# A Proposed Correlation between the Perception of Paranormal Manifestations and GOES System Magnetometer Data

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## Abstract

For thousands of years humans have reported paranormal manifestations such as seeing/hearing ghosts, being touched by an invisible entity, anomalous smells, etc. Because these perceived manifestations are seen, heard or felt, a physical environmental change should have occurred. While examining environmental data surrounding these perceived manifestations, a correlation between them and GOES (Geostationary Operational Environmental Satellite) system magnetometer data was observed. It was observed that when the magnetometer intensity readings were increasing over time, very few manifestations were reported. When the magnetometer intensity readings were decreasing, however, many more manifestations were reported. During subsequent data collection excursions, this correlation seemed consistent throughout. A project was launched to analyze historical GOES system magnetometer data versus perceived manifestations over the last 3 years. The analysis of this data included calculating the slope of the curve of the GOES data at the time when a manifestation was perceived. The results indicated the correlation existed over the time period analyzed. Anecdotal evidence also seems to indicate that perceived manifestations may be of a more intense nature if the slope of the tangent to the curve when it is decreasing is much steeper. However, more work needs to be performed before conclusions can be made regarding intensity.

## Introduction

For thousands of years humans have reported paranormal phenomena such as seeing or hearing ghosts, being touched by an invisible entity, anomalous smells, etc. Because these perceived manifestations are seen, heard or felt, a physical environmental change should have occurred. While examining environmental data surrounding these perceived manifestations, a correlation between manifestations and GOES (Geostationary Operational Environmental Satellite) system magnetometer data was observed. The GOES system supports weather forecasting, severe storm tracking, and meteorology research and consists of several geosynchronous satellites and ground-based elements. The satellites are stationed above several locations around the Earth along the Equator. The one of interest in this project sits at 75 degrees W longitude at an altitude of 22,240 statute miles (GOES 13). This satellite covers East Coast, USA (figure 2 and reference 4). The magnetometer data was obtained from data compiled by NOAA from magnetometers on the satellite (figure 3). These magnetometers' purpose is to monitor the Earth's geomagnetic field and its variations (reference 3).

It was observed that when the magnetometer intensity readings (in nano Tesla or nT) were increasing over time, few manifestations were reported. When the magnetometer intensity readings were decreasing, however, many more manifestations were reported. During subsequent data collection excursions, this correlation seemed to exist throughout. A project was then launched to compare reports of perceived manifestations to the corresponding point on the GOES East Coast magnetometer data where the slope of the tangent line to the curve at the point in question was calculated.

## Methods

Multiple excursions over time were made to locations where perceived paranormal manifestations (visual and audible) were reported along the East Coast, USA over a period of three years. Any perceived manifestations during the excursions were noted as to type, date and time. GOES magnetometer data for the East Coast (GOES 13) was then obtained from the GOES Data Access website (reference 2) for comparison. The times of perceived manifestations were then converted to UTC time to match the time zone of the GOES magnetometer readings. The slope of the tangent line for points of interest on the magnetometer data curve was then calculated and examined for magnetic field (nT) increase or decrease over time. The Microsoft Excel Slope Function was used for this calculation. Forty perceived manifestation times and forty points on the curve around the time of interest for each manifestation were used in the slope calculation. Time periods when manifestations did not occur were not included in this experiment.

## Results

Data in Table 1 is only for detected manifestations. Time periods where manifestations were not detected are not included. Magnetometer data collected is in nano Tesla (nT) and is the average total

magnetic field reading from all three axes of the instrument (table 2). Negative slope values indicate downward trends in the curve. Positive slope values indicate upward trends in the curve.

## Discussion

The curve created using GOES magnetometer data mimics a Sin wave in appearance with magnetic field intensity (nT) increasing and then decreasing over time. However, while the curve seems to be regular and predictable for the most part, as in any Sin wave, there are times when magnitude and frequency can change drastically very quickly (figure 1). These aberrations are not predictable, but seem to affect the reports of manifestations. The general predictability of the Sin function, though, may indicate a reason that many reports of manifestations happen at specific times at night or in the very early morning hours, especially if no curve aberration occurs.

During times when audible or visible manifestations were perceived, calculated slopes on the corresponding GOES magnetometer data indicated a mostly downward trend in intensity. During each date when manifestations were perceived, there was much time when nothing at all was perceived. For example, on 7/18/15 we were on location from 6pm until 4am the next morning with only 6 instances of perceived manifestations. This seems to show that perceived manifestations are more likely to occur when the calculated slopes indicate a downward trend in magnetic field intensity, though they could still occur less frequently when the calculated slope indicates an opposite trend. This seems to hold true during times of abnormal dips and spikes in the curve.

