

GLOSSARY OF TERMS GEOREFERENCED

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A B C H D E F G H I J K L M N O P Q R S T U V W X Y Z

Altimetry: The difference of the terrain height represented by contour lines and control points.

Area: The basic operational control unit for the agricultural census, whose surface delimits the interior of the rural Basic Geostatistical Area AGEb by physical and/or structural features and, formed by one or more types of land with similar terrain trend.

Attribute: The feature object that describes the geometric, topologic or other characteristics.

Cadastre: Public inventory systematically, graphically and alphanumerically organized to describe the real estate of both urban and rural lands, employing the special characteristic from a determined country. It is designed as a series of registries that show the land's extension, value and property.

Cartography: Map representation of geographic information.

Census Region: The smallest of the census subdivisions of a country. Its character is permanent and comprises population, status and homogenous life conditions.

Centroide: The point whose coordinates are the average values of the coordinates of all points of the polygon. It is calculated by measuring X and Y positions from all vertices, although this is not the only calculation method.

Datum: 1. Any quantity or set of such quantities that may serve as a reference or basis for calculation of other quantities; 2. Fundamental point of the terrain determined by astronomic observation, from which extremes of the base triangle of each triangulation can be linked and which serves as the origin of the geographic coordinate network.

Differential GPS: Method of measurement based on GPS for the use of information from two sources: a mobile receiver and a correction signal. The mobile receiver receives directly the signal and the GPS system uses the correction provided by the base station (another receiver), which is located on a known point to increase the precision of their measurements. The base station calculates the correction by comparing the positions reported by his reception with the true position known through radio and sends them to mobile receiver (rover). There are two sets of methods for differential rate: the static and the cinematic, the latter can be in real time or can be postprocessed on the desk. Within the cinematic differential methods exist corrections sent via radio by base stations (usually through the protocol RTK) or by corrections generated by satellite through paid subscription service.

Elevation: Distance measured in z-axis of a variable with regards to a vertical datum of origin. Generally, this elevation receives the orthometric name and it refers to the mean sea level for a specific part of the planet.

Ellipsoid: Geometric solid generated by the rotation of an ellipse around one of its axis.

Equator: Great circle line which crosses the Earth in a normal plane according to the axis and has equal distance from the poles. It divides the planet Earth in two hemispheres.

Euclidean distance: A direct line that separates two points. The distance results in the Pythagorean Theory: the distance between two points is given by the square root of the sum of the squares of the coordinates differences and is equal to the hypotenuse of the triangle. The Euclidian distance is fundamental for Geographic Information Systems (GIS), due to the large amount of work with databases that are projected onto the flat surface.

Geocode: An identifier assigned to the elements of a map, as well as to the records that contain the attributes that describe the features represented by the elements. Geocode is synonymous with the location identifiers. || The process of connecting a geometric reference with a phenomenon, for example, assigning the latitude/length to a water well location.

Geodesic Vertex: Any location for which it has been determined or the coordinates will be determined.

Geodesy: Science that develops and studies the methods, technologies and procedures to determine the precise size and the form of the Earth, including its gravitation field.

Geography: 1. Science that studies the geographic relationship of the physical and social phenomena location and the original causes and relationship among them. || 2. Synthesis of multiple disciplines based on a location where it can be established the relationship between the natural environment and human societies.

Geoid: The equipotential surface of the gravity field that adjusts more accurately to the mean sea level, whether locally or globally.

Geomatics: Geomatics, according to the definition of the International Organization for Standardization (ISO), consists of a set of activities that integrate all the methods used for the acquisition and administration of necessary spatial data in scientific, administrative, legal and technical operations involved in the production process and spatial administration. The term Geomatics is relatively new and represents the evolution of the field of activities related to the rise of information and the representation through maps, integrating the methods and techniques of the traditional activities as in the case of Topography, Cartography, Hydrography, Geodesy, Photogrammetry and new fields of application such as remote sensing, geographic information systems, and satellites' global positioning systems.

GIS: Geographic Information System. A system, usually computer-based used for the input, storage, retrieval, analysis and display of interpreted geographic data. Data base is typically composed of map-like spatial representations, often called coverages or layers. These layers may involve a three-dimensional matrix of time, location, and attribute or

activity. A GIS may include digital line graph (DLG) data, digital elevation models (DEM), geographic names, land-use characterizations, land ownership, land cover, registered satellite and/or aerial photography along with any other associated or derived geographic data.

GPS: Positioning system based on the transmission of signals from a group of satellites of the constellation NAVSTAR, located approximately 20.200 kilometers above the earth surface in six orbital planes, and monitored by five permanent tracking stations around the world.

Graticule: Regular network of lines of latitude and longitude upon which a map is drawn.

Gravimetry: Discipline of physics in charge of the study of gravity. It is used in cartography by means of Geodesy, in which is required by the gravimetric discipline to accurately determine the form of the geoid in each point of the terrestrial surface.

Hypsometric: Representation of the third dimension of a map (level Z or elevation) depicted by a gradation of colors. In vector maps, hypsometric curves are used to portray the fragmentation of discreet polygons of the three-dimensional surface. In raster data, the hypsometric representation is depicted based on the altitude of each cell, allowing representations more visually attractive.

