

Geometrics Knowledgebase

Magnetic field strength versus signal to noise ratio.

The Cesium magnetometer is so fast and has such a large dynamic range that it can be considered to be either on or off. What this means is that if the sensor active zone is in the earth field vector (approximately 70 degrees in each quadrant of 90 degrees) it will be on and operating. If it is within 10 degrees of either dead zone (polar or equatorial) it will be off and not make signal.

In the old technology of proton or Overhauser, the signal or signal to noise ratio is directly proportional to the magnetic field strength. This means that in Brazil where the earth's field is 27,000 nT the systems only get ½ the signal strength that they will get in Ohio where the field is 54,000 nT. But for optically pumped Cesium, there is no direct relationship between magnetic field strength and signal-to-noise ratio.

<http://support.geometrics.com/kb/questions.php?questionid=40>