

BATSRUS Results

Earth in the Solar wind

Contours of $\log(N)$

$y=0$ plane cut, units normalized to
standoff distance of $\sim 10 R_E$.

dashed line is analytical
magnetopause solution.

Wind conditions

$N = 5 / \text{cc} \text{ (H}^+)$

$U_x = 400 \text{ km/s}$

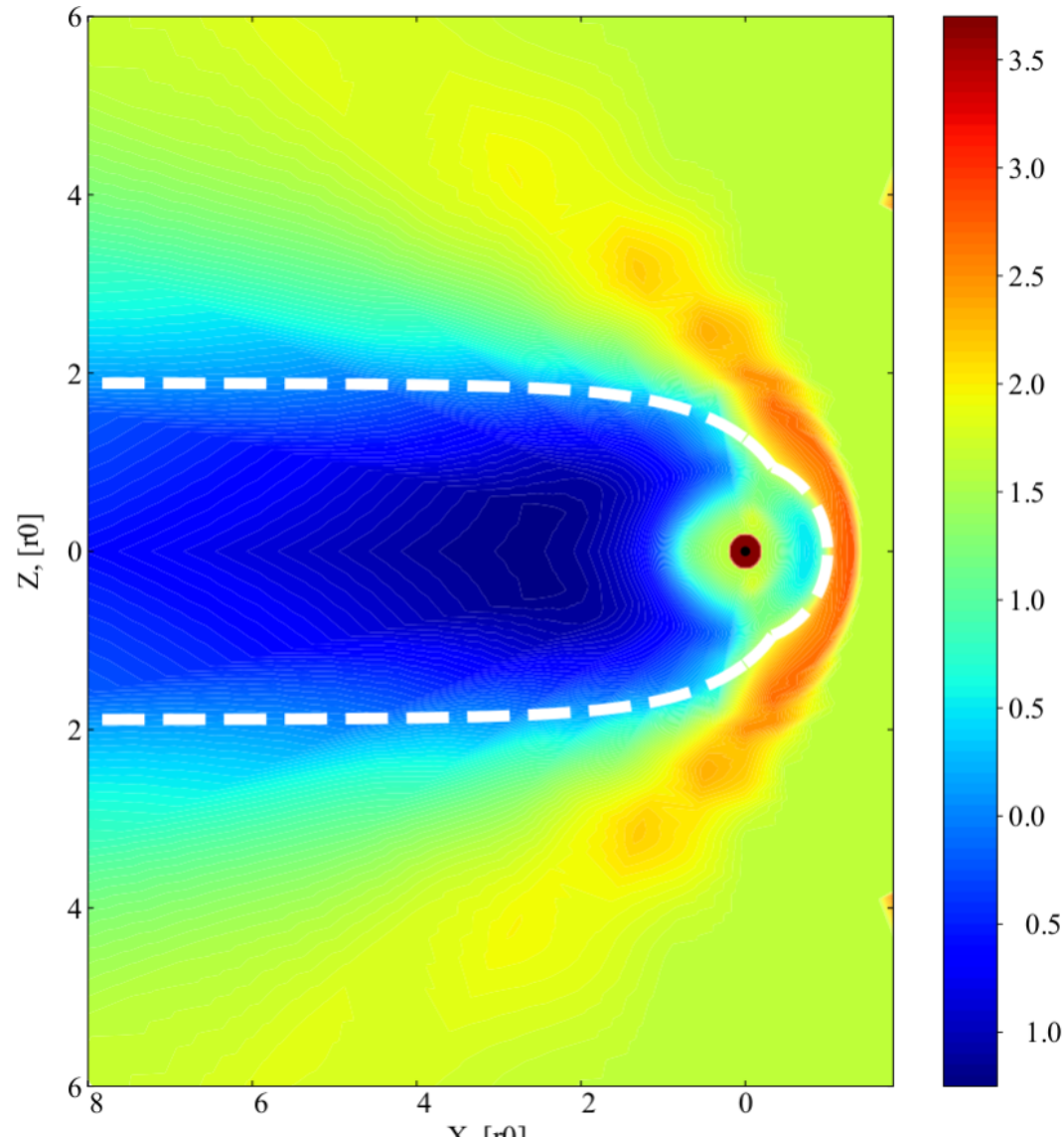
