

---

## Day 2 (Wednesday, 26 October) 16:15 - 17:45, Hall B Technical Session 8 Remotely Piloted Aircraft Systems

---

### **T8-1-A**

#### Potential operational consequences of the use of ACAS Xu in controlled airspace

Christian Aveneau (DSNA/DTI), Daichi Toratani, Atsushi Senoguchi, Hiroko Hirabayashi, Takuya Otsuyama, Akiko Kohmura (Electronic Navigation Research Institute, MPAT)

A “detect-and-avoid” capability providing a “remain well-clear” function will be needed for unmanned aircraft to fly safely in uncontrolled airspace but could also be used in controlled airspace, provided that the action chosen by the pilot, based on the system suggestive guidance, is compatible with the current air traffic control clearance or an amended clearance.

The study reported in this paper looked at the potential operational consequences of the interaction between the pilot and the controller in controlled airspace when a clearance amendment must be requested by the pilot, using the recently standardized detect-and-avoid system, ACAS Xu.

Simulations on a selected encounter in Japanese airspace were performed, first with only the unmanned aircraft equipped with ACAS Xu and the other aircraft equipped with current collision avoidance system, then with both aircraft equipped with ACAS Xu. A model of pilot behavior when faced with a remain-well-clear alert (including pilot-controller communication delays) was used.

The analysis of the qualitative results outlined three areas of concern: the possible confusion caused by multiple changes of remain-well-clear guidance, the undesirable effects when both aircraft are equipped with ACAS Xu and the potential interaction with short term conflict alerts displayed on the controller working position.

### **T8-2-I**

#### Risk-based Approach to UAS Traffic Management System Development in South Korea

Yunsil Kim, Dongmin Kim, Joongwon Bae (Korea Aerospace Research Institute)

This paper introduces the risk-based approach to derive the required UAS safety requirements and airspace design concept of UAS traffic management system in South Korea. Third-party risk on the ground is considered as the most important target level of safety for UAS operations. In this regard, the ground risk model and air risk model are utilized to quantitatively evaluate the associated risks and it becomes the basis to define the relevant airspace and requirements. Especially for the air risk model, the collision risk model used in manned aviation is applied.