"Before the arrival of Europeans, Arawak (also known as Taino) and Carib Indians inhabited the island of Hispaniola. Although researchers debate the total pre-Columbian population (estimates range from 60,000 to 600,000), the detrimental impact of colonization is well documented. Disease and brutal labor practices nearly annihilated the Indian population within 50 years of Columbus’s arrival. Spain ceded the western third of the island of Hispaniola to France in 1697. French authorities quelled the island’s buccaneer activity and focused on agricultural growth. Soon, French adventurers began to settle the colony, turning the French portion of the island, renamed Saint-Domingue, into a coffee- and sugar-producing juggernaut. By the 1780s, nearly 40 percent of all the sugar imported by Britain and France and 60 percent of the world’s coffee came from the small colony. For a brief time, Saint-Domingue annually produced more exportable wealth than all of continental North America. As the indigenous population dwindled, African slave labor became vital to Saint-Domingue’s economic development. Slaves arrived by the tens of thousands as coffee and sugar production boomed. Under French colonial rule, nearly 800,000 slaves arrived from Africa, accounting for a third of the entire Atlantic slave trade" (Library of Congress Country Profile, 2000).

In 1996, the U.S. National Geodetic Survey performed a brief GPS geodetic survey of Port-au-Prince in support of airport surveys and occupied an old 1955 IAGS point named “FORT NATIONAL” where: \( \phi = 18^\circ \, 32' \, 51.15343'' \, N, \lambda = 72^\circ \, 19' \, 51.64606'' \, W, H = 45.433 \, m, \) \( h = 71.353 \, m. \) The original 1955 IAGS coordinates of that same point on the NAD 27 datum are: \( \phi = 18^\circ \, 32' \, 48.8236 \, N, \lambda = 72^\circ \, 19' \, 53.0451'' \, W, H = 45.433 \, m. \)

“After a prolonged struggle, Haitian became the first black republic to declare independence in 1804. The poorest country in the Western Hemisphere, Haiti has been plagued by political violence for most of its history. A massive magnitude 7.0 earthquake struck Haiti in January 2010 with an epicenter about 15 km southwest of the capital, Port-au-Prince" (World Factbook, 2010).

Slightly smaller than Maryland, Haiti borders the Dominican Republic (360 km) (PE&RS, December 2005). The lowest point is the Caribbean Sea (0 m), and the highest point is Chaine de la Selle (2,680 m) (spelling courtesy of the NGA Geonames search engine, 2010). “Haiti occupies the mountainous portion of the island of Hispaniola. Its land area includes numerous small islands as well as four large islands: Ile de la Gonave to the west, Ile de la Tortue off the north coast, and Ile a Vache and Ile Grande Cayemite, situated, respectively, south and north of the southern peninsula. Five mountain ranges dominate Haiti’s landscape and divide the country into three regions — northern, central, and southern. The northern region has the country’s largest coastal plain, the Plaine du Nord, which covers an area of 2,000 square kilometers. The north’s major mountain range, the Massif du Nord, buttresses this plain. The central region consists of the Central Plateau, which covers an area of more than 2,500 square kilometers, as well as two smaller plains and three mountain ranges. The Guayamouc River splits the Central Plateau and provides some of the country’s most fertile soil. Haiti’s southern region contains a series of small coastal plains as well as the mountains of the Massif de la Selle” (ibid., Library of Congress).

“Haiti issued a decree in 1972 that altered its claimed territorial sea and contiguous zone. The basic system utilized in the establishment of the limits of the Haitian territorial sea is obscure. While the law calls for measurement of the territorial sea from the low-water baseline of the coast, this system has not been utilized. Furthermore, the turning points were plotted on a very small-scale map and not from a reasonably-scaled nautical chart. As a result, the problem of interpretation is compounded by positional difficulties. The Haitian Government described the system as utilizing *droites parallèles* from the most seaward points of the Haitian coast. The government has basically drawn a “system of straight baselines” in a unique manner. The Convention on the Territorial Sea and the Contiguous Zone, for example, states that a system of straight baselines may be utilized for deeply-indented coasts or coasts fringed with islands. The Haitian coastline, in places contains islands. These, however, have not been used as the basepoints with the exception of Tortuga. Gonave represents an indentation of the coast but the scale of the resulting system dwarfs the physical features upon which the system has been developed. The breadth of the territorial sea (as plotted) measures not 12 nautical miles as decreed but from less than 12 to more than 40 nautical miles” (International Boundary Study, Series A, LIMITS IN THE SEAS No. 51, Straight Baselines: Haiti, Office of the Geographer, U.S. Dept. of State, 1973).

The first known geodetic surveys of the Republic of Haiti were performed by the U.S. Army Map Service Inter-American Geodetic Survey (IAGS) in 1946. The triangulation connected all of the islands in the Caribbean to the North American Datum of 1927 of which the origin is at Mexdes Ranch, Kansas where: \( \Phi_o = 39^\circ \, 13' \, 26.686'' \, N, \Lambda_o = -98^\circ \, 32' \, 30.506'' \, W, \) the reference azimuth to station Waldo is \( \alpha_o = 75^\circ \, 28' \, 09.64'' \), and the ellipsoid of reference is the Clarke 1866 where \( a = 6,378,206.4 \, m \) and \( b = 6,356,583.8 \, m. \) The IAGS continued on page 868
established a secant plane coordinate system for Haiti based on the Lambert Conformal Conic projection, the Central Meridian ($\lambda_o$) = 71° 30' West of Greenwich, a False Easting of 500 km, and a scale factor at origin ($m_0$) = 0.999911020, a Latitude of Origin ($\phi_o$) = 18° 49' North, and the False Easting = 277,063.657 meters.

In 1996, the U.S. National Geodetic Survey performed a brief GPS geodetic survey of Port-au-Prince in support of airport surveys and occupied an old 1955 IAGS point named “FORT NATIONAL” where: $\phi = 18° 32’ 51.15343”$ N, $\lambda = 72° 19’ 51.64606”$ W, $H = 45.433$ m, $h = 71.353$ m. The original 1955 IAGS coordinates of that same point on the NAD 27 datum are: $\phi = 18° 32’ 48.8236”$ N, $\lambda = 72° 19’ 53.0451”$ W, $H = 45.433$ m. Thanks to John W. Hager, two “astro” stations have been observed in Haiti, Cap Dame Marie Astro (code CPM) at $\Phi = 18° 36’ 47”$ N, $\Lambda = 74° 25’ 53”$ W, and Fort Islet Lighthouse (code FIH) at $\Phi = 18° 33’ 31.33”$ N, $\Lambda = 72° 20’ 59.03”$ W, both presumably referenced to the Clarke 1866 ellipsoid. The datum shift parameters published by NGA for that area (but specifically not for Haiti) of the Caribbean in which the IAGS established control are from NAD1927 to WGS84: $\Delta X = -3$ m $\pm 3$ m, $\Delta Y = +142$ m $\pm 9$ m, $\Delta Z = +183$ m $\pm 12$ m. Curiously, the shift parameters that work out for the single Haitian point, “FORT NATIONAL” from NAD1927 to WGS84 are: $\Delta X = -13$ m, $\Delta Y = -95$ m, $\Delta Z = -197$ m. Of course, no transformation accuracy estimate is possible for that single point in the middle of Port au Prince even though both datum positions are known to such high precision.

The contents of this column reflect the views of the author, who is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the American Society for Photogrammetry and Remote Sensing and/or the Louisiana State University Center for GeoInformatics (C4G).