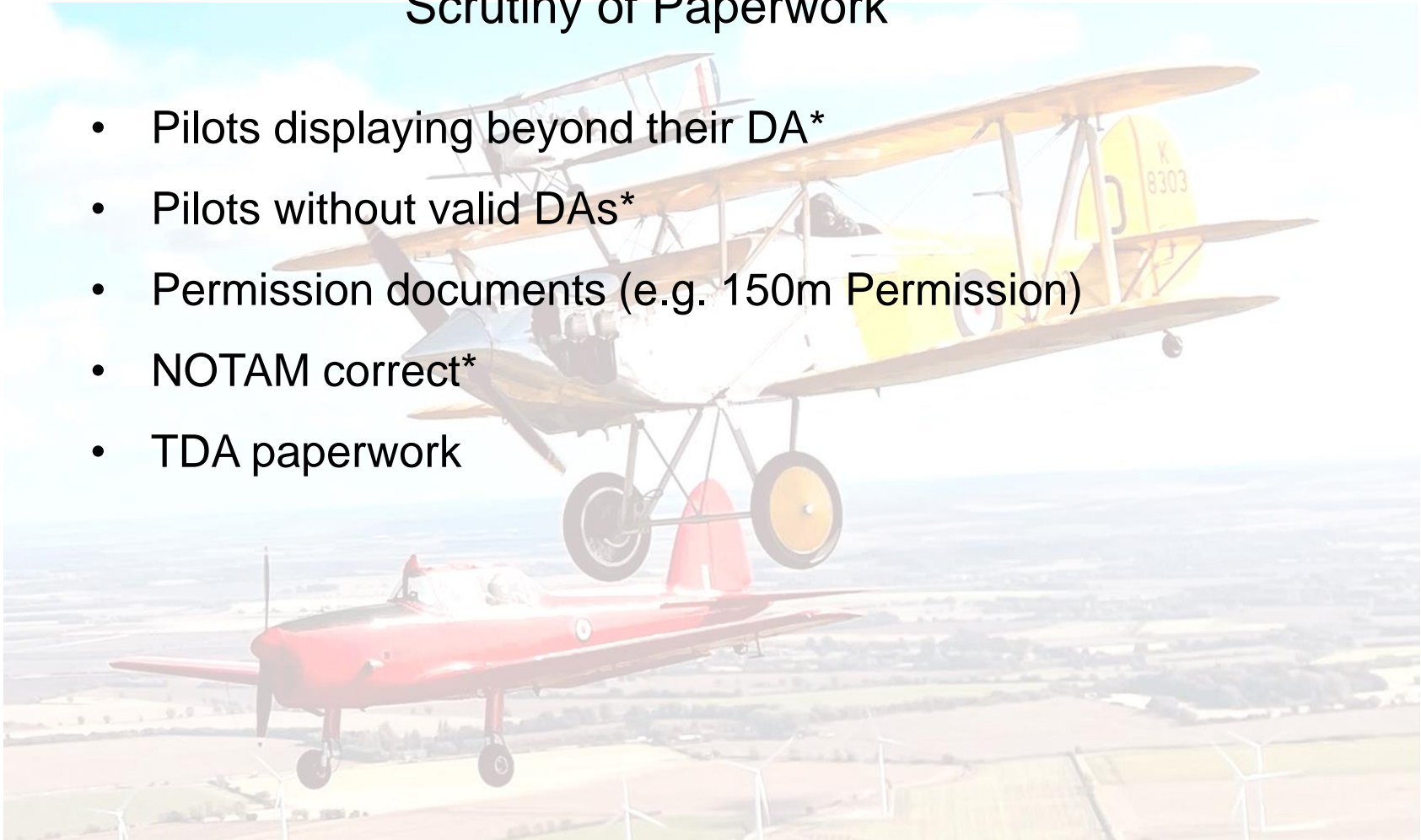


Assurance Visit Feedback



Scrutiny of Paperwork

- Pilots displaying beyond their DA*
- Pilots without valid DAs*
- Permission documents (e.g. 150m Permission)
- NOTAM correct*
- TDA paperwork



