E

Easting. 1. The distance of a point east of the point of origin of the grid of a map or some abbreviation of it[25]. 2. The west-east component of a survey leg, or of a series of legs or of a complete traverse; east is positive and west is negative[25].

ebb-and-flow spring; ebbing-and-flowing well. See spring, ebb-and-flow.

eccentric. Adjective or noun implying abnormal shape in speleothems, such as helictites[10].

eccentric well. A well that is not in the center of the radius of influence[16].

ecology. The scientific study of the relationships of living things to one another and to their environment. A scientist who studies these relationships is an ecologist[23].

eddy. A non-laminar circulation of fluid at boundaries of flow separation[16].

effective abstractions. The difference between total precipitation and effective precipitation[16].

effective diameter. A 10 percentile size (i.e. 10% diameter smaller than this diameter)[16].

effective hydraulic conductivity. See hydraulic conductivity, effective.

effective porosity. See porosity, effective.

effective precipitation. That part of precipitation that contributes entirely to direct runoff.

effective rainfall. Effective precipitation when only rainfall is involved[16].

effective size. The 90%-retained size of a sediment as determined from a grain-size analysis; therefore, 10% of the sediment is finer and 90% coarser[6].

effluent. 1. The discharge of water or other fluids from a spring. 2. A waste liquid discharge from a manufacturing or treatment process, in its natural state or partially or completely treated, that discharges into the environment[6].

effluent cave. See outflow cave.

effluent stream. See gaining stream.

elastic limit. The point on a stress/strain curve at which transition from elastic to inelastic behavior takes place.

elastic properties. The properties describing deformation of a solid[16].

elasticity. The property of a material that allows the material to return to its original form or condition after the applied force has been removed.

electric lamp. As used in caving, generally a helmet-mounted headpiece (bulb, reflector, and lens) with a wire running to a battery carried elsewhere on the person[13].

electro-chemical gaging. Flow measurement based on electric detection of electrolyte tracer flow[16].

electrolyte. A chemical which dissociates into positive and negative ions when dissolved in water, increasing the electrical conductivity[6].

elutriation. A washing process by decantation with water[16].

embankment. A natural or artificial lateral boundary of a river[16].

embryo. A developing individual before its birth or hatching[23].

emergence. A general term for the outflowing water, for the opening or for the area of outflow of a karst spring; includes exsurgence and resurgence[20]. Synonyms: (French.) *émergence*; (German.) *Ausflußtelle, Karstquelle*; (Greek.) *pigházon ýthor (or kephalari)*; (Italian.) *risorgenza*; (Russian.) *vihod karstovih vod*; (Spanish.) *fuente, manantial, surgencia*; (Turkish.) *yüzeye erişim*; (Yugoslavian.) *krško vrelo, kršk*i *izvor, obrh*. See also exsurgence; resurgence; rise.

encroachment. 1. The landward advancement of saline waters into coastal aquifers[16]. 2. The displacement of clean water by pollutants[16].

end effect. A disturbance introduced by the inflow and outflow sections in a flow experiment[16].

endellite. A cave mineral — $Al_2Si_2O_5(OH)_4 \cdot 2H_2O$[11].

endogean. Pertaining to the domain immediately beneath the ground surface, *i.e.*, in the soil or plant litter[25]. See also endogenic, epigean, hypogean.

endogenic. 1. Pertaining to, or living in, the zone immediately beneath the earth's surface[9]. 2. Pertaining to geological process originating within the earth[16]. See also endogean, epigean, hypogean.

endokarst. The part of a vertically layered karst system that is beneath the surface. Endokarst includes the full spectrum of underground voids and the dissolutional features that are present on the rock surfaces surrounding them[9]. See also exokarst.

energy head. Hydraulic head plus velocity head[16].

enthalpy. Heat content[16].

entrance capacity. The property of a soil to allow water to infiltrate (the maximum value of this property)[16].

