

## Description of Heliosphere Animation

This animation of the heliosphere in our galactic neighborhood illustrates the true geometry of the heliosphere and planetary system with respect to the plane of the Galaxy and nearby stars. In this animation, the viewpoint changes as we navigate around the solar location in space.

The background image of the Milky Way Galaxy is from Axel Mellinger, and the displayed stars are from the Hipparcos catalog [1]. The heliosphere model is based on an MHD model [2], which includes an interstellar magnetic field. This MHD model is based on heliosphere properties during the 1996 solar minimum. The assumed solar wind conditions at 1 AU are  $n_{\text{H}^+} V_{\text{H}^+} = 2.5 \times 10^8 \text{ cm}^{-2} \text{ s}^{-1}$ ,  $V_{\text{H}^+}^{\text{slow}} = 450 \text{ km s}^{-1}$ ,  $V_{\text{H}^+}^{\text{fast}} = 780 \text{ km s}^{-1}$ ,  $n_{\alpha}/n_{\text{H}^+} = 0.05$ ,  $T = 10^5 \text{ K}$ , and  $B = 50 \mu\text{G}$  (in the equatorial plane). The properties of the interstellar cloud surrounding the solar system (or the "Local Interstellar Cloud, LIC) are  $T = 7500 \text{ K}$ ,  $n_{\text{HI}} = 0.2 \text{ cm}^{-3}$ ,  $n_{\text{HII}} = 0.07 \text{ cm}^{-3}$ , and  $n_{\text{HeII}} = 0.009 \text{ cm}^{-3}$ . A LIC velocity of  $V = 26 \text{ km s}^{-1}$  is assumed, with the LIC approaching from the direction in galactic coordinates  $l = 6^\circ$  and  $b = +16^\circ$  relative to the rest frame of the Sun. A LIC magnetic field strength of  $B = 1.5 \mu\text{G}$ , directed towards toward  $l = 70^\circ$  and  $b = 0^\circ$ , is assumed.

## References

- [1] M. A. C. Perryman et al., editor. *The Hipparcos and Tycho Catalogues*. ESA Publications Division, The Netherlands, 1997.
- [2] T. J. Linde, T. I. Gombosi, P. L. Roe, K. G. Powell, and D. L. DeZeeuw. Heliosphere in the magnetized local interstellar medium: Results of a three-dimensional MHD simulation. *Journal for Geophysical Review*, 103(A2):1889–1904, 1998.