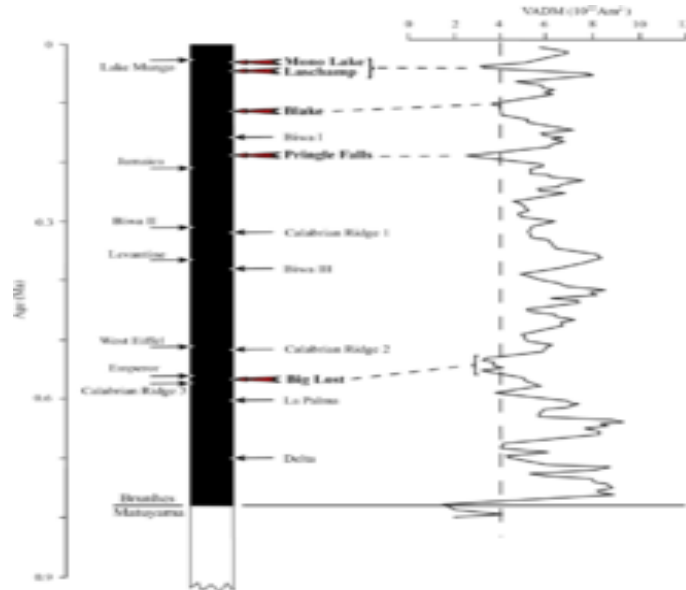


# MAGNETIC FIELD VARIATIONS



Geomagnetic variations since last reversal.

The currents in the core of the Earth that create its magnetic field started up at least 3,450 million years ago.

Magnetometers detect minute deviations in the Earth's magnetic field caused by iron artifacts, kilns, some types of stone structures, and even ditches and middens in archaeological geophysics. Using magnetic instruments adapted from airborne magnetic anomaly detectors developed during World War II to detect submarines, the magnetic variations across the ocean floor have been mapped.

The basalt — the iron-rich, volcanic rock making up the ocean floor — contains a strongly magnetic mineral (magnetite) and can locally distort compass readings.

The distortion was recognized by Icelandic mariners as early as the late 18th century. More important, because the presence of magnetite gives the basalt measurable magnetic properties, these magnetic variations have provided another means to study the deep ocean floor. When newly formed rock cools, such magnetic materials record the Earth's magnetic field.

Frequently, the Earth's magnetosphere is hit by solar flares causing geomagnetic storms, provoking displays of aurorae. The short-term instability of the magnetic field is measured with the K-index.

Recently, leaks have been detected in the magnetic field, which interact with the Sun's solar wind in a manner opposite to the original hypothesis. During solar storms, this could result in large-scale blackouts and disruptions in artificial satellites.

Source: [http://web.ua.es/docivis/magnet/earths\\_magnetic\\_field2.html](http://web.ua.es/docivis/magnet/earths_magnetic_field2.html)