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1927 NAD - The North American Datum, 1927.

ABC - Airborne Control.

ACIC - Aeronautical Chart and Information Center.

ADP - Automatic Data Processing.

AEI - Aerial Exposure Index.

AMS - Above Mean Sea Level.

AMT - Above Mean Terrain.

A.S.A. - American Standards Association. See U.S.A.S.I.

ABRASION - Mechanical scratching, scraping, removal of emulsion or film base moving through cameras or processing equipment.

ABSOLUTE ORIENTATION - The scaling, leveling and attitude correction of photographs in a photogrammetric instrument to fit ground control or the mathematically equivalent process in analytical photogrammetry. See RELATIVE ORIENTATION.

ABSOLUTE STEREOGRAPHIC PARALLAX - With a pair of truly vertical photographs of equal principal distances taken from equal flight heights, or a pair of rectified photographs, the absolute stereoscopic parallax of a point is the algebraic difference, parallel to the air base, of the distances of the two images from their respective principal points. The term "*parallax*" is generally used to denote absolute stereographic parallax and also to denote similar measurements when the previous theoretical conditions are not strictly attained, as, for example, in measuring parallaxes on unrectified serial photographs. Linear parallax, x parallax, and horizontal parallax are synonymous with the preferred term, absolute stereoscopic parallax.

ACCIDENTAL ERROR - Random errors that occur without regard to any known physical law or pattern. Their occurrence is assumed to fall within a distribution pattern in accord with the theory of probability. See RANDOM ERROR.

ACCRETION - The act of growing to a thing; usually applied to the gradual and imperceptible accumulation of land by natural causes, as out of the sea or a river. Accretion of land is of two kinds: By alluvion, i.e., by the washing up of sand or soil, so as to form firm ground; or by reliction, as when the sea shrinks below the usual water-mark. The term "*alluvion*" is applied to deposit itself, while "*accretion*" denotes the act. However, the terms are frequently used synonymously. Land uncovered by gradual subsidence of water is not an "*accretion*" but a "*reliction*." See ACCRETION* and AVULSION*.

ACCURACY (USC & GS SP, PUBL. 242) - Degree of conformity with a standard or accepted value. Accuracy relates to the quality of a result, and is distinguished from precision which relates to the quality of the operation by which the result is obtained.

ACCURACY CHECKING (USGS) - The procurement of presumptive evidence of a map's compliance with specified vertical accuracy standards.

ACCURACY TESTING (USGS) - The procurement of evidence, on a sampling basis, of a map's compliance with specified *horizontal* accuracy standards. Accuracy testing is designed to determine the absolute accuracy of map features.

ACHROMATIC - Devoid of hue, or transmitting light without showing its constituent colors.

ACHROMATIC LENS - A lens that has been partly corrected for chromatic aberration, usually for two wavelengths of light. Such a lens is customarily made to bring green and red light rays to approximately the same point focus. Also called achromat. Achromatic lenses are not sufficiently corrected for color photography or color separation.

ACRE - A measure of land, 43,560 square feet, in whatever shape. See ACRE*.

ACTINIC - Pertaining to electromagnetic radiation capable of initiating photochemical reactions, as in photography or the fading of pigments.

ACTIVE - Denotes a source of radiation external to the surface or object. See PASSIVE SYSTEM.

ACTIVE SYSTEMS - 1) A system having its own source of electromagnetic radiation. 2) A system that measures electromagnetic radiation that is reflected from a surface or object, and not produced (emitted) by the surface or object.

ACUTANCE (USGS) - An objective measure of the ability of a photographic system to show a sharp edge between contiguous areas of low and high illuminance.

ADDITIVE COLOR THEORY - Theory of production of color images by addition of colored light rather than by subtraction of unwanted colors from white light. Additive color methods are used to create composite color

images from photographs taken in different parts of the spectrum. Three primary colors can be projected to produce every hue in varying degrees of saturation.

ADD TAPE - A survey tape on which minor graduations are placed ahead of the zero point. See CUT TAPE.

