

Grids & Datums

TOGOLESE REPUBLIC

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

“Togo’s name comes from *togodo*, which means ‘behind the lake’ in Ewe – a reference to Lake Togo. The country was once on the fringes of several great empires and, when the Europeans arrived in the 16th century, this power vacuum allowed the slave-traders to use Togo as a conduit. Following the abolition of slavery, Germany signed a treaty in Togoville with local king Mlapa. Togoland, as the Germans called their colony, underwent considerable economic development, but the Togolese didn’t appreciate the Germans’ brutal ‘pacification’ campaigns. When the Germans surrendered at Kamina – the Allies’ first victory in WWI – the Togolese welcomed the British forces. However, the League of Nations split Togoland between France and Britain – a controversial move that divided the populous of Ewe. Following a 1956 plebiscite, British Togoland was incorporated into the Gold Coast (now Ghana). French Togoland gained full independence in 1960” (*Lonely Planet*, 2013).

Bordered by Benin (644 km) (*PE&RS*, July 2003), Burkina Faso (126 km) (*PE&RS*, January 2005), and Ghana (877 km) (*PE&RS*, June 2000), Togo is slightly smaller than West Virginia. The terrain is comprised of gently rolling savanna in the north; central hills; southern plateau; and a low coastal plain with extensive lagoons and marshes. The lowest point is the Atlantic Ocean (0 m), and the highest point is Mont Agou (986 m). (*World FactBook*, 2013)

“A Franco–German convention of July 23, 1897, delimited a boundary between German Togoland and the French possessions of Dahomey and Sudan. The line passed northward from the Atlantic Ocean to the 11th parallel between Togoland and Dahomey. The boundary then extended westward between Togoland and French Sudan as follows:

It shall then run westward along Lat. 11° N. to the White Volta so as in any case to leave Pougno to France and Koun–Djari [Koundjouare] to Germany. It shall then run along the thalweg of that river to Lat. 10° N., which it shall follow to its intersection with the meridian 03°52’ west of Paris (01°32’ west of Greenwich). The following year an Anglo–French convention of June 14, 1898, delimited the British Gold Coast–French Sudan boundary eastward from the Black Volta to the French Sudan–Togoland boundary. The extreme eastern sector of the boundary to the Togoland tripoint was as follows:

...and shall then follow the thalweg of this river [Nahau or Nouhao] up or down stream, as the case may be, to a point situated 2 miles (3,219 metres) eastward of the road which leads from Gambaga to Tenkrugu (Tingourkou) [Tenkodogo], via Bawku (Baukou). Thence it shall rejoin by a straight line the 11th degree of north latitude at the intersection of this parallel with the road which is shown on Map No. 1 as leading from Sansanne–Mango to Pama, via Jebigu (Djebiga) [Diabiga]. After a joint survey in 1901–2, the Gold Coast–Togoland boundary was delimited in detail from the 9th parallel northward to the Gold Coast–Sudan–Togoland tripoint by an Anglo–German exchange of notes of June 25, 1904.

“An Anglo–French exchange of notes on March 18, 1904–April 25, 1904 redelimited the boundary between the Gold Coast and French Sudan, including the extreme eastern sector. Paragraph 41 of the

delimitation schedule relative to the Togoland tripoint was amended in a second Anglo–French exchange of notes on May 24, 1906–July 19, 1906, which also included the demarcation of the boundary. The following is the revised paragraph:

41. From this point the frontier runs in a straight line across an uninhabited country, covered by bush, in the direction of the point of intersection of the 11th parallel with the road from Punio (Pounio) to Jebiga (Djebiga) until it reaches the northern terminal point of the Anglo–German frontier, where it terminates.

Utilizing in part the boundary of the convention of July 23, 1897, a Franco–German declaration of September 28, 1912, delimited the French Sudan–Togoland boundary in detail and is the basis of the alignment of the present Togo–Upper Volta boundary. Although the term continued in use in official treaties, the Sudan as part of French West Africa underwent a number of changes in size, administration and names. In 1899 parts of French Sudan were transferred to French Guinea, Ivory Coast, and Dahomey. The remainder of French Sudan was organized into the civil territory of Upper Senegal and Middle Niger and initially into two and later three military territories with headquarters at Tombouctou, Bobo Dioulasso, and Zinder. During 1902 Upper Senegal and Middle Niger was renamed Senegambia and Niger which in turn was changed to the Colony of Upper Senegal and Niger in 1904.

