

# ***Interactive comment on “Variability of TEC and improvement of performance of the IRI model over Ethiopia during the high solar activity phase” by Yekoye Asmare Tariku***

**Anonymous Referee #2**

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Even though the author has a large GNSS data from 2013-2016 over Ethiopia to calculate TEC to compare with many versions of IRI models, the paper should not be accepted since no new contribution, and no substantiated physical explanations are provided. Also the author didn't provide information about how the satellite and receiver biases were determined to calculate the absolute. He only mentioned the Ciraolo et al. (2007) methodology. The title induces us to expect an improvement of the IRI model over Ethiopia, what is not provided. The results description from lines 266 to 281 is very repetitive and a table should had be used instead. The paper information that TEC is minimum during 03-06 LT and maximum during 12-16 LT is well known. About the storm study it is not expected to get good IRI responses since this model works with

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averages and it is very difficult to reproduce storm time behavior. The paper contribution is that there is an overestimation of the modeled VTEC. Small corrections and suggestions are: Line Comments/suggestions/questions 103-105 Correct the phrase 107 Klobuchar et al., 1996 120-124 Improve 150 Is modeling hmf2 referring to using from measurements? 165 sites shown... 177 F10.7 cm solar flux 217 Provide reference 240 Photoionization 242 eastward 244 subsolar 289 Dst index maximum incursion of about... 290 considered (see Figure 12) 291 (16/03/2015), main phase (17/03/2015), 301-304 Which particles and from where? How come penetrated electric field increase TEC? 405-406 Is the reference complete? Figure 1 Ambo and Nazret are overlapped Table 1 Is advisable to inform dip lat instead of geomagnetic coodenates.

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