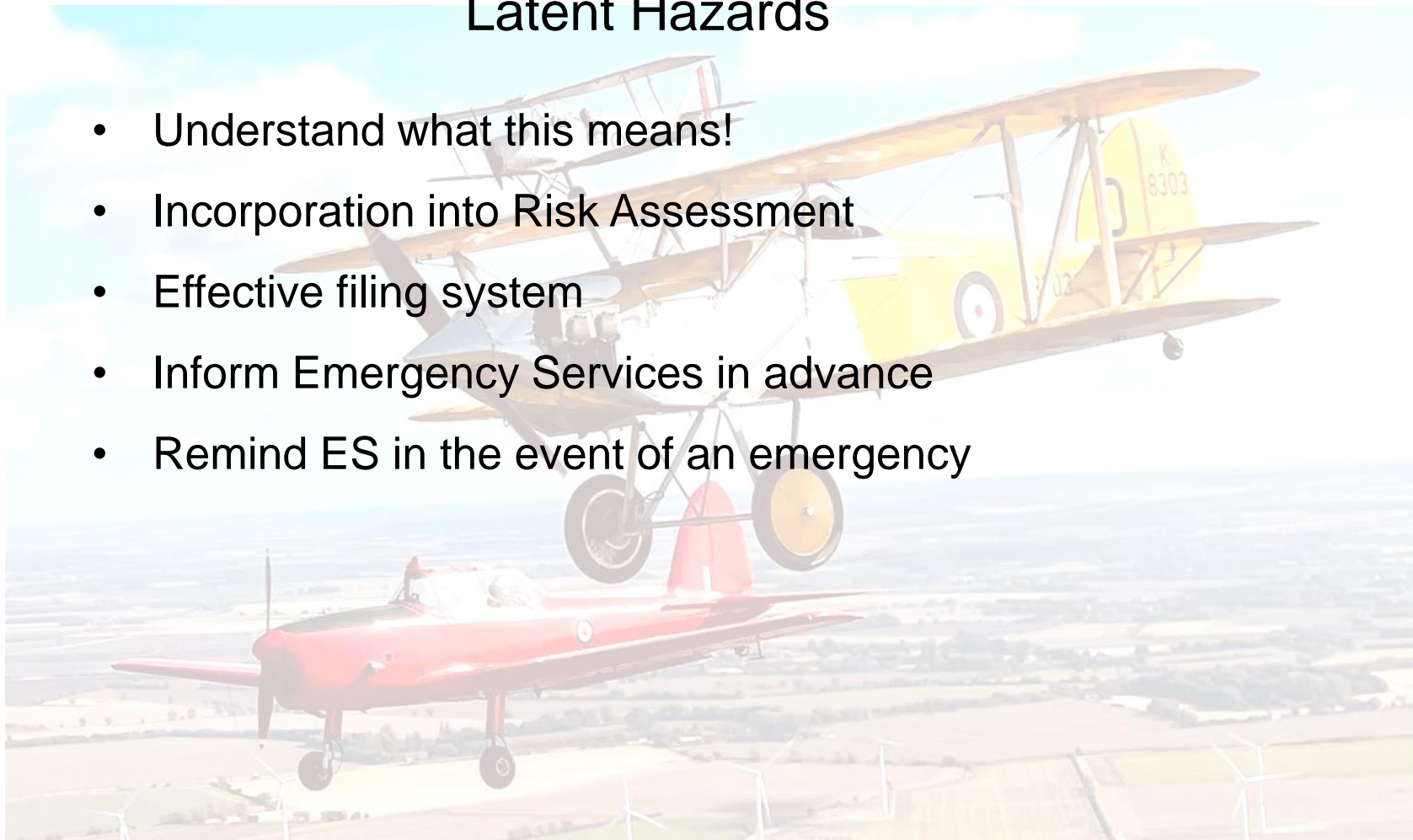


Assurance Visit Feedback



Latent Hazards

- Understand what this means!
- Incorporation into Risk Assessment
- Effective filing system
- Inform Emergency Services in advance
- Remind ES in the event of an emergency



