Airprox report number 2018265

Summary of Airprox Information from UKAB

Date: 25 Sep 18 Time: 1310Z Position: 5109N 00016E Location: Maidstone Altitude: FL90 Aircraft: B787 (CAT)

The B787 pilot reports that the Captain raised his head from looking at the instrument panel and saw a small silver aircraft pass very rapidly from level with the flight deck to below the left wing. It was a very brief sighting of the craft as it flashed past at high speed. It was silver metallic and appeared to be descending in the opposite direction. He opined that he suspected it was a drone; it was definitely not a balloon or sonde.

Reported Separation: 150ft V/ 0m H *Reported Risk of Collision: High*

The London TCC controller reports that the B787 pilot reported an Airprox with a drone. He reported passing the drone when at FL90, however the frequency was extremely busy and so the controller was only able to obtain sketchy details. The pilot reported it as silver, fast-moving and too small to be a manned aircraft. The controller passed the information to subsequent pilots in the area.

UKAB Cause/ Risk Statement

Cause: The drone was being flown above the maximum permitted height of 400ft such that it was endangering other aircraft at that location. The Board agreed that the incident was therefore best described as the drone was flown into conflict with the B787.

Risk: The Board considered that the pilot's overall account of the incident portrayed a situation where providence had played a major part in the incident and/or a definite risk of collision had existed.

Airprox Reality Check Analysis

Analysis of this airprox produced a score of -60 using the Airprox Reality Check system[1]. Any score below 0 is considered unlikely to have involved a multirotor drone.

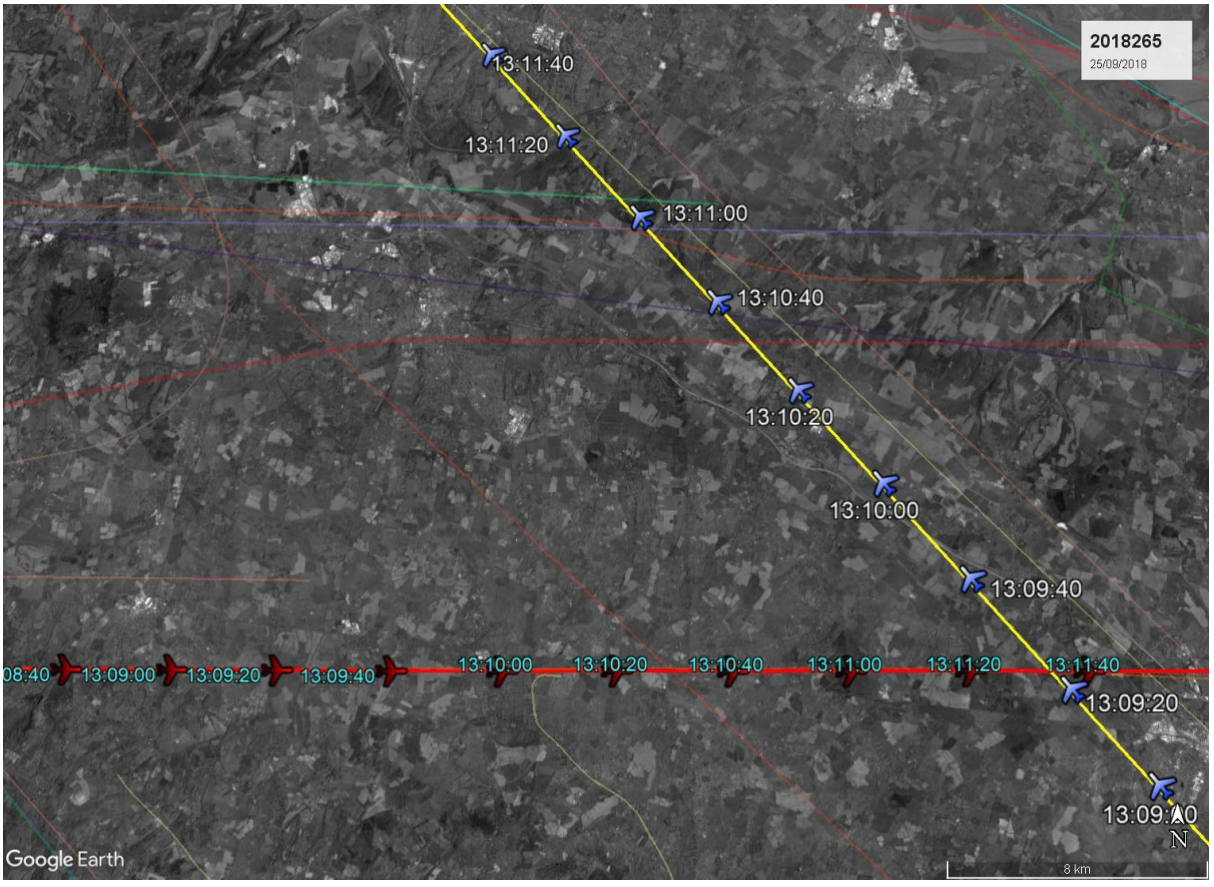
Altitude	F	9000-11999ft	-40
Location	A	Over accessible land (within 10 miles of a road)	0
Photo evidence	C	No photo evidence	0
Eyewitness reports	B	From aircraft pilot(s) only	0
ID of drone & aircraft	B	Drone and operator not identified	0
Electronic evidence	B	Electronic evidence showing aircraft only	0
Description of drone	C	Description is something unlike a multi-rotor drone	-20
Light levels	A	Daylight	0
Weather	A	No precipitation	0
Wind Speed	A	<15mph at ground level	0
Geozone	A	Not within a Geozone	0
		Score	-60

