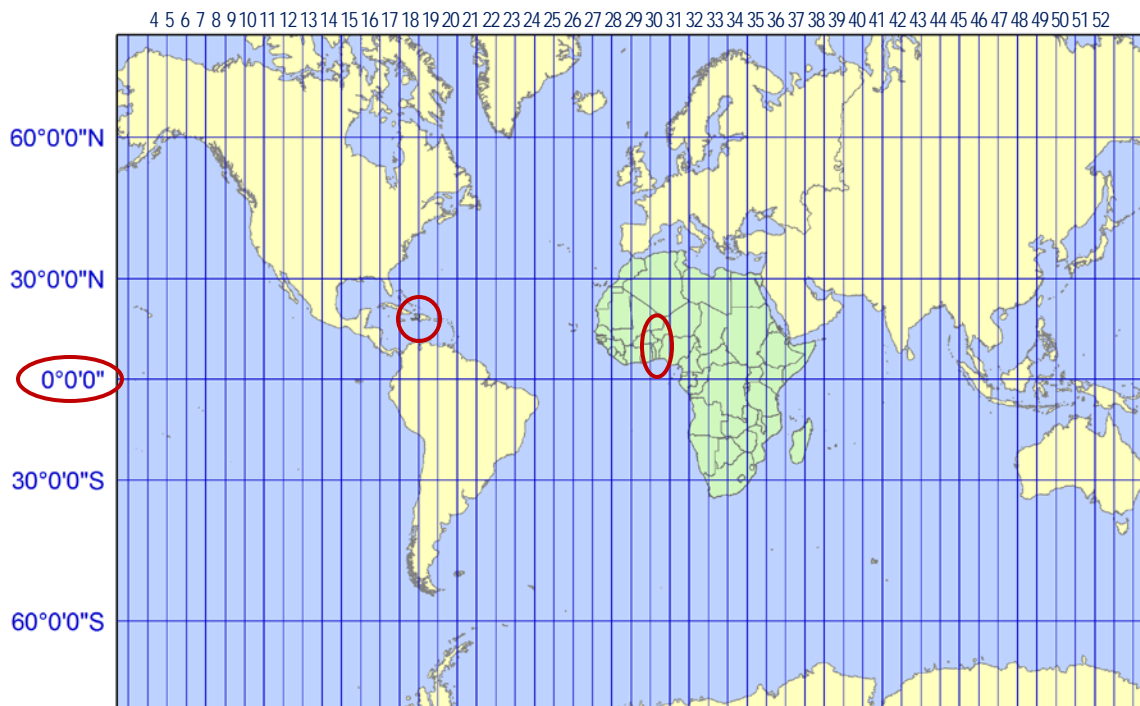


Introduction to the UTM coordinate system

UTM stands for “Universal Transverse Mercator”. It is a geographic coordinate system which is used to identify locations on earth in meters, as measured in the Northern Hemisphere going North and East from the intersection of the equator and a central meridian assigned to each of 60 longitudinal zones around the earth. Each zone is widest at the equator (covering 833,000 meters, or 6 degrees) and narrower moving toward the poles. Zones above the equator use the designation “N”, (for example, 17N), and those below use “S”, (for example, 34S). In the Southern Hemisphere, the point of origin is defined as being 10,000,000 meters south of the equator. Coordinates above 84 degrees N and 80 degrees S (those nearest the poles) are excluded from the UTM system.

Various free online converters will translate between UTM and lat/long, but use them with caution: many of these converters only work for points in the northern hemisphere.

Take a look at the map below. The UTM zones for Haiti are 17N and 18N. UTM zones for Africa range from 28 to 39 and include both the N and S hemispheres. (Note that the map, which uses a global Mercator projection, shows the zones in lines of parallel meridians (N/S lines) and distorts the map most nearest the poles, and least nearest the equator.)



As an example, please notice that Benin is located in zone 31N (located within the red circle, Benin is entirely *north* of the equator). Many countries cross *more than one zone*. You must use the correct zone for your *portion* of the country to avoid distortion.



For illustrative purposes only. Generated by the Spatial Analysis Unit of the Carolina Population Center, UNC, with funding from MEASURE Evaluation. January 2013. MEASURE Evaluation is funded by USAID through Cooperative Agreement GHA-A-00-08-00003-00 and is implemented by the Carolina Population Center at the University of North Carolina at Chapel Hill.

Here is a list of most of the Sub-Saharan African countries and their UTM zones:

Angola	32S, 33S, 34S
Benin	31N
Botswana	34S, 35S
Burkina Faso	30N, 31N
Burundi	35S, 36S
Cameroon	32N, 33N
Central African Republic	33N, 34N, 35N
Chad	33N, 34N
Congo	32S, 33N, 33S, 34N
Cote d'Ivoire	29N, 30N
DRC	33N, 33S, 34N, 34S, 35N, 35S, 36N, 36S
Equatorial Guinea	32N
Ethiopia	36N, 37N, 38N
Gabon	32N, 33N, 32S
Gambia	28N
Ghana	30N, 31N
Guinea	28N, 29N
Guinea Gissau	28N
Kenya	36N, 37N, 37S
Lesotho	35S
Liberia	29N
Madagascar	38S, 39S
Malawi	36S
Mali	29N, 30N, 31N
Mozambique	36S, 37S
Namibia	32S, 33S, 34S
Niger	31N, 32N, 33N
Nigeria	31N, 32N, 33N
Rwanda	35N, 35S, 36N, 36S
Senegal	28N, 29N
Sierra Leone	28N, 29N
South Africa	33S, 34S, 35S, 36S
South Sudan	35N, 36N
Sudan	34N, 35N, 36N, 37N
Swaziland	36S
Tanzania	35S, 36N, 36S, 37S
Togo	31N
Uganda	35N, 36N
Zambia	34S, 35S, 36S
Zimbabwe	35S, 36S

These illustrations show the location of UTM zones for Haiti and most of the countries in Africa for the WGS 1984 datum*. Each zone extends from 80 degrees south to 84 degrees north (not quite pole-to-pole—remember that the poles are located at 90 degrees N and S). For locations north of the equator, give the zone number, the letter “N”, and the distance from the central meridian in meters. For example, Port-au-Prince, Haiti, which is located at lat/long 18.5425*, -72.3386*, has UTM coordinates of 18N 780950E 2052283N.



*A “datum” is a set of values used to define a system for modeling the earth, which is not quite a perfect sphere. There are a number of these of varying accuracy in use around the world, but the one in most common usage today globally, and the default setting for most hand-held GPS units, is WGS84.