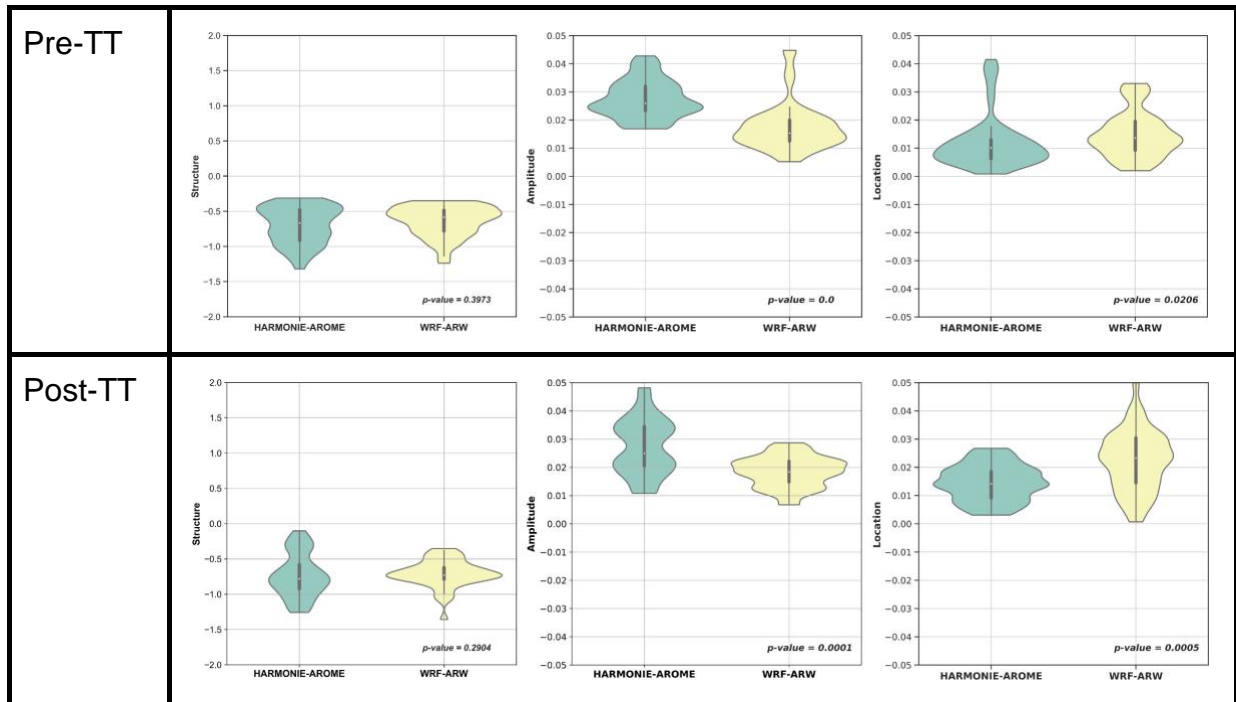
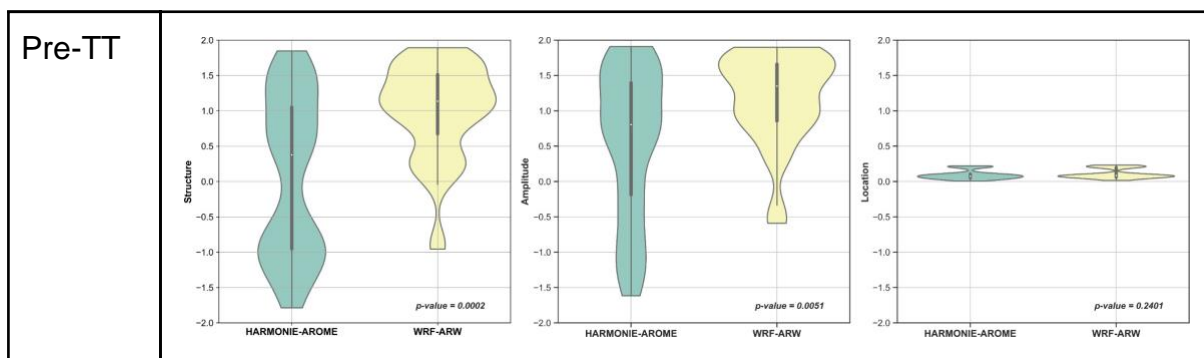


# Appendix: Supplementary Material



**Figure 1A.** Brightness temperature HARMONIE-AROME (green) and WRF (yellow) model's violin diagrams regarding the three SAL parameters for the pre-TT (above) and post-TT (below) period. The A and L components have been computed at different intervals for better visualization.



