Grids & Datums

Department of Martinique

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At the 1502 sighting of Martinique by Columbus, it was inhabited by the Carïb Indians who called the island *Mandinina*, or "Island of Flowers." Pierre Gelain d'Esnambuc landed on the northwestern side of the island and established a settlement and fort in 1635 that would later become the island's first capital, Saint Pierre. The following year, French King Louis XIII signed a decree authorizing the use of slaves in the French West Indies. Within five years, settlers had colonized the land to the south to Fort-de-France, where they constructed a fort on the rise above the harbor. Clearing forests for sugar plantations caused conflicts and eventually warfare with the native Carïbs until the last surviving Indians were forcibly removed in 1660. Occupied by the British several times over the centuries, Martinique was made a full Department of France by the 1946 Constitution. Martinique was the birthplace of Empress Josephine in 1763.

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In 1902, a blast from Mont Pelée (a still-active volcano), laid waste to Saint-Pierre with a burst of superheated gas and burning ash. The sole survivor of the town's 30,000 inhabitants was a prisoner in the local jail. Although part of the town has since been rebuilt, the capital was permanently moved to Fort-de-France. In 1876, the astronomic determination of the Fort-de-France Flagstaff was: Φ_o = 14° 35' 58.1" N, Λ_o = 61° 04' 29.5" West of Greenwich, and the ellipsoid of reference was the Clarke 1880 where: a = 6,378,249.145 m and $1/f$ = 293.465. A later determination at the same point observed in 1939 yielded: Φ_o = 14° 35' 59.76" N, Λ_o = 61° 04' 14.90" West of Greenwich, and the ellipsoid of reference was the International 1924 where: a = 6,378,288 m and $1/f$ = 297. By 1976, the coordinates of the Fort-de-France Flagstaff were published by the French Navy (*Annales Hydrographiques, 5ème Série – Vol. 4, Fasc. 1-1976 No. 743*), where: Φ_o = 14° 35' 548,14" N, Λ_o = 61° 04' 12.78" West of Greenwich, again referenced to the International 1924 ellipsoid. However, the local datum is named "Fort Desaix 1925-1926" after a cadastral survey performed by the Topographic Engineer, M. Jarre where Fort Desaix was his chosen coordinate system origin. The Fort Desaix monument is approximately 1.7 km north of Fort Saint Louis and Fort-de-France. Subsequent geodetic surveys appear to have ignored the Fort Desaix monument in favor of Fort-de-France monumentation. The geodetic survey performed during the Hydrographic Mission of Martinique of 1938-1939 and the geodetic survey performed during the *Service Hydrographique de Océanographique de la Marine* in 1984 (SHOM 1984) collocated only three published points that were observed also in 1953 by the Institute Geographic National (IGN): Crèvecœur Borne (20), Vauclin Borne (70), and Caravelle Station (210). While the 1938-1939 survey employed a curious local Cartesian system that listed the Desaix origin point as having the coordinates of (x = –28,258.41 m, y = +34,202.88 m), Crèvecœur Borne (x = +22,498.93 m, y = –18,414.83 m), Vauclin Borne (x = +19,282.08 m, y = –06,056.30 m), and Caravelle (x = +19,615.82 m, y = +17,230.61 m); the SHOM 84 survey utilized the UTM Grid (Zone 20) where: Crèvecœur Borne (X = 730795.38 m, Y = 1,598,424.38 m, Z = 201 m), Vauclin Borne (X = 733,894.08 m, Y = 1,611,512.18 m, Z = 6 m), and Caravelle (X = 727,587.87 m, Y = 1,634.081.73 m, Z = 155 m).

IGN has published a 3-parameter transformation from the Fort Desaix Datum of 1925-1926 (International 1924 ellipsoid) to WGS 84 Datum as: ΔX = +186m, ΔY = +482m, ΔZ = +151m. The 7-parameter transformation is listed as: ΔX = +126.93m, ΔY = +547.94m, ΔZ = +130.41m, δs = +13.8227ppm, R_x = +2.7867", R_y = –5.1612", R_z = –0.8584". Note that the sense of the rotations shown herein conform to the American-Australian standard rather than the left-handed sense favored by many Europeans. The IGN guarantees the 7-parameters to be good to better than 6 meters, as the level is sufficient for the most part of cartographic applications. (*Ce niveau est suffisant pour la plupart des applications cartographiques.*)

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 (C^4G).