Real-time application of the drag based model

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The drag-based model (DBM) is an analytical model which is usually used for calculating kinematics of coronal mass ejections (CMEs) in the interplanetary space, prediction of the CME arrival times and impact speeds at arbitrary targets in the heliosphere. The main assumption of the model is that beyond a distance of about 20 solar radii from the Sun, the drag is dominant in the interplanetary space. The previous version of DBM relied on the rough assumption of averaged, unperturbed and constant environmental conditions as well as constant CME properties throughout the entire interplanetary CME propagation. The continuation of our work consists of enhancing the model into a form which uses a time dependent and perturbed environment without constraints on CME properties and distance forecasting. The extension provides the possibility of application in various scenarios, such as automatic least-square fitting on initial CME kinematic data suitable for a real-time forecasting of CME kinematics, or embedding the DBM into pre-calculated interplanetary ambient conditions provided by advanced numerical simulations (for example, codes of ENLIL, EUHFORIA, etc.). A demonstration of the enhanced DBM is available on the web-site: http://www.geof.unizg.hr/∼tzic/dbm.html.