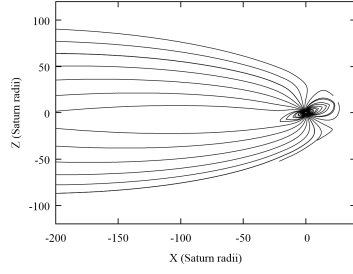
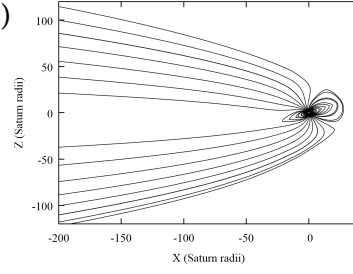


1 Additional figures

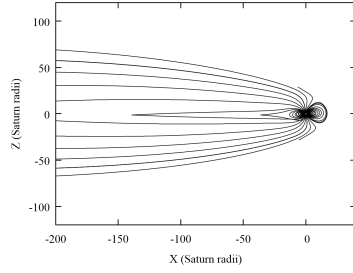
(1a)



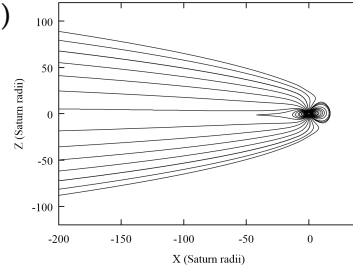
(1b)



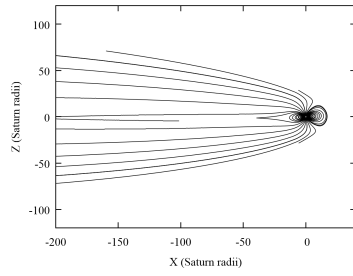
(2a)



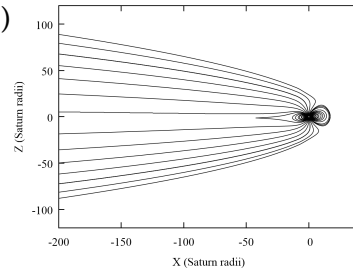
(2b)



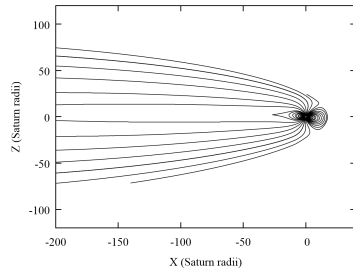
(3a)



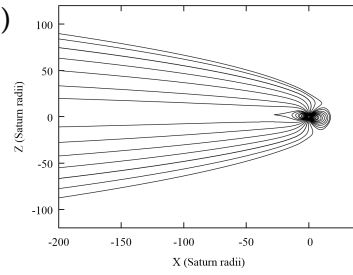
(3b)



(4a)



(4b)