Post-TT

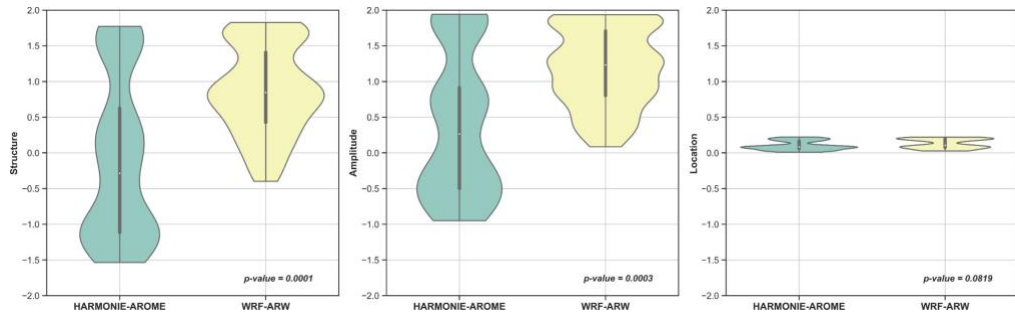
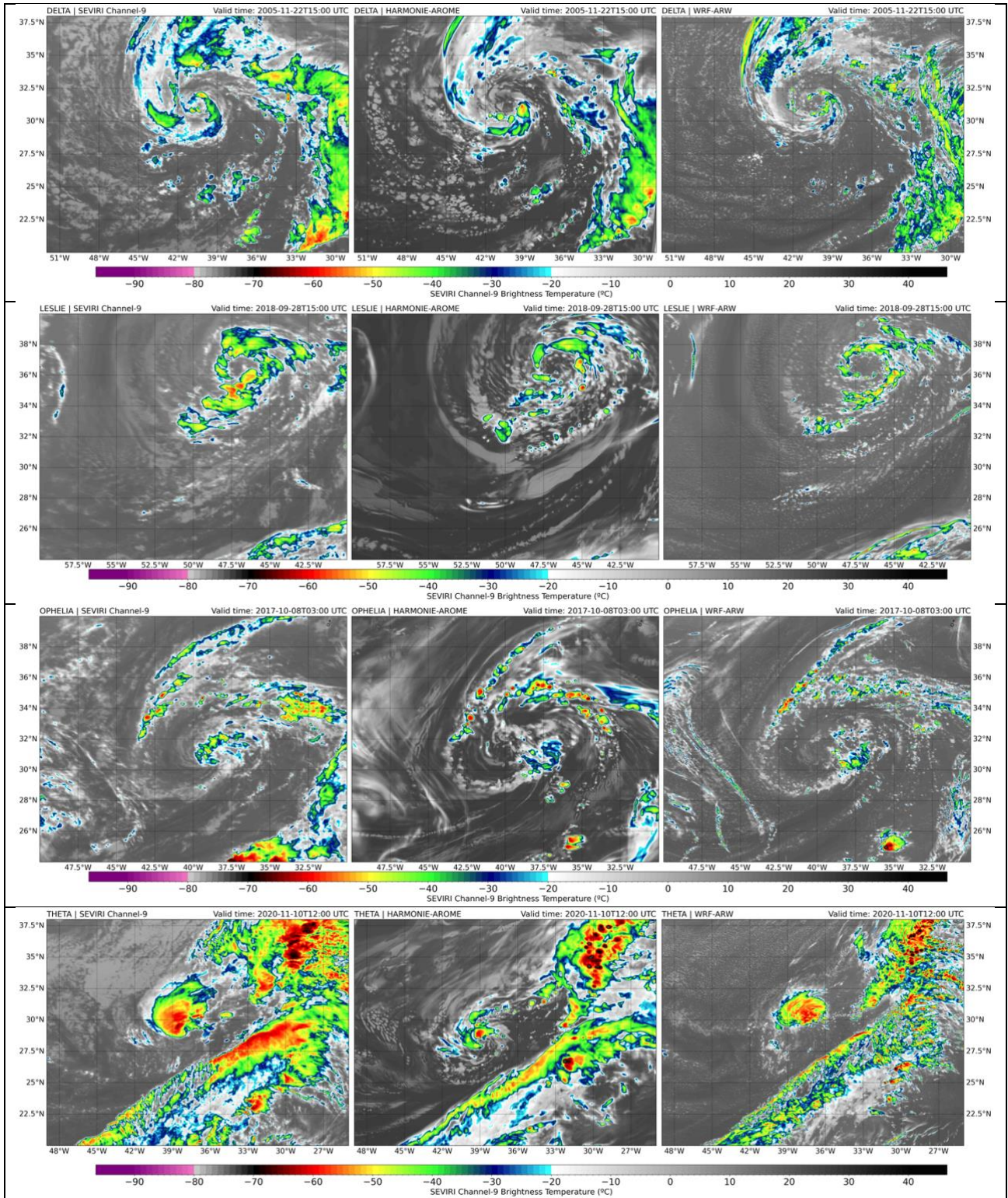


