P2OA-drones:

Pyrenean **P**latform for the **O**bservation of the **A**tmosphere, a hosting site for **drones**

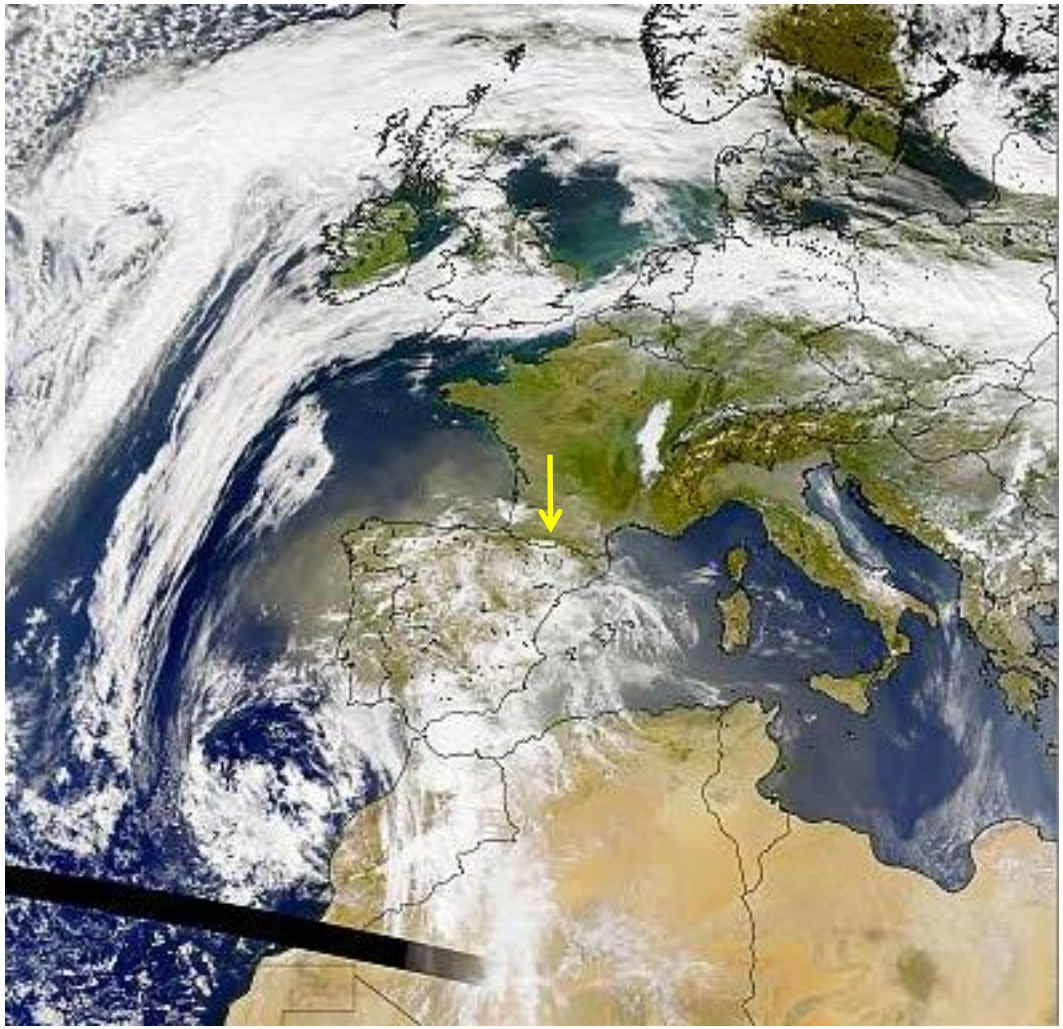




Label supports from:

