

MR3252: Tropical Meteorology

Paper Summary for Hendricks et al. (2004). Please answer the following questions with as much detail as possible. Your answers may be in paragraph form or list form as appropriate.

1. What were the authors' primary research questions and/or hypotheses?
2. What motivated the authors to conduct this study?
3. How did the authors execute this research? What model did they use? How did they set up and execute the model? In other words, what was the experimental design?
4. What are some potential key limitations in this study, including those that were explicitly mentioned in the article?

5. What were the article's central conclusions? How did they relate to the primary research questions and/or hypotheses? (i.e., If possible, match a conclusions or set of conclusions to each research questions and/or hypothesis.)

6. Using the equation for the PV tendency given in the paper, argue how deep tropospheric latent heating tends to produce positive vorticity in the lower troposphere, specifically below the level of maximum heating.

7. What are the phases of tropical cyclogenesis described in this article? What processes occur during each stage?

8. What is the primary mechanism hypothesized by the article that leads to warm core development?

9. How do the authors show that moisture is likely important for vortex merging?