“By a decree of March 1, 1919, the colony of Upper Volta was constituted by detaching various circles from Upper Senegal and Niger. The remainder of Upper Senegal and Niger was renamed French Sudan on December 4, 1920. A decree of September 5, 1932, abolished the colony of Upper Volta and divided it among the colonies of Ivory Coast, Niger, and French Sudan. Following World War I, eastern Togoland became a League of Nations mandate under French administration and western Togoland became a British mandate. In 1946 the mandates were made United Nations trust territories and continued to be administered by France and the United Kingdom, respectively. During the mandate and trusteeship periods, French Togo had its own governmental structure, but British Togoland was administered by the United Kingdom as an integral part of the territory under the Government of the Gold Coast. In 1957 British Togoland was merged with the Gold Coast, including Ashanti and the Northern Territories, to form the new state of Ghana. On October 28, 1956, French Togo voted to become an autonomous republic within the French Union, and on April 27, 1960, it became an independent republic.

“The tripoint with Dahomey at Point No. 109 of the Franco–German delimitation of 1912 is by map measurement located at 11°00’ N. and approximately 0°55’ E. The boundary then extends westward along the 11th parallel for about 16 miles to 0°40’ E. It continues in a straight line southwestward for 12 miles to the Sansargou river at 10°56’ N. and then follows the Sansargou northward for 6 miles to 11°30’ N. and 0°30’ 12” E. The remainder of the boundary consists of a straight line for 44 miles to the Ghana tripoint at pillar 148 of the Anglo–French demarcation of 1929 at approximately 11°08’ 13” N.

and 0°08'09"W" (*International Boundary Study, No. 128 - 29 September 1972, Burkina Faso (Upper Volta) - Togo Boundary, U.S. Dept. of State*). See also *IBS Numbers 124 & 126*.

The local datum for Togo is considered to be Lomé which is referenced to the Clarke 1880 where $a = 6,378, 249.145$ m and $f_f = 293.145$. However, transformation parameters from Lomé Datum to WGS84 Datum are not available in the literature. Using *GeoTrans*, I transformed the above tripoint coordinates to Clarke 1880 Geocentric coordinates. I also went to those same coordinates in Google Earth™ and could actually see nearby where that tripoint apparently is in Google Earth™! I then took those Google Earth coordinates of the apparent tripoint ($\phi = 11^\circ 08' 22.19''$ N, $\lambda = 00^\circ 08' 10.42''$ W), and using *GeoTrans* I transformed those geodetic coordinates to WGS84 Geocentric coordinates. I then computed the shift parameters **from** Lomé **to** WGS84 to be: $\Delta X = -177$ m, $\Delta Y = +42$ m, $\Delta Z = +388$ m; the accuracy may be about ± 25 meters.

The traditional Grids used in this part of French Africa include the Lambert Conformal Conic for Niger Zone (*Fuseau Niger*) where: the central meridian (λ_o) = 0° , latitude of origin (ϕ_o) = 13° N, scale factor at origin (m_o) = 0.99932, False Easting = 1,800 km, and False Northing = 500 km; and the Guinea Zone (*Fuseau Guinea*), which has the same parameters as the Niger Zone except that the latitude of origin (ϕ_o) = 7° N. The Dahomey (Benin) Transverse Mercator Zone (*Fuseau Dahomey*) is where: the central meridian (λ_o) = $0^\circ 30'$ E, latitude of origin (ϕ_o) = 0° , scale factor at origin (m_o) = 0.9990, False Easting = 1,000 km, and False Northing = 1,000 km. However, all mapping since 1951 has been on the UTM Grid. The existing 1:50,000 scale topographic mapping coverage of the entire country is likely entirely controlled by French IGM Astros.



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 (C²G).

GRIDS & DATUMS

ASPRS and Cliff Mugnier have been pleased to be able to provide the Grids & Datums Column that has been so popular over the years. To date*, we have published material on the following countries. We hope you will look forward to articles on the remaining countries to be covered.