Location – Environmental context

Meteorological conditions and topics



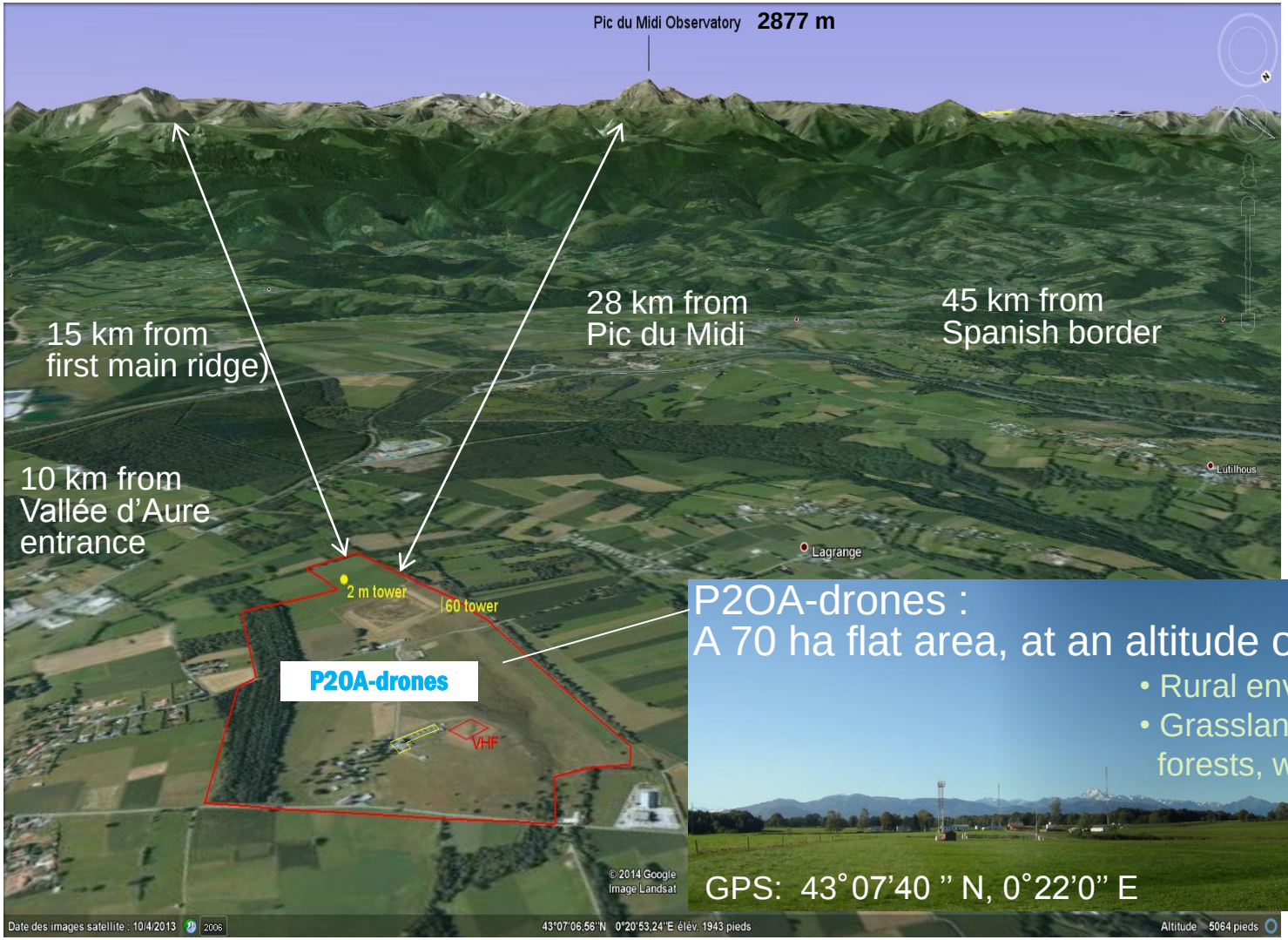
- Southwest France
- Northern side of the Pyrenean ridge
- Warm temperate, fully humid climate
- Influence of western Atlantic synoptic flow
- Typical lowland/mountain meteorology
- Unpolluted rural plain site

Research topics addressed

- Tropospheric dynamics
- Land/atmosphere interaction
- Atmospheric chemical composition
- Atmospheric electricity

Location – Environmental context

The Lannemezan plateau in the Pyrenean foothills



P2OA-drones :
A 70 ha flat area, at an altitude of 595 m

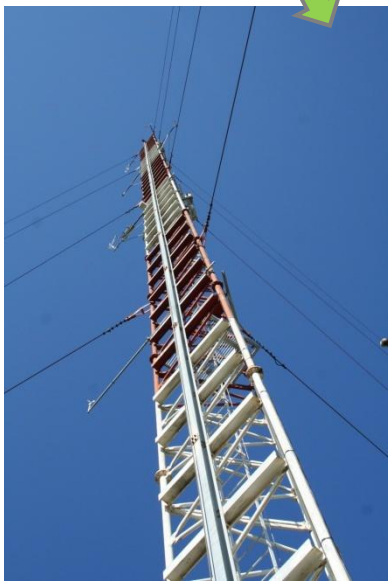
- Rural environment
- Grasslands, crops, forests, wetlands

GPS: 43°07'40 " N, 0°22'0" E

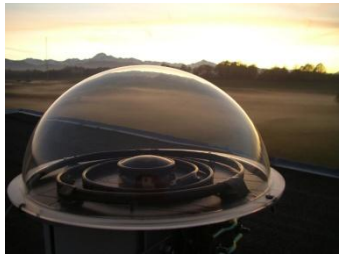
Observation support at P2OA-drones

National and international networks:
eProfile, NDACC, ACTRIS-Fr

UHF radar **wind profiler**
(150-3000 m height cover)



60 m Surface/atmosphere energy flux tower
Mean meteorology (5 levels)
Turbulence & surface energy balance (3 levels)
CO2 and O3
Ground measurements
10 m and 2 m towers
Meteorological and flux stations



Total **Sky Imager**, cloud cover retrieval

VHF radar **wind profiler**
(1.5-16 km height cover)

