Geophysical Research Abstracts,
Vol. 11, EGU2009-7218, 2009
EGU General Assembly 2009
© Author(s) 2009

Fitting of magnetic clouds with expansion effect

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

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

The model of magnetic clouds as a static cylindrical force-free flux rope represents a basic approach but the nowadays studies of the plasma velocity inside magnetic clouds lead to conclusion that their radial expansions should be taken into account in more than a half of all cases. It has been shown that inclusion of the expansion effect into the force-free model improves the fitting of magnetic clouds even under rough approximations. However, practical applications of the expansion effect to fitting of magnetic clouds were made previously only occasionally for selected events. We fit systematically the parameters of magnetic clouds observed through 1995-2003 to investigate how this application can improve correspondence between observed and modeled magnetic cloud profiles and how it can affect the values of magnetic cloud parameters and a way of their determination.