Deriving CME kinematics from multipoint space observations

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It is commonly believed that the kinematics of CMEs consist of an early Lorentz acceleration phase near the Sun followed by a decelerating drag-force phase at distances further out. To better understand the physical processes of CME evolution, and also to predict more accurately their arrival times at other heliospheric locations, we have analysed CMEs using multipoint coronagraph observations from STEREO and SOHO. The CME speed evolution is analysed by applying time-series GCS-modelling. The analysis is extended to distances further away from the Sun through analysis of observations from the STEREO heliospheric imagers. The results are compared to those obtained from the geometrical modelling of time-elongation profiles of CMEs extracted from J-maps. We discuss the implications of our results in the context of state-of-the-art space weather predictions. The studies are carried out in the EU FP7 project HELCATS (Heliospheric Cataloguing, Analysis and Techniques Service).