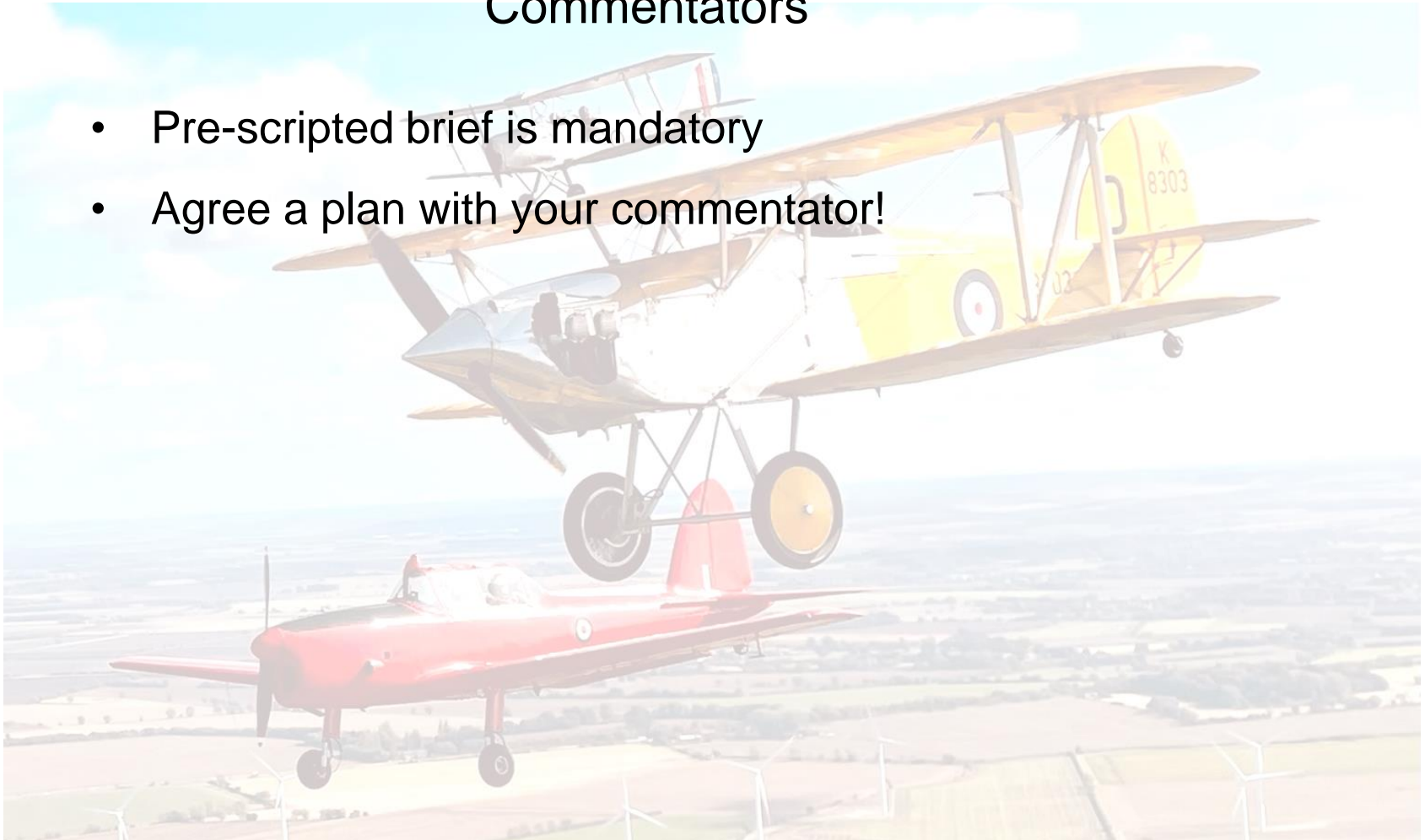


Assurance Visit Feedback



Commentators

- Pre-scripted brief is mandatory
- Agree a plan with your commentator!



