Ann. Geophys. Discuss.,
https://doi.org/10.5194/angeo-2020-2-RC2, 2020

Annales Geophysicae Discussions
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Interactive comment on "Magnetometer in-flight offset accuracy for the BepiColombo spacecraft" *by* Daniel Schmid et al.

Anonymous Referee #2

Received and published: 14 April 2020

Review of "Magnetometer in-flight offset accuracy for the BepiColombo spacecraft" by Schmid, Plaschke, Heyner, Mieth, Anderson, Baumjohann, Volwerk, Matsuoka and Narita

The paper is a bit unusual in that it deals with magnetometer calibrations rather than scientific results. However other than that it is well written and could be published in Annales Geophysicae after suitable corrections. Major Comments The magnetometer offset correction techniques are applied to Alfven waves and mirror mode waves. The general audience will not understand what these waves are and why they would be useful for calibration purposes. Thus I recommend that the authors show examples of each and give the readership some background about their generation mechanisms and properties and why they are in the solar wind and magnetosheath, respectively.

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Discussion paper

The AG readership should be given some context for why the authors use these two regions of space. The average reader will not know what a mirror mode is. Abstract, lines 11 and 12. A reference should be added for the “mirror mode technique”. Line 13. A reference should be given for the “Alfven fluctuation technique”. Line 65 and following paragraph. Much of what is written in this paragraph could be deleted without loss. For example it is not necessary to understand the Rosetta null technique involving diamagnetic cavities. However the spin technique is necessary to discuss since you are using it to get two components of your magnetospheric spacecraft magnetometer offsets. Line 74. Give references for the minimum variance method applied to Alfven waves. Line 75. Alfven waves are not always incompressive. See JGRSP, 123, https://doi.org/10.1002/2017JA024203, 2018. This is a misconception in the literature and should be mentioned in this paper. When they are not incompressive, how will the affect your analyses? Please discuss. Line 77. Give references to the mirror mode method here again. The paper is somewhat repetitive. I suggest deleting duplication and shortening the paper considerable. The readership will understand your techniques even if you express them only once.

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Discussion paper