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CME prediction: present and future perspectives

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In the last decade, the prediction of coronal mass ejections (CMEs) at Earth has attracted a lot of attention from scientists all over the world. Several organizations monitor the solar activity and the solar wind embracing many of the diverse phenomena related to space weather. Despite the community wide efforts to enhance prediction models, accurately forecasting a CME's arrival time at Earth is not yet possible and the number of false alarms is still too high. With the currently limited observational possibilities of coronagraphs at L1 it may not be possible to improve the prediction error significantly.

With the Solar TErrestrial RElations Observatory (STEREO) the research field of the interplanetary evolution of CMEs got fresh impetus and CMEs propagating outside the field of view of coronagraphs could have been studied in detail. Exploiting STEREO data, several methods were developed to investigate and predict the propagation of CMEs. The logical next step in the field of CME prediction is to use and refine those methods and to envisage future space weather missions where these tools can be deployed.

This talk gives an overview on existing forecasting methods and models and risks a foresight into prospective models and ideas, which may enhance CME prediction.