

## ***Interactive comment on “Turbulent Processes in the Earth’s Magnetotail: Spectral and Statistical Research” by Liudmyla Kozak et al.***

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The authors are grateful to the anonymous reviewer for his/her comments and attention to this publication.

1. Magnetic reconnection is not an instability because it does not have a growth rate and an associated frequency with it. These two parameters are the characteristics of an instability as illustrated in any textbook that describes instability. If the referee thinks that our statement is not true, then how does the referee define an instability?
2. Magnetic reconnection (MR) can involve turbulence, but it is not essential. Ted Spicer had a paper describing MR without noise (i.e., turbulence) based on chaotic particle motions around the X-line to break the frozen-in condition. Since we are

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addressing CD and not MR, we shall defer the discussion on the turbulence spectra/signature in MR and their differences with CD in a future study when MMS team reports MR events in the tail. The event on 2015 satisfies the most the conditions for the CD model. (Just in case, we have added “most” to the article in the sentence on page 3, line 27 (old version)).

3. Figure of the components of the magnetic field for the satellites, closest to the current layer in GSM, added in Fig. 1 (Fig. 1b). The description on p.3 describes the characteristics of CD and figure 1 shows the magnetic disturbances for the 3 events under study. The criteria for CD in these 3 events are checked out.

4. The kinetic nature of dipolarization is well demonstrated by the activities in scales not describable by any fluid approach as well as by the evolution of small scale features. These activities provide clues to the underlying kinetic process. This study does not include kinetic analysis of what the CD process is.

5. We have reviewed and improved the language and typesetting of the article.

Best regards, Authors.

Please also note the supplement to this comment:

<https://www.ann-geophys-discuss.net/angeo-2018-50/angeo-2018-50-AC2-supplement.pdf>

Interactive comment on Ann. Geophys. Discuss., <https://doi.org/10.5194/angeo-2018-50>, 2018.

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