entrenchment. Erosion of an existing cave floor by a freely flowing stream to form a canyon passage that is commonly narrower than the original passage. Where the stream entrenches an originally tubular phreatic passage a characteristic keyhole shaped profile develops. Also known as vadose entrenchment or incision[9].

entropy. The degree of thermodynamic disorder[16].

environment. All the external conditions surrounding a living thing[23].

eolian calcarenite. A terrestrial limestone formed by the cementation by carbonates of calcareous coastal dune sand. Often shorted to eolianite. Synonym: dune-limestone; aeolianite. Compare beachrock.

eolian deposit. Sediment material deposited by wind action[16].

ephemeral stream. A stream flowing only in direct response to precipitation[16].

epigean. Pertaining to, or living on, the surface of the earth. See endogean and hypogean.

epigeum. The surface environment[23].

epikarst; epikarst zone. A relatively thick (the thickness may vary significantly, but 15 to 30 meters thick is a good generalization) portion of bedrock that extends from the base of the soil zone and is characterized by extreme fracturing and enhanced solution. It is separated from the phreatic zone by an inactive, relatively waterless interval of bedrock that is locally breached by vadose percolation. Significant water storage and transport are known to occur in this zone. Synonym: subcutaneous zone.

epikarstic flow. See subcutaneous flow.

epilimnion. Upper layer of stratified water[16].

epiphreas, epiphreatic zone. The zone in a cave system, immediately above the phreatic zone, affected morphologically and hydrologically by floods too large for the cave to absorb at once[10].

epsomite. A cave mineral — $MgSO_4 \cdot 7H_2O$[11].

equation of hydrologic equilibrium. A mass balance for a ground-water basin[16].

equipotential line or surface. 1. A contour line on the potentiometric surface along which the pressure head of ground water in the aquifer is the same. Fluid flow is normal to these lines in the direction of decreasing fluid potential[6]. 2. Line (or surface) along which the potential is constant[22].

equivalent per million. The number of equivalent weights in a million parts per weight solution[16].

erodible. Susceptible to erosion[16].

erosion. 1. The general process or group of processes whereby the materials of the Earth's crust are moved from one place to another by running water (including rainfall), waves and currents, glacier ice, or wind[6]. 2. The sequence of processes of disintegration and transportation of rock material[16].

erosion surface. The land surface resulting from the action of erosion[16].

erosiveness. The capacity to erode[16].

escarpment. A steep slope, often the result of faulting[16].

estavelle. (French.) An intermittent resurgence or exsurgence, active only in wet seasons. May act alternatively as a swallow hole and as a rising according to ground-water conditions[10]. Opening in

karstic terrane which acts as a discharge spring during high potentiometric surface and as a swallet during low potentiometric surface. Sea estavelles are known to exist[20]. Synonyms: (French.) *estavelle*; (German.) *Estavelle*; (Greek.) *estavella*; (Italian.) *estavella*; (Russian.) *estavella*; (Spanish.) *estavela*; (Turkish.) *su batar çıkarı*; (Yugoslavian.) *estavela, ponor-rigalo*.

esker. A stratified fluvio-glacial deposit in the form of a winding ridge[16].

etched pothole. See solution pan.

estuary. The lower course of a river discharging into the sea and subject to tidal currents[16].

evaporate. A sedimentary rock formed by evaporation and precipitation of saline waters[16].

evaporation. The changing or water from the liquid or solid states into the gaseous state through heat exchange[16].

evaporation loss. The loss of precipitated water that is discharged to the atmosphere by evaporation[16].

evaporation opportunity. The amount of water made available for discharge into the atmosphere[16].

evaporation pan. An open tank used to measure evaporation[16].

evaporation reduction. The rate control of escape of water vapor from an open surface[16].

evaporation suppression. The complete prevention of evaporation by mechanical or physico-chemical means (e.g., monomolecular layer)[16].

evaporite. Rock formed by precipitation of minerals from evaporating water, usually from sea water. As sea water evaporates the least soluble mineral contents precipitate first; these include calcium carbonate that is deposited as fine-grained limestone. If evaporation continues, first gypsum, then halite and finally a number of other sulfates and chlorides are deposited[9].

