

Glossary of Cartographic Terms (Abridged)

Azimuth

Horizontal direction reckoned clockwise from the meridian plane.

Bathymetry

Science of measuring water depths (usually in the ocean) to determine bottom topography.

Bench Mark

Relatively permanent material object, natural or artificial, bearing a marked point whose elevation above or below an adopted datum is known.

Boundary Monument

Material object placed on or near a boundary line to preserve and identify the location of the boundary line on the ground

Boundary Survey

Survey made to establish or to reestablish a boundary line on the ground, or to obtain data for constructing a map or plat showing a boundary line.

Compass, Magnetic

A device with a magnetized pointer indicating the direction of **Magnetic North** (MN) and a 360° dial to indicate the horizontal angular relationship between MN and visible landmarks on the Earth or map. See **Declination, Magnetic North, True North**.

Contour

Imaginary line on ground, all points of which are at the same elevation above or below a specific datum, typically **Mean Sea Level**.

Contour Interval

Difference in elevation between two adjacent **contours**.

Coordinates

Linear and (or) angular quantities that designate the position of a point in relation to a given two dimensional reference frame.

Declination, Magnetic

The angular difference between **Magnetic North** and **True** (geographic) **North** at the point of observation; it varies with time because of the "wandering" of the magnetic north pole.

Elevation

Vertical distance, typically in feet or meters, of a point above or below a reference surface or datum, typically **Mean Sea Level**.

Equator

An imaginary line of 0° **Latitude**, halfway between geographical (true) north and south poles.

Grid

Network of uniformly spaced parallel lines intersecting at right angles. When superimposed on a map, it usually carries the name of the projection used for the map—that is, Lambert grid, transverse Mercator grid, universal transverse Mercator grid.

Imagery

Visible representation of objects and (or) phenomena as sensed or detected by cameras, infrared and multispectral scanners, radar, and photometers. Typically, we use Google Earth or comparable online satellite imaging service to locate features on the ground and assign specific geographical reference data (i.e., latitude-longitude) to them. See **Latitude**, **Longitude**.

Landmark

Monument of material mark or fixed object used to designate a land boundary on the ground: any prominent natural or man-made object on land that may be used to determine a location or a direction in navigation or surveying. See **Triangulation**.

Latitude

Angular distance, in degrees, minutes, and seconds of a point up to 90° north or south of the **Equator**.

Longitude

Angular distance, in degrees, minutes, and seconds, of a point up to 180° east or west of the Greenwich **Meridian**.

Magnetic North

The point in the Northern Hemisphere where the Earth's magnetic field lines converge; the direction to which magnetic compasses point. **Magnetic North** is not constant, and its position changes over time. See **Compass**, **Magnetic**, **Declination**, and **True North**.

Map

Graphic representation of the physical features (natural, artificial, or both) of a part or the whole of the Earth's surface, by means of signs and symbols or photographic imagery, at an established scale, on a specified projection, and with the means of orientation indicated.

Map, Base

Map on which information may be placed for purposes of comparison or geographical correlation. The term "base map" was at one time applied to a class of maps now known as outline maps. It may be applied to topographic maps, also termed "mother maps" that are used in the construction of other types of maps by the addition of particular data.

Map, Bathymetric

Maps delineating the form of the bottom of a body of water, or a portion thereof, by the use of depth contours (isobaths).

Map Projection

Orderly system of lines on a plane representing a corresponding system of imaginary lines on an adopted terrestrial or celestial datum surface. Also, the mathematical concept for such a system. For maps of the Earth, a projection consists of 1) a graticule of lines representing parallels of latitude and meridians of longitude or 2) a grid.

Map Series

Family of maps conforming generally to the same specifications and designed to cover an area or a country in systematic pattern. Typically, topographic maps produced by the US Geological Survey are one of two types: 7.5-minute quadrangles (1:24000) or 15-minute quadrangles (1:100000). See **Map, Topographic, Quadrangle** and **Scale**.

Map, Topographic

Map that present the horizontal and vertical positions of the features represented; distinguished from a planimetric map by the addition of relief in measurable form.

Mean Sea Level (MSL)

Tidal datum that is the arithmetic mean of the hourly water elevations observed over a specific 19-year Metonic cycle (National Tidal Datum Epoch). Shorter series are specified in the name; that is, monthly mean sea level and yearly mean sea level.

Meridian

Great circle on the surface of the Earth passing through the geographical poles and any given point on the Earth's surface. All points on a given meridian have the same **Longitude**.

Orientation

Establishing correct relationship in direction with reference to points of the compass; the state of being in correct relationship in direction with reference to the points of the compass.

Orienteering

A competitive or noncompetitive recreational activity in which participants use a map and compass to navigate between checkpoints along an unfamiliar course (as in the woods). See **Compass, Magnetic**.

Parallel of Latitude

A circle, or approximation of a circle, on the surface of the Earth, parallel to the **Equator**, and connecting points of equal latitude; a circle of the celestial sphere parallel to the ecliptic, and connecting points of equal celestial latitude.

Prime Meridian

Meridian of longitude 0 degrees, used as the origin for measurements of **Longitude** on the Earth. The meridian of Greenwich, England, is the internationally accepted prime meridian on most charts. However, local or national prime meridians are occasionally used.

Public Land System

Public lands are subdivided by a rectangular system of surveys established and regulated by the Bureau of Land Management. The standard format for subdivision is by townships measuring 6 miles (480 chains) on a side. Townships are further subdivided into 36 numbered sections of 1 square mile (640 acres) each.

Quadrangle

Four-sided area, bounded by parallels of latitude and meridians of longitude used as an area unit in mapping (dimensions are not necessarily the same in both directions).

Relief, Topographic

Elevations and depressions of the land or sea bottom.

Relief Shading

Technique for making topographic relief on a map appear three dimensional by the use of graded shadow effects. Generally, the features are shaded as though illuminated from the northwest. See **Relief, Topographic**.

Scale

Relationship expressed as a unitless ratio (e.g., 1:24000) between a distance on a map, chart, or photograph and the corresponding distance on the Earth, where the numerator (1 in this case) is the distance on the map, and the denominator (24000 in this case) is the equivalent distance on the Earth.

Section

Unit of subdivision of a township; normally a quadrangle 1 mile square with boundaries conforming to meridians and parallels within established limits, and containing 640 acres as nearly as practicable.

Topography

Configuration (relief) of the land surface; the graphic delineation or portrayal of that configuration in map form, as by contour lines; in oceanography the term is applied to a surface such as the sea bottom or surface of given characteristics within the water mass.

Township

Unit of survey of the public lands of the United States, normally a quadrangle approximately 6 miles on a side with boundaries conforming to meridians and parallels within established limits, containing 36 **Sections**. Also, a minor governmental subdivision.

Triangulation

Method of determining horizontal position on the surface of the Earth by measuring the angles from an observer's position to two separate landmarks, where the observer's position is at one point of the triangle, and the two landmarks are at the other two points of a triangle. See **Landmarks**.

Universal Transverse Mercator (UTM) grid

Military grid system based on the transverse Mercator projection, applied to maps of the Earth's surface extending from the Equator to 84 Degrees north and 80 degrees south latitudes