

# INFLUENCE OF EXPANSION ON MAGNETIC CLOUD FITS

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The magnetic configuration of a magnetic cloud can be obtained from the balance between the magnetic Lorentz force and plasma pressure. Several magneto-static models of this configuration have been developed in the last years. A part of these models includes the observed expansion of magnetic clouds, however, the results were compared with observations only for several selected cases. In this paper, we fit a full set of magnetic clouds registered during the 1995-2003 years using the force-free cylindrical flux rope model and compare effectiveness of the static and so called expansion model that includes the magnetic cloud evolution. The comparison reveals that the expansion model provides better fits for larger expansion velocities and for the magnetic clouds that were crossed near their axis. Also, the axial magnetic field obtained by the expansion model is larger than that yielded by the static model. We perform a comprehensive study of the differences between parameters of magnetic clouds obtained from both models.

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