

### Review Form 3

Journal Name:	<a href="#">International Astronomy and Astrophysics Research Journal</a>
Manuscript Number:	Ms_IAARJ_128189
Title of the Manuscript:	CHARACTERIZATION OF EQUATORIAL IONIZATION ANOMALY AT THE SOUTHERN HEMISPHERE IN AFRICA DURING MODERATE SOLAR ACTIVITY
Type of the Article	

#### **General guidelines for the Peer Review process:**

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. To know the complete guidelines for the Peer Review process, reviewers are requested to visit this link:

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#### **PART 1: Comments**

	Reviewer's comment	Author's Feedback <i>(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i>
Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part.	The paper titled "Characterization of Equatorial Ionization Anomaly at the Southern Hemisphere in Africa During Moderate Solar Activity", discusses the variations in the GPS-TEC data collected from 5 GPS receivers located in the southern hemisphere of the African sub-continent during the year of moderate solar activity. The study of the diurnal changes indicates minimum values of TEC during the pre-sunset hours and peak values during the afternoon hours. The TEC values at the geomagnetic equator are quite stable as compared to the higher latitudes which show more pronounced diurnal and seasonal variations. The Monthly TEC values are weaker in summer and stronger in winter. There is also the presence of equinoctial asymmetry, where the TEC values are higher during the Vernal equinox as compared to the autumnal equinox. The paper also mentions the presence of winter anomaly and night time TEC enhancements.	
Is the title of the article suitable? (If not please suggest an alternative title)	Yes, the Title is absolutely suitable for the work presented.	
Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.	The Abstract is comprehensive and clear	
Is the manuscript scientifically, correct? Please write here.	The manuscript is scientifically correct. All the findings mentioned in the paper are already well established.	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.	Most of the references are very old (more than 2 or 3 or even 4 decades old))	

**Review Form 3**

<p><b>Is the language/English quality of the article suitable for scholarly communications?</b></p>	<p>The language used is acceptable but not up to the mark. There are quite a few grammatical errors.</p>	
<p><b>Optional/General</b> comments</p>	<p><b>I have quite a few concerns regarding this paper:</b></p> <ol style="list-style-type: none"> <li>1. The Introduction begins with “The ionosphere is a unique layer of the atmosphere that extends from about 50 km to several thousand kilometres above the Earth’s surface” . I request the authors to verify if the ionosphere really extends to “several thousand kilometres”...</li> <li>2. The introduction has mentioned the existing literature on the low latitude ionospheric phenomena like EIA, diurnal and seasonal variations, equinoctial asymmetry, winter anomaly, etc... Then what are the findings by the authors?</li> <li>3. The introduction mentions “The characteristic and dynamics of the ionosphere has been widely studied for several decades using different probing techniques, such as ionosonde measurement, trans-ionospheric radio signals”. Are “trans-ionospheric radio signals” considered as a technique to probe the ionospheric characteristics?</li> <li>4. Introduction section: page 2: paragraph 1: The spelling of photo ionization is wrongly mentioned as “pho-ionization”.</li> <li>5. In the Data and Analysis Section, the authors have mentioned “the seasons are classified into four namely; spring (March, April), summer (May, June, July, August), autumn (September, October) winter (December, November, January, February).” Aren’t the seasons in the Southern hemisphere opposite to those in the Northern hemisphere?</li> <li>6. It is very unfortunate for the world’s second largest continent to have so few GPS receivers, due to which there have been limited studies on the characterization of GPS-TEC over the African subcontinent. Yet, I have come across more elaborate studies on the GPS TEC than the current one. (One Example being: Seun, Oluwadare &amp; Nguyen, Chinh &amp; Akala, A. &amp; Heise, Stefan &amp; Alizadeh, Mahdi &amp; Schuh, H.. (2018). Characterization of GPS-TEC over African equatorial ionization anomaly (EIA) region during 2009–2016. Advances in Space Research. 10.1016/j.asr.2018.08.044.)</li> <li>7. <b>There is no mention of the software tools used to process the data. There is no technique or methodology of characterizing the data. The authors have simply plotted the TEC graphs.</b></li> <li>8. <b>The characterization shown by the authors have been well established for decades. There are no new findings. It is just a reiteration of known and existing phenomena.</b></li> <li>9. <b>This is just a basic study paper with no original contribution.</b></li> </ol>	

**PART 2:**

	<p><b>Reviewer’s comment</b></p>	<p><b>Author’s comment</b> (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)</p>
<p><b>Are there ethical issues in this manuscript?</b></p>	<p><i>(If yes, Kindly please write down the ethical issues here in details)</i></p>	

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