

CUBA

The Republic of Cuba

The Republic of Cuba is formed by the Island of Cuba, the Island of La Juventud and 4,195 islands, keys and small keys adjacent to the coast. It has a land surface of 110,922 km², with a population of 11 million. It is bordered on the north by the Atlantic Ocean and the Gulf of Mexico, on the south by the Caribbean Sea, on the east by the Paso de los Vientos, that separates it from Haiti and on the west by the Channel of Yucatan, that separates it from the Peninsula of the same name.



FIG. 1.- Cuba.

The territory is mainly flat with isolated mountain chains, among which the following must be mentioned: the mountain chain of Guaniguanico on the west, the massif of Guamuhaya on the south of the central part, and Sierra Maestra, on the east and parallel to the south coast, the highest elevation of which is Pico Turquino, 1,972 metres.

The country is divided into 14 provinces, a special municipality and 168 municipalities. The climate of the island is maritime tropical, with an annual average temperature of 25° C. The Island of Cuba is covered with tropical vegetation, the forests are disseminated and the cultivation of the sugar cane prevails. The total length of the coast of Cuba is 5,746 km. The Gulf Stream has a decisive influence on the climate. During the year, the temperature of the superficial waters reaches 24° and 29° C, with an average salinity of 36 ppm. The capital of the Republic is the City of Havana, that it is located in the northwest of the island and was founded in 1515. The city of Havana is the economic, political and cultural center of the country. The historical part of Havana has been designated Patrimony of the Humanity by UNESCO. The Port of Havana is the principal of the country and extends over all the bay bearing that name. Other important ports are Mariel, Matanzas, Cárdenas, Nuevitas, Santiago de Cuba and Cienfuegos. The principal economic activities of Cuba are sugar industry, tourism, mining, fishing, agriculture and bio-technological and chemist industry.

The Hydrographic and Geodesic Service

During the XVIIIth and XIXth centuries, the Spanish colonial authorities achieved some hydrographic projects in Cuban waters, resulting in the publication of the first nautical charts, fundamentally the principal ports, and the first Sailing Directions. Between 1930 and 1940, the U.S. Hydrographic Office carried out systematical surveys of the Cuban waters and published the charts of the coasts and principal ports of the country. The first Hydrographic Office was created in 1922 and Cuba became an IHO Member State in 1950. Nevertheless, Hydrography and Nautical Cartography reached a real development with the creation of the Cuban Hydrographic Institute (ICH) in 1969, after the Revolution. Between 1970 and 1972, in association with the Department of Navigation and Oceanography of the Soviet Union, hydrographic surveys of the Cuban internal, territorial and adjacent waters were carried out. Parallel action was taken to train specialists, to develop technical capability and to create the necessary support to the Hydrographic Service. As a result of this effort, Cuba had, in 1975, a portfolio of 110 nautical charts. At the same time, the Aids to Navigation National System was updated, resulting in an increase of the safety of navigation at international level.

From 1992, the Cuban Hydrographic Institute began a modernization process which included the creation and introduction of automated systems in the production procedures, the acquisition and processing of hydrographic data, the use of Differential GPS, the development of echo sounders, the automated production of nautical charts and publications and the creation of the National Data Center.

Within the frame of the structural and functional development of the Cuban State institutions, the Cuban Hydrography Institute and the Cuban Geodesy and Cartography Institute were replaced by two other institutions: the Directorate of Hydrography and Geodesy (DHG) and the Business Group GEOCUBA, which in association form the Hydrographic and Geodetic Service of the Republic of Cuba (SHGC). The tasks of the DHG are :

- The establishment of a national policy about activities on Hydrography, Aids to Navigation, Geodesy and Cartography.

- Funding, supervision and control of the mentioned activities.
- The representation of the Cuban State before the regional and international organizations specialized, such as the IHO, IALA and the Caribbean Sea and Gulf of Mexico Regional Hydrographic Commission.

GEOCUBA, with its 10 territorial and 4 specialized firms, is a self-financed unit tasked to:

- carry out hydrographic and geophysic surveys.
- publish and update nautical charts and publications as well as topographic maps.
- complete oceanographic and coastal studies.
- maintain and refine navigation supporting systems.
- develop and maintain geodetic and tidal networks.
- create and keep updated the national cadastre.
- carry out industrial research and development projects.

Cuba is carrying out a Programme for the Development of the Electronic Cartography, that anticipates the issue of about 100 navigational electronic charts (ENCs) and some 120 raster charts.

Considerable effort is being made by the Hydrographic and Geodesic Service (SHG) of the Republic of Cuba to improve the navigation conditions in Cuban waters. This includes the following action:

- Carrying out hydrographic surveys using modern techniques.
- Updating the existing charts and producing new editions at scales that satisfy the requirements of the navigation, including INT charts of Cuban waters.
- Refining the National Aids to Navigation System through the establishment of monitoring and control systems and development of a DGPS network.

The portfolio of Cuban nautical charts totals 269 charts (135 of Cuban waters, 57 of the Caribbean and Gulf of Mexico and 77 of other international waters). Twenty nautical publications (9 of Cuban waters and 11 of foreign areas) are also produced.

From 1993, the Naval Academy "Granma" of the Revolutionary Navy, began to train Hydrographic and Oceanographic Engineers to fulfil the needs of wide-spectrum specialists that SHG requires.

The Hydrographic and Geodesic Service of the Republic of Cuba has actively participated in the last years in regional and international activities. From 1988, Cuba is holding the Vice-chairmanship of the Editorial Committee of the IBCCA Project (Bathymetric Chart of the Caribbean Sea and Gulf of Mexico), sponsored by the Intergovernmental Oceanographic (IOC) of UNESCO meeting its obligations in this Project.

In May 1994, the Constitutive Conference of the Hydrographic Regional Commission of the Caribbean Sea and Gulf of Mexico (CGMHC) designated Cuba

as President for a period of two years. In March 1995, the Seminar on Electronic Charts of the CGMHC was held in the City of Havana. Most recently, delegations of the HO participated in the Second Meeting of the IHO WEND Committee, held in February 1996 in Tokyo, Japan, and in the Second Conference of the CGMHC, held in Curaçao, Dutch West Indies, in March 1996. Cuba works to increase safety of navigation in the Caribbean and Gulf of Mexico waters and to increase and enhance the links between the Hydrographic Services of this region.