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Drainage Patterns

Most stream networks are adapted to regional slope and geological structures, picking out the main fractures in the underlying rocks. The high degree of conformity between stream networks and geological structure are evident in following patterns —

i) Dendritic - this drainage has a pattern, that involves spreading like tree. It includes irregular branching of tributaries in many directions and at almost any angle. It occurs mostly on horizontal and uniformly resistant strata and unconsolidated sediments and on homogenous igneous rocks where there are no structural controls.

Pinnate drainage which is associated with very steep slopes, is a special dendritic pattern wherein the tributaries are more or less parallel and join the main stream at acute angles.

ii) Parallel displays regularly spaced and more or less parallel main streams with tributaries joining ~~at~~ at acute angles. Parallel dip streams dominate the pattern. It develops where strata are uniformly resistant and the regional slope is marked or where there is strong structural control exerted by a series of closely spaced faults, monoclines or isoclinal

iii) Trellis has a dominate drainage direction with a secondary direction parallel to it so that primary tributaries join main stream at right

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angles and secondary tributaries run parallel to the main stream. It is associated with alternating bands of hard and soft dipping or folded beds or recently deposited and aligned glacial debris. Fold mountains tend to have trellis drainage patterns

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- iv) Radial drainage has streams flowing outwards in all directions from the central elevated tract. It is found on topographic domes, such as volcanic cones
- v) Centrifugal is similar to radial and occurs where gutters develop on the insides of meander loops of the tidal mudflats of coastal north west Queensland, Australia
- vi) Centripetal has all streams flowing towards the lowest central point in a basin floor. It occurs in calderas, craters and tectonic basins. A large area of internal drainage lies on the Central Tibetan Plateau.



- vii) Distributary typifies rivers debouching from narrow mountain gorges and running over plains or valleys, particularly during occasional floods

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viii) Rectangular drainage - displays a perpendicular network of streams with tributaries and main streams joining at right angles. It is less regular than trellis drainage and is controlled by joints and faults.

Angulate drainage is a variant of rectangular drainage and occurs where joints or faults join each other at acute or obtuse angles rather than at right angles.

ix) Annular has main streams arranged in a circular pattern with subsidiary streams lying at right angles to them. It evolves in a breached or dissected dome or basin.

The other categories includes irregular or Complex drainage which displays no unambiguous patterns. Also Derange drainage which forms on newly exposed land, such as that exposed beneath a retreating ice sheet, where there is almost no structural or bedrock control and drainage is characterized by irregular stream courses with short tributaries.

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