Development of real-time prediction system of CME arrival and magnetic field with ensemble SUSANOO-CME simulation 2

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The predictions of CME arrival to the Earth and the southward magnetic field brought by the CME flux ropes are one of crucial tasks for space weather forecast. We have developed an MHD simulation of the interplanetary propagation of multiple CMEs with their internal magnetic flux ropes, called as SUSANOO-CME (Shiota & Kataoka 2016). The simulation solves propagation of solar wind and CMEs in the inner heliosphere from 25 solar radii where all the balk flow exceeds fast mode speed. The information of solar wind and CME is specified at the inner boundary with empirical and analytical models using real-time observations of the Sun and the corona.
Recently, we have been constructing a prediction system of CME impacts (CME arrival and magnetic field) utilizing SUSANOO-CME with the real-time solar observations for the purpose of use in space weather forecast in NICT. The system is designed to be controlled through web-browser interfaces in all steps of the simulation: measuring CME speed, editing input parameters, submitting the ensemble jobs into supercomputer, seeing the ensemble results, and seeing aggregated results summarizing all or some of ensemble cases.
In this presentation, showing a demonstration prediction result on a CME occurred on December 7, 2020 associate with a C7.4 flare, we will report the current status of the development and discuss the remaining issues and the future development.

Keywords: CME, solar wind , space weather forecast

