



## High-Speed Jets in Earth's Magnetosheath Downstream of the Quasi-Parallel Shock: A Two-Dimensional Global Hybrid Simulation

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High-speed jets (HSJs) occur frequently in Earth's magnetosheath downstream of the quasi-parallel bow shock. They have great impacts on the magnetosheath and the magnetosphere. Using a two-dimensional global hybrid simulation, we investigate the formation and evolution of the HSJs with an IMF cone angle of  $0^\circ$ . The quasi-parallel shock is near the subsolar point, and the HSJs begin to appear in the quasi-parallel magnetosheath with a parallel (perpendicular) scale size of about  $1R_E$  ( $0.2R_E$ ). These HSJs then converge, leading to the formation of a large-scale HSJ with a parallel (perpendicular) scale size of  $6R_E$  ( $1.2R_E$ ). Some long HSJs, with a large parallel but small perpendicular scale size, are formed at the quasi-parallel bow shock and extend toward the quasi-perpendicular magnetosheath along with the background magnetosheath flow. Moreover, these long HSJs can cause filamentary structures in the magnetosheath.