

Mapping Terms :

Altimeter

Instrument for measuring altitudes or elevations with respect to a reference level, usually mean sea level. The most common type is an aneroid barometer. A radar altimeter determines the height of an aircraft above the terrain by measuring the time required for an electromagnetic pulse to travel from aircraft to the ground and back.

Azimuth

Horizontal direction reckoned clockwise from the meridian plane.

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.

Cadastral map

See: map, cadastral.

Cadastral survey

Survey relating to land boundaries, made to create units suitable for title transfer or to define the limitations of title. Derived from "cadastre" meaning a register of land quantities, values, and ownership used levying taxes, the term may properly be applied to surveys of a similar nature outside the public lands, such surveys are more commonly called "land surveys" or "property surveys."

Cartography

Science and art of making maps and charts. The term may be taken broadly as comprising all the steps needed to produce a map: planning, aerial photography, field surveys, photogrammetry, editing, color separation, and multicolor printing. Mapmakers, however, tend to limit use of the term to the map-finishing operations, in which the master manuscript is edited and color separation plates are prepared for lithographic printing.

chain

Unit of length equal to 66 feet, used especially in the U.S. public land surveys. The original measuring instrument (Gunter's chain) was literally a chain consisting of 100 iron links, each 7.92 inches long. Steel-ribbon tapes began to supersede chains around 1900, but surveying tapes are often still called "chains" and measuring with a tape is often called "chaining." The chain is a convenient unit in cadastral surveys because 10 square chains equal 1 acre.

compilation

Preparation of a new or revised map or chart, or portion thereof, from existing maps, aerial photographs, field surveys, and other sources.

contour

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

contour interval

Difference in elevation between two adjacent contours.

control station

Point on the ground whose position (horizontal or vertical) is known and can be used as a base for additional survey work.

coordinates

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

coordinates, origin of

Points in a system of coordinates which serves as a zero point in computing the system's elements or in prescribing its use.

culture

Features constructed by man that are under, on, or above the ground which are delineated on a map. These include roads, trails, buildings, canals, sewer systems, and boundary lines. In a broad sense, the term also applies to all names, other identification, and legends on a map.

dike

Bank of earth or stone used to form a barrier, frequently and confusingly interchanged with levee. A dike restrains water within an area that normally is flooded. See levee.

elevation

Vertical distance of a point above or below a reference surface or datum.

erosion

Group of natural processes including weathering, dissolution, abrasion, corrosion, and transportation that remove material from any part of the Earth's surface.

flood plain

Belt of low flat ground bordering a stream channel that is flooded when runoff exceeds the capacity of the stream channel.

geodesy

Science concerned with the measurement and mathematical description of the size and shape of the earth and its gravitational fields. Geodesy also includes the large-scale, extended surveys for determining positions and elevations of points, in which the size and shape of the earth must be taken into account.

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.

GIS

Geological Information System: A relative new system of electronic overlays of information tied to the land shown on the map. The map can have tremendous amounts of information embedded in graphic and relational databases.

halftone

A picture in which the gradations of light are obtained by the relative darkness and density of tiny dots produced by photographing the subject through a fine screen.

high water

Maximum height reached by a rising tide. The height may be due solely to the periodic tidal forces or it may have superimposed upon it the effects of prevailing meteorological conditions. Use of the "high tide" is discouraged."

high water line

Intersection of the land with the water surface at an elevation of high water.

high water mark

Line or mark left upon tidal flats, beach, or along shore objects indicating the elevation or the intrusion of high water.

hydrographic survey

Survey of water area, with particular reference to submarine relief, and any adjacent land. See: oceanographic survey

hydrography

Science that deals with the measurement and description of the physical features of the oceans, seas, lakes, rivers, and their adjoining coastal areas, with particular reference to their use for navigation.

hydrology

Scientific study of the waters of the Earth, especially with relation to the effects of precipitation and evaporation upon the occurrence and character of ground water.

imagery

Visible representation of objects and (or) phenomena as sensed or detected by cameras, infrared and multispectral scanners, radar, and photometers. Recording may be on photographic emulsion (directly as in a camera or indirectly after being first recorded on magnetic tape as an electrical signal) or on magnetic tape for subsequent conversion and display on a cathode ray tube.

infrared scanner (thermal mapper)

Instrument that detects infrared radiation and converts the detected energy to an electrical signal for recording on photographic film or magnetic tape.

landmark

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

latitude

Angular distance, in degrees, minutes, and seconds of a point north or south of the Equator.

levee

Artificial bank confining a stream channel or limiting adjacent areas subject to flooding; an embankment bordering a submarine canyon or channel, usually occurring along the outer edge of a curve.

