

The dynamics of energetic electron precipitation during substorms

Utilization of the remote sensing technique of X rays

by
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fulfillment of the requirements for the degree of Doctor Scientiarum**

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Front page: Global X-ray image from PIXIE, February 9, 1997, accumulated from 1920-1925 universal time (UT) in the energy range from 9.9 keV to 19.7 keV. PIXIE is onboard the Polar satellite, launched February 24, 1996 (NASA).

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In order to have a continuous paginating and to some extent a uniform lay-out I have used the last submitted camera-ready copy for each paper. As the papers are published in different journals, some of the formats are not similar, e.g., both Figure 1 and Fig. 1 are used; and both Robinson *et al.*, (1989), Robinson et al, [1989] and [Robinson et al, 1989] are used. Using the last camera-ready copy also enables us to show the figures and plates in larger sizes than you will find in the journals.

However, all the papers are carefully examined to be true copies of the published papers regarding text, captions, tables, figures, plates, etc.

Bergen, September 1999

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