

UAV Surveillance – Do you know where your drone is?

Author: Mark Daniels, Co-Founder and COO, Plane Finder





“A drone that was sighted in the airspace near the airport led to its closure for 30 hours; disrupting 1,000 flights and more than 140,000 passengers.”



Unmanned Aerial Vehicles (UAVs) have had unprecedented growth. In the United States alone, the FAA forecasts that commercial UAV traffic could triple between now and 2023, with an estimated **835,000 drones** flying by that time.¹ These figures are specific to commercial drones, but if including hobby drones, this figure more than doubles. Although hobby drones don't apply to this case study, at some point in the future it could be that tracking of these flights becomes more critical.

Looking at the global forecast for enterprise drones, the figure increases further. In 2020, worldwide shipments of enterprise drones will total 526,000 units, an increase of 50% from 2019, according to Gartner, Inc. Global shipments are forecast to reach 1.3 million units by 2023.²

This creates a challenge for organizations trying to safely integrate drone traffic with manned aircraft. No one can forget the drone incident at London's Gatwick airport. The incident took place during the peak travel period in the time shortly before the Christmas holidays. A drone that was sighted in the airspace near the airport led to its closure for 30 hours; disrupting 1,000 flights and more than 140,000 passengers. This was a wake-up call to the aviation community of the potential disruption that can be caused by untracked UAVs in airport airspace.

The challenges that exist are on many different levels and not only about safety. Although safety is paramount, there is the possibility for disruption to air travel and downstream brand and financial impacts. But the news shouldn't sound all bad, there are also new business opportunities that come with the emergence of enterprise UAV traffic. Companies are already starting to provide UAV fleets to meet the needs of various industries. Some examples include:

- Delivery drones
- Taxi drones
- Agriculture management
- Inspection of remote infrastructure including energy, telecommunications and transportation.

The tracking of UAVs is the first step to safe and reliable incorporation of UAV traffic into manned airspace. Let's consider the implications.

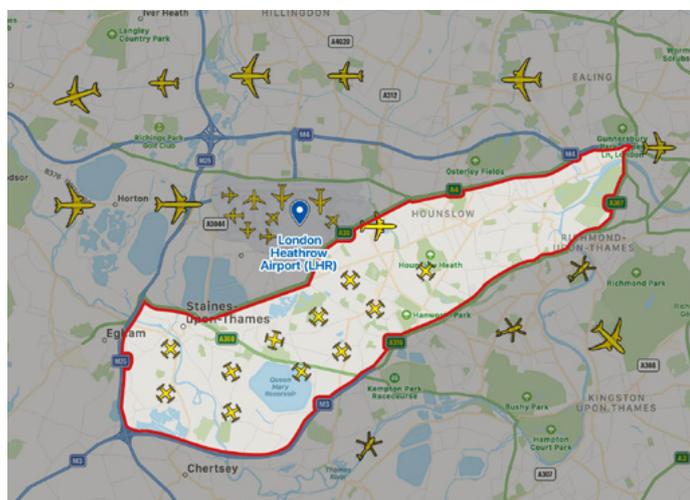
¹ https://www.faa.gov/data_research/aviation/aerospace_forecasts/media/FY2019-39_FAA_Aerospace_Forecast.pdf

² <https://www.gartner.com/en/newsroom/press-releases/2019-12-04-gartner-forecasts-global-iot-enterprise-drone-shipmen>