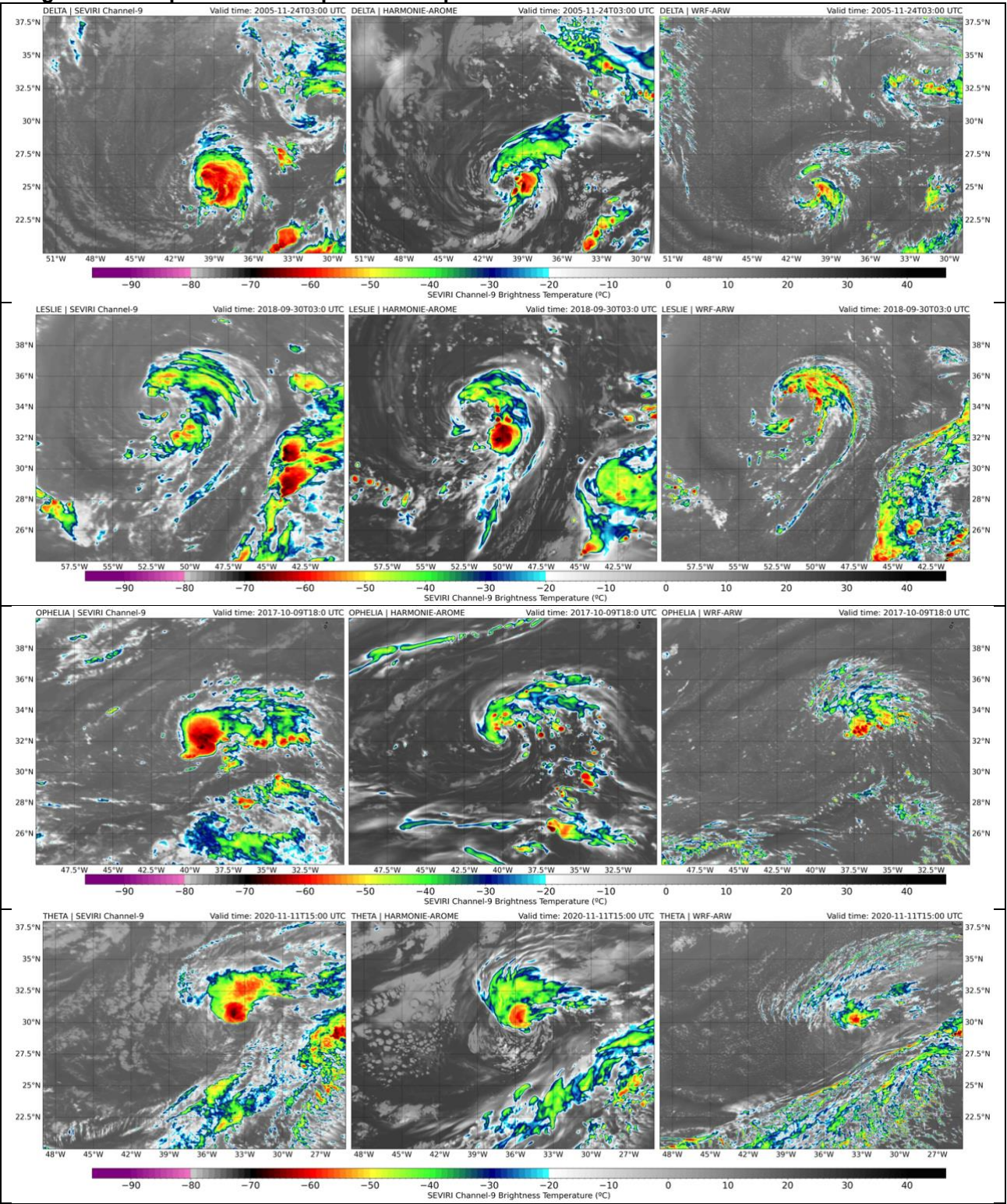
Figure 1B. Same as Figure XX except for the accumulated precipitation.