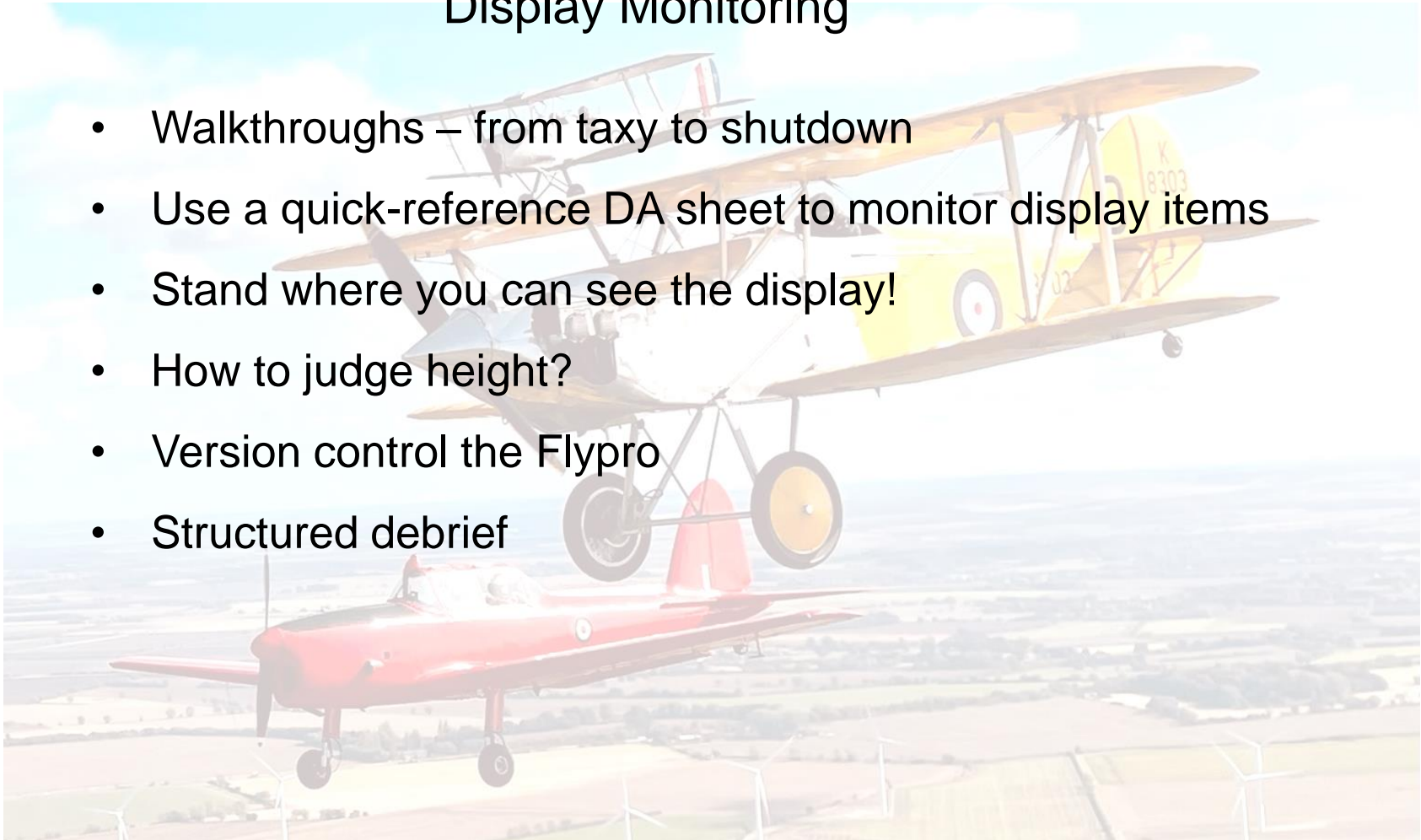


Assurance Visit Feedback



Display Monitoring

- Walkthroughs – from taxi to shutdown
- Use a quick-reference DA sheet to monitor display items
- Stand where you can see the display!
- How to judge height?
- Version control the Flypro
- Structured debrief



