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Interactive comment on "Multisatellite observations of the magnetosphere response to changes in the solar wind and interplanetary magnetic field" *by* Galina Korotova et al.

Anonymous Referee #3

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- Instead of GSE coordinates, a field-aligned coordinate system might be able to show in a more clear way the radial and azimuthal directions of propagation as well as the direction of the electric field with respect to the magnetosphere. For example, in Figure 6 the azimuthal components are discussed but Ey GSE is plotted.

- It is mentioned that "In the solar wind Cluster 2 observed the shock earlier then and Cluster 1, respectively, that is the shock moved dawnward". Was this supposed to mean "earlier than Cluster 1"? If yes, in Figure 2, C2 appears to be located dawnward of C1, so the shock should be moving duskward. Please clarify.

- It is written that "In the outer magnetosphere the propagation velocity for the distur-

bance was about 1348 km/s between Goes 13 and 15 but only about 390 km/s between Van Allen Probes B and A". These are greatly inconsistent, and this discrepancy is not discussed in the paper. To my understanding, this can only be reconciled if a different propagation direction is assumed for the red arrows of Figure 2, which might also require a reconsideration of the shock front propagation. A possible orientation could be an arrow that originates from the pre-noon region (e.g. 0900 LT) and points towards the Earth, which is different from the results of the paper. Please discuss.

- Please discuss in greater detail the methodology used in order to determine spiral and orthospiral orientations of the shock normal, and the expected errors in these estimates.

- The association of the four groups with ongoing processes could be further discussed. E.g., Pi pulsations and substorms are not mentioned at all in the paper.

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