A study of the ionospheric hmF2 variations using the MU radar IS measurements and a theoretical model

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The ionospheric hmF2 variations measured over 1986-1995 by the MU radar and calculated with a theoretical model are discussed. Given also are the measured drifts for understanding the F2-layer behavior. The measured hmF2 can be well reproduced in modeling with the observed drifts and plasma temperatures as inputs. It is shown that the neutral wind contributes largely to the hmF2 diurnal variations. The northward electromagnetic drifts have only a minor effect over Shigaraki. Other features of hmF2 variations, e.g., the HSA-LSA difference, the summer-winter difference, the morning and afternoon falls, have been

explained basically by the production, loss and diffusion processes influenced by atomic oxygen concentration, neutral and plasma temperatures.