



FRONTEX

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The Potential of UAS for European Border Surveillance

Our lives in the globalised world depend increasingly on efficient, convenient and secure world-wide mobility of persons and goods. To this end, the European Union has abolished the internal borders in the Schengen area and started to develop a common policy on Integrated Border Management.

The objectives of this policy are to keep the external borders of the EU open for trade and movement of persons, to facilitate regional cooperation with neighbouring non-EU states, and to keep the borders closed for criminal activities such as smuggling, illegal migration, and terrorism. The abolishment of the internal borders of the European Union has underlined the need for the Member States to collaborate to maintain security at the external border. As a part of the Integrated Border Management policy, Frontex has been created as a European agency tasked to coordinate such collaboration.

The European Commission has recently issued a communication on the creation of a European Border Surveillance System (EUROSUR)¹. EUROSUR is a long-term initiative to create a «system of systems» enhancing the situational awareness and the reaction capability for securing the EU external border. The development of EUROSUR will focus on maritime surveillance covering initially the areas from the western coast of Africa to the Black Sea. However, the eastern land borders will also be included.

While the areas to be covered by EUROSUR are very wide, the objects of interest for the maritime application can be very small, ranging from normal ships through small wooden or inflatable craft to improvised craft such as tiers. Furthermore, EUROSUR will need to cover the wide areas with sufficient continuity and detection capability to ensure that action can be taken against suspicious vessels.

To meet the requirements for surveillance in conditions ranging from the open Atlantic to the Greek archipelago, requires a multitude of systems using sensors mounted on space and airborne platforms, as well as on ships and on land. In this context, unmanned aircraft systems (UAS) offer an interesting potential and have already been employed for border surveillance by some countries, including the United States and Israel.

The sea surveillance mission that could be performed by UAVs includes wide area surveillance under most weather conditions, which calls for radar sensors, as well as identification of suspicious targets, which calls for optical sensors or possibly imaging radar. As the mission has to be performed continuously over wide areas, the UAVs can benefit from their persistence. UAVs can patrol a far-off area for as much as 24 hours before returning to the base.

The eastern landborder also presents various challenges. The border spans over thousands of kilometers and ten European countries. The terrain includes forests, mountains, and rivers, while the climate ranges from sub-arctic to Mediterranean. The objects to be detected are mainly vehicles and people, which calls for optical sensors.

The further development of the EUROSUR concept will include several studies carried out by Frontex and by industry. These studies will seek to find a proper balance between the different components of the surveillance system and to find the needs for further technological developments. To meet the needs for further technological solutions, the research on space and security funded by the European Commission through the 7th Framework Programme for Research and development will contribute to the development of EUROSUR.

To be of interest, the UAS will need to prove their value in purely economical terms. The life cycle costs for using UAS have to be lower than for alternative systems. The, in the military context, much appreciated fact that no pilot can be killed or taken prisoner if the aircraft is shot down is of no value in the border control scenarios.

Although the development of UAVs certainly poses technological challenges, the critical issue is the question of operating unmanned vehicles in normal airspace. To resolve this issue, there are many activities going on ranging from technologies for sense and avoid to the legal aspects.

Just as satellites, although to a lesser extent, UAS offer an economy of scale. They can cover large areas far from the base and the information can be readily distributed to multiple users. This indicates that it would make sense to operate UAS at a European level. To provide this added value at a European level, Frontex could very well have its mission expanded to include acquisition of information from satellites and UAS.

In summary, the European Union gives increased priority to the security at the external borders. UAS have the potential to play a major role in providing surveillance of the European border areas. However, to realise this potential and in order for the end-users to consider the use of unmanned vehicles, the critical issue of operating UAS in normal airspace urgently needs to be resolved. Furthermore, the UAS need to be cost-effective.



¹ COM(2008) 68, 13 February 2008