Comments on, **"Atmospheric gravity waves observed in Brazil on 14 October 2023"** by Bilibio et al.

**General Comments:** This study investigates gravity waves (GWs) using observations from three airglow imagers on 14 October 2023, the day of a solar eclipse. Additionally, the researchers employ a ray tracing technique to explore the source regions of the gravity waves, aiming to identify the role of the solar eclipse in generating these waves, alongside other potential sources such as tropospheric convection. GWs significantly influence the dynamics of the mesosphere and lower thermosphere and are involved in energy and momentum transfer; thus, quantifying their sources is a challenging task. The aim of this study is intriguing. The research focuses on four wave events, two of which exhibit very low phase velocities compared to earlier reports where bow waves had phase speeds nearly equal to or greater than the transient speed of the moon's shadow. Furthermore, the authors suggest that the coincidence of the ray path with the eclipse transient might indicate that the waves originated in the stratosphere due to cooling. However, they provide no evidence that the stratosphere cooled, which is also applicable to the tropospheric event. This leads to a perception that the study is more speculative than factual. Therefore, I recommend a major revision to the editor. Detailed comments are as follows:

**Specific Comments:**

1. Instead of assuming (and citing earlier investigations) that cooling occurred in the stratosphere and tropopause, it would be more effective to provide evidence using SABER or MLS temperature data, compared to monthly mean temperatures.

2. The authors assume that the coincidence of the ray path with the eclipse transient could be a cause due to the absence of convection in the troposphere. Why not consider wind shear as a potential source? Additionally, why are the phase velocities so low in three of the events? Provide more physical reasoning for the low phase speed if it is caused by the eclipse.

3. Event 3 occurs significantly later than the passage of the solar eclipse. Please comment on this.