

Using Global Simulations of Earth's Magnetosphere to Model X-ray Imaging

J. Raeder
Space Science Center, University of New Hampshire, Durham, NH, USA

Abstract

It has recently been suggested that the X-ray emissions that result from charge exchange between highly ionized solar wind ions and geocorona neutrals can potentially be used to provide three-dimensional imaging of Earth's magnetosphere, in particular its plasma boundaries and boundary layers. Here, we use the OpenGGCM global magnetosphere model together with assumed solar wind conditions to model these emissions. We generate sequences of synthetic images to investigate the capabilities and the limitations of the technique. Particular emphasis is placed on time dependent magnetosphere phenomena such as flux transfer events and Kelvin-Helmholtz waves on the magnetopause.