



ACP-2021-006 - ENABLING BVLOS UAS OPERATIONS FROM KEEVIL AIRFIELD

STAGE 3 ELECTRONIC CONSPICUITY FLIGHT DATA - VERSION 1

1. This document forms part of the overall submission of Stage 3A of ACP-2021-006 in accordance with the requirements laid out in CAP 1616 and supplements the Stage 3A Full Option Appraisal.
2. The aim of this document is to provide a summary of the analysis of the ADS-B and FLARM data collected over a 2 week period, consisting of the weekdays only.
3. This data serves to identify behavioural trends of operations in the vicinity of Keevil in order to provide a Qualitative assessment on consequential impact of Military operations. The Sponsor notes that during the high peak summer months, the amount of General Aviation will increase although GA should continue to behave in a similar manner to that currently witnessed.

Data Capture Technique, Data Range and Limitations

4. The sponsor used the ADS-B Exchange website to conduct the assessment of trending aircraft behaviour. The term Electronic Conspicuity flight traces, ADS-B and FLARM all refer to the data captured using this application. The application uses the transponder or FLARM unit inside the aircraft (if fitted and switched on), which is used to identify aircraft positions to Air Traffic Control and other airspace users. FLARM is used predominantly by gliders to alert other gliders of their positions should they be in close proximity to each other. Although this data is not assured, in the absence of any other data, it serves to “paint a picture” of aircraft behaviour in the area.
5. It must be noted that this data collected from the ADS-B Exchange application will only display aircraft that were fitted with a Transponder or FLARM unit by either using their Mode S signal, or using Multilateration (MLAT) to determine their position. Due to Keevil being in Class G airspace, there is no requirement for aircraft to Transpond their position whilst transiting through this area.
6. Data of all flights SFC-4,000 ft AMSL were collected between 28 Mar – 8 Apr 22. The collection was conducted Mon – Fri, 0830- 1630 which reflects the time the airspace would most likely be used. This data was collected by manually monitoring the website and capturing the data in real time. Data for each individual aircraft passing through the Keevil area, as indicated on the images below, were recorded. A Screenshot of the aircraft track and its relation to the existing airspace was taken, and all the images for the day were merged. By aligning the airspace for each image with that of the next, the tracks were able to be transposed to one single image showing only all the aircraft tracks for the day / week.
7. The sponsor would like to note that it is possible that several aircraft may have transited through the Keevil area whilst not being captured in this data due to those

aircraft not transponding or using FLARM. It is therefore important that the data is used to demonstrate a trend of aircraft behaviour using the number of aircraft conducting a specific behaviour.

8. The sponsor has seen no reason why powered aircraft not transponding will act in a different manner whilst transiting through the Keevil area, compared to those that are transponding, and has therefore assessed that the same percentage of powered aircraft will avoid or overfly Keevil airfield as indicated by the ADS-B / FLARM data.

9. It is believed that should a glider not be fitted with FLARM, the pilot would more likely avoid areas of known gliding activity (such as glider sites) due to the likelihood of encountering another glider without the ability to receive early warning using the FLARM system. Regardless of this presumption that a larger amount of non-FLARM equipped gliders will therefore avoid the Keevil overhead, the sponsor has not adjusted the data to reflect this due to the lack of information.

10. Both the Transponder and FLARM signals require to be Radio Line Of Sight with the receivers that are feeding the ADS-B Exchange application, in order for the application to display the aircraft position. In areas with a low amount of receivers, aircraft operating at low altitudes or far away may not display on the application. Aircraft departing Keevil can be detected at ground level, implying that there are good ADS-B and FLARM receivers in this area.

Data Summary

11. The following key deductions have been made about the behaviour of aircraft, captured using the ADS-B Exchange application, transiting through the Keevil area:

- a. Over a two-week period (weekdays only) 164 aircraft operated in the vicinity of Keevil - 88 were civilian and 76 were military.
- b. The majority of air users currently elect to route around the Keevil area to the North (76% of air users).
- c. The majority of users routinely operating below 3,000ft and within 2NM of the airfield are military helicopters and local gliders (gliders launched from Keevil itself).
- d. Some air users (around 1 in 12) elect to use the railway line for VFR navigation.
- e. Very few (17) air users elect to transit overhead below 3000 ft AMSL during the 2 week period. The average operating altitude for those 17 aircraft were between 1000 - 2000 ft AMSL.
- f. Aircraft not transmitting their position or not using FLARM will not be displayed within this data.