View from the tower - The challenge for ANSPs

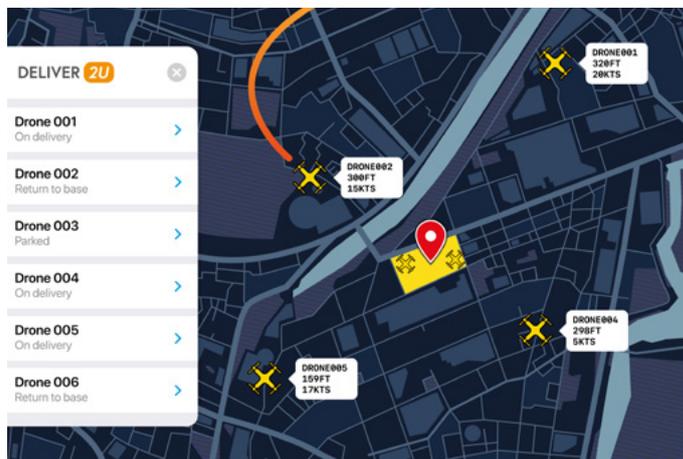
Air navigation service providers (ANSPs) know all too well the challenges that can happen when a UAV suddenly enters the airspace they are controlling. If they are not aware of the possibility for this to happen as they haven't been tracking it along its route, this could have huge safety implications.

Although there are efforts underway to track UAVs and integrate this information into air traffic control systems, a cohesive plan is still a future vision. Current activities only address specific geographies or require additional communications devices to be added to the UAV before it flies.



Although, two-way communication with UAVs is the ultimate goal, there could be an interim step to increase the amount of information ANSPs have available for their daily activities and future planning. The challenges ANSPs are currently faced with that could be addressed in advance of these two-way communications fall into four categories:

1. Tracking of UAVs – At the simplest level, where are UAVs flying?
2. What is the type of UAV and is it registered to someone, if so who?
3. Airspace planning – looking at the growth of UAV traffic over time. How much traffic is there and where is it going? Are there routes that seem to be used on a regular basis creating corridors?
4. Integration of this information into existing air traffic control systems.



Is my UAV respecting ATM rules - The challenge for UAV fleet management companies

As an enterprise UAV organization, the whereabouts of your fleet is a top concern. Today companies address this by adding additional communications equipment to their UAVs at additional cost.

There is also the issue of ensuring that your fleet is respecting airspace rules and isn't entering a forbidden location resulting in fines, infrastructure damage or damage to manned aircraft. In addition to the functionality to be able to track their fleet locations, there is the challenge of developing a tool that can manage all of this information.

Let's consider how the scenarios mentioned above could be addressed with UAV surveillance data.

For ANSPs, real-time live surveillance would show UAVs flying within their airspace. The identification of registered UAVs provides the details as to what is flying. Delivered via APIs, this information will help to inform what this aircraft is and who it is registered to, aiding ANSPs in determining the purpose of the aircraft being tracked.

All of the data mentioned above would be available on an historical basis, allowing for airspace planning based on the growth of traffic, type of traffic and path of travel. For example, might there be flight corridors that many of the enterprise UAVs are using that should be taken into consideration when planning how to address ever increasing airspace capacity usage? All of the data could be delivered via APIs in order to facilitate integration with existing air traffic control databases and tools.

For UAV Fleet Management companies, the story is much the same only from the other side of the flight controls. Needing to track their UAVs. What's different for these organizations is that they likely do not have dashboard management tools to integrate the data into and require customized web interfaces.

The way forward

Although there is a great deal of concern about the possible damage that can be incurred via an untracked UAV entering the airspace in the wrong place at the wrong time, we should not forget the business opportunities. The world of enterprise UAVs opens new opportunities for companies to conduct their business substantially saving cost and time.

One possible solution – Plane Finder UAV Surveillance

Plane Finder provides solutions for aviators, built by aviators. With more than ten years of ADS-B data to provide intelligence to meet your flight tracking needs, UAVs are now part of the portfolio of tracked aircraft. The UAV Surveillance solution set can meet all of the needs described in the prior suggestion for ANSPs and enterprise UAV organizations. With 86 million aircraft positions reported per day, Plane Finder is your solution to succeed in these new markets. If it flies, we can track it!



About the author

Mark Daniels; Co-founder and COO of Plane Finder, App Store veteran, ADS-B evangelist, avGeek, hobby photographer.



“Plane Finder provides solutions for aviators, built by aviators. With more than ten years of ADS-B data to provide intelligence to meet your flight tracking needs”





Plane Finder is a trusted source of precision live global flight tracking information. Customised products for aviation, business intelligence and emerging markets. World class apps.