ADJUSTED TO DATUM - The value of a position or elevation after proper adjustment between previously adjusted stations or bench marks.

ADJUSTMENT - 1) A process designed to remove inconsistencies in measured or computed quantities by applying derived corrections to compensate for random, or accidental errors, such errors not being subject to systematic corrections. 2) Bringing the movable parts of an instrument or device more nearly into proper relation and fit. 3) Positioning the public-land lines on the topographic map to indicate their true, theoretical, or approximate location relative to the adjacent terrain, and culture, by reconciling the information shown on BLM plats and field records with the ground evidence of the location of the lines. See ADJUSTMENT*.

ADMINISTRATIVE INDEX MAP (USGS) - A special State map printed for administrative use. Quadrangle locations (by latitude and longitude), names, dates of survey, and authorship are shown by black print. Provisional quadrangle names and areas of 7½- and 15-minute quadrangles are also shown by overprint. Areas of quadrangles (in square miles) are shown in the left and right margins. Areas of partial quadrangles or portions of quadrangles falling within a particular State are shown within the individual quadrangle outlines.

ADMINISTRATIVE MAP - A planimetric map of a BLM administrative unit.

ADVANCE COMPLETION - See preferred ADVANCED FIELD COMPLETION.

ADVANCE EDITION - See preferred PRELIMINARY EDITION.

ADVANCE FIELD COMPLETION - (USGS) Field completion carried out prior to stereocompilation. It includes complete photoidentification and field interpretation; road, drainage, and woodland classifications; obtaining name and boundary information; obtaining data for accuracy checks; and assembling all data needed to compile and publish a map without additional fieldwork.

ADVANCE INTERPRETATION - See preferred FIELD PHOTOINTERPRETATION and ADVANCE FIELD COMPLETION.

ADVANCE MATERIAL INDEX MAP (USGS) - A letter size State map showing by symbols the advance information available for quadrangles work.

AERIAL - Relating to the air or atmosphere, being applicable in a descriptive sense to anything in space above the ground and within the atmosphere.

AERIAL EXPOSURE INDEX - The reciprocal of twice the exposure, expressed in meter candle seconds, at the point on the toe of the characteristic curve where the slope equals 0.6 gamma when recommended processing conditions are used.

AERIAL PHOTOGRAPH - A photograph of a part of the earth's surface taken by an aircraft supported camera.

AERIAL RECONNAISSANCE - The securing of information by aerial photography or by visual observation from the air.

AERONAUTICAL CHART - A map of the earth's surface designed for aviation use.

AEROTRIANGULATION - The process for extension of survey control whereby overlapping aerial photographs are related using perspective principles.

AFFINE - A geometrical condition in which the scale along one axis or reference plane is different from the scale along the other axis or plane.

AFFINE TRANSFORMATION - 1) A multiple-stage rectification technique made by photographic alternations of map dimensions which include differential magnification (transformation of one rectangle into another of different proportions) and shear (transformation of a rectangle into a parallelogram). 2) A transformation in which straight lines remain straight and parallel lines remain parallel. Angles, however, may undergo changes and differential scale changes may be introduced.

AGONIC LINE - The locus of all points on the earth's surface at which the magnetic north coincides with astronomic north. Also denotes its representation on a map.

AIR BASE - The line joining two exposure stations, or the length of this line; also, the distance (at the scale of the stereoscopic model) between adjacent perspective centers as reconstructed in the plotting instrument.

AIRBORNE CONTROL SURVEY SYSTEM (ABC) - A system for establishing a supplemental, vertical, and horizontal control for mapping and cadastral surveying where access is difficult. Horizontal and vertical angles as well as EDM distances are measured from known ground stations to a helicopter equipped with a Hoversight. See AIRBORNE CONTROL SURVEY*.

AIRBORNE MAGNETOMETER - An instrument used to measure variations in the magnetic field of the earth while being transported by an aircraft.

AIRPORT - Any body of land or water which is used, or intended for use, for the landing and take-off of aircraft, and any appurtenant areas which are used, or intended for use, for airport buildings or other airport facilities or rights-of-way, together with all airport buildings and facilities located thereon.

