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ABSTRACTS OF POSTERS

CURRENTS, FIELDS, AND POTENTIALS IN THE IONOSPHERE OF VENUS

D. M. Hurley[1] and P. A. Cloutier[1]

Law and Cloutier have developed a complete picture of the magnetic field in the dayside ionosphere of Venus. Their investigation is based upon observations from the Pioneer Venus Orbiter (PVO) magnetometer instrument. We embed the model magnetic field to a model ionosphere and perform several analyses. First of all, we determine the electric currents associated with the magnetic field configuration. We use the model atmosphere to transform the current into an electric field map of the region. Then, we examine the field aligned current and cross field current to investigate the potential drops along field lines. In doing so, we derive the map of the ionospheric electric potential for the dayside of Venus.

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SPECTRA AND NEURAL NETWORKS FOR THE SPECIFICATION OF STORM-TIME ENERGETIC ELECTRONS AT GEOSTATIONARY ORBIT

J. W. Freeman[1] and T. P. O'Brien[1]

Electrons whose energy is of the order MeV have been implicated in the failure and malfunction of Geostationary spacecraft. It is, therefore, important to be able to specify and even forecast the flux of these particles during and following geomagnetic storms. A first step is the understanding of their spectral properties and their relationship to lower energy electrons that can already be modeled.

At Geosynchronous orbit, the fluxes of electrons whose energies range from 100 keV to 2 MeV fall off with increasing energy according to a power-law. On a log-log plot, this spectrum appears as a line, with slope and offset parameters. We note that the spectrum parameters vary in time, but that the overall power-law persists. We present our preliminary efforts modeling these parameters with an Artificial Neural Network. We have begun our investigation with the geomagnetic storm in early November, 1993.

We report initial success using simultaneous input values from Dst, satellite local time, and satellite-measured flux in the 30–45 keV channel. The ANN performs reasonably well throughout most of the storm and during the recovery phase. However, we believe the simultaneous input to be insufficient for modeling the full behavior of the spectrum. We have not yet implemented any historical information as inputs to the ANN. With such additional inputs, we expect the accuracy to improve.

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SPECTROPHOTOMETRIC DATA OF THE CENTRAL STAR OF THE PLANETARY NEBULA LMC N66. QUANTITATIVE ANALYSIS OF ITS WN TYPE SPECTRUM[1]

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HST, *IUE* and ground-based observations of the central star of the LMC planetary nebula N66 (CS N66), obtained in different epochs, are presented. Since 1990 CS N66 has shown remarkable short- and long-term spectroscopic and photometric changes amounting to more than 3 magnitudes in the optical. Expanding model atmospheres have been constructed to fit observations from different epochs. Fits provide the chemical composition, the fundamental stellar parameters, L_*, T_*, R_*, the mass-loss rate and the wind velocity. From our best models we found that CS N66 is a very luminous He star ($X/Y \leq 0.1$), with a small amount of N, under-