

# ***Interactive comment on “Strong influence of solar X-ray flares on low-frequency electromagnetic signals in middle latitudes” by Alexandr Rozhnoi et al.***

**Pier Francesco Biagi (Referee)**

pf.biagi@gmail.com

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The paper reports a study of the variations in the amplitude and in the phase of radio-signals lying in 20-45 kHz frequency band, during two strong solar flares occurred on September 2017. On both these occasions generally an increase of the amplitude (of different entity depending by the radio path direction), stands up; this increase is in agreement with the physical bases of the radio waves propagation. In fact, the increase is related to the fact that, on occasion of solar flares, the base of ionosphere became lower and the electron density gradient is steeper than during normal solar conditions, thus the waves with the previous frequencies, which are reflected from

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this lower layer, are more strongly reflected. In the present research, the change in effective height of reflection due to lowering of the reflecting layer during the flares was found to be about 12 km for the first event and about 9 km for the second event. In the paper, also some case of amplitude decrease is shown. I have not any explanation for this phenomenology; probably, the Authors could add some lines at this regards. In any case, the analysis reported in the paper is well conducted and the results are very interesting.

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