AIR SPEED - The velocity of an aircraft relative to the surrounding atmosphere.

AIR STATION - The point in space occupied by the camera lens at time of exposure. See EXPOSURE STATION.

ALBERS CONICAL EQUAL-AREA PROJECTION - An equal-area projection of the conical type, on which the meridians are straight lines that meet in a common point beyond the limits of the map and the parallels are concentric circles whose center is at the point of intersection of the meridians. Meridians and parallels intersect at right angles, and the arcs of longitude along any given parallel are of equal length. The parallels are spaced to retain the condition of equal area. On two selected parallels, the arcs of longitude are represented in their true length. Between the selected parallels the scale along the meridians is a trifle too large, and beyond them, too small.

ALIDADE - The part of a surveying instrument which consists of a sighting device, with index, and reading or recording accessories. The alidade of a theodolite or surveyor's transit is the upper part of the instrument: the telescope, micrometer microscopes, or verniers, and accessories, mounted on what is termed "*upper motion*" of the instrument, and used in observing a direction or angle on the graduated circle, which is mounted on the "*lower motion.*" The alidade used in topographic surveying consists of a straightedge ruler carrying a telescope, or other sighting device, and used in the recording a direction on the plane-table sheet.

ALINEMENT (ALIGNMENT) - 1) Formation or position in line, or, more properly, in a common vertical plane. 2) In railway or highway surveying: The ground plan, showing the alinement or direction, and components of the center line, as distinguished from a profile, which shows the vertical element.

ALKALI FLAT - A level lakelike plain formed in low depressions where accumulated water evaporates depositing fine sediment and dissolved minerals which form a hard surface if mechanical sediments prevail or a crumbly powdered surface if efflorescent salts are abundant.

ALLUVIAL FAN or ALLUVIAL CONE - The deposit of sediment laid down by a swift-flowing stream as it enters a plain or an open valley, so called on account of its shape.

ALLUVIUM - Gravel, sand, silt, and clay sediments deposited by streams as a result of markedly decreased current velocity, e.g., on the stream bottoms, along the banks, or where streams enter a body of standing water.

ALTIMETER - An instrument that indicates directly the height above a reference surface. See RADAR ALTIMETER, BAROMETER, and BAROMETRIC LEVELING.

ALTIMETRY - The science of determining the difference of elevation by use of altimeters.

ALTITUDE - The vertical angle between the plane of the horizon and the line to the object which is observed or defined. In astronomy and surveying, the altitude is positive if the object is above the horizon, and negative if below it. In surveying, a positive altitude is also termed an angle of elevation; a negative altitude, an angle of depression. In photogrammetric surveying and airport zoning, altitude applies to the elevation above a datum of points in space (as opposed to points on the ground surface) above a datum, usually mean sea level.

ANAGLYPH - A stereogram in which the two views are printed or projected superimposed in complementary colors, red and blue or red and green. By viewing through spectacles of corresponding complementary colors, a stereoscopic image is formed.

ANALYTICAL AEROTRIANGULATION - A process of interior and absolute orientation of aerial photographs obtained by computational methods from plate coordinates and mathematical analysis of the photogrammetric system. See AEROTRIANGULATION and ANALYTICAL PHOTOTRIANGULATION*.

ANASTIGMATIC LENS - A lens that has been corrected for astigmatism and curvature of field.

ANGLE, DIP - 1) The vertical angle of the observation point between the plane of the true horizon and a sight line to the apparent horizon. 2) The vertical angle, at the air station, between the true and the apparent horizon, which is due to flight height, earth curvature, and refraction.

ANGLE OF CONVERGENCE - See ANGULAR PARALLAX.

ANGLE OF COVERAGE - The apex angle of the cone of rays passing through the front nodal point of a lens.

ANGLE OF FIELD - See ANGLE OF COVERAGE.

ANGLE POINT - A point in a survey where the alinement deflects from a straight line.

ANGSTROM - Unit of wavelength, used chiefly in expressing short wavelengths; mathematically, it equals 10^{-10} meters or 10^{-8} centimeters.