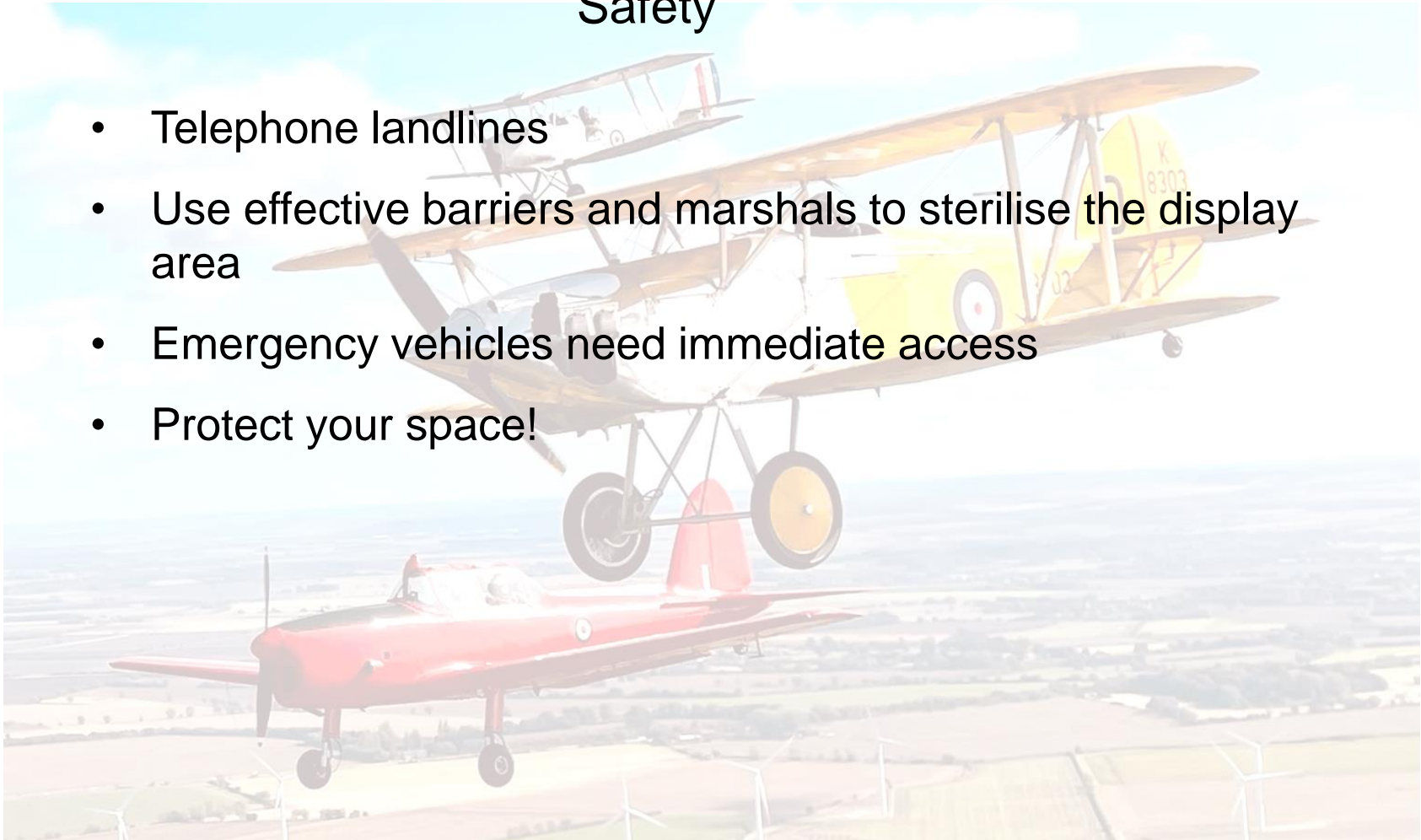


Assurance Visit Feedback



Safety

- Telephone landlines
- Use effective barriers and marshals to sterilise the display area
- Emergency vehicles need immediate access
- Protect your space!



