

HIGH MOUNTAIN TOPOGRAPHY

The “Order of Expert Surveyors” is a professional institution that was founded in 1946. Under the supervision of the Department of Urban Development, its purpose is to enforce legislation governing the profession and to supervise the activities of the professionals of the industry.

**20cm**
in X/Y**30cm**
in Z

PRECISION

3150m

ALTITUDE

4305

PICTURES

300
MILLIONS

3D POINTS

11 Km²

3D MODEL

THE CLIENT'S NEED

This operation has been ordered by the Order of Expert Surveyors. They needed to provide a new measure of this French emblematic mountain and wanted to promote the use of drones to map large and complex areas.

This measurement and modeling exercise has been set up with the support of many partners: the Pyrénées-Atlantiques departmental chamber of the National Union of Surveyors (UNGE), Aeromapper (Long range UAV manufacturer), Géomesure (Trimble distributor), Teria network (real time centimeter geolocation network).

The modeling was conducted in conjunction with Covadis, a topography software published by Geomedia.



THE SOLUTION



Aeromapper is the manufacturer of the AVEM, a long-range UAV certified for BVLOS operations dedicated to high resolution mapping of large areas. Equipped with a 24MPx RGB sensor, the AVEM has up to 3h of endurance which is perfectly suited to this kind of operation.

However, collecting data at an elevation of more than 3000m over mountainous terrain is no easy task: strong winds, clouds, turbulences, obstacles, ... were some of the challenges to take up! The AVEM did it perfectly.

THE OPERATION

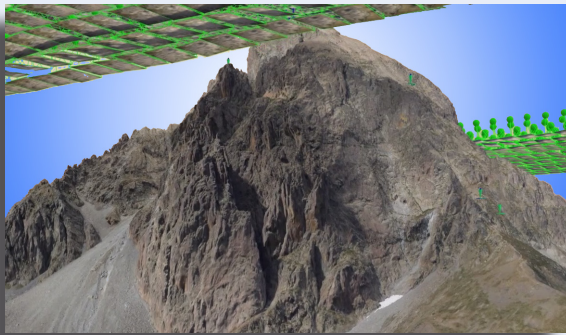
Early wake up for the 50 people involved in the operation. After a hearty breakfast, our team went on a hike to the first takeoff site. By noon, the AVEM was launched and started collecting data. Despite wind and turbulences, the UAV flew perfectly its flight plans. Thanks to a thorough preliminary landing sites check, the AVEM came back to a landing without difficulty. The crew then moved on to a 2nd operation site to cover the west side of the peak. In 2 days, 5 flights were performed which represents a total of 4305 high resolution pictures with precise POS.



DATA PROCESSING

Modeling 11km² of mountainous terrain is a challenge as complex as acquiring the data. 19 targets have been implemented in various places around the Pic d'Ossau, visible on aerial images. All in all, 40 GCP (Ground Control Points) have been identified. The COVADIS software was used to carry out all the calculation process.

Thanks to 4305 processed images, a cloud of 300 million points has been generated. This extraordinary 3D model has been validated by Benoît Greuzat, Expert Surveyor, and our partners.



Ossau 3D Model

DELIVERED PRODUCT

Now we know! The Pic du Midi d'Ossau measures exactly 2883,84m! The highly accurate 3D model delivered will be used to manage the area, located in a protected national park. It will also be used for environment preservation and as an informational tool for hikers! The initial mission's purpose has been achieved: to demonstrate UAV capabilities to map extreme areas with a quality compatible with the highest industry's institution's standards.

To watch the 3D model online, please [click here](#)



[Watch the video report of the operation](#)

4 REASONS TO CHOOSE AEROMAPPER

- The AVEM is the most advanced light UAV on the market
- The AVEM matches the highest level of expectations from expert surveyors
- The only UAV system able to collect HD data in this kind of environment thanks to a powerful software suite
- Aeromapper's expertise in BVLOS operations