ANGULAR DISTORTION - Distortion in shape of a map area caused by non-conformality of the map projection. See CONFORMALITY.

ANGULAR ERROR OF CLOSURE - The discrepancy between the summation of a series of field angles and the theoretical sum.

ANGULAR PARALLAX - The angle subtended by the eye base of the observer at the object viewed.

ANNOTATED PHOTOGRAPH - A photograph on which planimetric, hypsographic, geologic, cultural, hydrographic, or vegetation information has been added to identify, classify, outline, clarify, or describe features that would not otherwise be apparent in examination of an unmarked photograph.

ANTIHALATION - 1) The reduction of blurring or fogging that takes place around the image of a brightly lighted antihalation coating. 2) A light-absorbing coating applied to the back side of the support of a film or plate (or between the emulsion and the support) to suppress halation.

ANTIVIGNETTING FILTER - See VIGNETTING.

APERTURE STOP - The physical element (such as a stop, diaphragm, or lens periphery) of an optical system which limits the size of any pencil of rays traversing the system. The adjustment of the size of the aperture stop of a given system regulates the brightness of the image and depth of field without having any effect upon the size of the area covered.

APOCHROMATIC LENS - A lens which is corrected for chromatic aberration for three wavelengths of light rather than two as in the achromatic lens.

APPARENT HORIZON - The visible junction of earth and sky viewed from a specific point.

APPROXIMATE CONTOUR (USGS) - A contour line of doubtful accuracy used in stereocompilation to indicate uncertainty of location.

ARCTIC CIRCLE - The geographic parallel having a north latitude of 90° minus the sun's declination at summer solstice. Although the value changes slightly every year it is shown on most maps as $66^\circ 33'$.

ARC TRIANGULATION - A system of triangulation of limited width designed to connect widely separated control or for nationwide geodetic surveying.

ARC (USGS) - 1) A part of a mathematically defined curve. 2) A triangulation arc is a system of triangulation of limited width designed to progress in a single general direction to connect other arcs or to extend control from an established datum.

AREA COVERAGE - Complete photographic coverage of an area by conventional photography having parallel flight lines and stereoscopic overlap between exposures in the line of flight.

AREA TRIANGULATION - Surveys to provide horizontal control over an area such as a county or for filling in between arcs of triangulation.

ARM OF THE SEA - A comparatively narrow extension of a larger body of water.

ARTIFICIAL HORIZON - A device consisting of a plane reflecting surface which can be adjusted to coincide with the plane of the horizon.

ASPHERICAL LENS - A lens in which one or more surfaces depart from a true spherical shape.

ASSUMED ELEVATION - An arbitrary value assigned to a bench mark to which other work is referenced. Usually an even value such as 1000.00 feet, is chosen in absence of a connection to sea level datum.

ASSUMED GROUND ELEVATION (USGS) - The elevation assumed to prevail in a local area covered by a particular photograph or group of photographs. Used especially to denote the elevation assumed to prevail in the vicinity of a critical point, such as a peak or other feature having abrupt local relief.

ASTRONOMIC - Of or pertaining to astronomy. In surveying, azimuths or geographic positions determined by direct observation on the sun or a star (or stars) are designated astronomic azimuths or astronomic positions.

ASTRONOMIC AZIMUTH - The direction of a line relative to the meridian, as determined from astronomic observations. Usually measured clockwise from the south.

ASTRONOMIC LATITUDE - The angle between the plane of the earth's equator and a normal to the geoid as determined by celestial observations.

ASTRONOMIC LONGITUDE - The dihedral angle between the Greenwich Meridian and the observer's meridian as determined by astronomic observations and time signals.

ASTRONOMIC NORTH - The local direction of the earth's axis of rotation as determined from celestial observations.

ASTRONOMIC POSITION - See GEOGRAPHIC POSITION, ASTRONOMIC LATITUDE and ASTRONOMIC LONGITUDE.

ATMOSPHERIC REFRACTION - The bending of the path of light rays as they pass through air of varying density.