Raw Data

12. The raw Electronic Conspicuity data can be found below.

Date	Time Period (On start of hour only, ie 09:00, 10:00 etc)	Aircraft Registration	Altitude	Aircraft Type	Relation to Keevil Gliding Site	Total Number of Aircraft	Number of Civilian Aircraft (non- Military or HEMS)	Number of Civilian Aircraft Routing Through / Overhead the Glider Site	Number of Civilian Aircraft Routing Through / Overhead the Glider Site below 3000 ft AMSL	Number of Civilian Aircraft Avoiding the Glider Site
28/03/2022	09:00:00	GCICM	Sfc - 1000' AMSL	Gyrocopter	Avoided	28	23	2	2	21
28/03/2022	09:00:00	GDVIO	2000' - 3000' AMSL	Helicopter	Through / Overhead					
28/03/2022	10:00:00	GJADW	1000' - 2000' AMSL	Fixed Wing	Avoided					
28/03/2022	10:00:00	GRIDC	1000' - 2000' AMSL	Helicopter	Avoided					
28/03/2022	11:00:00	GRID04	1000' - 2000' AMSL	Helicopter	Avoided					
28/03/2022	11:00:00	GJADW	Sfc - 1000' AMSL	Fixed Wing	Avoided					
28/03/2022	11:00:00	GBUZA	Sfc - 1000' AMSL	Fixed Wing	Avoided					
28/03/2022	11:00:00	PIPE68	Sfc - 1000' AMSL	Helicopter	Through / Overhead					
28/03/2022	11:00:00	GMROS	Sfc - 1000' AMSL	Fixed Wing	Avoided					
28/03/2022	12:00:00	E270	1000' - 2000' AMSL	Helicopter	Avoided					
28/03/2022	12:00:00	HME22	Sfc - 1000' AMSL	Helicopter	Avoided					
28/03/2022	12:00:00	PDG60	1000' - 2000' AMSL	Helicopter	Avoided					
28/03/2022	12:00:00	GMROS	2000' - 3000' AMSL	Fixed Wing	Avoided					
28/03/2022	12:00:00	GCGWK	1000' - 2000' AMSL	Fixed Wing	Avoided					
28/03/2022	12:00:00	HME22	Sfc - 1000' AMSL	Helicopter	Through / Overhead					
28/03/2022	13:00:00	GSNUZ	3000' - 4000' AMSL	Fixed Wing	Avoided					
28/03/2022	13:00:00	GXAVI	2000' - 3000' AMSL	Fixed Wing	Avoided					
28/03/2022	13:00:00	HLE65	1000' - 2000' AMSL	Helicopter	Avoided					
28/03/2022	14:00:00	GCBUI	2000' - 3000' AMSL	Helicopter	Avoided					
28/03/2022	14:00:00	GCGWK	1000' - 2000' AMSL	Fixed Wing	Avoided					
28/03/2022	14:00:00	GCMCG	3000' - 4000' AMSL	Fixed Wing	Avoided					
28/03/2022	14:00:00	GTTEA	3000' - 4000' AMSL	Fixed Wing	Avoided					
28/03/2022	14:00:00	HME22	1000' - 2000' AMSL	Helicopter	Avoided					
28/03/2022	14:00:00	GEDWA	1000' - 2000' AMSL	Helicopter	Avoided					

28/03/2022	15:00:00	GCICM	Sfc - 1000' AMSL	Gyrocopter	Avoided										
28/03/2022	15:00:00	GWPDB	1000' - 2000' AMSL	Helicopter	Avoided										
28/03/2022	15:00:00	GEDWA	1000' - 2000' AMSL	Helicopter	Avoided										
28/03/2022	15:00:00	HME22	Sfc - 1000' AMSL	Helicopter	Avoided										
29/03/2022	09:00:00	BDN02	3000' - 4000' AMSL	Fixed Wing	Avoided	13	7	3	2	10					
29/03/2022	09:00:00	FLC89	2000' - 3000' AMSL	Fixed Wing	Avoided										
29/03/2022	10:00:00	GONVG	Sfc - 1000' AMSL	Helicopter	Through / Overhead										
29/03/2022	11:00:00	N245AS	3000' - 4000' AMSL	Fixed Wing	Avoided										
29/03/2022	11:00:00	COMET179	1000' - 2000' AMSL	Fixed Wing	Through / Overhead										
29/03/2022	11:00:00	BDN10	1000' - 2000' AMSL	Helicopter	Avoided										
29/03/2022	11:00:00	RECON22	Sfc - 1000' AMSL	Helicopter	Through / Overhead										
29/03/2022	12:00:00	GONVG	1000' - 2000' AMSL	Helicopter	Through / Overhead										
29/03/2022	12:00:00	RECON21	Sfc - 1000' AMSL	Helicopter	Through / Overhead										
29/03/2022	12:00:00	GSNUZ	3000' - 4000' AMSL	Fixed Wing	Avoided										
29/03/2022	13:00:00	VICTR012	Sfc - 1000' AMSL	Helicopter	Avoided										
29/03/2022	15:00:00	ASCPT485	1000' - 2000' AMSL	Fixed Wing	Avoided										
29/03/2022	16:00:00	N245AS	3000' - 4000' AMSL	Fixed Wing	Through / Overhead										
30/03/2022	08:00:00	GSCHI	1000' - 2000' AMSL	Helicopter	Avoided						27	17	6	1	11
30/03/2022	08:00:00	2LAND	3000' - 4000' AMSL	Fixed Wing	Through / Overhead										
30/03/2022	09:00:00	GCJHT	1000' - 2000' AMSL	Fixed Wing	Avoided										
30/03/2022	09:00:00	2LAND	3000' - 4000' AMSL	Fixed Wing	Through / Overhead										
30/03/2022	09:00:00	GEDWA	1000' - 2000' AMSL	Helicopter	Avoided										
30/03/2022	09:00:00	GCTZO	3000' - 4000' AMSL	Fixed Wing	Through / Overhead										
30/03/2022	10:00:00	n/a	3000' - 4000' AMSL	Helicopter	Avoided										
30/03/2022	11:00:00	GXAVI	3000' - 4000' AMSL	Fixed Wing	Avoided										
30/03/2022	11:00:00	IFELC	3000' - 4000' AMSL	Fixed Wing	Avoided										
30/03/2022	11:00:00	N265KJ	3000' - 4000' AMSL	Fixed Wing	Through / Overhead										
30/03/2022	11:00:00	GCTZO	3000' - 4000' AMSL	Fixed Wing	Through / Overhead										
30/03/2022	11:00:00	00000000	1000' - 2000' AMSL	Fixed Wing	Avoided										
30/03/2022	11:00:00	GRACY	3000' - 4000' AMSL	Fixed Wing	Avoided										