## Brightness Temperature PRE period examples



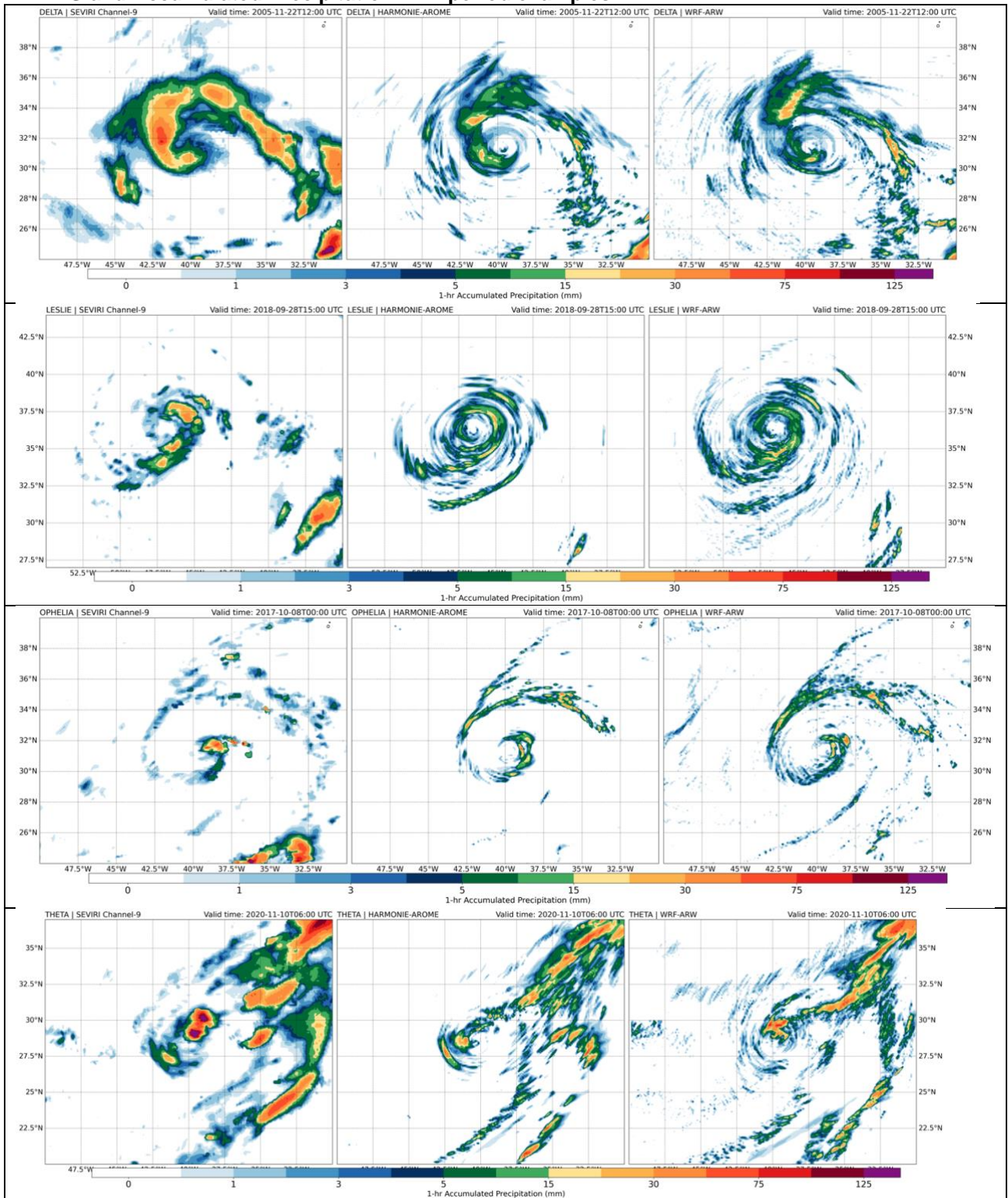
**Figure 2a:** Brightness Temperature examples for the PRE period in TT Delta, Leslie, Ophelia and Theta.

