



Airspace infringements call for a new safety improvement initiative

Safety Letter



FOREWORD

by Alexander Krastev, Coordinator Airspace Infringement Initiative

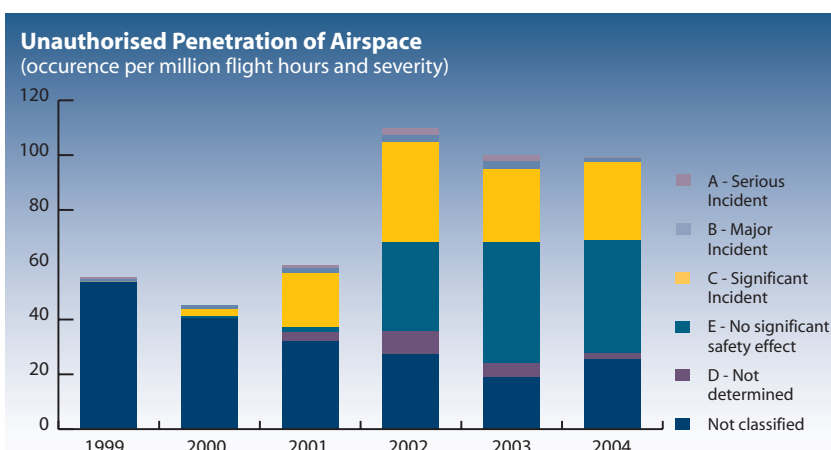


Unknown aircraft stray into some of the busiest areas of Europe's airspace at least once a day. This happens mostly in airport control zones or areas and in en-route airspace.

In December 2005, the EUROCONTROL Safety Team approved the launch of a new Airspace Infringement Safety Improvement Initiative, as proposed by the Safety Improvement Sub-Group (SISG).

Airspace infringements are not new. Despite efforts made in several European countries, these incidents continue to occur with a frequency which calls for an increased effort to develop preventative action. The causes of airspace infringements are various and, for the most part, identified. However, effective remedies are not so simple to identify and put in practice.

Technology, both on the ground and in the air, has evolved rapidly in recent years.



*This graph is based on the AST-reports from the National Focal Points reporting to EUROCONTROL SRC/SRU on an annual basis. Severity classification is according to ESARR 2.
Note: for reasons of data maturity 2001 should be taken as a baseline*

Equipment allowing improved situational awareness in the cockpit is now available and will become more and more so in the future - a basis for taking a fresh look at the airspace infringement issue. While a number of countries have already identified major causes and implemented mitigating

action, it is recognised that more benefits could be drawn from a European-wide initiative.

Therefore, the ultimate goal of this safety initiative is to develop, agree and implement an industry-wide risk-reduction action plan. The key success factor is the involvement and cooperation of all risk stakeholders, including national regulators, air navigation service providers, general aviation representatives, military authorities and professional organisations.

This safety letter is the first one on the subject of airspace infringement. It is the latest in a series covering issues such as runway safety, level bust and air-ground communications.



SCOPE OF THE INITIATIVE

The focus of this safety initiative will be the infringement of controlled airspace which is a main point of concern for ATM service providers and regulators.

Controlled airspace infringement can be defined as a flight into notified airspace made without prior approval from the designated controlling authority of that airspace in accordance with international and national regulations. The "controlled airspace" referred to comprises ICAO airspace classes A to E.

Typical occurrence

An air traffic controller was about to turn a Boeing 737 onto a closing heading for the instrument landing system and to clear its pilot to descend from 4,000 to 2,000 ft. But he noticed a 7,000 transponder squawk from an unidentified general aviation aircraft which was not displaying Mode C. Since the base of controlled airspace in that area was 1,500 ft, the controller assumed that the squawking aircraft was flying below its boundary. Shortly afterwards, the B737 passed within about 1 nm of the unknown aircraft, and an adjacent ATC unit called to advise that it had been in contact with the intruder. The infringing aircraft had at that time been inside controlled airspace and flying at 3,000 ft. Its pilot said he was lost.

It is important to note that class E airspace comprises the issue of "legal" encounters. Although no airspace infringements can occur, since no clearance to penetrate this type of airspace by VFR flights is required, serious incidents have occurred between IFR and VFR flights, mainly due to the inherent limits of the see-and-avoid



concept. SISG members reached a common understanding and agreement that this important risk also needs to be addressed by the initiative.

Besides infringement of controlled airspace, flight into restricted airspace may pose a serious risk to the "infringer" and

the operations being carried out in that airspace by the registered user. The generic term "restricted airspace" is used to designate Prohibited, Restricted and Dangerous Areas, Temporary Reserved Airspace or airspace notified by a restriction of flying in accordance with national requirements.

Controller-reported occurrence

So far during the operation of the XXX TRA, an average of approximately three out of every four inbound aircraft flying to YYY (airfield) have called to ask me for joining instructions from a position that would obviously take them through the TRA airspace. I have asked all of them to immediately call XXX first and then get back to me. Many have thanked me on arrival because they would otherwise have violated the TRA. All admitted that they had no knowledge of it at all and many admitted that they did not bother with NOTAMs because they were too difficult to obtain or to understand. Not everyone has a PC with which to obtain them easily.

All the above-mentioned types of airspace are regularly infringed. The causes and circumstances of these infringements are various and tend to repeat themselves regardless of the type of airspace infringed.