Lattice: Groups of geographic data for the representation of a three-dimensional surface that consists of a rectangular mesh of points at regular intervals in X and Y axes. A lattice is a concept very similar to the one of a conventional raster data structure, with the difference in that the term implies that the data represent their XY corresponding positions, whereas raster considers that the values of the cell are applicable to all the corresponding areas. Therefore, for a digital model of the land, it is more appropriate to speak of lattice that of grid, although the differences has few consequences to practical effects.

Metadata: The metadata is "information about the data". It describes the content, quality, condition and other characteristics of the data. It helps to find and understand the data. It is data on the content, quality, accessibility, format, condition and other characteristics of the data.

Nad27: Abbreviation in English for the North American datum of 1927. The starting point of this datum is located in Meades Ranch, Kansas. It is based on the Clarke Ellipsoid of 1866, the geodesic position of the triangulation station at Meades Ranch and the azimuth of that station to the station Waldo Son.

Nad83: North American Datum of 1983. The horizontal control datum for the United States, Canada, Mexico and Central America, based on a geocentric origin and the Geodetic Reference System 1980. This datum, designated as NAD 83, is the new geodetic reference system. It was scheduled for implementation in 1986 to replace the North American datum of 1927. NAD 83 is based on the adjustment of 250,000 points including 600 satellite Doppler stations which constrain the system to a geocentric origin.

National Geodetic Network: Set of points located on land, within the national territory, established physically by a series of monuments or physical marks that contain direct measurements in support of physical parameters, that provide an interconnection and

determination as either a group or separately of their geodesic position, height or associated field of gravity, in relation to their systems of reference.

Offset: Distance of displacement in the location of an object with respect to its point of insertion. The offset is indicated generally in two parameters: offset in the X-axis and offset in the Y axis.

Photo interpretation: 1. Technique for the recognition and identification of the objects and/or characteristics of the terrestrial surface, shaped in the images of aerial photographs. || 2. Science and art of observing, analyzing, generalizing and interpreting the terrestrial surface's characteristics and details that appear in the aerial photographs resulting in analyzing simple phenomena in which to produce general conclusions.

Photogrammetry: Art, science and technology of obtaining data about the physical objects and the environment through registry processes, measurement and interpretation of photographic images and patterns of radiating electromagnetic energy and other phenomena.

Píxel: Minimum unit of information within a data set to raster or bitmap. It corresponds to the concept of "cell".

Planimetry: Graphical components of a map that does not contain necessary information for the definition of the land shape. Within this context, it includes those elements that can theoretically be depicted at the same altitudinal plane, like highways, buildings, etc. With the appearance of digital cartography this distinction is no longer absolutely certain, because most elements contained in the geographic data bases contain topographical information, nevertheless (the buildings contain their floor levels, the rivers are formed by three-dimensional points, etc.), the term continues to be used to refer to those elements that are neither contours nor reference points.

Pseudolite: GPS, differential GPS station that transmits its signal as if it was another satellite and can be used to increase the precision of information received from a mobile receiver.

Raster: Geographic data modeling that represents information via a regular mesh in the form of a mosaic, where each cell (pixel) is the minimum unit of information that is associated with a number. This corresponds to the value of a geographic phenomenon at the point of the terrestrial surface that represents the cell. In general, the structure of raster data is more effective than the vector model to represent continuous data of geographic objects without precise limits (for example, a digital model of the land or a cloud plume of contamination). For geographic objects with precise limits and discrete data, the structure of vector data usually is more appropriate (not always, though).

Rasterization: Action to transform a vector data set (formed by lines, points or polygons), to a raster data structure. In this way, the representation of the vector data is transformed through a matrix of small square cells of equal size, each one with a numerical value coded at their center.

Register: Data annotation of geographic names, territorial division and cadastral information in the National Registry of Geographic Information.

Remote Sensing: Science and technologies associated with acquiring the characteristics of objects, features or phenomena, without having physical contact with them.

Scatter: Graphical representation which captures the shape of dispersed data points in the form of an irregular cloud of points.

Snap: Process to move the coordinates of a geographic element to align them with those of another object within a given distance (fixed by a tolerance).

Survey: The action of capturing geographic information. Examples of certain types of survey include topographic and cadastral.

Symbology: Conventional symbol used to cartographically represent the features of the land.

Topography: Discipline in charge of capturing the physical information and its numerical processing to represent geometrically, graphically or analytically the space surrounding us.

Toponym: The name by which a geographical place is known.

Toponymy: Linguistics discipline that studies the origin, evolution and meaning of the place-names. All the names of localities, geographic features etc, that appear on a map.

Vertex: The point of intersection of lines or the point opposite the base of a figure.

Wgs84 (World Geodetic System 1984): Geocentric character developed by the Defense Mapping Agency (DMA, today NIMA), in 1984. It is a system of reference used by the GPS. It provides a global character that acts as a reference to all parts of the planet. It has become a system of reference converting cartographic data from one datum to another.