

TOPOGRAPHICAL SURVEY FOR RAILWAY CONSTRUCTION

| LINEAR INFRASTRUCTURE | GIS | RAILWAY |

THE CLIENT BOLLORÉ AFRICA



The Bolloré Group has been engaged in logistic and transportation infrastructure activities in Africa since 1927. Bolloré Africa Logistics, present in 56 countries, consolidates these efforts with €2.5 billion of turnover in 2012.

Associated UAV packages:

- ✓ Big Mapper
- ✓ Big Mapper XL
- ✓ Crop Mapper
- ✓ Crop Mapper XL
- ✓ Ultimate

THE NEED TOPO SURVEY

Bolloré Africa Logistics began construction of a railway in Niger between Niamey and Dosso to appease its logistical requirements. In May 2014, the company urgently needed to start a preliminary topographic study on the construction of the railway on an area of land measuring 150km by 500m wide. Bolloré Africa Logistics required centimetric resolution and mapping accuracy down to 15-20cm. The company also required that this entire job be completed in a maximum of 2 weeks, including all image processing.

"For our railway construction project between Niamey and Dosso, we used Delair-Tech's survey solutions which saved us time and money."

Thierry Ballard, Bolloré Africa Logistics

Delair-Tech advised employing its Big Mapper drone package equipped with the fully-integrated, survey-grade DT-3Bands RGB camera. Equipped with this sensor, the DT18 airframe performed the mapping of the entire railway corridor. Delair-Tech's full solution was chosen based on the high endurance of its UAV systems, cost-effectiveness, and ability to not only quickly acquire the data but process it accurately by leveraging the power of the Delair-Analytics data center.

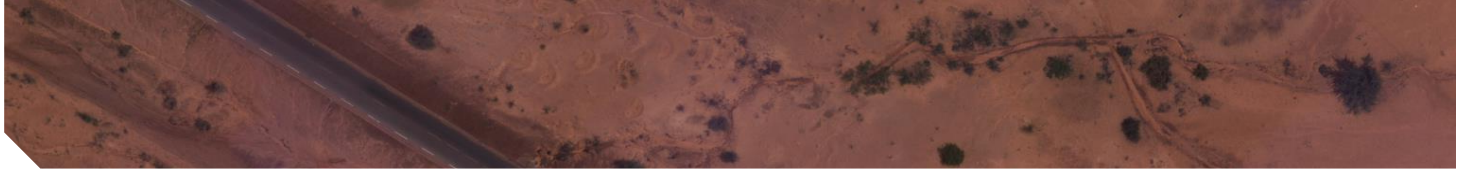
THE SOLUTION



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THE OPERATION

Bolloré Africa Logistics commissioned Delair-Tech to operate the Big Mapper UAV system to accomplish the mission. The DT18 flew for 4 days to create the large map. The final product had a GSD of 4cm, a total size of 150km long by 500m wide, and an area of 7,500 hectares. 15 flights were necessary and 70,000 photos taken. 17 ground control points (GCPs) were evenly distributed along the route to aid in final accuracy.



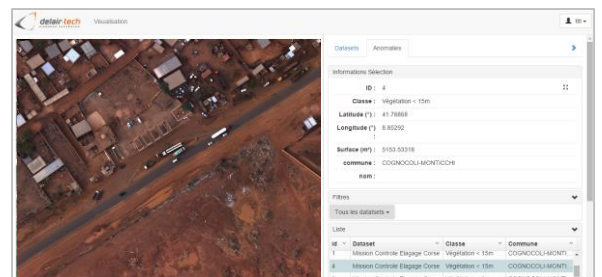
DATA ANALYSIS

Putting the data to work. After 4 days of flights, the data was uploaded to the Delair-Analytics data center which carried out final processing to extract the most useful information for the completion of the client's first topographical studies:

- Creation of the large, continuous 2D orthophoto with a GSD of 4cm
- Creating a point cloud with 15-20cm georeferenced precision
- Extraction of digital terrain (DTM) and surface model (DSM) maps in CAD-compatible formats (.shp .dxf) for conducting topographical studies.

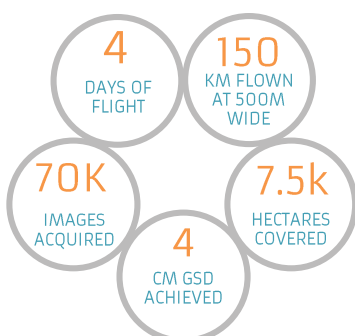
DELIVERABLES

- » A report that includes the orthophoto, point cloud, DTM, and DSM maps
- » A web visualization tool for viewing and archiving past results
- » Integrating the data into the client's own GIS/CAD software



CONCLUSION

- ✓ The endurance of Delair-Tech's UAVs make this economically possible (7,500 hectares in 4 days)
- ✓ Results obtained in 2 weeks vs. 3 months with traditional methods
- ✓ Price was 3x less than traditional, ground-based methods
- ✓ Resolution and precision beat industry-standard



"The accuracy of the data and ability to cover 70,000ha in record time was an important asset in the management of our project."

Thierry Ballard, Bolloré Africa Logistics