

ANSWER TO REFEREE 1

We thank the Referee for his/her comments which helped us in improving the manuscript. All changes/adds in the manuscript are in red. The answers to the questions follow.

1. *On line 52-53 the authors state "Unfortunately such models are very complicated..."*
2. *In the reviewer's response it is said that the electric field is a consequence of the simplifying*

The "two points" raised by referee 1 concern the kinetic equilibria. It seems that his/her concerns rely on a different perspective between one of the co-authors (Gerard Belmont) who has already published several papers on this subject, and the referee, who is certainly a specialist on it. This co-author will be very interested and happy to continue the debate with the referee later on. On the other hand, as the paper is concerned, as since this question has no direct influence on the content of the paper itself, we gladly accept to suppress the disputed sentences in order to avoid delaying in the publication. Therefore, we have replaced them in the text by purely factual sentences that are, hopefully, not disputable.

ANSWER TO REFEREE 2

We thank the Referee for his/her comments which helped us in improving the manuscript. All changes/adds in the manuscript are in red. The answers to the questions follow.

1. *While the introduction mentions kinetic simulations...*

We have inserted a new sentence at line 65 to discuss the global simulations approach.

2. *In the updated formulation of the multi-fluid equations ...*

The definition of indices alpha and beta has been added in the text.

3. *The model described in section 3 apparently works excellently ...*

The 3-fluid model is not related to the place where the observations are made. It can be applied to any crossing of the magnetopause.

4. *Some notes about the referenced literature:*

Thanks. All misprints have been fixed.