Juno Reveals Interaction Between Jupiter's Atmosphere and Magnetic Field

1.0 R_j

0.9 R_j

Juno Magnetic Field Model (JRM33)

Radial Magnetic Field

Comparison of radial magnetic field at 0.9 R_J and the zonal wind profile as measured at the surface (Simon et al., 2015). The correspondence suggests shear of the Great Blue Spot to westward below the equator & eastward above.

The zonal flows can only interact with the magnetic field if they penetrate to depths (~3000 km) where the electrical conductivity of the Hydrogen envelope is large enough to grip magnetic field lines.

Connerney, J. E. P., et al. (2022). Journal of Geophysical Research: Planets, 127, e2021JE007055. https://doi.org/10.1029/2021JE007055