



## **Study of the oblate shape of the MCs observed by WIND**

Andrii Lynnyk (1), Jana Safrankova (1), Zdenek Nemecek (1), and Marek Vandas (2)

(1) Charles University, Faculty of Mathematics and Physics, Department of Surface and Plasma Science, Prague, Czech Republic (andrii.lynnyk@mff.cuni.cz), (2) Astronomical Institute, Czech Academy of Science, Prague, Czech Republic

The magnetic clouds (MCs) that supersonically propagate through the solar wind may deform their shape due to drag force. The previous papers show that the MC cross-section may change from circular to elliptical. It has been found that this deformation increases with the MC velocity. In this contribution, we study the deformation of MCs observed by WIND in 1995-2003 using three different techniques: (1) We fit its magnetic field using a force-free model with the elliptical cross-section; (2) We study the sheath thicknesses of the MC-driven shock calculating the radius of curvature of a particular MC; (3) We determine the plasma velocities in the MC along its semi-axes. Finally, we compare the results of these methods with motivation to improve the existing MC models.