

Review on *Asymmetries in the Earth's dayside magnetosheath: results from global hybrid-Vlasov simulations* by Turc et al.

The paper has been carefully revised and significantly improved. As I noted in my first review, it contains new results and deserves to be published in *Annales Geophysicae*. I have only several minor comments.

1. L80-81. The sentence “However, opposite behaviours...” is not directly related to the sentences above. It's better to rephrase.
2. L191-192. Please, provide the flaring parameters for the magnetopause and bow shock.
3. Figure 1d,e. I realize that the error bar is small, but it looks like it is along x rather than y axis. Possibly this is a wrong impression. The authors could mention the obtained errors of the asymmetry in text. Although the way how the authors calculate the errors seems to be reasonable these small errors may look a little strange on zigzag curves like the one showing the density asymmetry (Fig. 6 d,e).
4. L293. The authors state that $\theta_{Bn} \sim 0^\circ$ near terminator in Run 1. But looking at Figure 1, I'm not sure this is correct. I would say $\theta_{Bn} \sim 0^\circ$ for angles of about 50° from the Sun-Earth line.
5. L514-515. The authors explain a stronger asymmetry of the magnetic field in Runs 2a than in Run 1 by the “low θ_{Bn} near the bow shock nose resulting in a reduced magnetic field compression across most of the quasi-parallel flank of the magnetosheath”. (I think it should be a similar statement in Section 3 too.) I wonder if this explanation is consistent with that the asymmetry in Run 2a is also higher near the terminator or even for angles of 45° from the Sun-Earth line. If the authors are convinced that their explanation is correct they could draw a figure similar to Figure 5 but for the ratio of downstream/upstream magnetic field.