30/03/2022	11:00:00	SPEAR25	Sfc - 1000' AMSL	Helicopter	Through / Overhead					
30/03/2022	12:00:00	HME22	Sfc - 1000' AMSL	Helicopter	Avoided					
30/03/2022	12:00:00	00000000	1000' - 2000' AMSL	Fixed Wing	Avoided					
30/03/2022	12:00:00	GSNUZ	2000' - 3000' AMSL	Fixed Wing	Avoided					
30/03/2022	12:00:00	XXXX	1000' - 2000' AMSL	Unknown	Avoided					
30/03/2022	12:00:00	SPEAR25	2000' - 3000' AMSL	Helicopter	Through / Overhead					
30/03/2022	13:00:00	GXAVI	1000' - 2000' AMSL	Fixed Wing	Avoided					
30/03/2022	13:00:00	N116SB	3000' - 4000' AMSL	Fixed Wing	Avoided					
30/03/2022	14:00:00	XXXX	Sfc - 1000' AMSL	Unknown	Through / Overhead					
30/03/2022	14:00:00	HME22	Sfc - 1000' AMSL	Helicopter	Through / Overhead					
30/03/2022	15:00:00	SHF237	1000' - 2000' AMSL	Helicopter	Through / Overhead					
30/03/2022	15:00:00	JNGLY30	1000' - 2000' AMSL	Helicopter	Through / Overhead					
30/03/2022	16:00:00	JUKEBOX2	3000' - 4000' AMSL	Fixed Wing	Avoided					
30/03/2022	16:00:00	CARBON09	1000' - 2000' AMSL	Helicopter	Avoided					
31/03/2022	09:00:00	GCOPR	1000' - 2000' AMSL	Helicopter	Through / Overhead	9	1	1	1	0
31/03/2022	10:00:00	RECON21	Sfc - 1000' AMSL	Helicopter	Avoided					
31/03/2022	11:00:00	SPEAR25	Sfc - 1000' AMSL	Helicopter	Through / Overhead					
31/03/2022	11:00:00	RRR1353	2000' - 3000' AMSL	Helicopter	Avoided					
31/03/2022	11:00:00	HME22	Sfc - 1000' AMSL	Helicopter	Avoided					
31/03/2022	12:00:00	SPEAR25	1000' - 2000' AMSL	Helicopter	Through / Overhead					
31/03/2022	13:00:00	XXXX	Sfc - 1000' AMSL	Fixed Wing	Through / Overhead					
31/03/2022	15:00:00	BDN68	3000' - 4000' AMSL	Helicopter	Avoided					
31/03/2022	15:00:00	CDO20	2000' - 3000' AMSL	Helicopter	Avoided					
01/04/2022	09:00:00	SHF267	1000' - 2000' AMSL	Helicopter	Avoided	13	8	3	2	5
01/04/2022	10:00:00	SYS62	Sfc - 1000' AMSL	Helicopter	Avoided					
01/04/2022	10:00:00	GAYCE	Sfc - 1000' AMSL	Fixed Wing	Avoided					
01/04/2022	10:00:00	HME22	Sfc - 1000' AMSL	Helicopter	Avoided					
01/04/2022	12:00:00	GCDFD	1000' - 2000' AMSL	Fixed Wing	Through / Overhead					
01/04/2022	12:00:00	GSAXL	1000' - 2000' AMSL	Glider	Through / Overhead					
01/04/2022	12:00:00	GAYCE	1000' - 2000' AMSL	Fixed Wing	Avoided					

