



**YellowScan** | Designed to Innovate.

## SUCCESS STORY

# Road Inspection

RISK ASSESSMENT

“

To survey this type of environment, LiDAR for drone is the best tool: the time-saving and increased safety are considerable. Given the 5 echoes' capabilities of the Vx20-300, it can easily penetrate the vegetation to recover the ground and generate an accurate DTM, thus giving the geologists a new set of 3D maps for risk management and decision support.”

Benjamin Pradel, Aerial Survey Project Manager at L'Avion Jaune



INTEGRATION  
DJI M600



SOLUTION  
Vx20-300

## Business challenge.

*Risk assessment of rockfall hazards on road networks.*

L'Avion Jaune and Ginger CEBTP, a geotechnical study office, were mandated by the Departmental Council to conduct a risk assessment study of rockfall hazards on their road networks. The end goal was to implement the most suitable prevention measures to protect road users.

The natural degradation of limestone cliffs generates landslides and block falls that can mobilize large volumes of material and impact the road networks below.

The management of this risk was mainly based on trajectographic analysis, which consisted in simulating the fall of rock masses from the peaks to the bottom of the valley. The aim was to evaluate the level of risk incurred and to optimize the dimensioning and implementation of rockfall barriers.

To conduct this risk mitigation, a 3D model study of the cliffs overhanging a frequented road was essential. The site was 200 m (655 ft) high, 300 m (980 ft) wide and 2.5 km (1.5 mi) long.



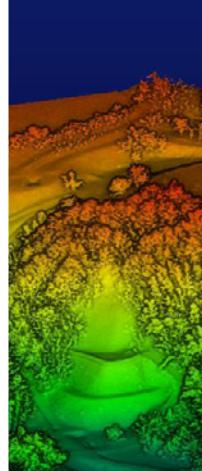
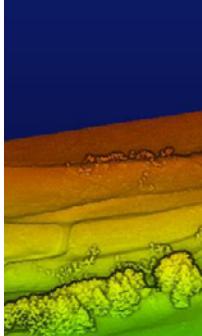
Company: L'Avion Jaune

Website: [www.lavionjaune.com](http://www.lavionjaune.com)

Country: France



## SUCCESS STORY **Solution**



You want to learn more about LiDAR applications ?

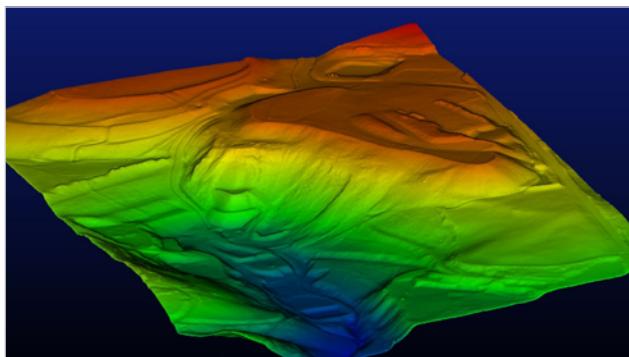
Scan this QR CODE



### Acquisition.

The configuration and the dangerousness of the terrain did not allow for soil mapping under dense vegetation with traditional methods.

Therefore, L'Avion Jaune used their YellowScan Vx20-300 to survey the cliffs and extract a Digital Terrain Model (DTM), after classification and filtering of the laser data.



Digital Terrain Model of the area

### Mission parameters.

Four flights of fifteen minutes each were necessary to map the whole site.

This operation was carried out at sunrise when the roads were less frequented. Near the road, they surveyed control points with a differential GPS (DGPS).

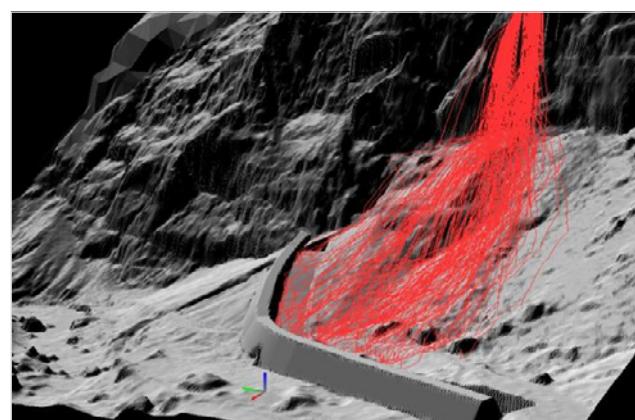
The data processing took about two days (correction of the trajectory, matching of the flight lines, classification of the point cloud).

- **Number of flights:** 4
- **Surface area:** 75 hectares (185 acres)
- **Total duration of the operation:** 6 hours (flights, quality control, DGPS point taking)
- **Flight speed:** 5 m/s (11 mph)
- **Flight height:** 60m (200 ft)
- **Equipment used:** YellowScan Vx20-300

### Results.

The flexibility of the means used by L'Avion Jaune enabled the acquisition of a dense point cloud and the creation of an accurate and exhaustive DTM in less than 3 days.

- **Point density:** 100 pts/m<sup>2</sup> (10 pts/sqft)
- **Precision X, Y, Z:** 5cm (2 in)
- **Benefits:** Access to dangerous areas, mapping of the ground, under the vegetation, fast deployment



Landslides and block falls trajectography