

Meanders | A1 Sample answer

Describe the formation of a landform of erosion and deposition.

Meanders are a landform of both erosion and deposition. They are bends or curves found in the mature stage of a river. An example of a meander can be found in the mature stages of the River Shannon.

Meanders are caused by the great speed of the water flow. By the end stages of the river, its load has increased as has the volume of water. Meanders then form due to both lateral erosion, which is caused by abrasion, the erosion caused by a river's load scraping against the sides of the river bed, and hydraulic action, the erosion caused by the force of moving water, and deposition, which is when a river released its load. Lateral erosion happens where the water moves fast and deposition happens where the river moves slowly.

The water on the outer concave bend is deeper and this area is known as a pool. The river moves quickly here and this causes erosion which can cause bank caving. This is when the water pushes into cracks in the river sides and causes the bank to collapse. The water on the inner convex bend is shallower and this area is called a riffle. The river moves too slowly here to fully transport its load and it deposits. The meanders change constantly because they get eroded and deposited all the time. Erosion causes the undercut riverbank to eventually collapse and forms what we call a river cliff. Deposition causes material to build up and form a river beach which is also called a point bar. The meander becomes more and more pronounced over time because of these processes.

Sometimes meanders can form ox bow lakes. These are horseshoe shaped lakes that are created when a meander is cut off from the rest of the river. As the meander becomes more pronounced due to the processes of deposition and erosion, it becomes twisted and leaves the neck of the meander narrow. If the river floods, the neck is cut off and the river flows straight through. At the cut-off point, the river has little energy which causes it to deposit once again. This causes a buildup of sediments which eventually separate the meander from the river. This forms an ox bow lake. These can be found on the River Shannon. Eventually these lakes dry up and form a meander scar. These scars can be found along the River Liffey.