Anecdotal evidence also seems to indicate that manifestations may be of a more intense nature if the slope when magnetic field intensity is decreasing is more negative. However, more work needs to be performed regarding the intensity to increased negative slope correlation. More work also needs to be performed regarding perceived manifestations at locations other than East Coast, USA to see if the correlations still exist elsewhere using different GOES locations and to the time of day of reported manifestations. Finally, more work needs to be performed to compare results to magnetometer data outside the Earth's magnetosphere to determine whether the effect is solar or terrestrial in nature.

Sources of error in this experiment could be associated with improvements in data collection over the time period reviewed and the time format for when the perception of manifestations occurred (hh:mm). For future work, the time format for data collection should be as precise as possible (hh:mm:ss.x) to match the time format used in the GOES data and data collection techniques should be consistent during the entire data collection period.

## References


1. http://www.swpc.noaa.gov/products/goes-magnetometer
2. http://www.ngdc.noaa.gov/stp/satellite/goes/dataaccess.html
3. http://www.goes-r.gov/spacesegment/mag.html
4. http://www.nasa.gov/feature/goddard/nasa-celebrates-contributions-to-40-years-of-noaa-goes-satellites

## Figures

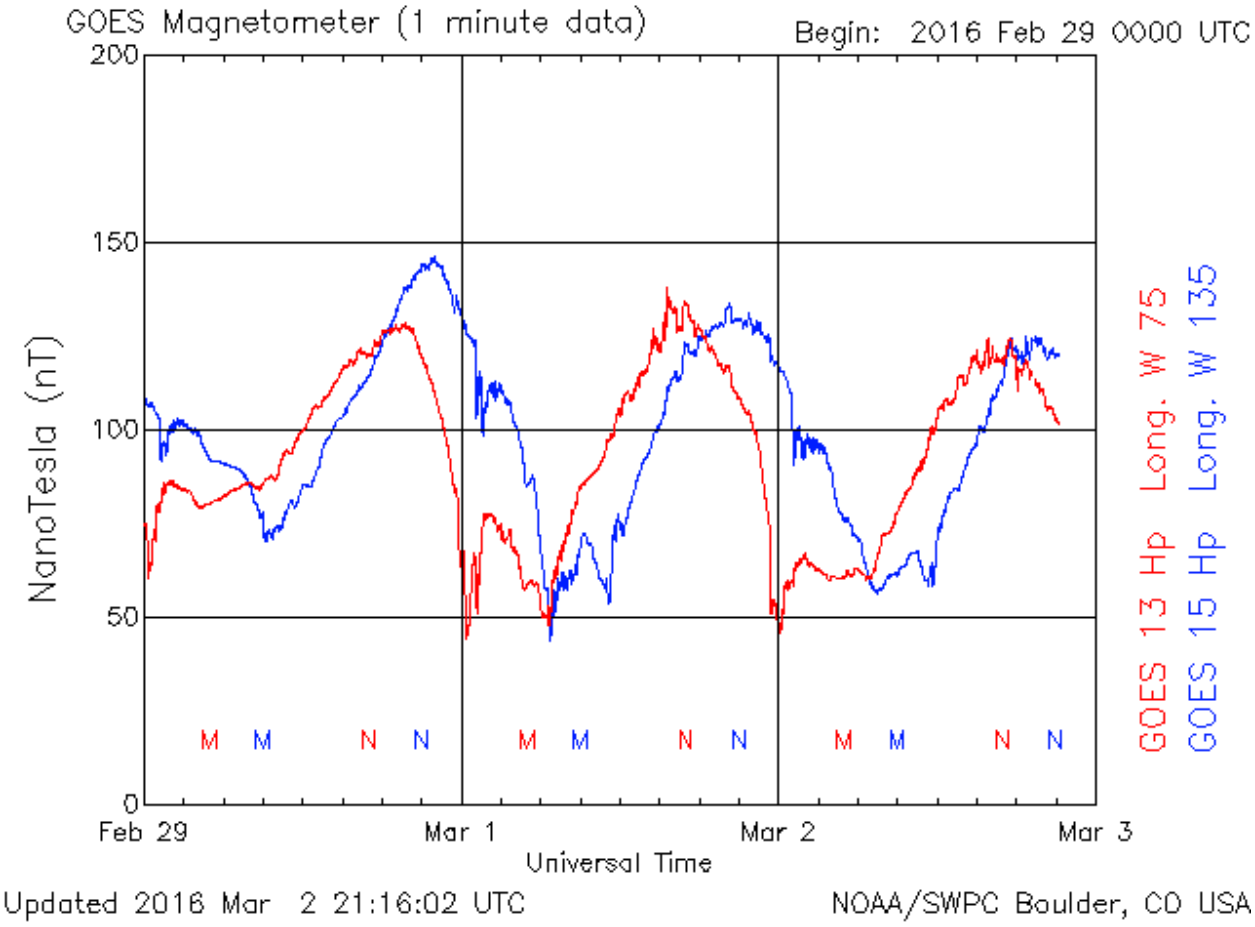


Figure 1 – Example GOES Magnetometer Curve Over Time (reference 1)

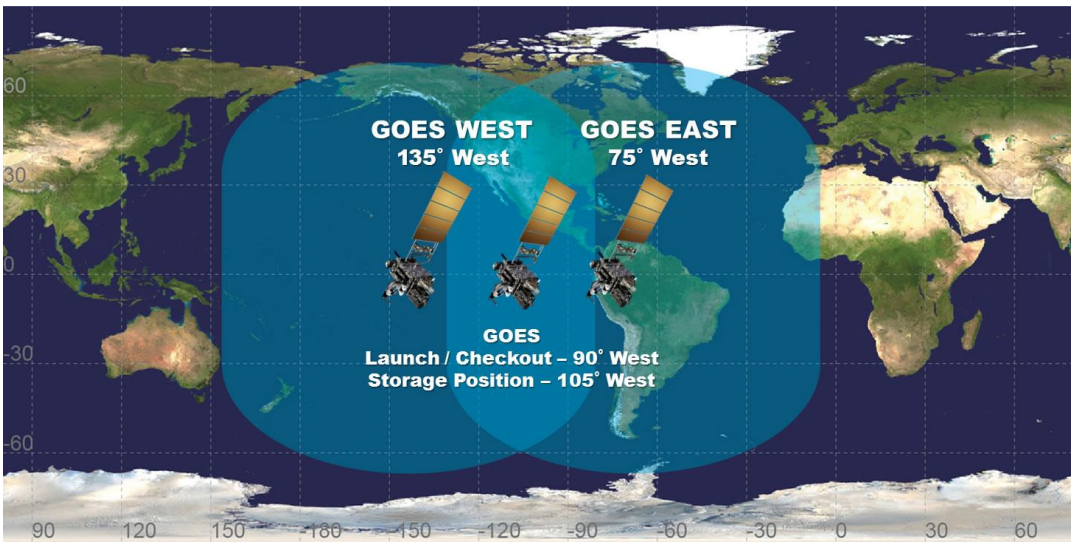


Figure 2 – GOES Locations (GOES WEST=15, GOES EAST=13) (reference 4)

