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Interactive comment on "Diurnal, seasonal and solar cycle variation of total electron content and comparison with the IRI-2016 model at Birnin Kebbi" *by* Aghogho Ogwala et al.

Anonymous Referee #1

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The authors made some improvements in the paper as suggested. But still are many points to be clarified.

1. IntroductionLInes 124-128: In the introduction you must specify the goal of the paper, and not theresults. So, in the last paragraph of introduction put the goal of the paper. For examplethat you will evalute the IRI-2016 model in the Nigeria site

2. Methodology About the error bars. What is the statistical significance of that (rms level). lines 171-176: must be revised

3. Results and discussions Line 190: take away the line explaining error bar. Line 197: the maximum time is yet wrong. Must be 12-14 LT Legend Figures 1-4. Figure 1 OK.

The others put: 'Figure 2: Same as Figure 1 for 2012'. Lines 230-235: Instead to say that there is a delay, specify the delay, saying the times. Line 325: Explain what means 1 TECU=0.16m. Put that 1 TECU variation represents an error of 0.16m in position. Line 329-331: I suggest to consider the text: 'Figure 10 shows the comparison of the monthly OBS-TEC with sunspot number Rz from 2011 to 2014, showing an increase of TEC with the solar cycle.' Figure 10: Make the figure considering data points connected with line. Line 331-333: the phrase is out of context here. Lines 335-340: The effect of solar flares in TEC is of few minutes to hours, so it is not relevant in this discussion. The relevance is that the presence of active regions increases the solar radiation background (the slow solar radiation variation). LInes 351-359: The description of the impact of solar activity in the ionosphere is out of context, the IRI models consider the slow solar radiation variation associated with the presence of active regions. And the short explanation presented is very confusing.

4. Conclusions The conclusion only contains the list of results with no comparison with other works done at different periods or at different regions. You need to show the scientific contribution of this investigation.

Interactive comment on Ann. Geophys. Discuss., https://doi.org/10.5194/angeo-2018-134, 2019.