

Velocity structure of solar wind near the solar activity maximum estimated from IPS tomographic analysis

Ken'ichi Fujiki[1], Atsushi Yokobe[2], Tomoaki Ohmi[1], Masayoshi Kojima[1]

[1] STE Lab., Nagoya Univ., [2] Particle and Astrophysical Sci./STE Lab., Nagoya Univ.

Ulysses measured latitude structure of solar wind in its second fast latitude scan and found that the global structure of solar wind near the solar maximum is significantly different from that in the solar maximum. Also soon after the solar maximum, Ulysses measured that fast solar wind which has magnetic polarity of the new solar cycle appeared at high latitude in northern hemisphere. This fast wind appeared and disappeared a few times.

We introduced time-series tomography (TST) to reconstruct IPS velocity map using whole data observed in 2001. TST is suitable for analysis around the solar maximum when photospheric structure changes rapidly. Ulysses data was traced back to source surface (2.5 solar radii) and was compared to IPS observation.

As results, we found that both observations were well correlated especially for appearance/disappearance of fast solar wind. It was confirmed that appearance/disappearance of the fast solar wind attributed to shift of area of fast solar wind from the pole.