Review Form 1.6

Journal Name:	**Physical Science International Journal**
Manuscript Number:	**Ms_PSIJ_85827**
Title of the Manuscript:	**Seasonal variability of foE and nocturnal winter anomaly in E-layer during solar cycles 21 and 22 at the Ouagadougou station**
Type of the Article	**Original Research Article**

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This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty'**, provided the manuscript is scientifically robust and technically sound.
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PART 1: Review Comments

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Compulsory REVISION comments	**In this work, the authors employed IRI model to study the seasonal variability of foE and nocturnal winter anomaly in E-region during solar cycles 21 and 22. The main concern of this review it that the conclusions of this work are based on figures without the standard deviations. Therefore, it is my judgement that the manuscript is not mature to be accepted for publication in the present form. My specific comments are below.**	
Minor REVISION comments	1) Abstract, second line: replace TL by LT (Local Time) 2) Please, add the years of each solar cycle 3) Please, add the version of IRI used in this work. 4) In the introduction the authors state that "During the day, the ionosphere, in low latitudes, presents a clear stratification (D, E, F_1, and F_2)." However, the ionosphere presents a clear stratification in middle latitudes, for instance. Therefore, this sentence should be modified. 5) The sentence "Several studies have been conducted at different ionosphere stations around the world" is too general. The authors should be more specific about what they want to say here. 6) What is the spontaneous, uncontrolled variation of ionospheric parameters that influence the propagation of radio waves? 7) Why do the authors mention the MUF in the introduction if they focused on the foE? How MUF is related to the results presented here? 8) Section 3.1: the authors have to define Rz for the readers. 9) The authors have to define winter anomaly phenomena and equinoctial asymmetry for the readers. It would be better in the introduction. 10) Figures 1,2,3,4,5: It is not clear if the authors calculated the foE average based on the five quiet days to build the graphs. Please, explain better the methodology. Moreover, the authors have to show the standard deviations. 11) What is the time resolution of the data obtained from IRI? The authors have to provide such information and also the IRI version used. 12) The authors stated "*Fig.5* compares the variability of foE in the four seasons. The variability of foE in winter represented in purple is lower than that in summer represented in red." How can this be stated without showing the standard deviation? 13) The authors stated "Looking at *fig.6a*, in the time interval between [0500LT-1900LT] the winter anomaly phenomenon, observed at the maximum phase of SC22 in foF_2 study, is not observed in this study." I see that the focus of this work is the foE parameter, and the foF2 is also used. 14) The winter anomaly phenomenon can be observed in foE? (or only in foF2?) 15) What is equinoctial asymmetry mentioned in fig. 6a? 16) The authors stated "This can be seen in *fig.6c*, which depicts low values of deviations between foE March and September." How were the deviations calculated? 17) The authors define winter anomaly only in section 3.2. This should be in the introduction section. 18) The authors present a study of NmF2 in section 3.2, but they do not mention this in the abstract. 19) Figure 7, 8, 9: How can the authors give us conclusions without showing the standard deviation? 20) Only at the end of section 3.2 the authors define Rz (The sunspot number (Rz), the main indicator of solar activity, is a very important	

	factor in the ionization process. Its increase induces a consequent ionization in the different layers of the ionosphere). This should be included in the introduction section. 21) Only at the end of section 3.2 the authors show where to find the data (https://omniweb.gsfc.nasa.gov). This information should be in the methodology section. 22) In the conclusion, the authors stated that "They show that during the night, the values of the critical frequency are low, reflecting the existence of a residual ionization whose origin is not related to X-rays and UV rays coming directly from the sun but rather to collisions between particles in their movement within the ionospheric plasma, as well as some phenomena related to the activity of the sun." To this reviewer this looks like a conjecture, when no information is shown about the X-rays, UV rays, collisions between particles, etc.	
Optional/General comments	Many sentences are awkward and grammatically questionable and needed to adequately revise and reedit for readability.	

PART 2:

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	

Reviewer Details:

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