Initial Scoring Written Summary

> This is an eyewitness report from the aircraft flight crew only. There is no corroborating evidence. The likelihood of encountering a drone between 9000ft and 12000ft is effectively zero. These heights would be impossible for consumer drones due to the technical limitations of battery energy density/ mass. A custom-built drone could possibly achieve this level but they account for less than 3% of the fleet. If possible at all, loiter time at this altitude could only be a few seconds. It would also require the drone pilot to be willing to fly the drone illegally above the 400ft legal height limit. The description is of something unlike a multirotor drone.

ADS-B Data Analysis

The reporting aircraft was identified departing Gatwick on Runway 08 and climbing as it progressed East towards Dover on a heading of 90 degrees. At 13:09Z its path was crossed ahead by a B737-800 on a heading of 319 degrees (NW) at 38,000ft travelling at approximately 400kts.



Reporting B787; red track.
Crossing B737; yellow track.

The two aircraft paths crossed at approximately 50 degrees. The closing speed was approximately 600kts. The reporting aircraft was at this time climbing through 10,800ft, in a 3 degree climb, accelerating through 350 kts.

The crossing B737 aircraft would have been viewed 17.6 degrees above the horizon, or taking into account the reporting B787 aircraft's climb angle, 14.6 degrees above the flight path.

The crossing B737 aircraft was passing from right to left from the point of view of the reporting B787 pilot. The sustained climb and forward speed of the reporting aircraft, and the crossing angle, would have resulted in the crossing aircraft appearing to have been descending when it left the field of view near the left wing.

At the closest point the two aircraft were approximately 11.5km apart horizontally. A Boeing 737-800 (39.5m long[2]) viewed from 11.5km would appear to be the same size as a DJI Phantom (33cm) drone 96 metres away.

Given that this crossing event occurred at the time estimated by the pilot in his report, approximately at the location reported, and the features of how the aircraft would have appeared substantially match the narrative in his report, it is without doubt the encounter in question. This was not in fact an airprox. There was absolutely no risk of collision.

Airprox Reality Check Conclusion

This was a classic case of a distant full-size aircraft being mistakenly identified as a nearby drone.

In the sky, there is nothing to give scale to an object. Once the human brain leaps to the wrong conclusion about what the object is, the relative distance etc is 'calculated' on this 'wrong' basis.

About Airprox Reality Check

Airprox reports featuring unmanned aircraft are almost always pure eyewitness accounts, which are notoriously unreliable[3]. Airprox Reality Check analyses airprox data using its 'Reality Check System' to evaluate the likelihood of the event actually having involved a multirotor drone.

The Airprox Reality Check believes that airprox data relating to drones should be an accurate and reliable indicator of the actual number of times drones come into proximity to manned aircraft, and is committed to achieving that goal.

References

[1] = The Airprox Reality Check is explained here: https://www.airproxrealitycheck.org/reality-check-system/
[2] = Boeing 737-800 specification source: https://www.boeing.com/commercial/737ng/
[3] = There are several studies regarding eyewitness reports in the studies section on our website: https://www.airproxrealitycheck.org/studies/
ADS-B data sourced from The OpenSky Network: http://www.opensky-network.org