

1 **Tropopause Evolution in a Rapidly Intensifying Tropical Cyclone: A Static**  
2 **Stability Budget Analysis**

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## ABSTRACT

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9 To assess how well the budget captures the observed static stability variability, 24-hour changes  
10 in static stability are computed at every grid point in the domain shown in Fig. 2 and compared to  
11 the changes indicated by the budget equation. Probability density functions (PDFs) of the absolute  
12 value of these static stability changes are plotted in Fig. 3 for each of the first four days of the  
13 simulation. The PDFs of the budget changes over these 24-hour periods (Fig. 3, orange lines)  
14 closely follow those of the model changes (Fig. 3a, red lines). Meanwhile, the vast majority of  
15 grid points in the region exhibit residuals near zero (Fig. 3a, blue lines). The similarity between  
16 the PDFs of the model and budget changes, together with the near-zero residual values, indicates  
17 that the budget performs well in the tropopause layer, and can be used to assess the changes in  
18 static stability during these time periods.

## 19 **1. Introduction**

## 20 **2. Model Setup**

## 21 **3. Results**

22 *Acknowledgments.* Start acknowledgments here.