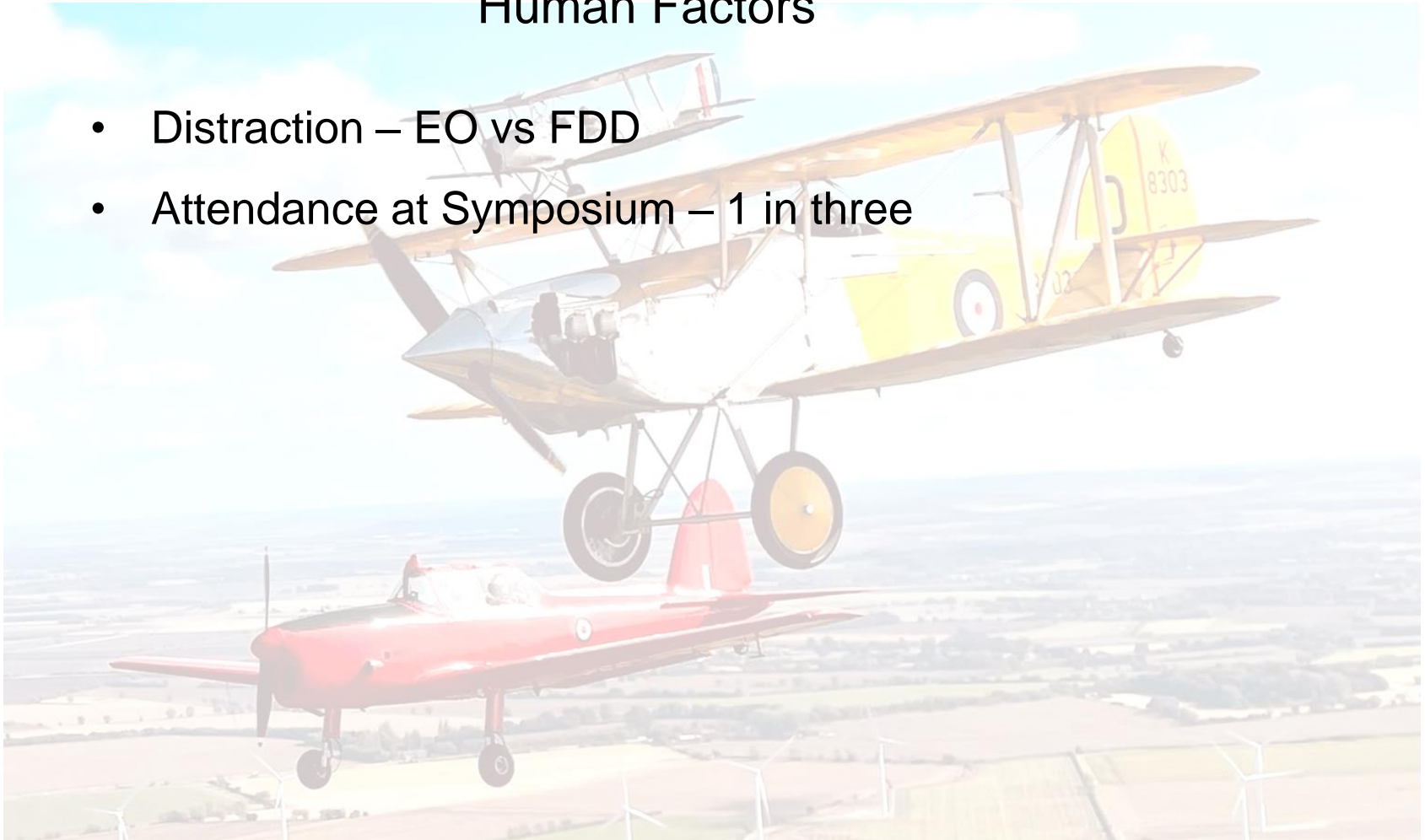


Assurance Visit Feedback



Human Factors

- Distraction – EO vs FDD
- Attendance at Symposium – 1 in three





Assurance Visit Feedback



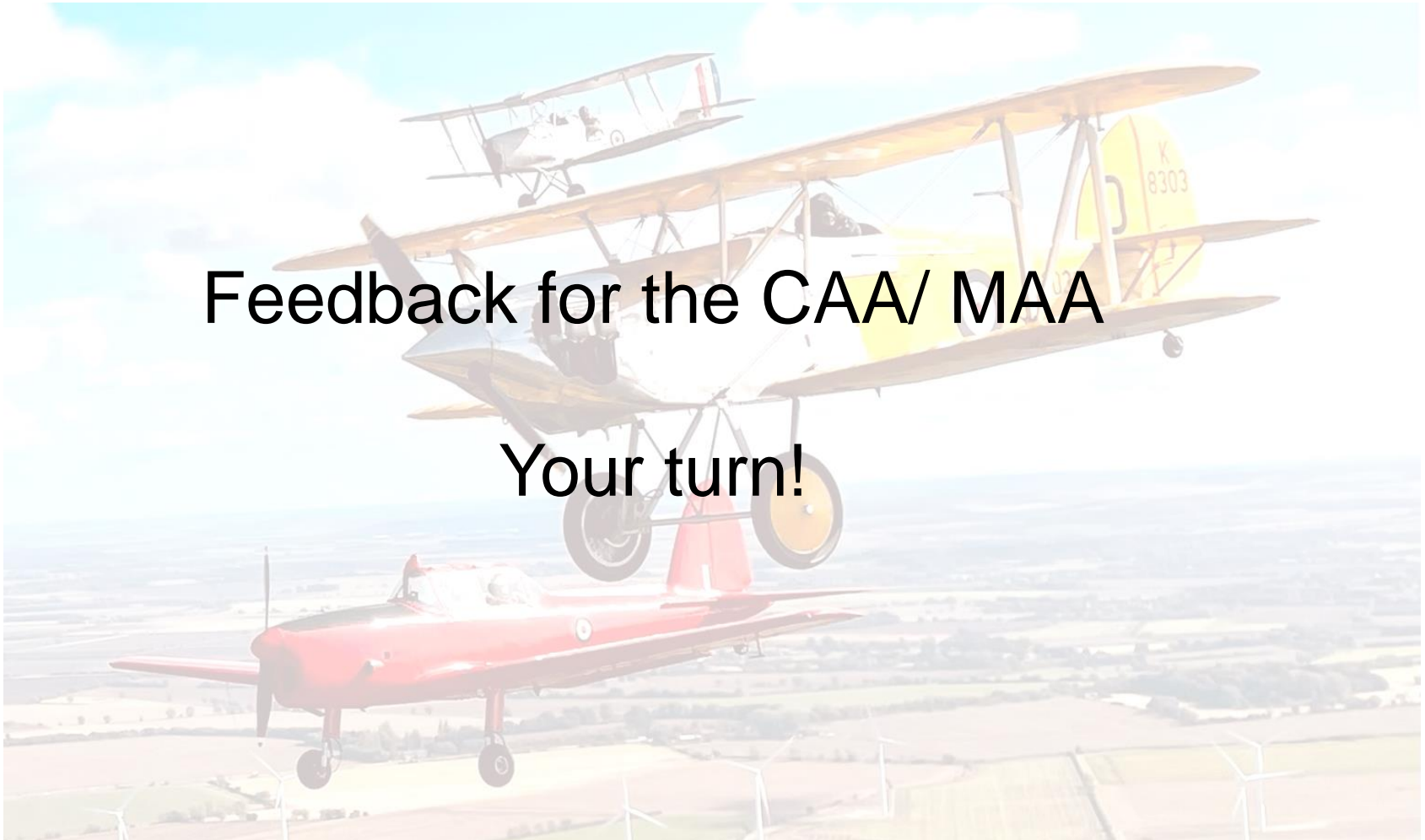
Questions?



FDD/ FCC Breakout



Feedback for the CAA/ MAA
Your turn!



**ROYAL
AIR FORCE** **FALCONS**
Parachute Display Team

Flt Lt Mike Reeve
SO3 Para - 16 Air Assault Brigade
Combat Team
(OC RAF Falcons 2023)



Video



Who are the RAF Falcons?

- Personnel Training Officers and Physical Training Instructors who have specialised as Parachute Jumping Instructors.
- Additionally, the team is made up by Survival Equipment Technicians.
- RAF Falcons is a training tour to develop parachuting and freefall SME prior to onward posting to our 'Customers'.
- Recruitment tool. **(USP)**



Season build-up

- 2x Overseas training exercises. Ex FREEFALL ENDEAVOUR and Ex FALCONS STACK
- Recce weeks
- UK Trg
- Public Display Authority (AOC 1 Gp)
- Launch
- Display Season.