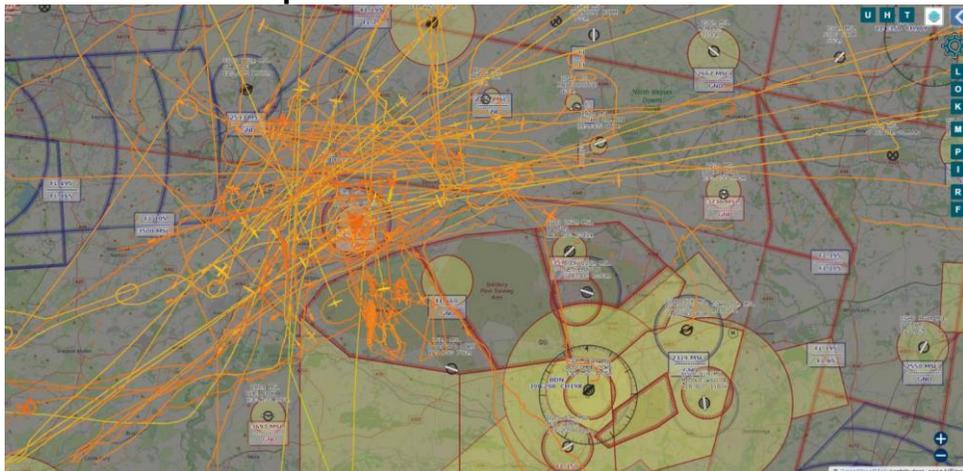
01/04/2022	12:00:00	HME22	Sfc - 1000' AMSL	Helicopter	Avoided					
01/04/2022	12:00:00	GRID04	1000' - 2000' AMSL	Helicopter	Avoided					
01/04/2022	12:00:00	GCJKO	3000' - 4000' AMSL	Glider	Through / Overhead					
01/04/2022	14:00:00	GCTSD	3000' - 4000' AMSL	Fixed Wing	Avoided					
01/04/2022	14:00:00	SFY42	3000' - 4000' AMSL	Fixed Wing	Avoided					
01/04/2022	14:00:00	HME22	1000' - 2000' AMSL	Helicopter	Avoided					
04/04/2022	11:00:00	GRID04	1000' - 2000' AMSL	Helicopter	Through / Overhead	6	2	2	1	0
04/04/2022	13:00:00	COMMDO22	Sfc - 1000' AMSL	Helicopter	Through / Overhead					
04/04/2022	13:00:00	CMDO012	1000' - 2000' AMSL	Helicopter	Avoided					
04/04/2022	14:00:00	SHF533	Sfc - 1000' AMSL	Helicopter	Through / Overhead					
04/04/2022	14:00:00	HME22	Sfc - 1000' AMSL	Helicopter	Through / Overhead					
04/04/2022	15:00:00	GDMP1	3000' - 4000' AMSL	Helicopter	Through / Overhead					
05/04/2022	08:00:00	COMET108	2000' - 3000' AMSL	Fixed Wing	Avoided	15	9	3	2	6
05/04/2022	09:00:00	GNBPL	1000' - 2000' AMSL	Helicopter	Through / Overhead					
05/04/2022	12:00:00	GTOES	2000' - 3000' AMSL	Fixed Wing	Avoided					
05/04/2022	13:00:00	GJACH	2000' - 3000' AMSL	Fixed Wing	Avoided					
05/04/2022	13:00:00	GTOES	2000' - 3000' AMSL	Fixed Wing	Avoided					
05/04/2022	13:00:00	GCTSD	2000' - 3000' AMSL	Fixed Wing	Avoided					
05/04/2022	14:00:00	JIGSAW02	2000' - 3000' AMSL	Fixed Wing	Avoided					
05/04/2022	14:00:00	n/a	2000' - 3000' AMSL	Fixed Wing	Avoided					
05/04/2022	14:00:00	GNBPL	1000' - 2000' AMSL	Helicopter	Through / Overhead					
05/04/2022	14:00:00	HME22	3000' - 4000' AMSL	Helicopter	Avoided					
05/04/2022	14:00:00	ASCOT490	1000' - 2000' AMSL	Fixed Wing	Avoided					
05/04/2022	14:00:00	GJACH	2000' - 3000' AMSL	Fixed Wing	Avoided					
05/04/2022	15:00:00	NIGHTHWK	3000' - 4000' AMSL	Fixed Wing	Avoided					
05/04/2022	15:00:00	GRIDC	3000' - 4000' AMSL	Helicopter	Through / Overhead					
05/04/2022	15:00:00	HME22	Sfc - 1000' AMSL	Helicopter	Avoided					
06/04/2022	08:00:00	NIGHTHWK	3000' - 4000' AMSL	Fixed Wing	Avoided	11	1	0	0	1
06/04/2022	11:00:00	TALON92	Sfc - 1000' AMSL	Helicopter	Through / Overhead					
06/04/2022	12:00:00	RECON21	1000' - 2000' AMSL	Helicopter	Through / Overhead					

