

FastTrack ENLIL+Cone model request procedure

1) Identify the CME in coronagraphs and determine the **CME start time** (the time it is first observed by any of the four coronagraphs).

2) Analyze the CME and determine **CME parameters** (you can use StereoCAT to derive them):

- radial speed (in km/s)
- half width (in degrees)
- longitude (in degrees)
- latitude (in degrees)
- date/time at 21.5Rs

3) Submit FastTrack run request by going to the FastTrack online interface:

<http://ccmc.gsfc.nasa.gov/FastTrack>

a) Enter the following information into the form on the first page:

- Your contact information (first and last name, email address)
- Run Number (you can submit several runs per day and they will be **distinguished by this number**). Please vary this number if submitting more than one run per day.
- the number of CMEs in your simulation (limit 6)

b) On the second page enter the CME start (detection) time and the CME parameters: Date/time at 21.5 Rs, velocity, latitude, longitude, half angle (half width).

c) Submit your request. Simulation results should be ready on the CCMC website **in 1-2 hours**.

Note: only runs for CMEs occurring **within the last 3 months** will be processed within the next hour; earlier events are considered lower priority and might take a day to complete.

4) Check your mailbox for immediate submission email and (in 1-2 hours) for the run completion notification and arrival estimate emails.

Analyzing results:

* If the CME is predicted to have any impact on Earth or any other planet or spacecraft note what the estimated **arrival times** are.

* Follow the link in the email to your run results web page.

Alternatively, to find this link on the CCMC website click on "View Results" tab, click on "Heliosphere Model Results", "View ALL Heliosphere Runs On Request" or go to:

http://ccmc.gsfc.nasa.gov/ungrouped/SH/Heliosphere_db.php and find your request.

* Observe the movies of the simulated CME by clicking "View quick look graphics for the run" link (e.g., the movie of solar wind density, velocity). Find the movies with the **planet/satellite positions** in them.

* If the CME is predicted to have an impact on Earth or other planets or satellites, view the **simulation timeline** for the planet/satellite by clicking on the "Enlil at..." link. Select "N" (density) as Quantity Q1 and "V_r" (radial velocity) as Quantities Q2 and Q3, and click "Update Plot". Check if you can identify the CME arrival at the planet/satellite.

* Compare your arrival time prediction with the **actual arrival time** on the STEREO Beacon and/or SW Timeline Ensemble iSWA cygnet (depending on whether arrival is at STEREO or at Earth).

* If prediction time is very different (>7 hours) from the actual arrival time, speculate which factors might have contributed to the large **prediction error**.