

# Abstract

**Title:** *Evolution of Interplanetary Coronal Mass Ejections*

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**Abstract:** *This thesis deals with deformation of the Interplanetary Coronal Mass Ejections (ICMEs) and their sub-class Magnetic Clouds (MCs) during their propagation in the Solar Wind (SW). The statistical study of the expanded MCs has shown that expansion greatly affects the MC internal magnetic field. We had shown that this influence is more clear for the MCs observed close to their axes. The study of the stand-off shock distance in front of the supersonic ICME confirms a smooth deformation of the ICMEs along their path from the Sun into interplanetary space. We observed that this deformation is increasing with the velocity of the ICME. This study also confirmed the difference in sheaths that are created in front of expanding and non-expanding ICMEs. We found that velocity distribution inside the MC is not uniform and it has large fluctuations. We found that the MC cross-section is usually strongly deformed.*

**Keywords:** *interplanetary coronal mass ejection, magnetic cloud, magnetosheath, flux rope, magnetic field, shock, fitting*