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Title:	Example space plasma physics study with Hybrid-VPIC code on Chicoma
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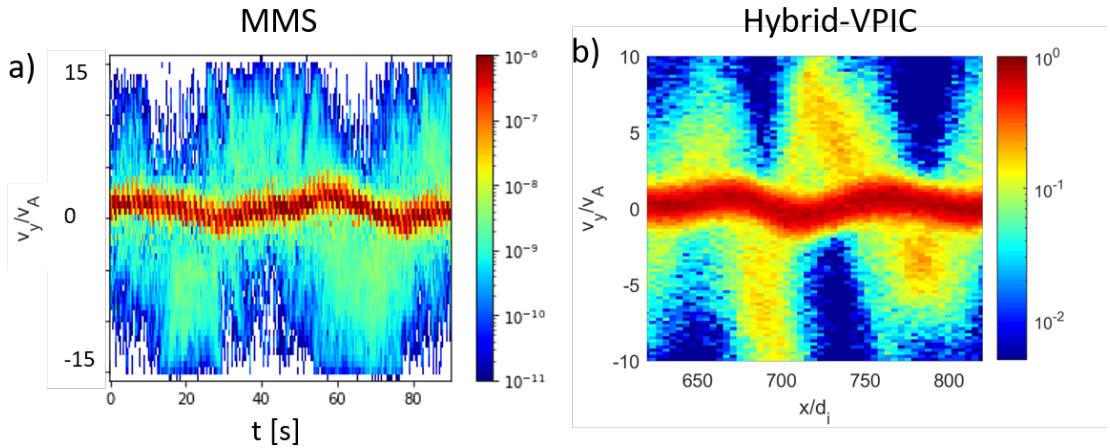

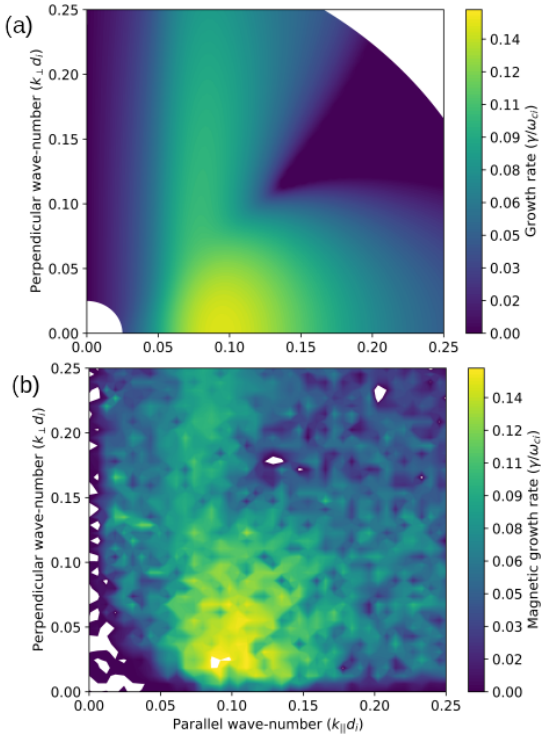

Highlight from Institutional Computing project w22_globalvpic (PI: Ari Le, XCP-6)

Validation and verification of the Hybrid-VPIC code based on ion-ion beam instabilities upstream of Earth's bow shock.
Left: Hybrid-VPIC reproduces the particle velocity distributions observed by NASA's MMS spacecraft.
Right: the spectrum and growth rates of modes that grow in the simulations agree with a linear plasma dispersion solver.

See Le, A., Chen, L. J., Wetherton, B., Keenan, B., & Stanier, A. (2023). Oblique propagation and temperature effects on the resonant right-hand ion beam instability. Frontiers in Astronomy and Space Sciences, 9.