Reply to SC2

Dear Dr. AW Smith, thanks for you valuable comments and suggestions that we tried to consider in the re-submission. We have revised and improved the manuscript in response to the comments. All revised parts are marked in red in the text. Detailed answers to the comments are listed below.

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 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%)
Thanks for your suggestions. Considering the high precision and resolution of magnetic field measurement, 10% of the noise is very high. Moreover, even increasing noise would not affect the results because two factor are used there: 1) all correlation coefficients of two components and the amplitude of magnetic field should be high at the same time and the same scale (larger than the given threshold); 2) set the threshold for the amplitude and the scale. If the values are smaller than the threshold, one rules out the possibility.

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.
We discussed effects from the spacecraft trajectory in the real data. Actually, bipolar variation in B_z component heavily depends on the spacecraft trajectory. If there are no bipolar variations in B_z component, the tests may fail because the low correlation coefficients in our opinion (three correlation coefficients of two components and the amplitude of magnetic field should be higher than the given threshold at the same time and the same scale).

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.
Thanks for your suggestions. We revised this discussion part in the new version of the manuscript (Line 246-250, 257-261).