

# GNSS for Mali Hydro-agricultural Mapping Project



In the heart of landlocked Mali, with the Atlantic Ocean 800 miles to the south and the Sahara desert to the north, lies the extraordinary Inner Niger River Delta, also known as the Macina, a 1.8 million hectare oasis of lakes and floodplains with a vast potential for hydro agriculture. Working on behalf of the Office du Niger, a quasi-governmental Mali company charged with managing more than 100,000 hectares of irrigated delta land, West African consulting engineering firm CIRA has completed surveying an additional 25,000 hectares for hydro-agricultural development.

In the course of two months during the dry season, two CIRA survey teams, each equipped with three ProMark 500s, a base station and two rovers connected via UHF, completed the entire 25,000 hectare survey collecting four points in x,y and z per hectare

to produce the digital model. The model enabled the production of rough pre-study with all plans and a detailed pre-project CAD drawings for drainage, irrigation canals and related infrastructures.

An eight-month contractual time set to complete the different studies meant that the land survey study would have to be completed as quickly as possible. Using aerial photography combined with LIDAR would have taken too long, according to a CIRA spokesperson. Instead, CIRA chose to employ differential GNSS, using base and rovers working in RTK. CIRA's experience suggested they would achieve reliable results and quicker than using only optical total stations. CIRA elected to use Ashtech ProMark 500 GNSS receivers for the project. From experience, they knew the models were easy to set up and use, light in weight, offered long battery life in the field, and field to office data transfer would be easy. Their expectations were met, and the job was completed within two months and on time.

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