Federal Democratic Republic of Ethiopia

Ethiopia, occasionally called Abyssinia, is an ancient country in Northeast Africa. It is bounded on the north by Eritrea (912 km), on the east by Djibouti (337 km) and Somalia (1,626 km), on the south by Somalia and Kenya (830 km), and on the west by Sudan (1,606 km). Ethiopia has an area slightly less than twice the size of Texas, it is landlocked, and is mainly high plateau with a central mountain range divided by the Great Rift Valley. The lowest point is Denakil (–125 m), and the highest point is Ras Dashen Terara (4,620 m). Modern Ethiopia began with the reign of Tewodros II and the conquest of other chiefs in 1855. Later coming under the Empire of Italian East Africa, the region was divided by the Treaty of Ucciali in 1889, and declared a Protectorate by the Treaty of Ucciali in 1889, the coastal area was made a separate Italian Colony in 1890 and named Eritrea. Territorial integrity of Ethiopia was recognized by Great Britain, France, and Italy in 1906. Invaded by the Italians in 1935, and organized with Eritrea and Italian Somaliland as the Empire of Italian East Africa, the region was liberated by the British in 1941. The new constitution was adopted in 1987. Ethiopia’s entire coastline along the Red Sea was lost with the de jure independence of Eritrea on 27 April 1993.

Very little mapping was done of Ethiopia in the 19th century. One of the earliest investigations of the region resulted in a “Report of the German Expedition to East Africa, 1861 and 1862,” published in 1864 by Munzinger. The British explorer, Sir Samuel Baker, wrote of the region in 1867 in “The Nile Tributaries of Abyssinia.” The Italians made some ground surveys in the region of Eritrea from 1888 to 1891, and these surveys formed the basis of the old *Carta della Colonia Eritrea* (1891), and these surveys formed the basis of surveys in the region of Eritrea from 1888 to 1891. Another series was also published during the German Expedition to East Africa, 1861 and 1862, published in 1864 by Munzinger. The British explorer, Sir Samuel Baker, wrote of the region in 1867 in “The Nile Tributaries of Abyssinia.” The Italians made some ground surveys in the region of Eritrea from 1888 to 1891, and these surveys formed the basis of the old *Carta della Colonia Eritrea* (1891), and these surveys formed the basis of surveys in the region of Eritrea from 1888 to 1891. Another series was also published during the German Expedition to East Africa, 1861 and 1862, published in 1864 by Munzinger. The British explorer, Sir Samuel Baker, wrote of the region in 1867 in “The Nile Tributaries of Abyssinia.” The Italians made some ground surveys in the region of Eritrea from 1888 to 1891, and these surveys formed the basis of the old *Carta della Colonia Eritrea* (1891), and these surveys formed the basis of surveys in the region of Eritrea from 1888 to 1891. Another series was also published during the German Expedition to East Africa, 1861 and 1862, published in 1864 by Munzinger. The British explorer, Sir Samuel Baker, wrote of the region in 1867 in “The Nile Tributaries of Abyssinia.”

The origin of the geometric work was done by the Italian navy rather than by the Istituto Geografico Militare of Florence. In any case, there was no grid printed on any of the above series, even though the cartographic and geometric work was done by the Italian navy.

The Blue Nile River Basin Investigation Project was funded by the United States, and the geometric work was performed by the U.S. Coast & Geodetic Survey. The origin of the geometric work was in southern Egypt near Abu Simbel, south of Lake Nasser, at station Adindan where $\Phi_0 = 22^\circ 10'07.1098''N, \Lambda_0 = 31^\circ 29'21.6079''E$.

False Easting = 450 km, and False Northing = 5,000 km.

Ethiopia and Kenya signed a boundary treaty on 09 June 1970, and the field surveys for the demarcation of the border were performed by British surveyors. The datum used for that survey was the Arc 1960 Datum, referenced to the Clarke 1880 (modified) ellipsoid. The grid system used at the time was the East Africa Transverse Mercator Belts H, J, and K where the central meridians are $\lambda_0 = 37^\circ 30'00''(H)$, $42^\circ 30'(J)$, and $47^\circ 30'(K)$; the scale factors at origin are $\Delta = 0.9995$, False Eastings $= 400$ km, and False Northings $= 4,500$ km.

An International Boundary Commission has been formed by the United Nations to establish and demarcate a boundary between Ethiopia and Eritrea. The boundary has been researched and established, but the demarcation remains to be performed at the present time. The 125-page document published by the United Nations in April 2002 makes for some fascinating reading. The datum of record of the Commission is the WGS84, and will be used for the demarcation survey someday.

There are two sets of parameters published by NIMA for transforming from the Blue Nile Datum of 1958 to the WGS84 Datum: the mean solution for Sudan and Ethiopia is based on a 22-station solution where $\Delta X = -165m \pm 5m$, $\Delta Y = -15m \pm 5m$, and $\Delta Z = 204m \pm 5m$. The solution for Ethiopia is based on an eight-station solution where $\Delta X = -165m \pm 3m$, $\Delta Y = -11m \pm 3m$, and $\Delta Z = +206m \pm 3m$.

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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 (CG).