



International Federation of Air Traffic Controllers' Associations

By Marc Baumgartner, President & CEO

The International Federation of Air Traffic Controllers' Associations (IFATCA) was founded in 1961. IFATCA is the worldwide Federation of air traffic controllers with more than fifty thousand members representing 133 countries. Among its goals are the promotion of safety, efficiency and regularity in international air navigation and the protection and safeguarding of the interests of the air traffic control profession. The URL for the IFATCA web site is www.ifatca.org

IFATCA recognises the rapid growth of the Unmanned Aerial Systems segment of the aviation industry and expects that the growth in UAV applications and operations will continue. The increase in UAS operations will inevitably increase the pressure for operations in non-segregated airspace. IFATCA has previously developed policy regarding for such operations.

IFATCA's policy on UAVs is that: «All UAV operations in non-segregated airspace must be in full compliance with International Civil Aviation Organisation (ICAO) requirements. Air Traffic Controllers must not be expected to handle a UAV in a different way from any other aircraft for which they are providing a service.» An explanation of this policy follows.

IFATCA realises that operators of UAVs wish to access all types of airspace, even controlled airspace. However, such access requires full compliance with the ICAO requirements placed on all other users of that airspace. Air traffic control is responsible for the «safe, orderly and efficient» flow of air traffic. Despite the increasing demands being placed upon ATC in terms of improving capacity and meeting environmental requirements, it is paramount that the first priority of ATC is safety.

IFATCA's view is that if UAVs are to operate in any airspace, they must demonstrate that they do not compromise the safety of other users of airspace. The simplest way of achieving this is for UAVs to operate in airspace where they are segregated from other airspace users, i.e. segregated airspace. In order to operate in non-segregated airspace, especially controlled airspace, it is necessary for UAV operations to demonstrate, via the ICAO requirements for Safety Management Systems (SMS) for any changes in Air Traffic Management (ATM), that the safety of all operations in the airspace is not compromised and that the target level of safety is achieved. This will require not only analysis before operations, but on-going monitoring to ensure safety.

For UAS to operate in an «orderly» manner, the IFATCA position is that UAVs must comply with the existing procedures that are applicable for all other airspace users. For example, there are established procedures for «loss of communication» for aircraft in controlled airspace. There have been cases where there was a «loss of communication» for a UAV in controlled airspace and the response of the UAV was to orbit until communication was re-established. This is not an acceptable response. In one instance, the UAV did not orbit in a particular location but drifted in the wind resulting in it infringing several airways. This affected the operations of other airspace users and could not be considered by other airspace users or air traffic control as being an «orderly» operation.

One of the tasks of ATC is to provide an efficient operation. In order to achieve this efficient use of airspace, UAVs have particular requirements –air traffic control often has to intervene and modify the trajectory of aircraft. Trajectory modification is only done when necessary so it is a requirement that air traffic control is able to intervene to modify the trajectory of all airspace users in Controlled Airspace.. There are of course operations, both manned and unmanned, that do not have flexibility of flight path (for example photographic mapping operations) and these are usually accommodated by special procedures or local arrangements, such as amending the time of operation to a suitably quiet time of the day. For operations that require a particular time and a particular location, these are usually coordinated well in advance and it is sometimes necessary that other users operations have to be restricted to allow this priority operation to occur. This requires strict compliance by the priority traffic to the pre-arranged conditions otherwise the operation is usually not permitted to continue. It is therefore not acceptable for UAV operations in non-segregated airspace to assume that UAVs can operate without trajectory modifications unless there is a specific operational need. The fact that the UAV has not been designed to accommodate trajectory changes does not establish an operational need for an unmodifiable trajectory.

UAS are such a diverse range of vehicles that general statements will often require clarification. Due to the diversity of UAS operations, the impact on ATC varies significantly depending on the nature of the UAV itself. UAVs range in size from hand-launched light weight micro-size vehicles to types that are similar in size to commercial medium jet operations. IFATCA believe that in general UAVs should comply with requirements for similar classes of manned aircraft operating in the various classes of airspace. However, it should be noted that some UAVs that are below a specific weight can be compared to model aircraft operations, i.e. very light weight operations that operate at very low altitudes.

Air Traffic Control (ATC) has already accommodated UAV operations for many years. The size of UAV operations in non-segregated airspace has so far been restricted and many of the activities have had a limited impact on ATC. For example, some UAVs, such as high altitude meteorological balloons, cannot alter trajectory and drift with the wind. However, they climb rapidly and as a result the exposure time on other operations is short and this assists in making such operations acceptable to ATC. A similar operation by a balloon (UAV or manned) that maintains levels that affect, for example, en-route operations would on the other hand have a significant impact on the ATC operation and would normally require prior arrangement.

One item of particular concern for IFATCA regarding UAVs is the «collision avoidance layer» as described in ICAO's Global ATM Operational Concept (ICAO Doc 9854). Until now ICAO rules on collision avoidance have included «see and avoid» elements in all airspace classes. There is a need to establish the equivalence (or otherwise) of «sense and avoid», the compliance of UAVs with associated «right

of way» provisions and the interaction between «see and avoid» and «sense and avoid». IFATCA believes that the «sense and avoid» issue is core to the ability to introduce UAS operations into non-segregated airspace. As a result, the IFATCA technical work programme for the 2008-2009 year includes a work item to study «sense and avoid» and the impact on ATC.

An aspect of UAV operations that is often overlooked is UAV operations at controlled airports. This requires the interaction of manned and unmanned traffic. Operations of this type can be expected to increase. UAVs, especially if using taxiways and runways, will need to be able to operate in compliance with aerodrome signs, stop bars and ATC instructions (such as hold short of an active runway). In addition, separation between aircraft on certain parts of the airfield is the responsibility of the pilots and not the controller. For example, there are specific areas where wing-tip clearance is not guaranteed and requires the 'pilot' to determine if separation is assured. Work is required to address how UAS will be able to comply with specific requirements enabling them to operate at a controlled airport in conjunction with manned operations. This article has concentrated on an ATC view of UAV operations in non-segregated airspace. IFATCA recognises that other aspects, such as UAV airworthiness, will need to be addressed by regulators. IFATCA's view on the areas that are not within the ATC domain is that UAVs be expected to comply in a similar manner as for existing manned operations.

In summary, IFATCA recognises the rapid growth of UAS operations and the requirement from UAV operators to access non-segregated airspace. IFATCA understands the need for ATC to provide a service to UAV operators that

enables them to operate UAS in controlled airspace. However, there are several significant issues that need to be addressed in order for UAS to gain the right of access to non-segregated airspace. One of the most prominent issues that needs to be resolved is how «sense and avoid» technology and procedures can be used to facilitate operations in non-segregated airspace.



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