06/04/2022	12:00:00	TALON92	1000' - 2000' AMSL	Helicopter	Through / Overhead										
06/04/2022	12:00:00	HME22	1000' - 2000' AMSL	Helicopter	Avoided										
06/04/2022	12:00:00	RECON21	1000' - 2000' AMSL	Helicopter	Through / Overhead										
06/04/2022	13:00:00	HME22	Sfc - 1000' AMSL	Helicopter	Avoided										
06/04/2022	13:00:00	HME22	Sfc - 1000' AMSL	Helicopter	Avoided										
06/04/2022	14:00:00	n/a	1000' - 2000' AMSL	Helicopter	Avoided										
06/04/2022	15:00:00	HME22	1000' - 2000' AMSL	Helicopter	Avoided										
06/04/2022	16:00:00	VALINT61	1000' - 2000' AMSL	Helicopter	Avoided										
07/04/2022	08:00:00	HME22	1000' - 2000' AMSL	Helicopter	Through / Overhead	16	4	2	3	2					
07/04/2022	08:00:00	NAVY761	2000' - 3000' AMSL	Unknown	Avoided										
07/04/2022	09:00:00	HLE10	2000' - 3000' AMSL	Helicopter	Avoided										
07/04/2022	10:00:00	GSHRD	1000' - 2000' AMSL	Helicopter	Through / Overhead										
07/04/2022	10:00:00	KRF05	2000' - 3000' AMSL	Helicopter	Through / Overhead										
07/04/2022	11:00:00	HLE10	2000' - 3000' AMSL	Helicopter	Avoided										
07/04/2022	12:00:00	GSHRD	2000' - 3000' AMSL	Helicopter	Through / Overhead										
07/04/2022	12:00:00	HME22	1000' - 2000' AMSL	Helicopter	Avoided										
07/04/2022	12:00:00	RRR1259	2000' - 3000' AMSL	Helicopter	Through / Overhead										
07/04/2022	12:00:00	N116SB	2000' - 3000' AMSL	Fixed Wing	Avoided										
07/04/2022	14:00:00	RRR1259	2000' - 3000' AMSL	Helicopter	Through / Overhead										
07/04/2022	14:00:00	TALON06	1000' - 2000' AMSL	Helicopter	Through / Overhead										
07/04/2022	14:00:00	SHF341	3000' - 4000' AMSL	Helicopter	Avoided										
07/04/2022	14:00:00	HME22	Sfc - 1000' AMSL	Helicopter	Through / Overhead										
07/04/2022	15:00:00	SPEAR25	Sfc - 1000' AMSL	Helicopter	Through / Overhead										
07/04/2022	15:00:00	SPEAR25	1000' - 2000' AMSL	Helicopter	Through / Overhead										
08/04/2022	08:00:00	GUZZI	3000' - 4000' AMSL	Fixed Wing	Through / Overhead						26	16	5	3	11
08/04/2022	08:00:00	GILFF	3000' - 4000' AMSL	Helicopter	Avoided										
08/04/2022	08:00:00	GCTSP	3000' - 4000' AMSL	Fixed Wing	Avoided										
08/04/2022	08:00:00	GBKBW	3000' - 4000' AMSL	Fixed Wing	Through / Overhead										
08/04/2022	09:00:00	SHF267	Sfc - 1000' AMSL	Helicopter	Through / Overhead										
08/04/2022	09:00:00	BDN65	1000' - 2000' AMSL	Helicopter	Avoided										

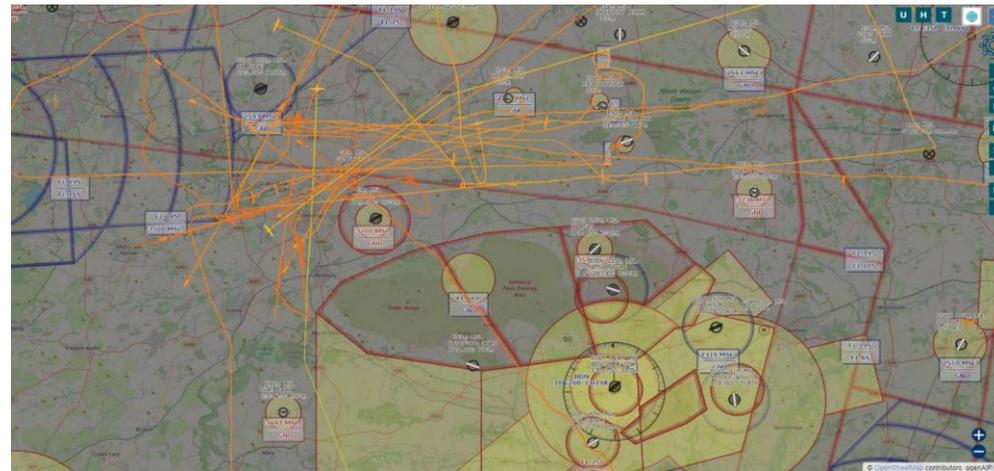
08/04/2022	10:00:00	GBKBW	2000' - 3000' AMSL	Fixed Wing	Through / Overhead						
08/04/2022	10:00:00	SPEAR25	2000' - 3000' AMSL	Helicopter	Avoided						
08/04/2022	10:00:00	HME22	1000' - 2000' AMSL	Helicopter	Avoided						
08/04/2022	10:00:00	GBVKU	2000' - 3000' AMSL	Fixed Wing	Avoided						
08/04/2022	11:00:00	GSRWN	2000' - 3000' AMSL	Fixed Wing	Avoided						
08/04/2022	11:00:00	DEMON1	1000' - 2000' AMSL	Helicopter	Through / Overhead						
08/04/2022	11:00:00	n/a	1000' - 2000' AMSL	Helicopter	Through / Overhead						
08/04/2022	11:00:00	GTOES	2000' - 3000' AMSL	Fixed Wing	Avoided						
08/04/2022	11:00:00	HME22	Sfc - 1000' AMSL	Helicopter	Avoided						
08/04/2022	11:00:00	GBYUU	3000' - 4000' AMSL	Fixed Wing	Avoided						
08/04/2022	12:00:00	HME22	Sfc - 1000' AMSL	Helicopter	Avoided						
08/04/2022	12:00:00	GECKB	2000' - 3000' AMSL	Fixed Wing	Avoided						
08/04/2022	12:00:00	KNM01	3000' - 4000' AMSL	Helicopter	Avoided						
08/04/2022	13:00:00	CFPSH	3000' - 4000' AMSL	Fixed Wing	Avoided						
08/04/2022	14:00:00	HME22	Sfc - 1000' AMSL	Helicopter	Avoided						
08/04/2022	14:00:00	CFPSH	1000' - 2000' AMSL	Fixed Wing	Avoided						
08/04/2022	14:00:00	XXX	1000' - 2000' AMSL	Helicopter	Through / Overhead						
08/04/2022	15:00:00	ASCOT490	1000' - 2000' AMSL	Fixed Wing	Avoided						
08/04/2022	15:00:00	GSRWN	2000' - 3000' AMSL	Fixed Wing	Avoided						
08/04/2022	16:00:00	RRR1203	2000' - 3000' AMSL	Helicopter	Avoided						
		Emergency Services									
		Military									
		Civilian									
TOTAL						164	88	27	17	67	
						Total Number of Aircraft	Number of Civilian Aircraft (non-Military or HEMS)	Number of Civilian Aircraft Routing Through / Overhead the Glider Site	Number of Civilian Aircraft Routing Through / Overhead the Glider Site below 3000 ft AMSL	Number of Civilian Aircraft Avoiding the Glider Site	

