

How Earth's inner and middle magnetosphere work

R. A. Wolf

Physics and Astronomy Dept., Rice University,
Houston, Texas, U.S.A.

The Large-scale mechanics of Earth's inner and middle magnetosphere will be reviewed in a tutorial style. An attempt will be made to summarize present understanding and to point out major unresolved issues. Topics to be covered include the inner plasma sheet, ring current, and plasmasphere and their coupling to the ionosphere, particularly during magnetic storms. Considerable emphasis will be placed on the dynamics of the electric field in both magnetosphere and ionosphere. The presentation will be mainly theoretical and will make heavy use of simulations carried out with the Rice Convection Model and related computer codes. Relevant observations will also be discussed, with particular emphasis on the pictures of the plasmasphere and ring current that have been obtained in the last few years with the IMAGE spacecraft.