CHALLENGES

In order to capture the magnitude of the issue of airspace infringement, the reporting of incidents relies almost entirely on air navigation service providers, since general aviation pilots flying under visual flight rules tend to be constrained by less mature reporting systems than those implemented today in military or commercial air

transport organisations. The challenge will be to provide simple means of educating GA pilots of the need to submit reports on such events.

Further, there is a need to raise controller awareness of the risk caused by airspace infringements in countries and regions which do not consider it

to be among the highest-risk areas. Infringements are often under-reported by controllers, owing to an absence of aircraft in close proximity to the intruder aircraft.

A considerable number of incidents are linked to the joint civil-military use of airspace. In UK airspace, for ►►



example, this number is as high as 10%, according to recent statistics. Therefore, efficient coordination and partnership between military and civil ATM is not only beneficial but essential for an effective ECAC-wide risk reduction.

INTERVIEW WITH PHILIPPE HAUSER, AOPA SWITZERLAND

Airspace infringements are (also) a concern for general aviation pilots and organisations. In order to capture views on the issue, we submitted a number of questions to Philippe Hauser, Chief Executive Officer of AOPA Switzerland. He is an active pilot and flight instructor, and has as such been instrumental in providing support and training to GA pilots in order to ensure that they understand the implementation of the new Zurich TMA in 2005. The training package, named "Turicum" (the Roman name for Zurich) has helped to build confidence and reduce airspace-infringement-related incidents.



Are airspace infringement incidents perceived as an issue by AOPA?

"The short answer is definitely 'yes'. Our goal is 'safety first', which means that IFR traffic should, to a certain extent, have its own airspace. AOPA represents a wide variety of general aviation pilots and aircraft owners holding IFR and VFR licences, and therefore using both controlled and uncontrolled airspace. We feel that it is in the interest of all airspace users to find the most appropriate solutions which mitigate the risk. These can be found only by working together with a focus on safety."

You concede that airspace infringements are an issue; how are they perceived by those flying according to VFR rules in comparison with other risks in general aviation?

"The perception from a pilot's point of view is probably less (severe) than the statistics on airspace infringements indicate. In general, the main preoccupations of a pilot, when preparing his/her flight, are the weather conditions and fuel management. Airspace structure is more abstract and sometimes perceived to be less of an issue. However, the majority of pilots are keen on information (regarding airspace) and want

to get it right, since they realise that there is latent danger."

What, from the point of view of the airspace users, are the main causes of AIs?

"There are several causes of airspace infringements. One of them is certainly flight preparation - flight planning. It is not that the pilots do not prepare their flights, but that adequate preparation is sometimes lacking. For example, the choice of a route which is not easy to navigate may be more likely to lead to an airspace infringement than one with distinct landmarks. Airspace boundaries are often a straight line on a map, with very little reference to navigate on. Once in flight, these lines become virtual and difficult to correlate with the path to be followed. Adding poor weather conditions, situational awareness becomes an issue as the workload for the pilot rises."

Could you list some of the "cures" that would prevent airspace infringement?

"The creation of awareness is certainly one of the best cures for the prevention of airspace infringement. This can be obtained through (basic) training, but has to be repeated periodically. The means can vary

from articles in specialised magazines to activities within aero clubs and discussion of the subject in safety seminars. Dissemination could also be through monthly AIP revisions. However, national authorities or regulators are sometimes reluctant to include prevention material with their official updates. In general, it can be said that pilots are keen on obtaining information that increases safety. The difficulty is reaching all pilots."

How do you see your suggestions implemented in practice?

"In our opinion, awareness can only be created via concerted actions involving all concerned stakeholders. These are the regulator, the air navigation service provider and the airspace users."

If you could start with a "blank sheet" in resolving the airspace infringement issue, what would be your first proposal?

"It is probably utopian to address this issue with a 'blank-sheet' approach, as there are many 'givens' that cannot be changed, such as political issues. Our proposal would be to take a fresh look not only at the airspace structure, but also at the procedures and services provided."

WAY FORWARD



In line with the experiences gained from previous safety improvement initiatives, the work will follow a dedicated initiative lifecycle spanning over two years. This will comprise the development and agreement on a limited set of early actions for risk mitigation. In addition, a safety study is being conducted throughout the year 2006, with the objective of analysing the causal factors in sufficient detail, in order to identify possible improvement schemes and establish recommendations for risk reduction.

Throughout the study, contact will be maintained with all identified risk stakeholders to establish the reasons why airspace infringements are happening and what will permit their prevention. Once the findings have progressed sufficiently, an industry-wide workshop will be organised to consolidate the knowledge acquired and agree a set of risk-reduction recommendations. This workshop is likely to take place at EUROCONTROL Headquarters in Brussels during spring 2007.

SUMMARY

It is evident that airspace infringements are a recurring theme. Numerous ATM incidents have occurred between IFR and VFR flights in controlled airspace. Some of them presented a high risk of collision. Solutions exist, but can only be

implemented in collaboration with all the ATM actors concerned. The idea is not to restrict VFR operations or limit airspace available for general aviation activities, but to make the sky safer for ALL airspace users.

Risk reduction will be set out and implemented through a European action plan. As with previous safety initiatives, a dedicated tool-kit may be developed to support implementation of the action plan.

Further safety letters, publications and progress reports will be used to promote the initiative and keep the ATM community informed of progress and involved in the implementation of the Airspace Infringement Initiative.



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