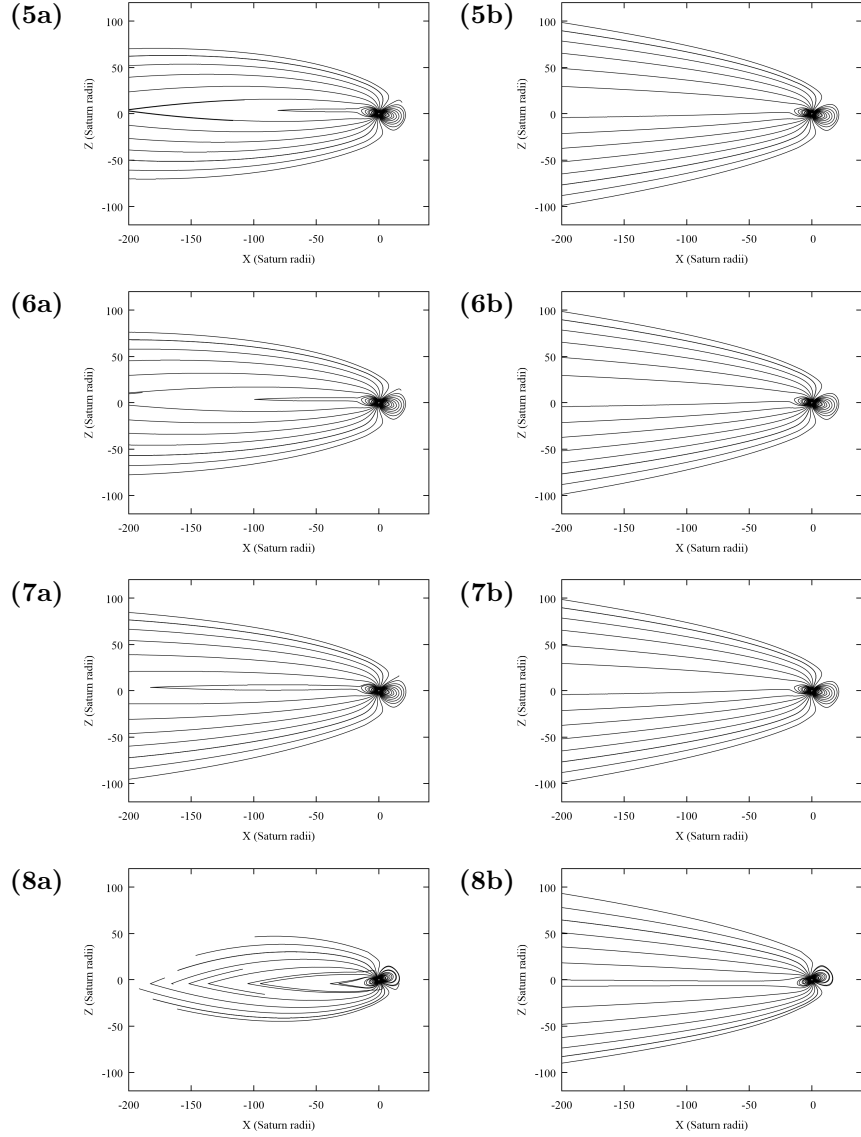
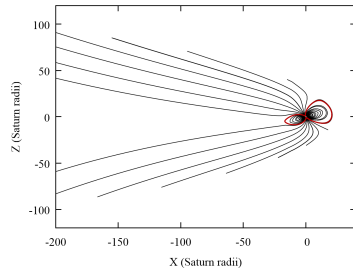
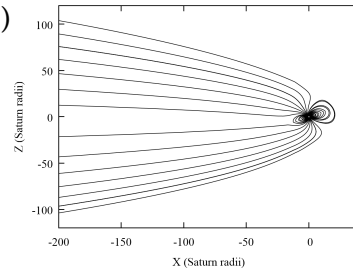


Figure S1: Projection onto the noon-midnight magnetospheric meridian of magnetic field lines starting from this plane for southward IMF cases in Table 1, where the left column shows results for the open magnetosphere model with penetration coefficient $k = 0.2$, while the right column shows results for the partially closed model with $k = 0$.

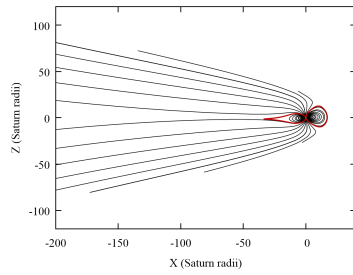
(9a)



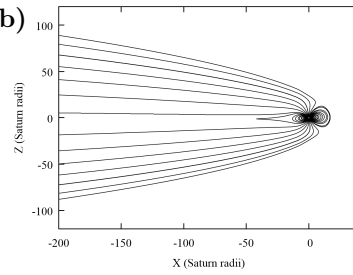
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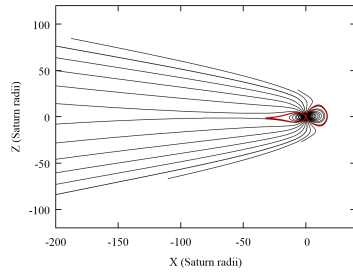
(10a)