Daily and Weekly Electronic Conspicuity Flight Traces

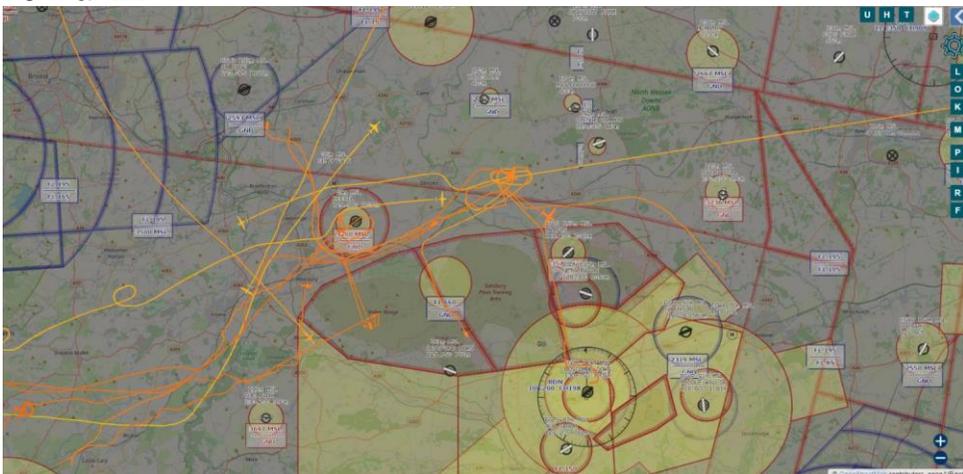
Week 28 Mar – 1 Apr 22



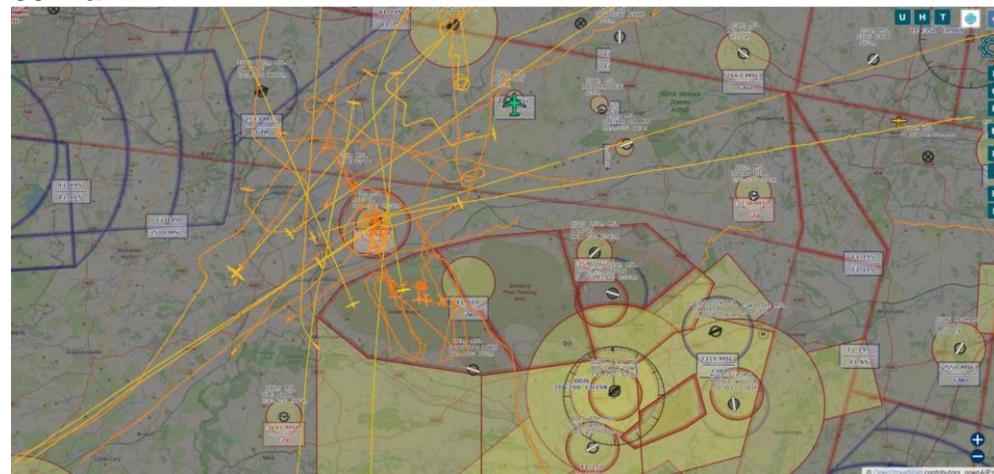
28 Mar 22



29 Mar 22

