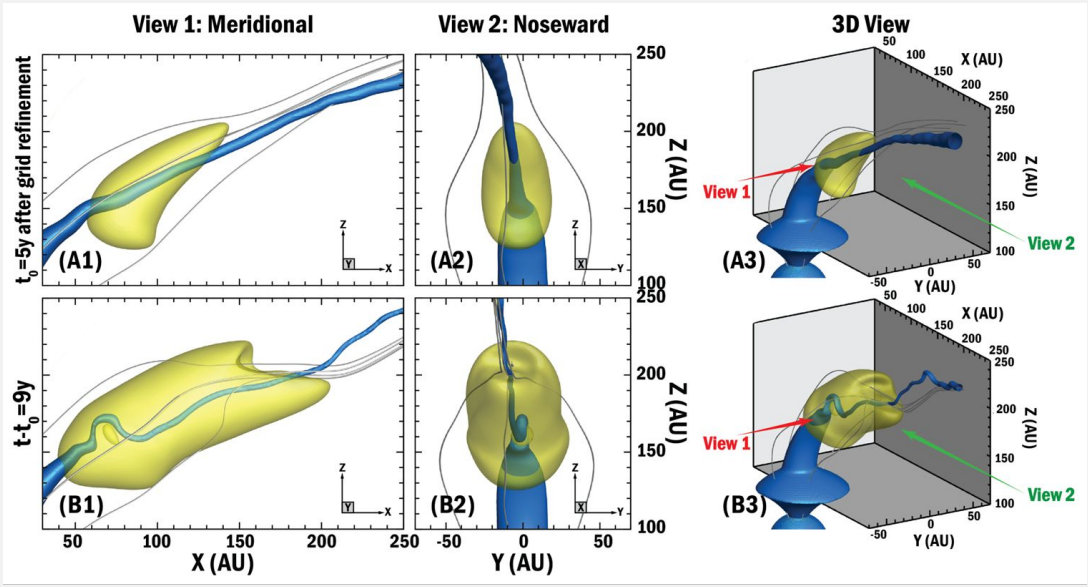
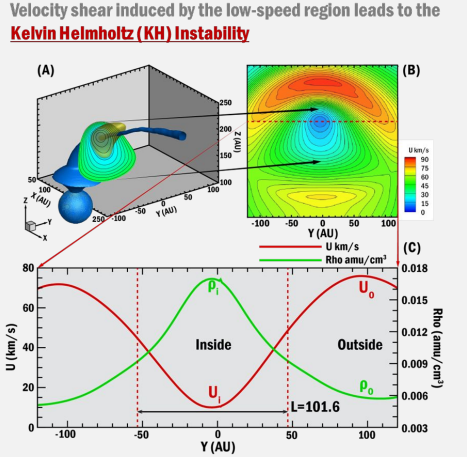
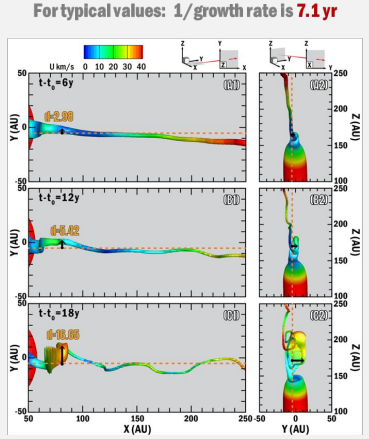
Instabilities along the axis of the Heliospheric Jets

- The heliosphere is influenced by the interaction of neutral hydrogen atoms from the interstellar medium with protons in the heliosheath (HS). The confinement by the solar magnetic field of the HS plasma forms distinct north and south heliospheric jets.
- In this study,we show that there is a low-speed region of solar wind formed due to charge exchange and magnetic tension.
- This region allows sufficient time for the instabilities to develop and induces a shear flow inside the HS leading to the development of a Kelvin–Helmholtz (K-H) instability. The estimated growth timescale of the K-H instability based on the simulation results is around 5–7 yr.

Understanding the development of the instabilities in the HS is crucial for comprehending the dynamic processes within the HS and the structure of the heliosphere.







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