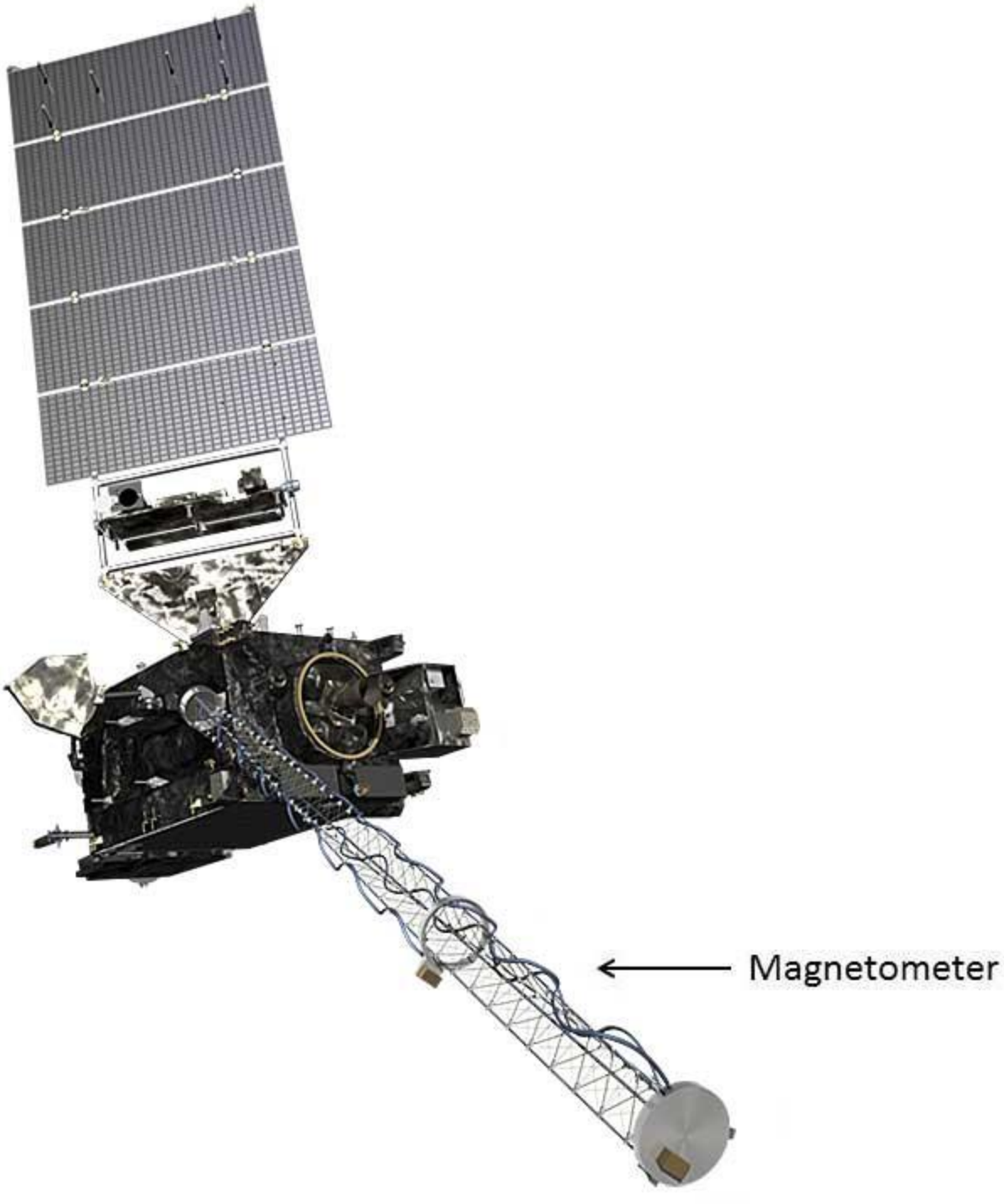


Figure 3 – GOES Magnetometer (reference 3)