$U_y = 0$

$U_z = 0$

$B_x = 0$

$B_y = 0$

$B_z = 5 \text{ nT}$



Problem: wire loop in orbit at ~500 km in Low Earth Orbit

X - along orbital motion
Y - to Earth center
Z - vertical

Wind conditions

$N = 500,000 / \text{cc} (\text{H}^+)$

$U_x = 7.6 \text{ km/s}$

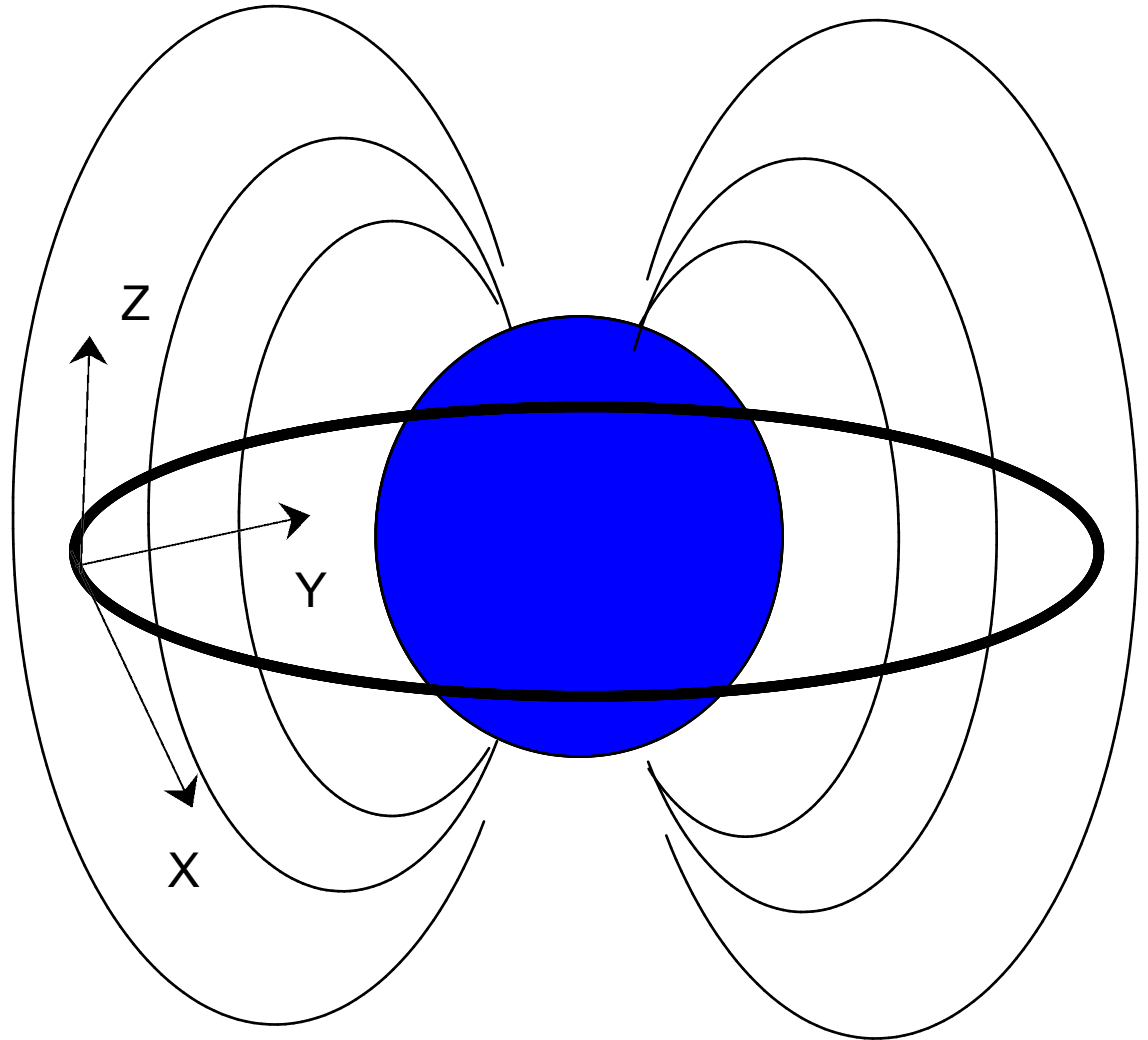
$U_y = 0$

$U_z = 0$

$B_x = 0$

$B_y = 0$

$B_z = 25,000 \text{ nT}$



Dipole with plasma wind in Earth orbit (without Earth's field)

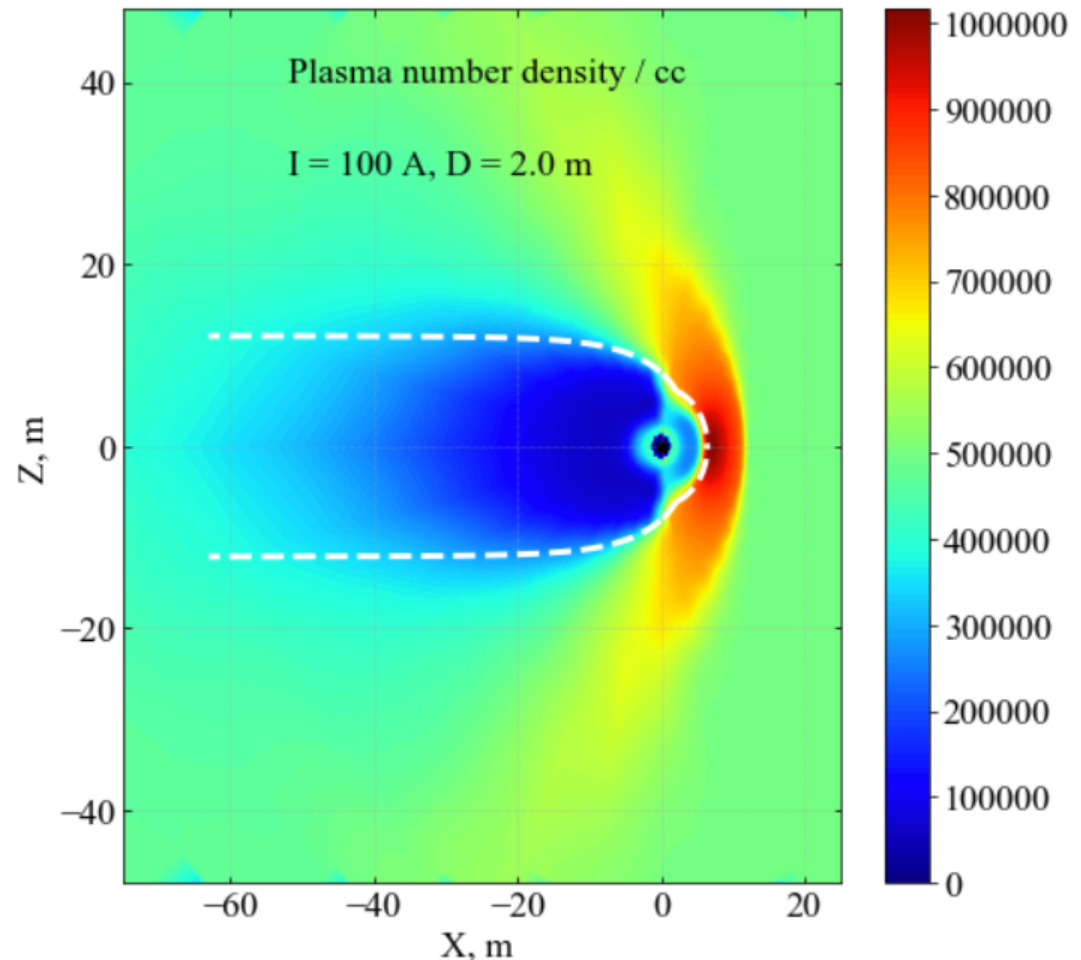
Dipole with 1 m radius and magnetic moment equivalent to a 1.0 radius loop with 100 A current.

