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Calculation of CME kinematics and propagation directions by constraining STEREO HI-images with in situ signatures at 1 AU

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We present a new approach to combine remote observations and in situ measurements by STEREO/HI and Wind, respectively, to derive the kinematics and propagation directions of interplanetary coronal mass ejections (ICMEs). We use two methods, Fixed-Phi and Harmonic Mean, to convert ICME elongations into distance. The ICME direction is constrained such that the ICME distance-time and speed-time profiles are most consistent with in situ measurements of the arrival time and speed at 1 AU. These methods are applied to two ICME events of 02 – 06 June 2008 and 13 – 18 February 2009. Due to the geometrical assumptions HM delivers the propagation direction further away from the observing spacecraft with a mean difference of 25°. This work has received funding from the European Commission FP7 Project COMESEP (263252).