

# Drones and ONERA

ONERA's multidisciplinary at the service of a global approach to meet current challenges in the drone sector

## Safer drones

- Safe avionics and navigation
- Robust control law
- Reconfiguration in flight
- Expertise for certification
- Secure and suitable human-system interfaces



DECISION

ACTION

PERCEPTION

REACTION



## Surveillance of malicious drones

- Detection, identification, neutralization
- Radar, optronic, and acoustic technologies, etc.
- Development of innovative technologies
- Evaluation of more mature technologies



## More powerful drones

- Sensors, processing, data fusion
- High-performance embedded computing
- Single or multiple drone intelligence
- Mission planning and reconfiguration
- Data and link security
- Aerodynamics, energetics, propulsion

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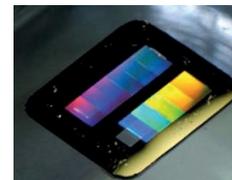
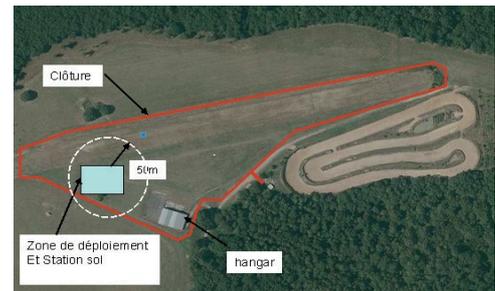
## ONERA's strengths

ONERA plays a key role as expert on behalf of the State and as innovation support for industry through major national or European projects, in partnership with the main institutional, industrial and research players. This expertise is dual, in the civil and defense fields.

With 25 years of experience in aerial robotics, ONERA researchers have a large fleet of fixed-wing and rotary-wing drones, ranging from a hundred to a few kilogram.

These drones, which cover a very wide range of applications, perpetually benefit from advances in research, thus becoming know-how demonstrators.

In the Toulouse region, ONERA has a site dedicated to flying and testing drones, as well as a 'drone hangar' at its Palaiseau site.



## Some research projects carried out by ONERA in European, national or regional contexts

**DROSOFILES** - Industry research partnership with the SNCF on UAV systems for network monitoring.

**TERRISCOPE** Joint research platform dedicated to airborne imagery for the study of the environment and territories  
Europe - ERDF and Occitania Region project

**ALTAIR** - European project for the development of an airborne launching system using drones for placing small satellites in low orbits.

**VISIOLAND** - ANR project aimed at enabling the use of a video camera for the landing of an airliner and a drone.

**SESAR2020** - European Research Program on the Future Airspace Management System.

**COPERNIC** - ONERA project on navigation and 3D reconstruction based on visual information.

**DROPTER** - ONERA project on drone reconfiguration in the event of unforeseeable situations.

**FORC3ES** - ONERA project enabling the specification of software for drones and the demonstration of its properties.

**FCAS** - French-British program regarding the future combat drone; ONERA is the DGA's expert in this program.

**ERA** - European Defense Agency project dedicated to the standardization of advanced drone functions.

**ANGELAS** - ANR project carried out by ONERA to develop technologies for the fight against malicious drones.

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