

# Saint Lucia

by Clifford J. Mugnier, C.P., C.M.S.

The cannibal Caribs replaced all of the Arawak inhabitants of St. Lucia around 800-1,300 A.D. These tribes called the island of St. Lucia “Ioüanalao” and “Hewanorra”, meaning “there is where the iguana is found,” long before it was named by Christopher Columbus during his fourth voyage to the West Indies in 1502. Columbus did not land on the island, and the first attempts to settle on the island by the French and the English were violently repulsed during most of the 17<sup>th</sup> century. Finally, the town of Soufrière was permanently founded at the end of that century, and in 1746, France officially recognized it as the first town on St. Lucia. The island was alternately held by the British and the French seven times over 150 years before it was finally ceded in the Treaty of Paris to the British in 1814.

Now an independent state of the Windward Islands, St. Lucia has a total land area of 606 square kilometers, it has a coastline of 158 km, and the highest point is Mount Gimie (950 m). The island’s terrain is mostly mountainous with some broad fertile valleys, and is 3.5 times the size of Washington, D.C. The *CIA World Factbook* estimates the current population as of July 2004 at 164,213.

According to the Organization of American States (OAS), “An estimated 7,000 farmers in Saint Lucia actively cultivate bananas, the largest source of the country’s employment and foreign exchange. Yet over 75 percent of these farmers own 10 acres of land or less. This is not unusual in Saint Lucia, where 92.7 percent of all farmers control only 24 percent of the land. At the opposite end of the scale, about 50 percent of all cultivable

land is controlled by only 0.17 percent of the farmers, most of whom are absentee owners. Skewed land distribution has long been recognized as a major constraint to agrarian reform and the alleviation of rural poverty.” This is a common theme in much of the world; I have been involved in land titlelization projects in South America for the same reasons, and photogrammetry with GPS control is the common thread to implementing the solution. The Institute of Surveyors St. Lucia was founded in September 2003 and is the latest development of a long history of surveying and mapping of the island dating back to the 1771 survey of the Bexton and Forrestier areas.

The British Directorate of Colonial Surveys (DCS), later the Directorate of Overseas Surveys and now the Ordnance Survey of the United Kingdom, first published 1:25,000 scale topographic maps of the island in 1958.

The first astronomic position was at Vieux Fort (Old Fort), on Vieux Fort Bay located at the southern end of the island, and likely observed with an astrolabe. The current geodetic system is known as St. Lucia Lighthouse 1955 Datum, and the origin point at DCS 3 (near the southern town of Laborie) is:  $\Phi_o = 13^{\circ} 42' 35''$  N,  $\Lambda_o = -60^{\circ} 56' 37''$  W, the elevation  $H_o = 222.19$  m, the reference azimuth to Cannelles (DCS 9)  $\alpha_o = 30^{\circ} 28' 52''$ , and the ellipsoid of reference is the Clarke 1880 (modified) where  $a = 6,378,249.145$  m and  $1/f = 293.465$ . The British West Indies (BWI) Grid for St. Lucia is on the Gauss-Krüger Transverse Mercator projection where the central meridian  $\lambda_o = -62^{\circ}$  W, the scale fac-

tor at origin  $m_o = 0.9995$ , the False Easting = 400 km and there is no False Northing. The datum origin coordinates on the BWI Grid are:  $X = 514218.711$  m, and  $Y = 1515586.182$  m.

In 1998, John N. Wood of St. Lucia College in the Caribbean provided some local control on St. Lucia so that I could work up a 3-parameter datum shift for the island. Coupling his classical survey data from DCS with GPS data observed by the U.S. National Geodetic Survey (NGS), which was provided to me by David Doyle, I found three points in common between the two data sets. The shift from St. Lucia Lighthouse 1955 Datum to the WGS 84 Datum is then:  $\Delta X = -134$  m,  $\Delta Y = +119$  m,  $\Delta Z = +314$  m. The fit of these three points was excellent and is probably good to better than a meter for the northern third of the island around the capitol city of Castries.



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