Pre-Display

- Pre-Display – DZ Party (Drop-Zone Safety Officer (DZSO), Survival Equipment Technicians, Commentator/PR Team and 1x DZ ‘Wagon’) will arrive 2 hours prior to the ‘P-Hour’
- Medic – Brief (Covers SOPs safety considerations, Medics are to be accessible throughout the descent) No medics, no drop.
- Balloons – 2x ‘met’ balloons prior to the P-Hour. P-1hr and P-0.5hr. (Timings are negotiable, however, 2x balloons must be released.)



‘Calcs’

- Based on a ‘round reserve’
- When determining the canopy component of the CARP the wind readings are obtained by tracking a met balloon using a theodolite.
- When tracking the balloon results are to be recorded using Tables 4.3 and 4.4 (Operations Manual Part B).
- Allows for canopy manoeuvres and to ensure the display is performed close to the audience.



Table 4.3 – Record Wind Information.

Height	Bearing (Deg Mag)	Elev (Deg)	Mean Wind Speed (Kts)	Distance (Yds)
Surface				
250 ft (30 sec)				
500 ft (1min)				
1000 ft (2 min)				
1500 ft (3 min)				
2000 ft (4 min)				
2500 ft (5 min)				
3000 ft (6 min)				
3500 ft (7 min)				
4000 ft (8 min)				
4500 ft (9 min)				
		QFE	hPa	

Table 4.4 – Drift Table.

lev (Deg)	Mean Wind	Canopy Drift (yds) from Height (ft) AGL						
		4500	4000	3500	3000	2500	2000	500
7	40.2	5094	4528	3962	3393	2828	2262	566
8	35.1	4446	3952	3458	2964	2470	1976	494
9	31.1	3942	3504	3066	2630	2192	1754	438
10	28.0	3546	3152	2758	2363	1696	1575	394
11	25.4	3213	2856	2499	2143	1786	1429	357
12	23.2	2943	2616	2289	1960	1633	1307	327
13	21.4	2709	2408	2107	1805	1504	1203	301
14	19.8	2502	2224	1946	1671	1392	1114	278
15	18.4	2331	2072	1813	1555	1296	1037	259
16	17.2	2178	1936	1694	1453	1211	969	242
17	16.1	2043	1816	1589	1363	1136	908	227
18	15.2	1926	1712	1498	1282	1068	855	214
19	14.3	1818	1616	1414	1210	1008	807	202
20	13.6	1719	1528	1337	1145	954	763	191
21	12.9	1629	1448	1267	1085	904	724	181
22	12.2	1548	1376	1204	1031	859	687	172
23	11.6	1476	1312	1148	981	818	654	164
24	11.1	1404	1248	1092	936	780	624	156
25	10.6	1341	1192	1043	893	745	596	149
26	10.1	1278	1136	994	854	712	569	142
27	9.7	1224	1088	952	818	681	545	136
28	9.3	1179	1048	917	784	653	522	131
29	8.9	1125	1000	875	752	626	501	125
30	8.5	1080	960	840	722	601	481	120
31	8.2	1044	928	812	693	578	462	116
32	7.9	999	888	777	667	556	444	111
33	7.6	963	856	749	642	535	428	107
34	7.3	927	824	721	618	515	412	103
35	7.0	891	792	693	595	496	397	99
36	6.8	864	768	672	573	478	382	96
37	6.5	828	736	644	553	461	369	92
38	6.3	801	712	623	533	444	355	89
39	6.1	774	688	602	514	429	343	86
40	5.9	747	664	581	496	414	331	83
41	5.7	720	640	560	479	399	319	80
42	5.5	693	616	539	463	386	308	77
43	5.3	666	592	518	447	372	298	74
44	5.1	648	576	504	431	359	288	72
45	4.9	621	552	483	417	347	278	69
46	4.8	603	536	469	402	335	268	67
47	4.6	585	520	455	388	324	259	65

Table 4.6 – Example Wind Information.

Height	Bearing (Deg. Mag)	Elev (Deg.)	Mean Wind Speed (Kts)	Distance (Yds)
Surface	160		10	
250 ft (30 sec)	161	25	11	
500 ft (1min)	161	24	11	156
1000 ft (2 min)	165	23	12	
1500 ft (3 min)	167	21	13	
2000 ft (4 min)	174	19	14	807
2500 ft (5 min)	178	18	15	1068
3000 ft (6 min)	181	18	15	1282
3500 ft (7 min)	182	18	15	1498
4000 ft (8 min)	182	17	16	1816
4500 ft (9 min)	183	17	16	2043
	QFE		998 hPa	

Misconceptions

- Circuit time/Display time
- DZ Size (75x75 yrd)
- Interaction with other displays



Questions





FDD/ FCC Breakout



FDD Accreditation

Initial Issue and Upgrades



FDD Accreditation



Initial Issue



FDD Accreditation



ANO Article 86

(6) The CAA must grant a permission required by paragraph (1) if it is satisfied that the flying display director is fit and competent to safely organise the proposed flying display, having regard in particular to the flying display director's—

- (a) previous conduct and experience; and
- (b) organisation, staffing and other arrangements.



