



Statistical study of expansion effects in magnetic clouds

A. Lynnyk (1) and M. Vandas (2)

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

The most common model of magnetic clouds is a static cylindrical flux rope. In some cases the plasma velocity inside a cloud gives us presumption about radial expansion of magnetic cloud during its propagation and for including effects of expansion in the cylindrical flux rope model. We analyze magnetic clouds for years 1995-2003 to investigate for what fraction of observed magnetic clouds expansion effects are important and how inclusion of the expansion affects determination and values of magnetic cloud parameters. Also we examine parameters of magnetic clouds observed by mutually spaced spacecraft to explore the dynamics of magnetic clouds.