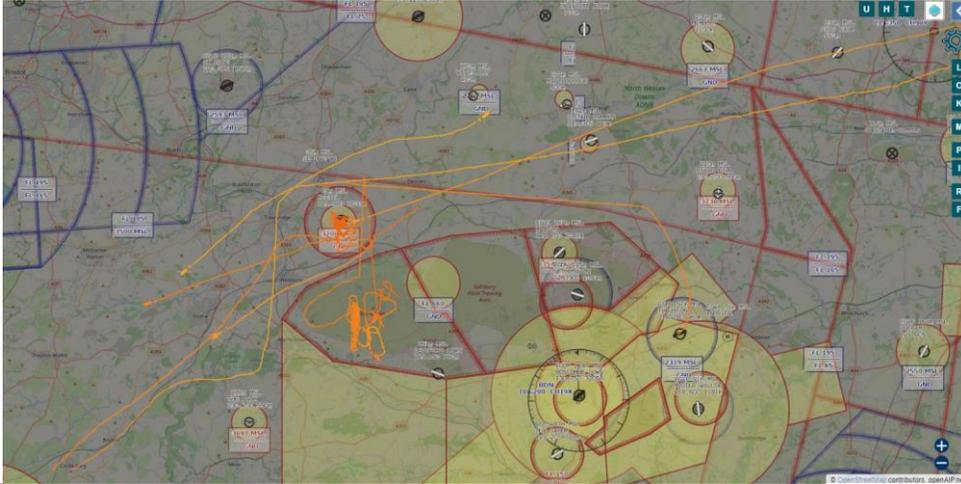


30 Mar 22

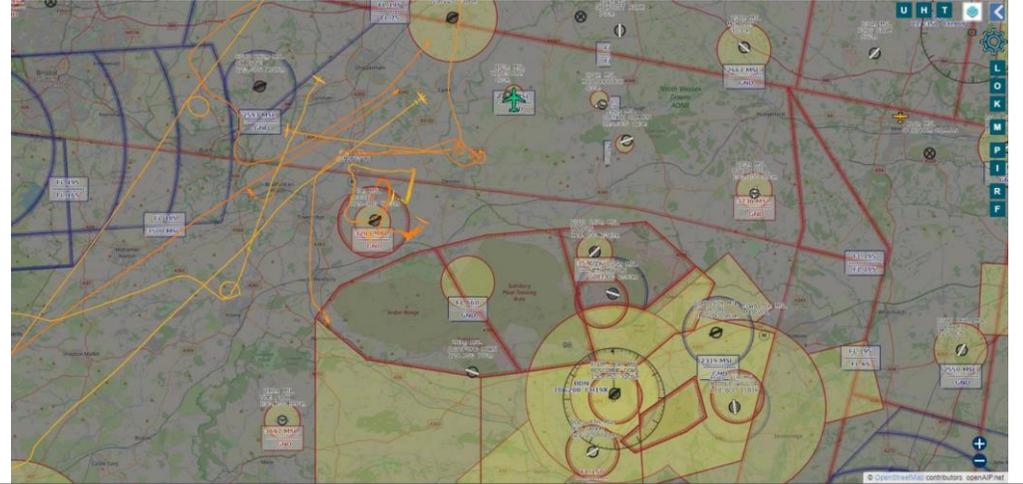


Source: globe.adsbexchange.com

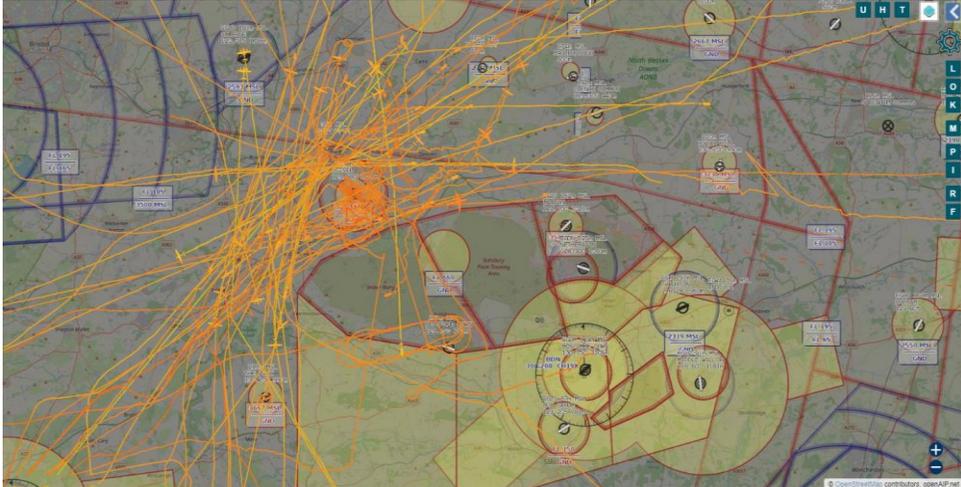
31 Mar 22



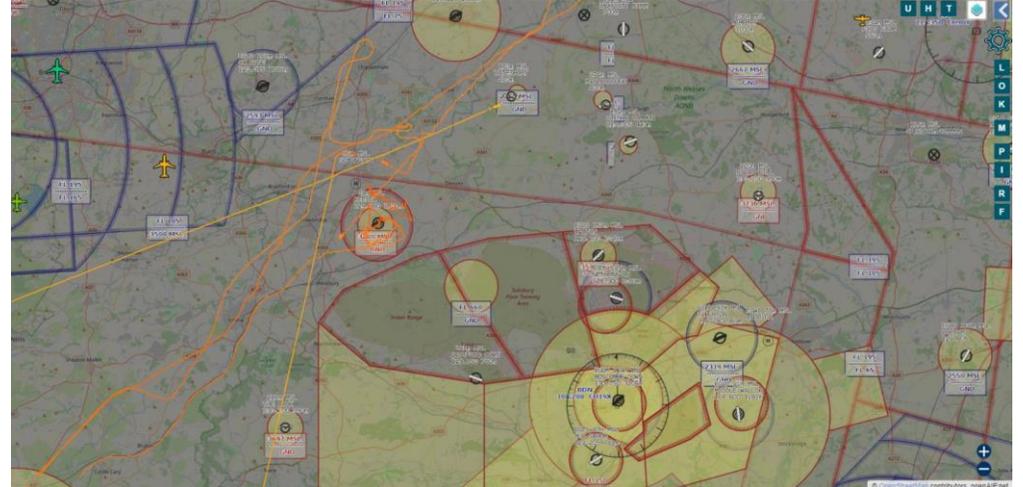