Contours of N

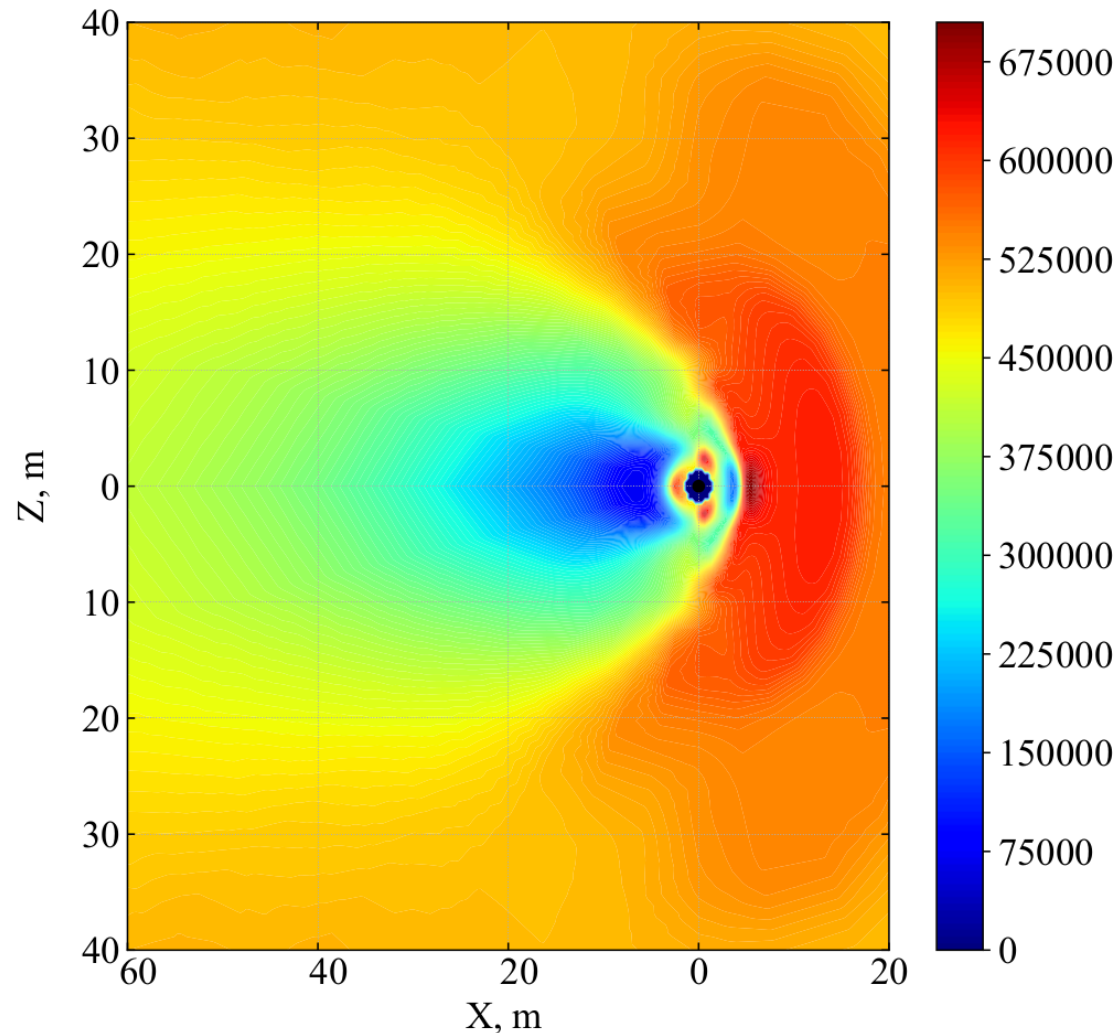
y=0 plane cut, units of m.