Afghanistan – Jan 04	Estonia – Aug 07	Martinique – Nov 07	Serbia – Jul 13
Albania – Jan 12	Ethiopia – Mar 03	Mauritania – Jun 09	Seychelles – Sep 07
Algeria – Oct 01	Fiji – Oct 00	Mauritius – Feb 99	Sierra Leone – Feb 12
Angola – Mar 01	Finland – Oct 06	Mexico – Nov 12	Singapore – Jan 06
Antigua/Barbuda– S 03	France – Jan 01	Moldova – May 13	Slovakia – Jul 11
Argentina – Dec 99	Gabon – Sep 98	Montserrat – Jun 11	Slovenia – Oct 11
Aruba – Jul 02	Gambia – Jan 13	Mongolia – Jan 03	Somalia – Oct 13
Australia – Dec 03	Georgia – Jun 12	Morocco – Jun 99	South Africa – Sep 12
Austria – Mar 04	Ghana – Jun 00	Moçambique – Sep 99	Spain – Jul 00
Azerbaijan – Sep 10	Gibraltar– Dec 09	Namibia – Aug 06	Sri Lanka–Jan 10
Bahamas – Jul 04	Greece – Dec 02	Nepal – Jun 13	Suriname – Mar 02
Bahrain – Oct 07	Grenada – Feb 05	Netherlands – Feb 03	Sweden – Aug 04
Bangladesh – Mar 08	Guadeloupe – Mar 00	New Zealand – May 05	Switzerland – Aug 01
Barbados – Jun 07	Guatemala – Jul 08	Nicaragua – May 09	Syria – Sep 01
Belarus – Feb 13	Guam – Aug 09	Niger – Nov 11	Taiwan – Nov 10
Belgium – Oct 98	Guiana – Mar 06	Nigeria – Feb 09	Tanzania – Feb 08
Belize – Mar 09	Guinea – Jun 02	Niue – Apr 01	Thailand – Feb 11
Benin – Jul 03	Guinea-Bissau – Jan 11	Norway – Oct 99	Togo – Nov 13
Bolivia – Jul 01	Guyana – Apr 03	Oman – Mar 07	Trinidad– Nov 00
Bosnia & Herzegovina – Mar 13	Haïti – Sep 11	Pakistan – Jul 09	Tunisia – Feb 07
Botswana – May 04	Honduras – Jul 99	Panama – Jul 07	Turkey – Sep 05
Brazil – Jan 09	Hong Kong – Jan 98	Papua N.Guinea–Mar 05	Turkmenistan – Dec 12
Brunei – Dec 11	Hungary – Apr 99	Paraguay – Dec 07	Tuvalu – Dec 01
Bulgaria – Jan 02	Iceland – Dec 04	Peru – May 06	Uganda – Aug 12
Burkina Faso – Jan 05	Indonesia – Oct 09	Philippines – Aug 99	Ukraine – Jun 04
Burma (Myanmar) – Oct 13	Iran – Aug 13	Poland – Sept 00	U. A. E. – Feb 01
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Cambodia – May 08	Israel – Aug 00	Qatar – Jan 08	Uruguay – Nov 02
Cameroon – May 07	Italy – Aug 05	Romania – May 01	Uzbekistan – Dec 98
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Cape Verde – Aug 10	Japan – Feb 02	St. Kitts & Nevis–Feb10	Venezuela – Dec 00
Cayman Is. – Nov 98	Jordan – Dec 06	St. Lucia – Nov 04	Vietnam – May 02
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Chile – Jan 07	Kenya – Jun 03	Samoa – Aug 11	Yugoslavia – Sep 97
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Colombia – Nov 97	Korea – Nov 99	Sakhalin I. – Sep 08	Zambia – Oct 04
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Congo (Kinshas)–Jun 05	Latvia – Sep 02		
Costa Rica – May 08	Lebanon – Oct 02		
Côte d'Ivoire – Feb 06	Lesotho – Jun 08		
Croatia – Jul 12	Liberia – Mar 11		
Cuba – Jun 10	Libya – Jun 06		
Cyprus – Apr 06	Liechtenstein – Apr 11		
Czech Rep – Jan 00	Lithuania – Dec 08		
Denmark – Nov 06	Luxembourg – Nov 05		
Djibouti – Oct 08	Macao – Jun 01		
Dominica – Apr 12	Macedonia – May 12		
Domin. Rep. – Dec 05	Madagascar – Feb 00		
Ecuador – May 99	Malawi – May 11		
Egypt – Nov 08	Malaysia – Apr 09		
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COUNTRIES REMAINING

Andorra	Nauru
Armenia	Palau
Bhutan	Russia
Chad	San Marino
East Timor	São Tomé & Príncipe
Eritrea	Solomon Islands
Germany	Somalia
India	Sudan
Iraq	Swaziland
Kyrgyzstan	Tajikistan
Marshall Islands	Tonga
Monaco	United States
Micronesia	Vatican City
Montenegro	(*Thru Nov. 2013)