

## Cooperation EASC and BAM in research on unmanned aviation

On February 1st, 2014 the Federal Institute for Materials Research and Testing (FIM) signed a memorandum of understanding with the European Aviation Security Center (EASC e.V.) on cooperation in research on Unmanned Aircraft Systems (UAS), also known as Remotely Piloted Aircraft Systems (RPAS).

This agreement should strengthen and expand the cooperation between both institutions. The content of the agreement is the collaboration in scientific projects and tests for civil applications of RPAS in surveillance of geotechnical installations, accidents involving dangerous goods, hazardous incidents in power plants or for health and crop protection. Since 2011 there are tests of VTOL- RPAS in phytosanitary applications with spray attachment against the oak processionary caterpillar in Brandenburg.

Further EASC examines RPAS- related aspects like privacy, regulatory frameworks and technology impact assessment. Research results of EASC about RPAS applications in disaster relief and humanitarian mission are also interesting for authorities and organizations responsible for safety and security.

### The future of unmanned aviation

2013 several parcel services presented plans or visions of an air based distribution and delivery systems for shipments. The so-called "Paketcopter" by the German DHL or the "Amazon- drone" became the most well known of all of them.

Perception in media and public opinion on these projects has shown, how many unanswered questions exist, apart from the approval and regulatory aspects.

Who is accountable for damages on person and property in case of an accident? How can privacy and data protection be secured, if unmanned aerial systems with cameras for orientation or photography will operate over populated or urban areas? Is there a way to establish appropriate separation with manned aviation?

Threat scenarios also a focus of EASC research. Is a more easily access to highly developed RPAS technology a door opener for new and recently unknown security threats? What could be a feasible defense against those threats, e.g. jamming or spoofing?

Actually EASC examines different national regulations on unmanned aviation in a comparative study. Regulations for private RPAS- flights in the US are very strict and commercial flights are very restricted. In contrast to Japan, where RPAS are used in agriculture for fertilization of rice fields for many years. Those systems operate completely remote and in visual-line-of-sight.

Since the technical progress will allow much more applications for unmanned aviation in the future, these questions will remain essential as a topic in research.