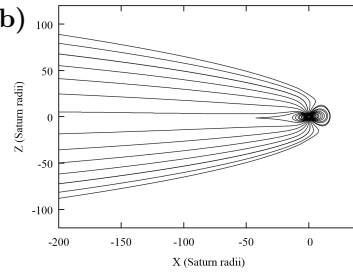
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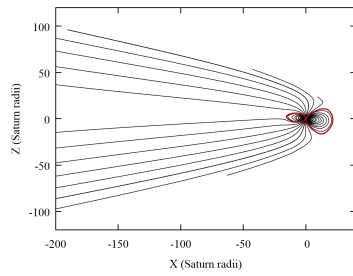
(11a)



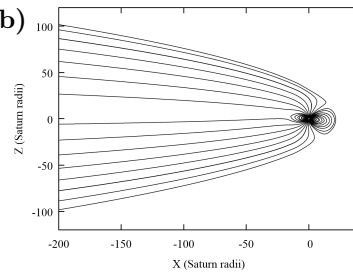
(11b)



(12a)



(12b)



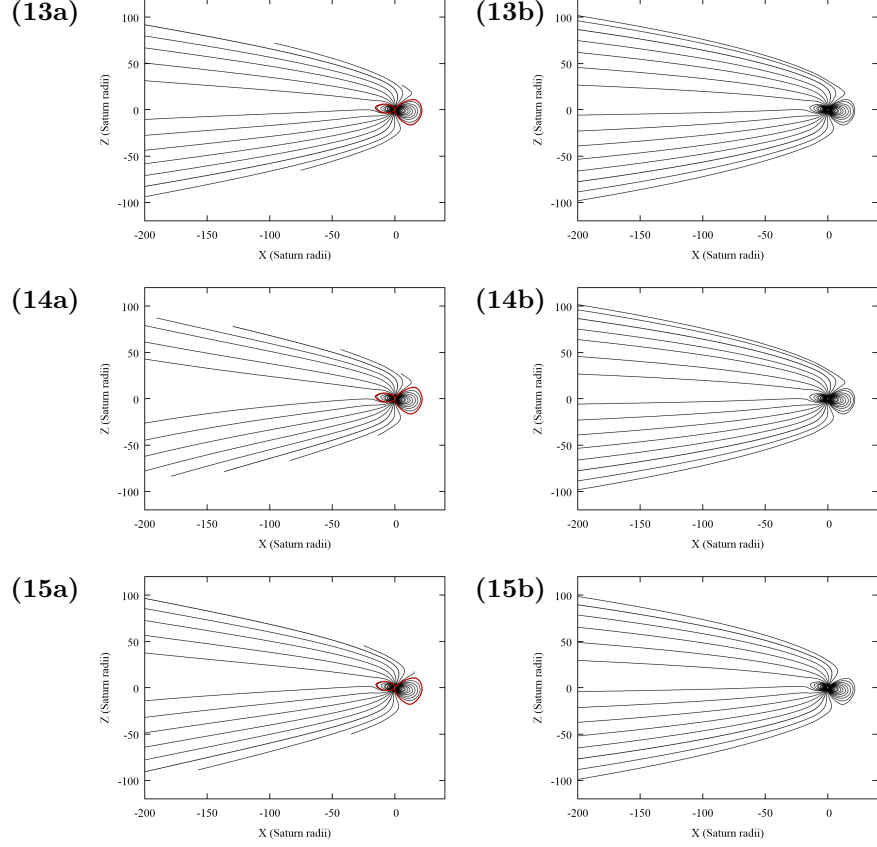


Figure S2: Projection onto the noon-midnight magnetospheric meridian of magnetic field lines starting from this plane for northward IMF cases in Table 1, where the left column shows results for the open magnetosphere model with penetration coefficient $k = 0.2$, while the right column shows results for the partially closed model with $k = 0$. Red curves in the left column mark separatrices dividing field lines with different topology.