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# Importance of heliospheric imager track quality for CME arrival prediction accuracy

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Operational CME arrival prediction is mainly conducted using magnetohydrodynamic models based on coronagraph observations and magnetograms. Although the Solar TErrestrial RElations Observatory with its heliospheric imagers (HI) provides the possibility to trace a CME's propagation along its path from the Sun to 1 AU, these data can hardly be used to predict CME arrivals in real time (except for a few events in an early phase of the mission). One of the main reasons for that is a large number of data gaps in beacon data, which is available in near real time (in contrast to the complete science data), impeding a proper measurement of the CME front.

With regard to a possible future L5 mission carrying HIs we investigate the most suitable way of extracting the time-elongation track of CMEs from HI observations leading to a prediction with the highest possible accuracy. As a first step to reach this goal, we use time-elongation tracks measured from STEREO/HI science data and provided by the FP7 HELCATS team as well as tracks derived using time-elongation maps and tracks measured directly in an HI image time series. These time-elongation tracks are further used as input to our CME ensemble prediction tool ELEvoHI (ELlipse Evolution model based on HI data), which assumes a drag-based interplanetary CME propagation and an elliptical CME frontal shape. ELEvoHI produces post-event predictions of arrival times and speeds at 1 AU for all tracks of each CME under study.

By comparing the prediction results from several ways of tracking we attempt to deduce a preferable approach for future studies, e.g. when using data from Parker Solar Probe's Wide-Field Imager for Solar Probe (WISPR), and maybe for future real time predictions when STEREO-A approaches the L5 point.