1 Apr 22



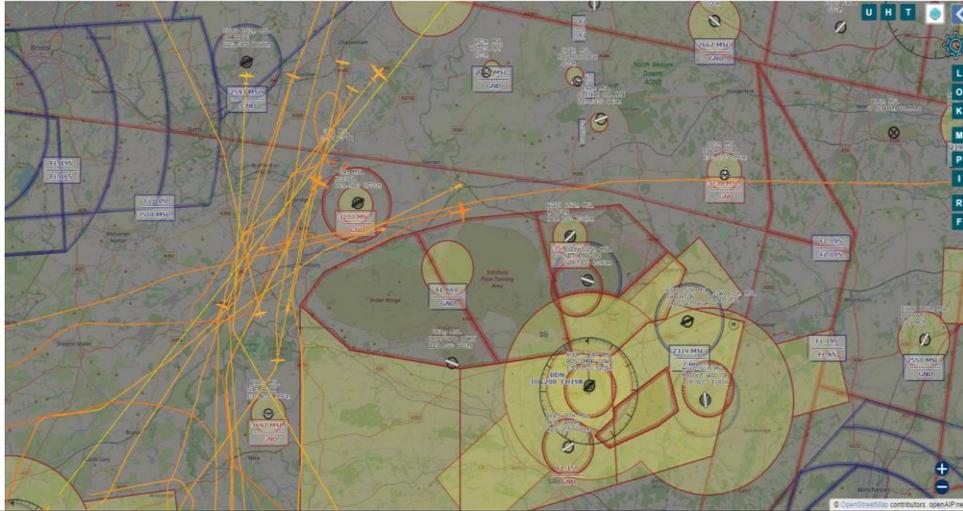
Week 4 – 8 Apr 22



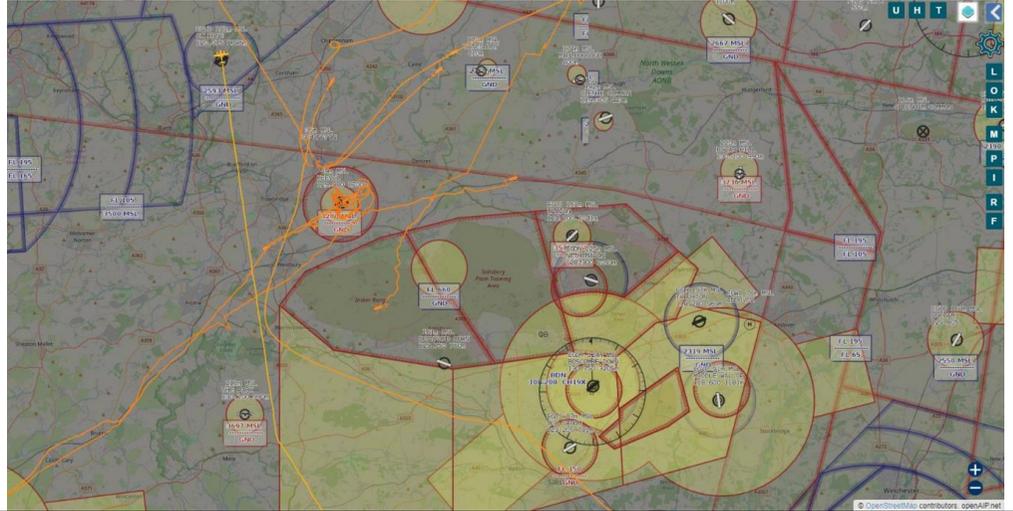
4 Apr 22



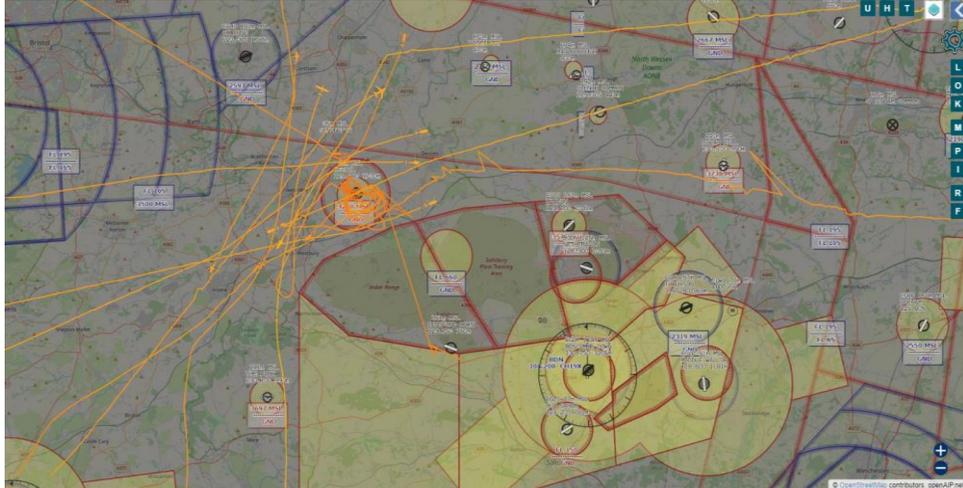
5 Apr 22



6 Apr 22



7 Apr 22



8 Apr 22