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, cadastral

Map showing the boundaries of subdivisions of land, often with the bearings and lengths thereof and the areas of individual tracts, for purposes of describing and recording ownership. It may also show culture, drainage, and other features relating to land use and value. See: [plat](#)

map, choropleth

Thematic map in which areas are colored, shaded, dotted, or hatched to create darker or lighter areas in proportion to the density of distribution of the theme subject.

map digitization

Conversion of map data from graphic to digital form.

map, engineering

Map showing information that is essential for planning an engineering project or development and for estimating its cost. It usually is a large-scale map of a small area or of a route. It may be entirely the product of an engineering survey, or reliable information may be collected from various sources for the purpose, and assembled on a base map.

map, flood control

Map designed for studying and planning control projects in areas subject to flooding.

map, forestry

Map prepared principally to show the size, density, kind, and value of trees in a designated area.

map, geologic

Map showing the structure and composition of geologic features.

map hypsographic

Map showing relief with elevations referred to the [national geodetic vertical datum of 1929](#).

map, hypsometric

Map showing relief by any convention, such as contours, hachures, shading, or tinting.

map, isopleth

Map consisting of lines connecting places of equal value of distribution for a given theme such as rainfall or temperature.

map, land use

Map showing by means of a coding system the various purposes for which parcels of land are being used by man.

map, planimetric

Map that presents only the horizontal positions for features represented. distinguished from a topographic map by the omission of relief in measurable form. The features usually shown on a planimetric map include rivers, lakes, and seas; mountains, valleys, and plains; forests, and prairies; cities, farms transportation routes, and public utility facilities; and political and private boundary lines. A planimetric map intended for special use may present only those features essential to the purpose to be served.

map, soil

Map that shows the constitution, structure, and texture of the soil and identifies ongoing erosion.

map, storm evacuation

Map designed to identify coastal areas subject to flooding, to indicate recommended areas of refuge, and to emphasize available evacuation routes.

map, thematic

Map designed to provide information on a single topic, such as geology, rainfall, population.

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.

metes and bounds

Method of describing land by measure of length (metes) of the boundary lines (bounds).

orthophotograph

Photograph having the properties of an orthographic projection. It is derived from a conventional perspective photograph by simple or differential rectification so that image displacements caused by camera tilt and terrain relief are removed.

overlay

Printing or drawing on a transparent or translucent medium intended to be placed in register on a map or other graphic and which shows details not appearing or requiring special emphasis on the base material.

plain

Region of uniform general slope, comparatively level, of considerable extent, and not broken by marked elevations and depressions (it may be an extensive valley floor or a plateau summit); an extent of level or nearly level land; a flat, gently sloping, or nearly level region of the sea floor.

planetable

Instrument consisting essentially of a drawing board on a tripod and some type of sighting device (**alidade**) with attached straightedge, used for plotting the lines of survey directly from observation in the field.

plat

Diagram drawn to scale showing all essential data pertaining to the boundaries and subdivisions of a tract of land, as determined by survey or protraction. As used by the Bureau of Land Management, the drawing which represents the particular area included in a survey, such as township, private land claim, or mineral claim, and the lines surveyed, established, or retraced, showing the direction and length of each such line; The relation to the adjoining official surveys; the boundaries, descriptions, and area of each parcel of land subdivided; and, as nearly as may be practicable, a representation of the relief and improvements within the limits of the survey.

scale

Relationship existing between a distance on a map, chart, or photograph and the corresponding distance on the Earth.

state plane coordinate system

Coordinate systems established by the U.S. Coast and Geodetic Survey (now the National Ocean Survey), usually one for each state, for use in defining positions of points in terms of plane rectangular (x,y) coordinates.

survey

Orderly process of determining data relating to any physical or chemical characteristics of the Earth. The associated data obtained in a survey. An organization engaged in making a survey.

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, in minor governmental subdivision.

transit

Precision surveying instrument; a theodolite in which the telescope can be reversed in direction by rotation about its horizontal axis.

traverse

Sequence of lengths and directions of lines connecting a series of stations, obtained from field measurements, and used in determining positions of the stations.