dashed line is analytical magnetopause solution

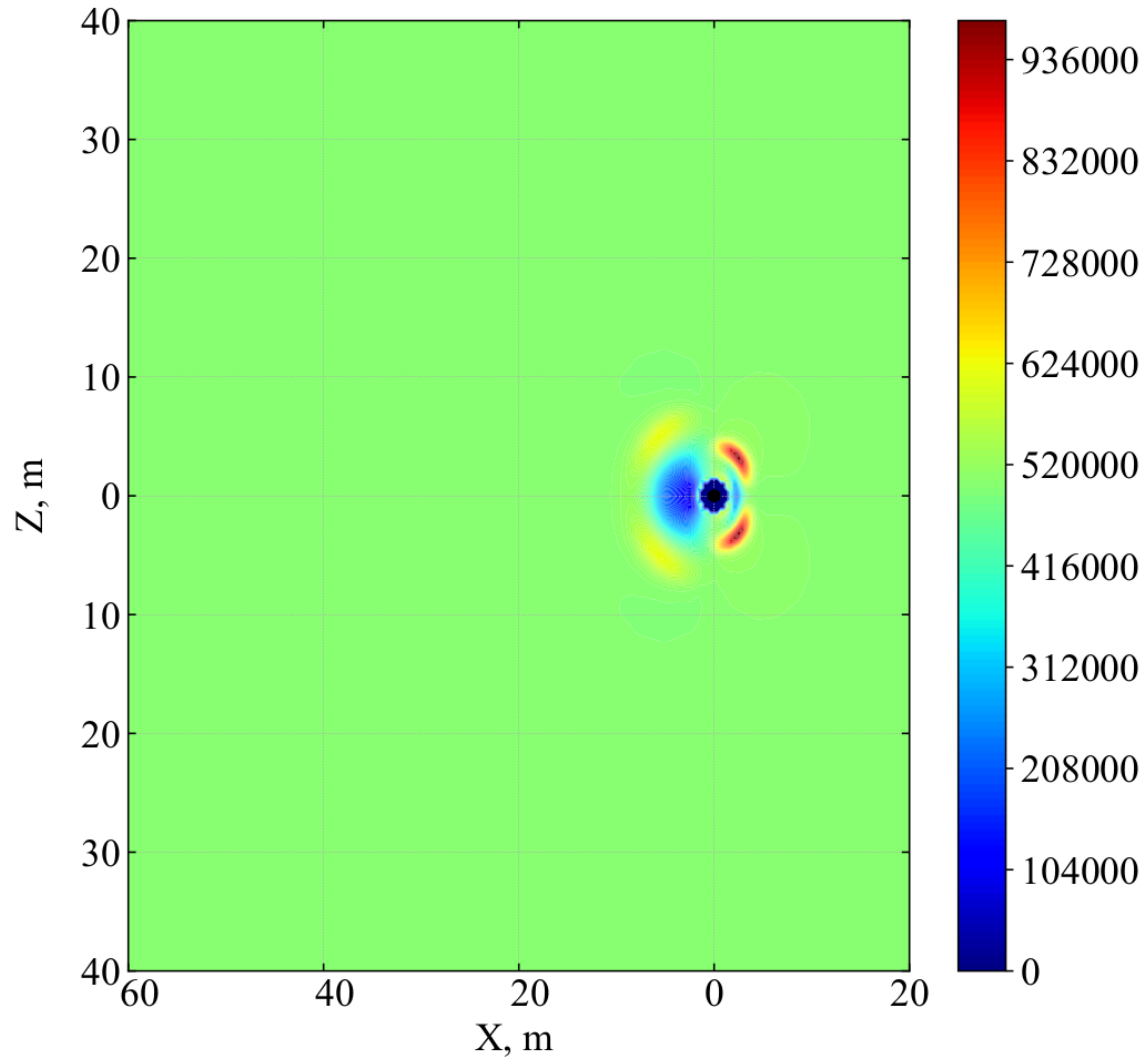
Earth's B-field of around 25000nT is not added to #SOLARWIND.



Dipole with plasma wind in Earth orbit (with $B_z = 250$ nT)



Dipole with plasma wind in Earth orbit (with $B_z=2500$ nT)



Dipole with plasma wind in Earth orbit (with $B_z=25000$ nT)

