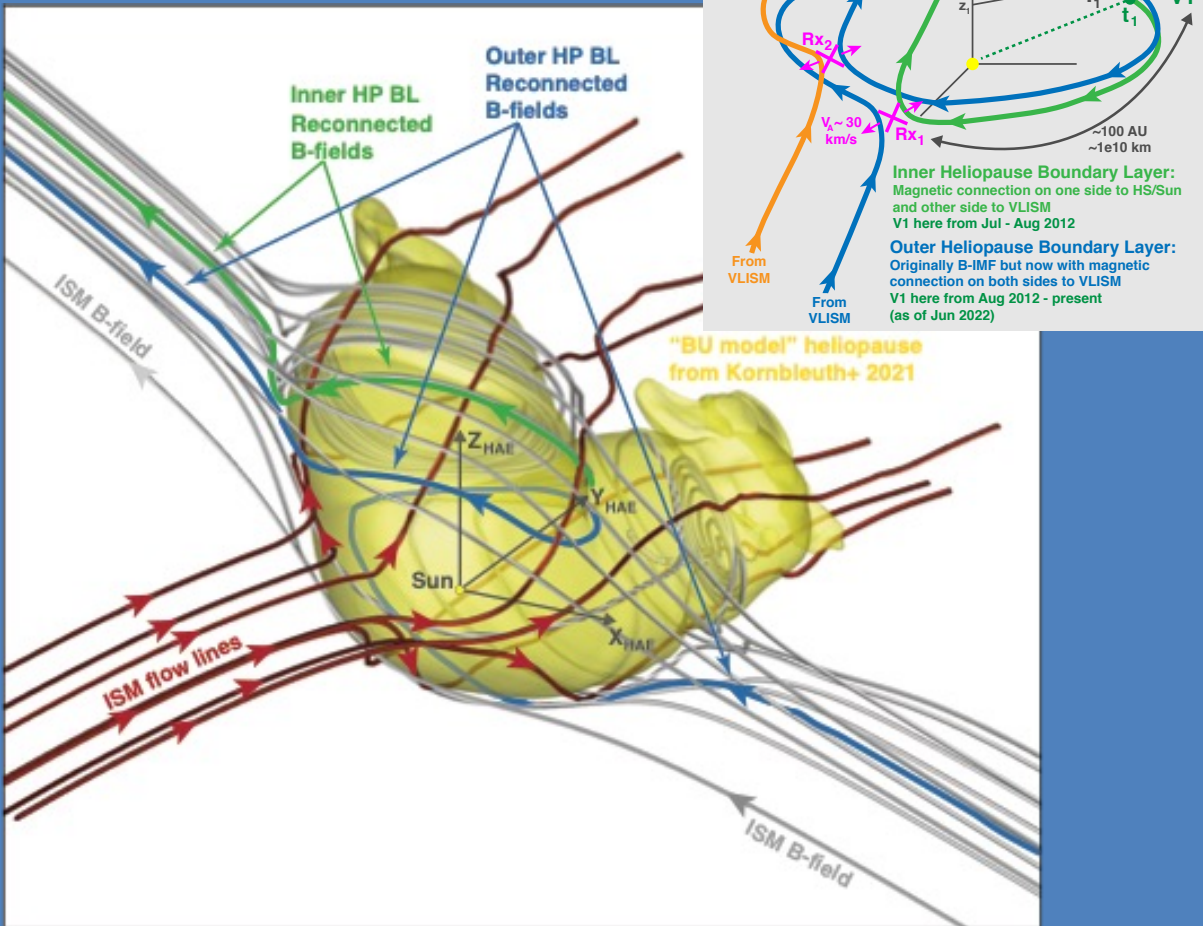


# New Insight on a Magnetic Mystery: The Nature of the Heliospheric Boundary

*Figures show schematic representations of the heliospheric and LISM magnetic fields, including expected topology and orientation of reconnected field lines*



**New evidence indicates that the boundary of our Heliosphere is not as we initially expected it and offers new insight on the nature of the heliospheric interaction with the local interstellar medium (LISM)**

- Voyager-1 and -2 have both apparently crossed outside of the heliosphere into the very local interstellar medium (VLISM), yet confoundingly, neither observed a significant or expected rotation in the magnetic field when they crossed the boundary
- New insights from NASA's Magnetospheric Multiscale (MMS) mission at Earth show how such a mysterious magnetic field signature might be explained by active merging of magnetic field lines between the heliosphere (connected to the Sun) and the VLISM, a process known as magnetic reconnection
- Not only can magnetic reconnection explain the magnetic signatures, it also indicates that the heliopause is a porous yet thick boundary layer, not a thin surface, which has implications ranging from the shape of the heliosphere to particle acceleration and cosmic ray accessibility