

## Tools of the Trade

### Geomagnetometers

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In this month's Tools of the Trade, we'll examine a **geomagnetometer**, which is a device that allows you to measure a static magnetic field such as the Earth's magnetic field (caused by the rotation of molten iron alloys in its core). Tools of this type are used for example in archaeological research on land or sea, to locate mineral/oil-rich geological formations, or by the military to detect underwater submarines. The theory is that these manmade objects distort the magnetic fields around them and a geomagnetometer is able to detect those anomalies.

Paranormal researchers commonly theorize that a spirit can generate and/or distort magnetic fields, hence these magnetic field distortions can be detected with meters. When using a geomagnetometer on an investigation, it is important to fully understand the theory of the technology and how to correctly operate the gear and interpret the reading and results.

It is also important to be familiar with how the Earth's magnetic field works and that although reasonably constant, it does change (both strength and direction) over time. Geographic variability is primarily based on the composition of the ground below (rock formations, etc). The variability at the single location from day to day (or hour to hour) is based on factors like solar winds and storms, which constantly interacts with our planets magnetosphere. These interactions result in variations in our planets magnetic field that these meters are primarily designed to detect (so check and record the space weather forecast before an investigation).

Geomagnetometers are commonly available and range on the low end from \$250-\$750 and can go up from there, and as with anything, the more you spend, the more sensitive and accurate the equipment gets.

References:

<https://en.wikipedia.org/wiki/Magnetometer>

[https://en.wikipedia.org/wiki/Earth%27s\\_magnetic\\_field](https://en.wikipedia.org/wiki/Earth%27s_magnetic_field)

<http://geomag.usgs.gov>

<http://www.ngdc.noaa.gov/geomag>