

Review Form 3

Journal Name:	International Astronomy and Astrophysics Research Journal
Manuscript Number:	Ms_IAARJ_127281
Title of the Manuscript:	Longitudinal Morphology of the Morning Counter Equatorial Electrojet during Low 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: Review Comments

<u>Compulsory</u> REVISION 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. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.	This manuscript provides valuable insights into the behavior of the Morning Counter Equatorial Electrojet (CEE) during periods of low solar activity, which is a crucial aspect of ionospheric research. Understanding the longitudinal morphology of the CEE under different solar conditions helps to refine our knowledge of ionospheric currents and their influence on space weather, especially in low-latitude regions. This research is important as it contributes to filling gaps in our understanding of ionospheric dynamics during solar minima, a period often underrepresented in studies focusing on higher solar activity. Additionally, the manuscript's focus on specific periods (morning hours) allows for more precise observations that can enhance predictive models of ionospheric behavior, benefiting both space weather forecasting and communications technologies. I find this manuscript particularly interesting because it addresses a niche but significant aspect of ionospheric physics, offering a deeper look into a region and time frame that has not received as much attention in previous studies. It is well-positioned to contribute meaningfully to the scientific community's broader efforts to understand the complexities of space weather and its impact on Earth-based systems.	
Is the title of the article suitable? (If not please suggest an alternative title)	Yes	

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<p>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.</p>	<p>The abstract you've provided is informative and outlines the study's objectives, methods, and key findings. However, there are a few areas where improvements could enhance clarity, coherence, and conciseness. Below are some suggestions for refinement:</p> <p>Reduce Repetition: The phrase "Morning Counter-Equatorial Electrojet (MCEJ)" is repeated several times. While it's important to define terms, it could be streamlined after the initial definition to avoid redundancy.</p> <ul style="list-style-type: none"> Example: "The primary aim of this study is to investigate the longitudinal morphology of the Morning Counter-Equatorial Electrojet (MCEJ) during a period of low solar activity (specifically, the year 2008). Data from four equatorial stations were collected using the Magnetic Data Acquisition System (MAGDAS) during this period." <p>Clarity on Data Processing: The description of data processing ("hourly binning, baseline determination, and non-cyclic variation correction") is technical and might benefit from a bit more clarity or simplification for a broader audience. For example, you could summarize the steps or provide a brief justification for their importance.</p> <ul style="list-style-type: none"> Example: "After cleaning and processing the data, which included binning by hour and correcting for baseline and non-cyclic variations, MCEJ events were identified based on negative excursions in the H-component of the Earth's magnetic field." <p>Findings and Implications: The two types of MCEJ events are described, but it could be helpful to more explicitly state the implications of these findings. For instance, you could briefly mention how the findings contribute to understanding ionospheric dynamics or space weather.</p> <ul style="list-style-type: none"> Example: "These findings provide new insights into the longitudinal and seasonal behavior of the MCEJ, enhancing our understanding of ionospheric currents and their impact on the equatorial electrojet." <p>Conclusion and Significance: The abstract would benefit from a concluding statement that emphasizes the broader implications of the study or its contribution to the field.</p> <ul style="list-style-type: none"> Example: "This study improves our understanding of MCEJ events and their seasonal and longitudinal variations, which could have implications for space weather forecasting and communication systems in equatorial regions." 	
<p>Are subsections and structure of the manuscript appropriate?</p>	<p>Yes</p>	
<p>Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.</p>	<p>This manuscript appears to be scientifically robust and technically sound, as it employs a well-established methodology for analyzing ionospheric phenomena, specifically the Morning Counter-Equatorial Electrojet (MCEJ) during a period of low solar activity. The use of data from multiple equatorial stations, collected through the Magnetic Data Acquisition System (MAGDAS), ensures that the study is based on reliable and high-quality measurements. The detailed data processing steps—such as hourly binning, baseline determination, and non-cyclic variation correction—demonstrate a careful approach to mitigating noise and ensuring the accuracy of the results. Additionally, the identification of two distinct types of MCEJ events, along with their seasonal and longitudinal variations, is consistent with established principles in space weather and ionospheric research. Overall, the manuscript presents a clear and scientifically rigorous analysis, contributing valuable new insights into the behavior of ionospheric currents under specific solar conditions.</p>	
<p>Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.</p>	<p>It would be better if the author added some references from 2020 till to the presents</p>	
<p><u>Minor</u> REVISION comments Is the language/English quality of the article suitable for scholarly communications?</p>	<p>Yes, but, look the whole my comments in the document</p>	
<p><u>Optional/General</u> comments</p>	<p>Good</p>	

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

Reviewer Details:

<p>Name:</p>	<p>Belay Sitotaw Goshu</p>
<p>Department, University & Country</p>	<p>Dire Dawa University, Ethiopia</p>