

Project for the Strengthening of Spatial Data Infrastructures in Members States and Territories of the Association of Caribbean States

Capacity Building Programme Use of Geodetic Equipment



August, 2016

Venue:	University of the West Indies, St. Augustine, Trinidad and Tobago.
Instructors:	Francisco Medina (ECO); Javier Arellano Sánchez (INEGI); Hector E. Parra Bravo (Military Geographic Institute -Chile)
Duration:	5 Days
Date:	August 15th to 19th, 2016
Schedule:	9:00- 17:00

Introduction

Geodesy is the science that studies and determines the shape and dimensions of the Earth, its gravity field and its temporal variations. One of the fundamental objectives of this science, is the precise determination of positioning of points on the earth's surface. A group of points makes up a geodesic network; which can be defined as the figure formed by a constellation of points linked together, which are distributed symmetrically over the territory, and that are projected onto a reference surface. The observations of the control points must be made periodically, since the surface of the Earth is in constant motion.

Geodetic networks are essential for the study of the shape of the Earth. They establish the basis on which scientific disciplines and technique ones are supported for studies such as: topographical surveys, photogrammetric and geodetic surveys, the development of land registers, mapping and marine surveys, etc. Derived from the technological development of our time, geodesy has gone from two dimensions to three dimensions and contemporary measurement techniques are now developed in a spatial dynamic environment that allows highly accurate results in a relatively short time.

The geodetic networks are necessary as support for the planning and implementation of national and local projects, for the development and utilization of natural resources, for national defense, land management, and delimitation of borders among others.

The Project for Strengthening of Spatial Data Infrastructures in Members States and Territories of the Association of the Caribbean States (Caribbean Project), under the frame of the Committee of Experts on Global Geospatial Information Management (UN-GGIM), promotes in the countries of the Caribbean region to incorporate to the United Nations Committee of Experts to integrate a global framework, which, through the application of standards, facilitate the integration and exchange of geospatial information for better management of the territory; and therefore countries of the Caribbean region can strengthen their resilience when facing phenomena and disturbing agents in the region.

To achieve the purpose described above, the Caribbean Project provided to countries in the region, latest generation geodesic equipment in order to densify their geodetic networks. Therefore, with resources from the Chile-Mexico Cooperation Fund, this course on the use

of this equipment will be imparted to then start with operational activities that can materialize the outlined objectives.

Objective:

Learning the functioning and operation of the GR10 equipment for fixed stations, and GS14 for field operations, with the support of digital presentations and practical exercises in order to get the best benefits of equipment purchased for the Caribbean Project. Likewise, also learn the experiences and best practices in Chile and Mexico for the conformation of its Geodetic Networks.

General Agenda:

Day 1

9:00 – 10:00 Opening session

Amb. Fernando Schmidt Ariztía – Ambassador from Chile in Trinidad & Tobago
Amb. Jesús Alberto López González – Ambassador from Mexico in Trinidad & Tobago
Dr. Bhemesh Ramlal - Head of Department of Geomatics Engineering - UWI
Dr. June Soomer – Secretary General, Association of Caribbean States

10:00 – 17:00 Initial session

At this initial meeting the experiences of Mexico and Chile, on the following contents, will be shared:

Geodetic Reference frame for Mexico and Chile

- Background
- Regulatory framework
 - SNIEG
 - Technical Standards
 - Data Dictionary
 - Methodological guides
 - Metadata
- National Geodetic Network
 - Active National Geodetic Network
 - Passive National Geodetic Network
- Operating Structure
 - Vertical Geodetic Network
 - Gravimetric Geodetic Network

- Horizontal Geodetic Network
- Programs and projects with GNSS technology
- General methodology
 - Planning
 - Programming
 - Execution
 - Control
 - Validation
 - Integration
 - Dissemination
 - Maintenance
 - Supervision

Description of issues related to the GS14 receiver CS10 collector, post-processing software LGO and GR10 reference station.

Day 2

9:00 – 17:00 GS4

- Driver Installation
- Computer connection
- Collector connection
- Screen explanation
- Go To Work
- Current Status
 - Satellite Tracking
 - Position
 - RTK Status
 - Battery/Memory/Raw Data
 - Receiver Information
- Instrument
 - Operation
 - Raw Data
 - Satellite Settings
 - Coordinate System Settings
 - System Settings
- User
 - Load Firmware
 - Upload Option Key
 - Language Management
 - Upgrade GS14 Modem
 - Help and Support

Day 3

9:00 – 17:00 Collector CS10

- Difference between SmartWorx's Viva LT and SmartWorx's Viva
- Keyboard
- SmartWorx's Startup Wizard
- New Job
- Codes and attributes
- Coordinate System
- Averaging
- Configuration and definition for base receiver
- Configuration and definition for mobile receiver
- System settings
 - Templates
 - Line work
 - Survey Screen
 - Hot Keys and Favorites
 - Prompt before storing
 - Regional Settings
 - SmartWorx's Options
 - Admin Settings
- Jobs and data
 - New Job
 - View and Edit Data
 - Create Control Data
 - Job Properties
 - Choose Working Job
 - Choose Control Job
 - Import Data
 - Export and Copy Data
- Go to Work
 - Survey

Day 4

9:00 – 17:00 Software LGO

- Interface
 - Projects
 - Coordinate Systems
 - Antennas
 - Code list
 - Satellite Availability
 - Precise ephemeris
 - Image Referencing
- Projects
 - Create a project
 - Select Coordinate System

- Background Image
 - CAD Files
 - Code list Template
 - Import Data
- Create Coordinate System
 - Transformations
 - Ellipsoids
 - Projections
 - Geoids
- Antennas
 - Antenna Creation
 - Corrections
- Precise ephemeris
 - Import ephemeris
 - Download Ephemeris
- Image Referencing
 - Register an image
- Export Data

Day 5

9:00 – 17:00 GR10 Reference station

- Driver Installation
- Computer Connection
- Screen explanation
- Status
 - Receiver Information
 - Position
 - Tracking
 - Sky Plot
 - Data Stream
 - Logging Sessions
 - Antenna
 - Ntrip caster
 - Port Summary
 - Event Log
 - Network Connections
 - System Resources
- GNSS Management
 - Site Name and Coordinates
 - Tracking
 - Data Stream
 - Logging Sessions
 - FTP Locations

- Antenna Management
- Wake up sessions
- Receiver Setup
 - General
 - Ethernet
 - Mobile internet
 - Residential Gateway
 - Access management
 - Access settings
 - GNSS Spider and remote Access
 - Ntrip Caster
 - Web Server
 - DynDNS
 - FTP Server
 - Device Management
 - Event Log
 - Power Management
 - SNMP
 - Tools
- Support
- Driver Installation