evaporativity. Evaporative power[16].

evapotranspiration. 1. The combined loss of water from a given area and during a specified period of time, by evaporation from the land and transpiration from plants[22]. 2. The return of water in vapor form to the atmosphere through the combined actions of evaporation, plant transpiration, and sublimation[16].

evolution. The process of natural consecutive modification in the inherited makeup of living things; the process. by which modern plants and animals have arisen from forms that lived in the past[23]. See also *mutation*.

evorsion. Mechanical erosion by whirling water that may carry sand and gravel; pothole erosion[10]. Mechanical erosion by rotating or whirling water carrying sand, gravel, cobbles, or boulders in suspension or as bedload[20]. Synonyms: (French.) *évorsion*; (German.) *(Auswaschung), Auskolkung*; (Greek.) *mihanikí diávrosis*; (Italian.) *evorsione*;

(Spanish.) *evorsión*; (Turkish.) *dev kazanı aşındırması*; (Yugoslavian.) *vrtložna erozija*.

exchange capacity. 1. The amount of exchangeable ions measured in moles of ion change per kilogram of solid material at a given pH. Synonymous with ion exchange capacity[22]. 2. The total ionic charge of the adsorption complex active in the adsorption of ions[22]. See also cation-exchange capacity.

exhumed karst. A karstic outcrop which has been exposed by the erosion of an allochthonous cover; there is an implication that karstification (partial or complete) had preceded the removal of the cover[20]. Mantled karst or buried karst which has been divested of its cover. It is the re-exposed portion of a former landscape[17]. See also buried karst; exposed karst; mantled karst. Synonyms: (French.) *karst dénudé*; (German.) *wiederaufgedeckter Karst*; (Greek.) *gymnothen karst*; (Italian.) *carso riesumato*; (Spanish.) *karst exhumado*; (Turkish.) *açık karst*; (Yugoslavian.) *ogoljeli krš (kras)*.

exogenic. Pertaining to processes on or near the surface of the earth[16].

exokarst. All features that may be found on a surface karst landscape, ranging in size between tiny karren forms and extensive projes, belong to the exokarst[9]. See also endokarst.

exoskeleton. An external skeleton. The hard body covering or shell of most invertebrate animals, including insects, crayfish, and millipedes[23].

experimental basin. A basin chosen for the thorough study of hydrological phenomena[16].

exposed karst. A general term for bare karstic rocks outcropping at the surface of the ground. It embraces karst areas without any initial cover (naked karst) or exposed by erosion of the residuum and soil (denuded karst) or of the allochthonous cover (exhumed karst)[20]. Karst topography in which cover is absent[17]. Synonyms: (French.) *karst exposé*; (German.) *nackter Karst, oberflächlicher Karst, wiederaufgedeckter Karst*; (Greek.) *akalypton karst*; (Italian.) *carso denudato;* (Russian.) *golij karst, otkritij karst*; (Spanish.) *karst subaéro*; (Turkish.) *belirgin karst*; (Yugoslavian.) *ljuti krš.* See also denuded karst; exhumed karst; naked karst.

extensometer. An instrument used for measuring vertical deformation of fine-grained beds in the subsoil under stress. Vertical extensometers commonly are installed when land subsidence follows ground-water withdrawal. Extensometers also are used to measure small horizontal displacements[21].

external loads. External loads causing water level fluctuations in wells.

exsurgence. 1. A term used to explain the re-emergence at the surface, as a stream, of meteoric water which has fallen entirely upon and percolated through a calcareous massif[19]. 2. A spring or seep in karstic terrane not clearly connected with swallets a higher level. Synonyms: (French.) *exsurgence*; (German.) *Karstquelle, Austrittßtelle;* (Greek.)

karstiki pighi; (Italian.) *risorgente carsica;* (Russian.) *karstovij istoćnik*; (Spanish.) *exsurgencia;* (Turkish.) *yüzeyde blirme*; (Yugoslavian.) *vrelo, obrh.* See also emergence; resurgence.

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