

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

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Received and published: 20 July 2018

Dear Kui Jiang,

We appreciate your interest in our publication

We give short answers to the topics raised in the discussion of the publication:

1. The work is a research, and not an overview and we think, that the authors think that the information in the article is sufficient and the readers of the article are sufficiently erudite to evaluate the results obtained in the framework of the conducted researches with the studies carried out by other authors and in various fields of the magnetosphere. Moreover, the list proposed in the comments can be expanded.

C1

2. It is noted in the article that this is three events! Although we do not mind writing three articles analyzed in the text of the article (two events of 2005 and one event in 2015).

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)

4. Estimates of the parameters of the dipolarization front were carried out precisely on the basis of the material of the article Fu, HS, Khotyaintsev, YV, Vaivads, A., André, M., and Huang, SY: Occurrence rate of earthward propagating dipolarization fronts, *Geophysical Research Letters*, 39, <https://doi.org/10.1029/2012gl051784>, 2012 of which you are mentioning. The link to the article is also in Table 1 and in the text and in the list of references.

5. The kink frequency and frequency of breakpoint are synonyms.

6. In the article there is a feature of direct and inverse cascades, for example on page 10, line 31: “In both cases, a structure of inverse cascade can be traced before dipolarization onset: the frequency decreases from 0.005 to 0.002 Hz.”

7. In this article, in that paragraph there are reference to “Frisch, U.: Turbulence. The legacy of A. N. Kolmogorov., Cambridge University Press, 1995.” and “Zimbardo, G., Greco, A., Sorriso-Valvo, L., Perri, S., Vörös, Z., Aburjania, G., Chargazia, K., and Alexandrova, O.: Magnetic Turbulence in the Geospace Environment, *Space Science Reviews*, 156, 89–134, <https://doi.org/10.1007/s11214-010-9692-5>, 2010.”.

8. In the paper, the analysis of diffusion processes is carried out particularly at the Earth’s magnetotail (magnetosheet). Therefore, we do not have comparisons with the diffusion processes in the other part of the magnetosphere - the magnetosheath, as well as in the plasma of the solar wind. References that you specify refers to other regions.

9. The purpose of the work was not to compare the diffusion coefficients in different

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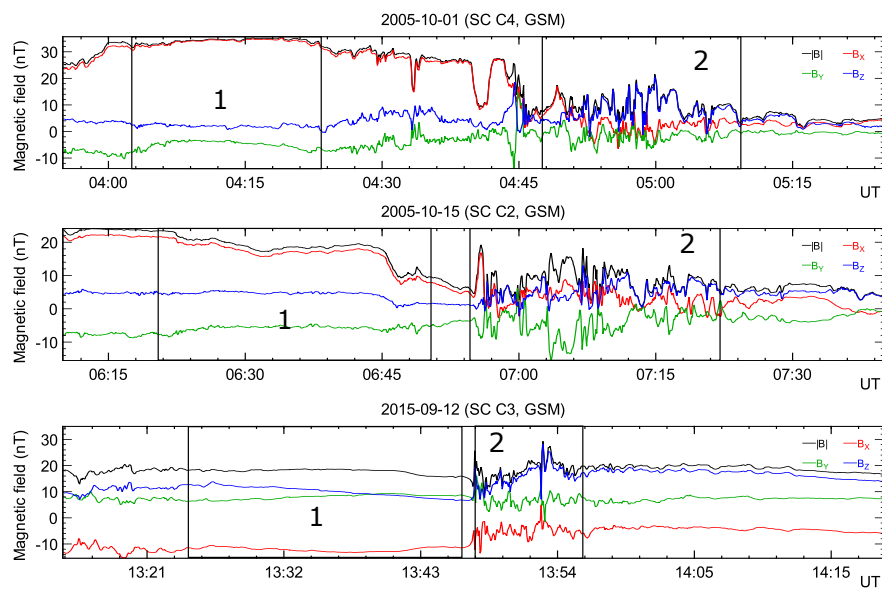
regions of the magnetosphere and the plasma of the solar wind.

10. We didn't find listed typos in the presented PDF to the Journal.

Best regards, Authors.

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

C3



**Fig. 1.** Figure 1b. Example of fluctuations of magnetic field.

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