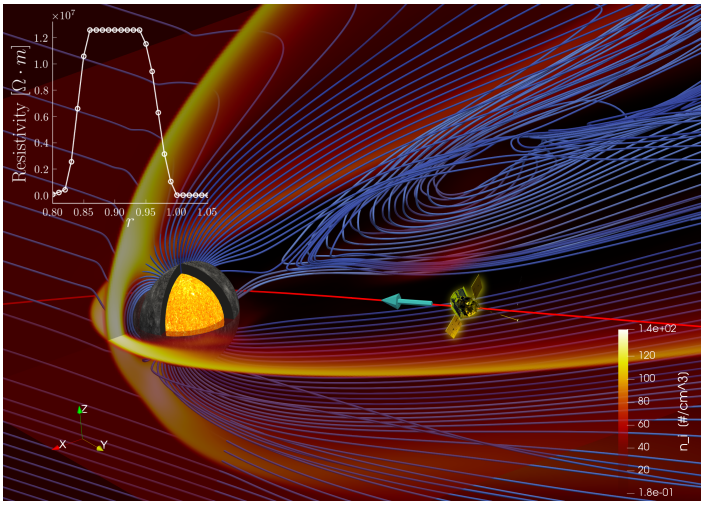


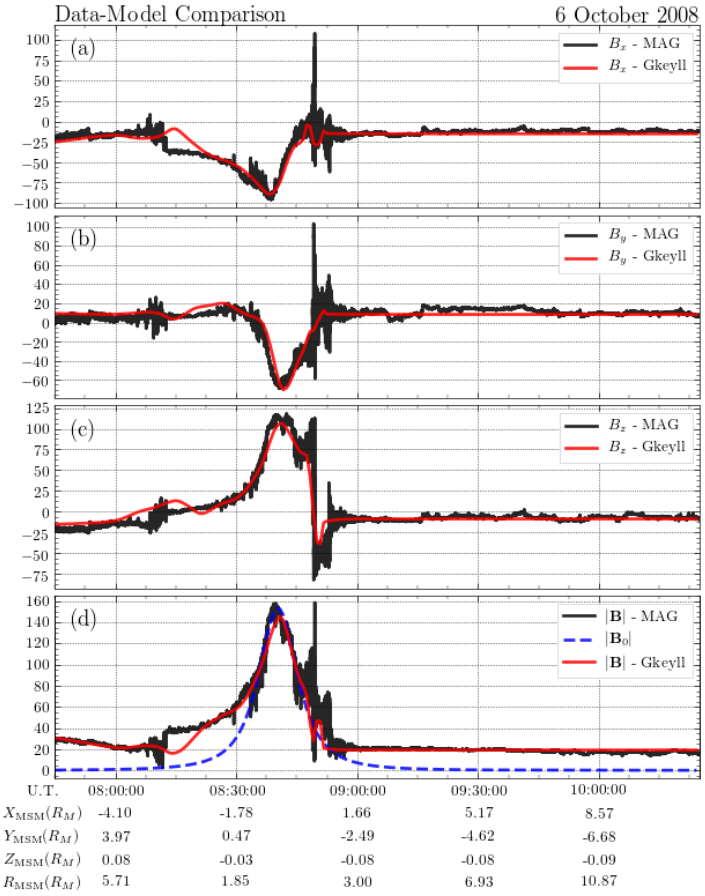


**Figure 1.** Top: Mercury's three-dimensional magnetosphere from the ten-moment multifluid calculation. The color contours depict the ion density in $cm^{-3}$. The "hot" sphere inside Mercury represents its conducting core with a size $R_c = 0.8\ R_M$. The magnetic field lines are presented in blue. The red curve together with a cyan arrow represents MESSENGER's M2 trajectory. The radial resistivity profile adopted from *Jia et al.* [2015] is shown at the top-left corner. Bottom: Data-model comparison of magnetic fields along MESSENGER's M2 trajectory.