

Observation and IRI-2012 comparison of F1-layer parameters at the geomagnetic equator during solar minimum
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This study is to assess the predictability of IRI-2012 on the equatorial F1 layer during solar minimum. The observed characteristics of F1 layer by the Jicamarca digisonde are compared with the model outputs. The results show that the time range for F1-layer appearance of observation is longer than that of IRI-2012, by at least 1 hour in the early morning and later afternoon. In IRI-2012, there are three options for the occurrence probability of F1 layer: IRI-95, Scotto-97 no L, and Scotto-97 with L options. The first option predicts the probability well, but the last two underestimate the probability. The peak density of F1 layer (NmF1) of observation is very close to that of IRI-2012. For the F1 peak height (hmF1), the modeled values are smaller than the observed ones. The observed seasonal variation of hmF1 is not found in the modeled results. Nevertheless, the observed diurnal variation of hmF1 is similar to the modeled results with the B0 choices of Bil-2000 and ABT-2009. Regarding the shape parameter, the values of D1 (the shape parameter of F1 layer in observation) are much greater than the values of C1 (the shape parameter of F1 layer in IRI-2012). The D1 values are 3-6 time of the C1 values. The diurnal variation of D1 is similar to that of C1, but the seasonal variation of D1 is not.

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