

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

AW Smith

aw.smith@soton.ac.uk

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The paper introduces a new technique that could be used to locate magnetic flux ropes within spacecraft magnetometer data. The correlations between signatures in two field components and the total field are used to locate the structures in data. The technique is tested using a model before being applied to example spacecraft data. The method is interesting and potentially very useful, though some of the ideas could be further developed.

Specific Comments:

1) The test with the model and additional random noise (Section 3) could be further used to benchmark the technique. Currently, the level of noise applied is very low

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and (to the eye) doesn't change the signature significantly. It would be a good test to increase the value of this noise incrementally (e.g. 20

2) The dependence on the spacecraft trajectory is discussed (Line 232+), but only qualitatively. Simple tests could be performed with magnetic field models to investigate the efficacy of the method with various trajectories. This would significantly help the discussion and justification of the technique.

3) In general, the work would benefit from additional justification regarding the use of the technique. For example, in what specific ways is the method an improvement over previous attempts/survey methods (e.g. by eye searches)? What is the problem/science question that the use of this technique would help to solve? This discussion is hinted at around Line 252, but could do with development and would improve the impact of the work.

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