The Republic of Gabon

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This month’s topic features the Republic of Gabon, the West African country that straddles the equator. The Portuguese settled on the island of Sao Tomé and discovered the estuary of the Como in 1473. The country of Sao Tomé and discovered the estuary that estuary. While the French were bearing a resemblance to the shape of "gabão," a coat with sleeve and hood is named after the Portuguese word "gabão," a coat with sleeve and hood that estuary. While the French were establishing trading posts in the 18th century, the trade in black slaves began to flourish in Lambaréné and Cape Lopez. At the beginning of the 19th century, the French chased slave traders away and gained the trust of local chiefs. The capital, Libreville, was created in 1849, and Gabon became a French colony in 1883. From 1910 to 1958, it was part of French Equatorial Africa or “Afrique Equatoriale Francaise” (l’AEF). Gabon became independent in 1960.

In March 1886, Le Pord of the French Navy used a sextant and two chronometers to determine the position of Libreville as: \( \Phi = 0^\circ 23' 15'' \) North, \( \lambda = +7^\circ 06' 30'' \) East of Paris. In September of 1890, Serres of the French Navy determined the differences in longitude between Libreville and Kotonou with the aid of a telegraph. Audoin of the French Navy established the Owendo Datum of 1912 where: \( \Phi = +0^\circ 17' 43.9'' \) East of Greenwich and the usual Grid was the Hatt at the Datum origin. In 1914, Lafargue established another Datum at the North base end (invar baseline) of Pointe Banda in 1921, in the village of Sainte-Marie where: \( \Phi = -3^\circ 50' 03.4'' \) South, \( \lambda = +11^\circ 00' 46.6'' \) East of Greenwich. This point would also gain prominence in the history of the classical Datums of Gabon. Lafargue established another Datum at the North base end (invar baseline) of Pointe Banda in 1921, in the village of Sainte-Marie where: \( \Phi = -3^\circ 50' 03.4'' \) South, \( \lambda = +11^\circ 00' 46.6'' \) East of Greenwich.

The Hatt Azimuthal Equidistant projection (and Grid) was also used for the military topographic series of Greece. Of particular note for the Akoso Grid is that one of the points located in the original triangulation was “Phare du Cap Lopez” (Cape Lopez Lighthouse) where X = -10,450.02 meters, and Y = +10,809.11 meters. In subsequent triangulations and adjustments, this point would gain particular prominence in Gabon.

The following year, Audoin established the Owendo Datum of 1912 where: \( \Phi = +0^\circ 17' 43.9'' \) North, \( \lambda = +9^\circ 29' 35.55'' \) East of Greenwich and the usual Grid was the Hatt at the Datum origin. In 1914, Lafargue of the French Navy established the Gabon River Datum at Cape Esterias as: \( \Phi = +0^\circ 36' 48.58'' \) North, \( \lambda = +9^\circ 19' 19.02'' \) East of Greenwich. This point would also gain prominence in the history of the classical Datums of Gabon. Lafargue established another Datum at the North base end (invar baseline) of Pointe Banda in 1921, in the village of Sainte-Marie where: \( \Phi = -3^\circ 50' 03.4'' \) South, \( \lambda = +11^\circ 00' 46.6'' \) East of Greenwich. The Hatt Azimuthal Equidistant projection (and Grid) was also used for the military topographic series of Greece. Of particular note for the Akoso Grid is that one of the points located in the original triangulation was “Phare du Cap Lopez” (Cape Lopez Lighthouse) where X = -10,450.02 meters, and Y = +10,809.11 meters. In subsequent triangulations and adjustments, this point would gain particular prominence in Gabon.

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A geodetic astronomical station in the town of Mporaloko, east of Port Gentil, was set by the “Société des Pétroles d’Afrique Équatoriale” (SPAFE), the Equatorial French Africa Petroleum “Society,” (orporation). This position was transferred to the lighthouse at Cape Lopez such that the Cape Lopez Datum of 1951 is synonymous with the Mporaloko Datum of 1951, where: \( \Phi = -0^\circ 37' 54.2'' \) South, \( \lambda = +8^\circ 42' 13.2'' \) East of Greenwich. The Mporaloko 1951 Datum is currently used for most of Gabon that is south of Libreville.

In 1954, Sauzay of the French Navy recovered two of the monuments set by Lafargue in 1921. These two points were Table and Babar. The coordinates adopted for Table were: \( \Phi = -3^\circ 49' 13.9'' \) South, \( \lambda = +10^\circ 00' 55.0'' \) East of Greenwich. Sauzay observed a solar azimuth from Table to Babar such that: \( \alpha = 348^\circ 09' 05.5'' \). The baseline distance adopted was a mean of the new observations with WILD™.
invar tapes and with those observed by Lafargue in 1921. The Hatt Grid used for this Datum had the same origin with a False Easting and False Northing of 10 kilometers.

In 1955, Mannevy of the French Navy reoccupied an astro station at Esteiras for the triangulation of the Bay of Corisco, North of Libreville. The Cadastral Service of Libreville measured a three-kilometer baseline in Libreville in concert with the French Hydrographic Mission. The Cape Esteiras Datum of 1955 origin is: \( \Phi_0 = + 0^\circ 36' 48.58" \) North, \( \lambda_0 = + 9^\circ 19' 19.02" \) East of Greenwich. The Department of Public Works of Gabon (Travaux Publics du Gabon) assisted Mannevy by building towers for the triangulation of the Bay of Corisco. The triangulation was performed with WILD T3 theodolites using eight sets of angles. The design of the towers and targets were patterned after those used in Madagascar. The first computations on the Universal Transverse Mercator Grid in Gabon were computed by Mannevy with the Clarke 1880 ellipsoid, Fuseau 32 (zone 32), where Central Meridian (\( \lambda_0 \)) = + 9° East of Greenwich. The Cape Esteiras 1955 Datum is used for Libreville and points north in Gabon.

The latest edition of “TR8350.2” by the National Imagery and Mapping Agency (NIMA) published in July of 1997 lists the three-parameter shift from M’PORALOKO (sic) Datum to WGS 84 Datum as: \( \Delta X = - 74 \) meters, \( \Delta Y = - 130 \) meters, \( \Delta Z = + 42 \) meters. Note that only one point was used to determine the published shift, and the accuracy is stated at \( \pm 25 \) meters for each component. Such a level of accuracy is acceptable for military artillery purposes or shirt-pocket Global Positioning System receivers when one is working with maps at a scale of 1:25,000 or 1:50,000. But, an uncertainty of \( \pm 25 \) meters is useless for the precision necessary for seismic geophysical exploration or municipal mapping.