

Brief Definition of Seafloor Spreading

Seafloor Spreading:

The process that forms new oceanic crust at a divergent plate boundary. At mid-ocean ridges, magma rises from the mantle to the seafloor where it cools to solid basaltic rocks that form a chain of seafloor volcanoes. Subsequent magma intrusion splits and expands these volcanoes so they slowly spread away from the mid-ocean ridge. Magnetic minerals in the magma and volcanic rock cool and record the current magnetic field, making the rock magnetic in a direction that is identical to the earth's current magnetic field. As the earth changes its magnetic field through geological time, ancient mid-ocean ridge volcanoes can have normal or reversed magnetic signatures. Volcanic rocks with distinct magnetic polarities define symmetric bands of normal and reversely magnetized oceanic crust on either side of the mid-ocean ridge. These seafloor magnetic anomalies can be related to the magnetic polarity history of the earth which allows the determination of spreading rates and relative plate motions.