# Article information:

Characteristics of large‐scale wave structure observed from African and Southeast Asian longitudinal sectors - Tulasi Ram - 2014 - Journal of Geophysical Research: Space Physics - Wiley Online Library  
<https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2013JA019712>

# Article summary:

1. The postsunset development of equatorial plasma bubbles (EPBs) is driven by the gravitational Rayleigh-Taylor (R-T) instability.

2. Atmospheric gravity waves (AGWs) are believed to provide the initial seed for EPBs by modulating the bottom side F region plasma into a spatial wave structure of enhanced and depleted regions.

3. The launch of C/NOFS with onboard CERTO beacon transmitter has enabled researchers to measure the total electron content (TEC) and scintillation from the CERTO, which has demonstrated the large-scale wave structure (LSWS) and subsequent development of EPBs.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article provides an overview of the characteristics of large-scale wave structure observed from African and Southeast Asian longitudinal sectors, as well as its potential role in driving equatorial plasma bubbles (EPBs). The article is based on a rich literature published over seven decades, which provides evidence for its claims. However, there are some potential biases that should be noted. For example, while the article mentions atmospheric gravity waves (AGWs) as a possible source for initial seed perturbations for EPBs, it does not explore other possible sources such as solar wind or magnetospheric disturbances. Additionally, while the article mentions several studies that have confirmed LSWS's role in controlling EPB development, it does not provide any counterarguments or alternative explanations for this phenomenon. Furthermore, while the article mentions favorable conditions for EPB development such as post sunset rise of equatorial F region height and close alignment of sunset terminator with magnetic meridian, it does not discuss any potential risks associated with these conditions or their effects on EPB development. Finally, while the article discusses observations made using ground-based ionosondes and CERTO beacon transmitter to measure TEC and scintillation from LSWSs, it does not mention any other instruments or methods used to observe this phenomenon. In conclusion, while this article provides an overview of large-scale wave structures observed from African and Southeast Asian longitudinal sectors and their potential role in driving EPBs, more research is needed to fully understand this phenomenon and its implications.

# Topics for further research:

* Solar wind disturbances and EPBs
* Magnetospheric disturbances and EPBs
* Risks associated with EPB development
* Effects of sunset terminator on EPB development
* Instruments used to observe LSWSs
* Implications of LSWSs on EPB development

# Report location:

<https://www.fullpicture.app/item/fc3bb7be38b935ba15c17e4b2afb2f29>