GEODESY / METROLOGY

IGN FI

Since its adoption of a resolution reasserting the importance of geodesy in sustainable development, the United Nations has been encouraging its member states to use a modern reference framework which is accurate and accessible to all. The various GNSS systems now available allow us to achieve levels of accuracy to within a few millimeters. Thanks to these systems, geodesy (the mathematical calculation of the Earth's shape) now supplies cartographers and planners with reference points which become more accurate with each passing day. The renovation of a country's geodetic network is therefore absolutely fundamental for its development in view of the large range of sectors concerned: land administration, urban development, sanitation and transport networks, but also the management of borders and therefore national security.

IGN FI provides services in the fields of geodesy and metrology with support from the internationally recognised scientists and the practical experience of the geodesy and metrology department at IGN (national institute of geographic and forest information).

OUR AREAS OF EXPERTISE

Advise, design, execute or accompany projects in the fields of geodesy or metrology:

- Installation of permanent station networks
- Creation of a national geodetic reference system via a materialised network
- Metrological surveillance of structures and sensitive areas over timescales ranging from a few days to several years
- Dimensional measurements for scientific or industrial uses
- Geoid measurements and calculations with centimeter accuracy
- Calculation and carrying out fieldmarking of border demarcation
- Creation of tools for converting coordinates from old local or national systems to a system compatible with international references
- Transfer of technology
- Theoretical and practical training

OUR MEANS

IGN FI provides its teams of specialists to clients:

- Experts in creating geodetic networks, installing permanent measuring stations or calculating new national references: engineers, surveyors, specialists in the Bernese calculation software, geodesy theoreticians
- Experts in automatic metrological surveillance: surveyors, systems engineers
- Experienced project directors and managers

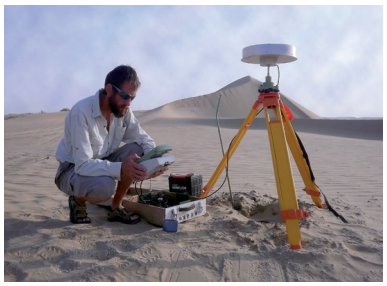
It relies on local mapping entities whenever possible.

LAND PLANNING

SOME OF OUR REFERENCES

UGANDA • Implementation of a new geodetic reference framework for land administration

The project was to establish a modern, reliable and accurate geodetic system and geodetic reference network for the whole country in order to provide support to the land administration, territorial development and construction, and all activities needing geo-referenced data. The network is made of 12 permanent reference stations, a control center and 426 materialised points. Tools enabling to use both the new system and the former reference system were also supplied.



BENIN • Creation of a geoid model

Creation of a geoid model for the entire country, with a particular focus on the urbanised coastal belt which is subject to serious risks of flooding, and the supply of tools enabling an easy access. These data represent a major issue for everything relating to water development projects and prevention of flood risks in Benin. The geoid model also served as a reference to determine the elevation component of the national mapping project which was also carried out by IGN FI.

SAUDI ARABIA • Updating and implementing a geodetic reference frame

Devising and producing a unified new geodetic reference system together with a new vertical reference for the KSA-VANGRF. The new geodesic references were created based on data from three data centers. Tools for converting the old data to the new references were also supplied to the client.

SUDAN • Installation of a materialised geodetic network for the creation of dams along the Nile

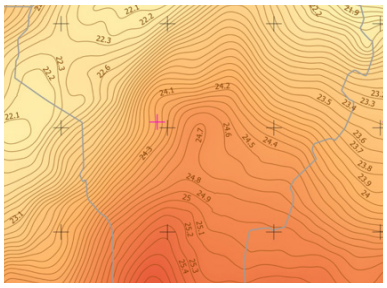
The Dams Implementation Unit appointed IGN FI with the task of calculating 14 reference points, all linked to international geodetic references, and more than 1,000 detailed points along the 1,500 km section of the Nile running through Sudan. These points were calculated using GPS and levelling as well as gravimetry for some, and resulted in a set of identified points accurate to the centimeteras well as a geoid model, also accurate to a centimeter, for the entire area covered by the project.

SAUDI ARABIA • Scientific network of permanent stations

This project consisted of implementing a geodetic infrastructure for the KACST (King Abdulaziz City for Science and Technology) made up of 16 permanent stations spread over the entire country as well as a calculations centre used to disseminate data to users, monitor the stability of stations and define the reference system.

CAMEROON • Supervision of work to create a geodetic network

This project's objective was to create 25 reference pillars and to reconstruct a complementary network made up of 500 points spread over the entire country. IGN FI participated in the project to check and verify the procedures and methods for geodetic and topographic measurements in the field using GPS receivers, total stations and highly accurate level indicators.



For more projects, visit www.ignfi.com

IGN FI is one of the companies in the GEOFIT group and as international technical operator for IGN France, is a major player in the field of geomatics. It provides expertise in the fields of geodesy, metrology, cartography / infrastructure for national geographic data, databases, geographic information systems and portals.

100% devoted to export, IGN FI provides its know-how to many sectors of activity including agriculture, forests, the environment, civil security and borders.

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