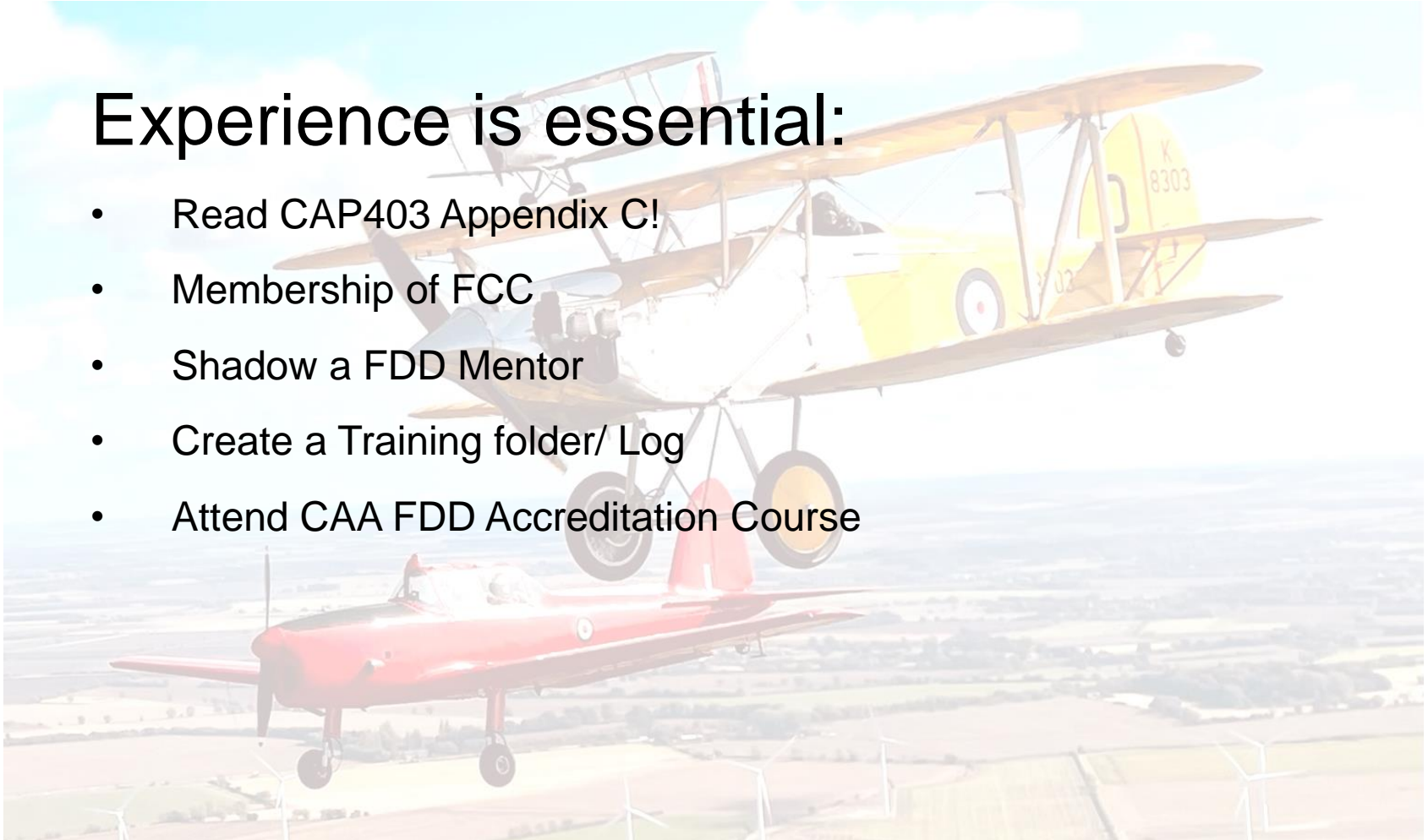


FDD Accreditation



Experience is essential:

- Read CAP403 Appendix C!
- Membership of FCC
- Shadow a FDD Mentor
- Create a Training folder/ Log
- Attend CAA FDD Accreditation Course





FDD Accreditation



Upgrades



FDD Accreditation



Experience is still essential:

- Read CAP403 Appendix C, para C11
- Apply to upgrade following a period of consolidation
- Shadow a FDD Mentor
- Act as FDD under supervision at a minimum of three flying displays at the higher level of Tier
- Create a Training folder/ Log
- Attend CAA FDD Accreditation Course



FCC Accreditation



Questions?



FDD/ FCC Breakout



Questions?