## Tables

Table 1 – Slope Calculations

| Date | Time | Time Zone | UTC Date | UTC Time | Type | Slope |
|---|---|---|---|---|---|---|
| 3/1/2014 | 8:51pm | EST | 3/2/2014 | 1:51am | A | -122.68 |
| 3/2/2014 | 2:51am | EST | 3/2/2014 | 7:51am | A | 243.4745 |
| 3/2/2014 | 4:06am | EST | 3/2/2014 | 9:06am | A | 321.5146 |
| 6/21/2014 | 8:05pm | EDT | 6/22/2014 | 12:05am | A | -397.987 |
| 6/21/2014 | 10:57pm | EDT | 6/22/2014 | 2:57am | V | 261.2105 |
| 6/22/2014 | 1:03am | EDT | 6/22/2014 | 5:03am | A | -131.397 |
| 6/22/2014 | 2:05am | EDT | 6/22/2014 | 7:03am | A | 55.40351 |
| 7/19/2014 | 7:44pm | EDT | 7/19/2014 | 11:44pm | A | -192.338 |
| 7/19/2014 | 9:58pm | EDT | 7/20/2014 | 1:58am | A | -466.047 |
| 7/20/2014 | 2:10am | EDT | 7/20/2014 | 6:10am | A | 109.2283 |
| 7/20/2014 | 3:04am | EDT | 7/20/2014 | 7:04am | A | -66.34 |
| 9/20/2014 | 6:18pm | EDT | 9/20/2014 | 10:18pm | A | -179.668 |
| 9/20/2014 | 6:47pm | EDT | 9/20/2014 | 10:47pm | A | -875.086 |
| 9/20/2014 | 7:08pm | EDT | 9/20/2014 | 11:08pm | A | -180.306 |
| 10/18/2014 | 8:51pm | EDT | 10/19/2014 | 12:51am | A | -576.705 |
| 10/18/2014 | 10:46pm | EDT | 10/19/2014 | 2:46am | A | -38.304 |
| 2/21/2015 | 7:06pm | EST | 2/22/2015 | 12:06am | A | -2270.66 |
| 2/21/2015 | 8:33pm | EST | 2/22/2015 | 1:33am | A | -802.924 |
| 3/21/2015 | 9:18pm | EST | 3/22/2015 | 2:18am | A | 90.232 |
| 3/21/2015 | 11:33pm | EST | 3/22/2015 | 4:33am | A | -142.777 |
| 7/18/2015 | 9:35pm | EDT | 7/19/2015 | 1:35am | A | -66.33 |
| 7/18/2015 | 10:07pm | EDT | 7/19/2015 | 2:07am | A | 147.5342 |
| 7/18/2015 | 10:56pm | EDT | 7/19/2015 | 2:56am | A | -173.511 |
| 7/18/2015 | 11:07pm | EDT | 7/19/2015 | 3:07am | V | -178.251 |
| 7/18/2015 | 11:09pm | EDT | 7/19/2015 | 3:09am | A | -82.4767 |
| 7/18/2015 | 11:16pm | EDT | 7/19/2015 | 3:16am | A | -295.545 |
| 7/18/2015 | 11:24pm | EDT | 7/19/2015 | 3:24am | A | -683.542 |
| 7/18/2015 | 11:37pm | EDT | 7/19/2015 | 3:37am | A | -81.5228 |
| 9/12/2015 | 6:45pm | EDT | 9/12/2015 | 10:45pm | A | -736.576 |
| 9/12/2015 | 9:38pm | EDT | 9/13/2015 | 1:38am | A | -534.272 |
| 9/26/2015 | 7:28pm | EDT | 9/26/2015 | 11:28pm | A | -1426.66 |
| 9/26/2015 | 8:55pm | EDT | 9/27/2015 | 12:55am | A | -408.617 |
| 9/26/2015 | 9:55pm | EDT | 9/27/2015 | 1:55am | A | 267.2164 |
| 9/26/2015 | 11:27pm | EDT | 9/27/2015 | 3:27am | A | -229.691 |
| 10/10/2015 | 9:49pm | EDT | 10/11/2015 | 1:49am | A | -11275.7 |
| 10/10/2015 | 9:59pm | EDT | 10/11/2015 | 1:59am | A | -642.874 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 10/24/2015 | 5:51pm | EDT | 10/24/2015 | 9:51pm | A | -6380.77 |
| 10/24/2015 | 8:32pm | EDT | 10/25/2015 | 12:32am | A | -3407.73 |
| 2/28/2016 | 3:10am | EST | 2/28/2016 | 8:10am | A | -93.2336 |
| 2/28/2016 | 3:22am | EST | 2/28/2016 | 8:22am | A | -435.963 |

Table 2 – Example Raw GOES 13 Magnetometer Data (time_tag = date/time, HT_2=nT)

| time_tag | HT_2 |
|---|---|
| 00:00.2 | 88.06 |
| 00:00.7 | 88.06 |
| 00:01.2 | 88.05 |
| 00:01.7 | 88.06 |
| 00:02.3 | 88.07 |
| 00:02.8 | 88.05 |
| 00:03.3 | 88.04 |
| 00:03.8 | 88.02 |
| 00:04.3 | 88.01 |
| 00:04.8 | 88.02 |
| 00:05.3 | 88.02 |
| 00:05.8 | 88.02 |
| 00:06.4 | 88.02 |
| 00:06.9 | 88.02 |
| 00:07.4 | 88.01 |
| 00:07.9 | 88 |
| 00:08.4 | 88 |
| 00:08.9 | 88 |
| 00:09.4 | 87.99 |
| 00:09.9 | 87.99 |
| 00:10.4 | 87.98 |
| 00:11.0 | 87.98 |
| 00:11.5 | 88 |
| 00:12.0 | 88 |
| 00:12.5 | 87.98 |
| 00:13.0 | 87.97 |
| 00:13.5 | 87.97 |
| 00:14.0 | 87.96 |
| 00:14.5 | 87.97 |
| 00:15.1 | 87.96 |
| 00:15.6 | 87.97 |
| 00:16.1 | 87.95 |
| 00:16.6 | 87.95 |
| 00:17.1 | 87.94 |