



Hybrid Simulations of Turbulent Ion Heating

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We present results of hybrid simulations of turbulent ion heating. Our objective is to investigate and understand how ion distributions evolve under the influence of a single kinetic Alfvén wave (KAW). We focus on quantifying the rate of energy transfer from the wave to the ions and how this rate varies with amplitude, wave scale and frequency. In addition we quantify how the energy transfer rate varies as a function of time, how the heating process saturates and how the wave field is modified as a consequence of this interaction. Our goal is to determine if the heating and under which condition is sufficient to drive the ion distribution unstable to anisotropy instabilities. First we investigate and understand how ion distributions evolve under the influence of a single KAW. Then we study how ion heating proceeds and is powered in the observed turbulent Alfvénic fluctuations.