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Comparison of the 2005 Weimer and HAO Empirical High Latitude Models of Energy Transfer in terms of Poynting Flux

ABSTRACT
In order to better understand energy in the upper atmosphere in high-latitude regions, empirical models of the Ionosphere are created. These models calculate electric and magnetic fields, electric and magnetic potentials, and Poynting Flux. This Poynting Flux has been determined to be very important as a source term in the upper atmosphere so it important in the understanding of the energy input in the upper atmosphere. The 2005 Weimer Model (the newest of a series) has been seen as a very good approximation for the energy input of the upper atmosphere. The HAO Empirical Model is another model that hopes to shine light on better understanding in interaction of geomagnetic conditions and the upper atmosphere energy input. To make sure that the HAO Empirical Model is working correctly, it has to check against an exciting model (The 2005 Weimer) to try and see if it is just as good or better for predicting conditions in the Ionosphere. After comparing these two models in both electric and magnetic fields, electric and magnetic potentials, Poynting flux, and total flux it can be concluded that the HAO Empirical Model, through it has difference from the 2005 Weimer Model, is a good model for the conditions of the upper atmosphere energy input.