ATTENUATION - Reduction in intensity of radiation with distance from its source due only to absorption and/or scattering.

ATTITUDE - 1) The angular orientation of a camera, or of the photograph taken with that camera, with respect to some external reference system. Usually expressed as tilt, swing, and azimuth; or roll, pitch, and yaw. 2) The angular orientation of an aerial or space vehicle with respect to a reference system.

AUTOMATIC LEVEL - A leveling instrument in which the line of sight is automatically maintained horizontal by means of a built-in compensator acting through the force of gravity.

AUTOPOSITIVE - A term applied to a type of photographic film or paper which yields positive copies from positive originals or negative copies from negative originals without an intermediate copy.

AUTO SURVEYOR - A trade name for an inertial positioning system.

AVERAGE ERROR - The mean of all errors taken without regard to sign. It is the quotient of the sum of the absolute magnitudes of the errors divided by the number of errors included. See **ERROR OF THE MEAN**.

AVULSION - (USGS) The sudden removal of land from one segment and joining it to another as a result of erosion caused by inundation or current. Also, a sudden change in the course of a river, by which a portion of land is cut off, as where a river changes course to form an oxbow. See **AVULSION***.

AVULSIVE CUTOFF - (ASCE) A river's action when avulsion takes place; also, describes the area of land enclosed by the old and the new channels.

AXES - The plural of axis.

AXIS OF HOMOLOGY - 1) The intersection of two projectively related planes. 2) The intersection of the plane of the photograph with the horizontal plane of the map or the plane of reference of the ground. Corresponding lines in the photograph and map planes intersect on the axis of homology.

AXIS OF TILT - A line through the perspective center of a photograph, perpendicular to the principal plane. Also, the line of zero tilt displacement on a tilted photograph. This line lies at right angles to the principal plane and passes through the isocenter.

AXIS, X AXIS - The line in the photograph plane through the perspective center and parallel to the line joining fiducial marks which are in the general direction of the flight line. In an aerial coordinate system the X axis is along the forward air base.

AXIS, Y AXIS - The line in the photograph plane through the perspective center and perpendicular to the X axis. In an aerial coordinate system, the Y axis is horizontal and is perpendicular to the forward air base. The origin is at the rear exposure station.

AXIS, Z AXIS - The line through the perspective center and perpendicular to the plane of the photograph. The positive direction is upward. In an aerial coordinate system, the Z axis is in a vertical plane and perpendicular to the forward air base.

AZIMUTH - The angle measured on the horizon between the meridian and the plane of the vertical circle through a celestial body or other object. Most government agencies reckon with azimuth clockwise from south, 0° to 360°.

AZIMUTH LINE - (USGS) A radial line from the principal point, isocenter, or nadir point of a photograph, representing the direction to a corresponding point on an adjacent photograph in the same line of flight.

AZIMUTH MARK - A mark set at a significant distance from a triangulation or traverse station to mark the end of a line for which the azimuth has been determined and to serve as a starting or reference azimuth for later use. Azimuth marks are set to be visible from the station without a tower.

B

B/H - Base to height ratio.

BM - Bench mark.

bx - The component of the airbase which lies along the line of flight.

by - The transverse component of the air base.

bz - The vertical component of the air base. See **BZ CURVE**.

BZ CURVE - A graphic representation of the vertical errors along a line parallel to the flight line of a stereotriangulated strip.

BACK AZIMUTH - The azimuth of a geodetic line at the end opposite the reference end. It differs from the forward azimuth (at the reference end) by 180° plus the amount of the convergence of meridians between the two points. See **AZIMUTH** and **GEODETTIC AZIMUTH***.

BACK FOCAL LENGTH - The distance measured along the lens axis from the rear vertex of the lens to the plane of best average definition. Also called back focal distance.

BACKGROUND - Any effect in a sensor or other apparatus or system above which the phenomenon of interest must manifest itself before it can be observed. See **NOISE**.

BACKSHORE - That part of a beach which is usually dry, being reached only by the highest tides, and, by extension, a narrow strip of relatively flat coast bordering the sea. See **BEACH*** and **BACKSHORE***.