Ann. Geophys. Discuss.,
https://doi.org/10.5194/angeo-2018-42-AC1, 2018

Annales Geophysicae Discussions
Open Access
EGU

Interactive comment on "A new method to identify flux ropes in space plasmas" *by* Shiyong Huang et al.

Shiyong Huang et al.

shiyonghuang@msn.com

Received and published: 31 July 2018

We greatly thank the reviewer for the valuable comments and suggestions that we tried to consider in the re-submission. We have revised and improved the manuscript in response to the reviewer's comments. All revised parts are marked in red in the text. Detailed answers to the comments are listed below.

Q1: General Comments This paper introduces a new method that can be used to search for flux ropes from in-situ observations. This method fits observation data into a flux rope model and uses the correlation coefficient between data and model to tell where the flux rope is. This method is important for making future studies on flux ropes easier. However, there is an important issue that needs to be clarified about

Printer-friendly version

Discussion paper

this method (see the specific comments below). Specific Comments Line 182 and all the following parts: When the authors compare the model with real data, they did not mention how they determined the unit length for the model and the B0 to put in the model. These values must be related the data and are crucial for applying the model to the data. Therefore, the authors should explain in detail how these values are determined.

Aw: Thanks for the referee's reminding. We used the same unit of the real data as the unit length for the model, i.e. second ('s') in our test. We revised the caption of figures accordingly.

The amplitude (B0) in the TFC is determined by the maximum value of Bt during the interval when calculate correlation coefficients.

We included this in the Line 184-187.

Q2: Technical corrections Line 109: unite/s -> unit/s Line 109: "thus set a=0.735 s . . ." Here the authors use the 's' for the unit of a and b, which are length quantities. In other parts of the text the authors use 's' to mean 'seconds', a unit for time. In this line, 's' actually means 'units'. Please use a different letter for this unit. Line 191: estimate -> estimated Line 196: dynamic -> dynamics Line 206: 6b-6d -> 7b-7d Figure 4: please explain in the caption that the time scale on the vertical axes is the τ mentioned in the text.

AW: According to the referee's suggestions, we have revised the related parts in the new version of the manuscript.

Please also note the supplement to this comment:
https://www.ann-geophys-discuss.net/angeo-2018-42/angeo-2018-42-AC1-supplement.pdf

Interactive comment on Ann. Geophys. Discuss., https://doi.org/10.5194/angeo-2018-42,

2018.

Printer-friendly version

Discussion paper