Ann. Geophys. Discuss.,
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Interactive comment on "Acceleration of protons and heavy ions to suprathermal energies during dipolarizations in the near-Earth magnetotail" *by* Andrei Yu. Malykhin et al.

Anonymous Referee #2

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This paper studies the dynamics of suprathermal ions of different masses (H+, He+, O+) during prolonged dipolarizations in the near-Earth magnetotail. The acceleration mechanisms signatures are analyzed and their effects on the particle fluxes and spectra of different ion species assessed using a superposed epoch analysis method. The work addresses an important issue, since ion acceleration is one of the main phenomena related to magnetotail dynamics. The analysis is careful and the paper is well written. The paper should be accepted for publication after a minor revision.

Specific Comment:

Discussion, page 6, lines 28 – 33: I suggest to add some discussion on why, in some

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Discussion paper

cases, the amount of energy gain may exceed both the theoretical and the authors' estimations of ΔW.

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