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Interactive comment on "Building a Raspberry Pi School Magnetometer Network in the UK" *by* Ciarán D. Beggan and Steve R. Marple

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The article "Building a Raspberry Pi School Magnetometer Network in the UK" presents a very interesting outreach projet to develop a network of low-cost magnetometers to deploy in schools. The details on the instruments a technological choices are described and a very interesting example of a major storm is presented providing the bridge between this citizen science and the research science.

The article is informative, well organised and pleasant to read. It is acceptable for publication after vey minor revisions.

Some comments:

In the introduction it is described how the low-cost magnetometers and acquisition

chains, can provide instruments useful for citizen science. It would be important to cite some other projects. Later in the manuscript the school seismometers are mentioned, it could be important to introduce these other outreach projects here. Also, other citizen science projects on magnetism could be cited (e.g. CrowMag)

Section 2 presents the Earth magnetic field, its sources and the traditional observatories that are deployed for scientific research. There is very little information bout the chains of magnetometers that exists, in many cases oriented for Space Weather applications. Some of them are used later in this work for the study of the September 2017 storm. It would be better to present them in this section, adding relevant references to these networks.

Since this is an educational article, I think it would be useful to include a figure that defines the magnetic components, in particular the definition of D and I are missing in the text.

Some additional details on clock synchronisation could also be added: how often the Raspberry Pi synchronise its clock to an internet server? Can these setting be optimised for the need of the project (e.g. every 10 s in between the record of samples). Which is the expected drift of the clock when the internet connection is lost?

It think it would be very important to give more information on the schools targeted by this project and the educational notes provided: were they prepared for elementary, high schools, colleges. . .?

A deeper discussion on the challenges of magnetometry could be extremely useful: traditionally magnetic observatory are located in isolated area, taking care that a sufficiently large radius around the sensor is preserved as much as possible from man-made noise. Schools clearly cannot meet this need. The focus could be put on the involvement of teachers and students on the project.

From a different point of view, these installations can be analysed to develop strategies

on geophysics data acquisition in environments where high level of man-made noise is expected. Strategies and algorithms to handle with the noise and retrieve geophysical signals could be developed.

Add the definition of the acronyms GDAS: Geomagnetic Data Acquisition System .

Add a reference to IGRF 12 generation.

Figure 1: add a) and b) to make more explicit what stated in the article text. Other elements (thermometer, ADC. . .) could also be indicated more explicitly on the figure for instance with labels and arrows.

Figure 3: add right vertical axis to show the unscaled deltaT

Figure 5: choose a different colour couple than orage/red that are hardly distinguishable on the figure.

The video of the storm is very informative and could be added to the article as a supplement, in order to guarantee its availability over long time.

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