

Development of a CORS Network for the Turks and Caicos Islands

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Key words: Reference frames; Reference systems; Continuously Operating Reference Stations (CORS), Global Navigation Satellite Systems (GNSS); Homogenous; International Terrestrial Reference Framework (ITRF)

SUMMARY

The realization of an accurate, homogenous, reliable geodetic reference system for the Turks and Caicos Islands (TCI) is critical to the integrity of the geospatial information and land administration. This research aims to promote the adoption of uniform procedures for the design, installation, and operation of Continuously Operating Reference Stations (CORS).

The delivery of a CORS Network is a paradigm shift from traditional passive ground survey control monuments (Directorate of Overseas Surveys) and the Autonomous Active Stations to a method that combines these marks with active CORS based on Global Navigation Satellite System (GNSS) technology. CORS will form an integral component of the nation's geospatial infrastructure in a geodetic context.

The primary purpose of geodetic CORS is to provide a reference frame and datum that can be defined, improved, and maintained for surveying, mapping, geoscience, and spatial datasets. This framework is significant as it is a reference for applications such as infrastructure development, asset management, resource and emergency management, automated machine control, intelligent transport systems, precision agriculture, environmental management, enforcement of planning guidelines, climate action, and research.

The completed research should outline TCI's recommended procedures for the design, installation, and operation of CORS sites within the proposed Turks and Caicos Islands CORS Network framework. The proposed CORS should provide collocated stations between the national geodetic datum and the International Terrestrial Reference Framework (ITRF). The data from this CORS network should be available to the relevant national, regional, or international jurisdiction for national geodetic reference frame realization and improvement.

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