

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

### **Anonymous Referee #1**

Received and published: 22 May 2018

#### 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 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

C1

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.

#### Technical corrections

Line 109: unite/s -> unit/s

Line 109: “thus set  $a=0.735 \text{ s} \dots$ ” 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  $\tau$  mentioned in the text.

---

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

C2