Combustion chamber
- Burning, sampling and analysis rooms
- Gas Analyzers: O3, CO, NOx, SO2, particles

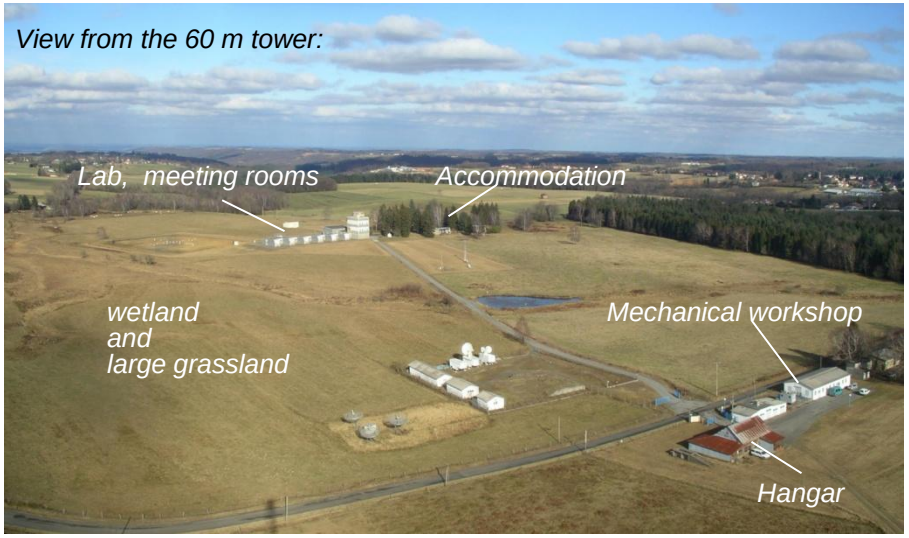
Atmospheric electricity:
- electrostatic field
- precipitation current

Potential for Balloon operations:
-Tethered
- radiosounding

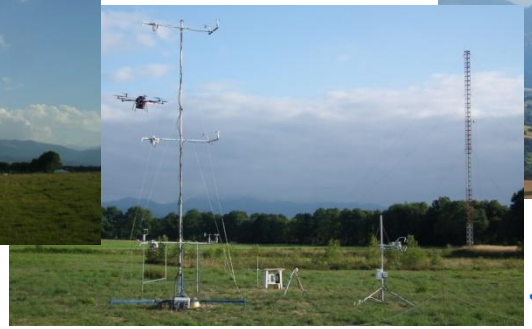
Hosting capabilities at P2OA-drones

- **Continuous measurements as reference**
- **Long term series of data / real time data**
- **PIs permanently on site for support**

- Large and open grassland area
- On-site permanent staff
- Large meeting room, smaller working rooms
- Storage capacity
- Mechanical workshop
- Power supply and internet access
- Accommodation (low cost furnished apartments)



BLLAST international field experiment (2011)
A process studies field experiment



The Boundary Layer Late Afternoon and Sunset Turbulence http://bllast.sedoo.fr

Hosting capabilities

Specific capability at P2OA-drones

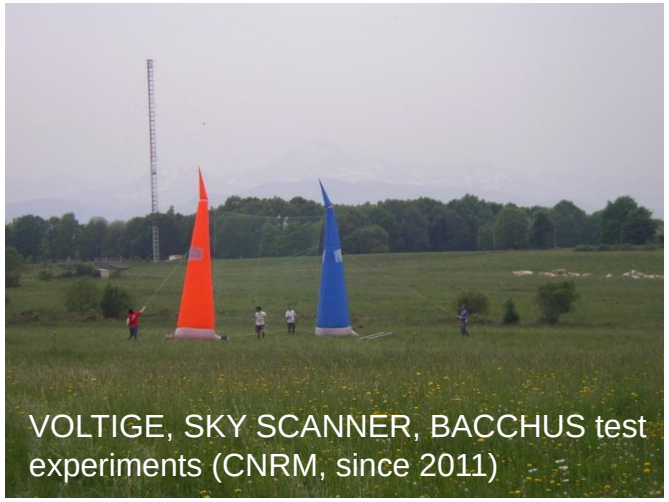
- **Permanent tethered balloon operations up to 1000 m agl**
- **Possibility of activitating specific Temporary Regulated Area**

AMULSE – Laser diode CO2 spectrometer (GSMA-CNRM, 2010)

Balloon-borne turbulence probe (CNRM, 2010)

ISARRA field campaign (international, 2016)

BLLAST – COST-es0802 fly-meeting (international, 2011)



VOLTIGE, SKY SCANNER, BACCHUS test experiments (CNRM, since 2011)

OVLI-TA test flights (LA, since 2014)

Since 2015: CNRS label for sensors and operation tests on tethered balloon and drones

P2OA-drones:

Pyrenean **P**latform for the **O**bservation of the **A**tmosphere, a hosting site for **drones**