

USING NEURAL NETWORKS TO INVESTIGATE MID-LATITUDE IONOSPHERIC PROCESSES

LEE-ANNE MCKINNELL 1,2, Dalia Buresova 3 and John Bosco Habarulema 1,2

1 Hermanus Magnetic Observatory, Hermanus, South Africa,
email: L.McKinnell@ru.ac.za

2 Department of Physics & Electronics, Rhodes University, Grahamstown, South Africa

3 Institute of Atmospheric Physics, Prague, Czech Republic

Over the past decade neural networks (NNs) have been used extensively to model various ionospheric parameters. Using data from mid-latitude stations in South Africa to describe the variability of ionospheric parameters, such as foF2 (peak electron density), hmF2 (height of peak electron density) and TEC (Total Electron Content), this paper demonstrates how NNs can provide information about the ionospheric processes at play over these latitudes. The paper will cover the development of a number of NN based models for the prediction of various ionospheric parameters. The validation of these models will be discussed as well as the ability of the NN technique to probe the physics of the ionosphere at mid-latitudes.

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Lee-Anne McKinnell, Hermanus Magnetic Observatory, P O Box 32, Hermanus, 7200, South Africa; Tel: +27283121196; email: L.McKinnell@ru.ac.za