### Brightness Temperature POST period examples



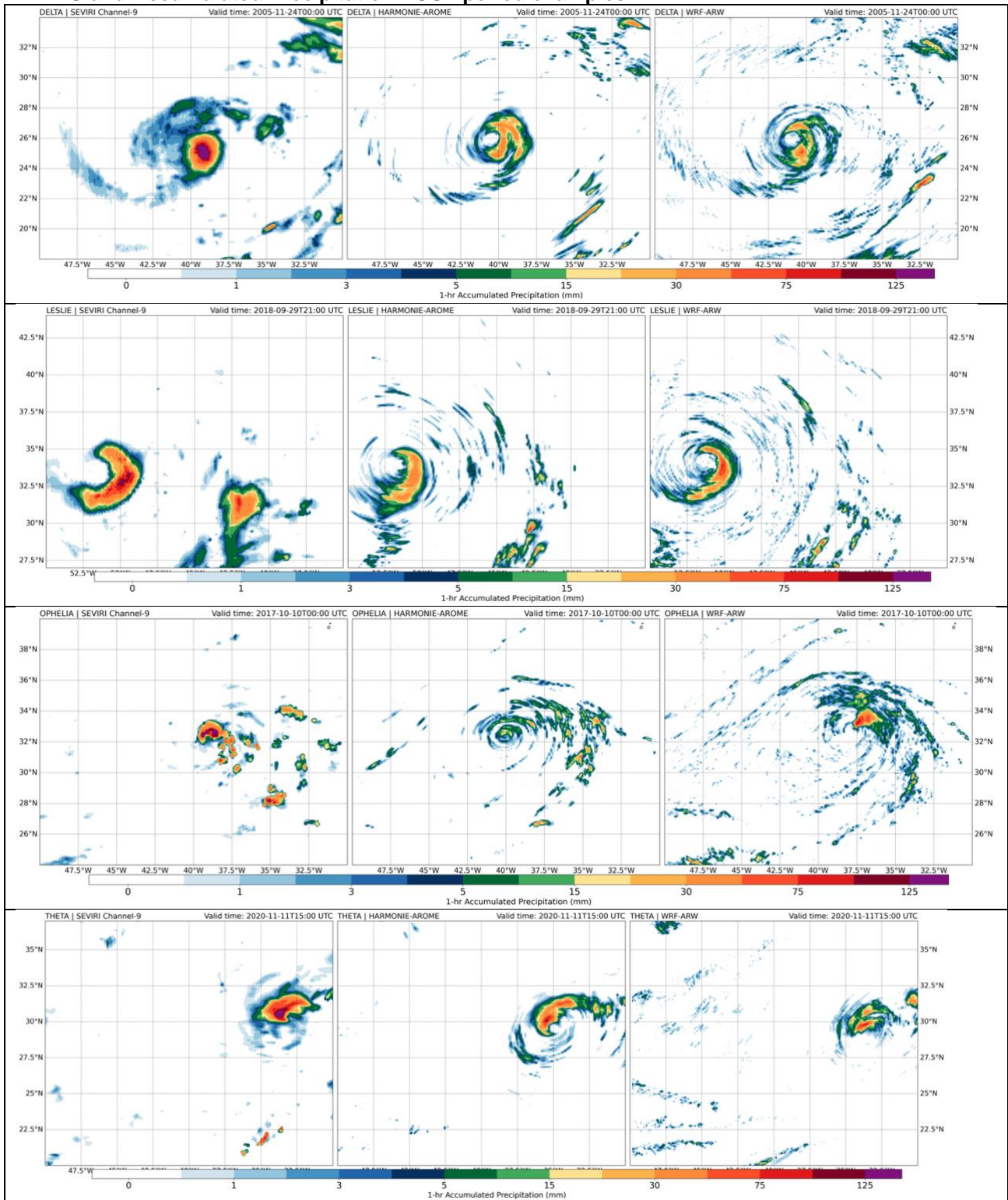
**Figure 2b:** Brightness Temperature examples for the POST period in TT Delta, Leslie, Ophelia and Theta.

### IMERG and Accumulated Precipitation PRE period examples

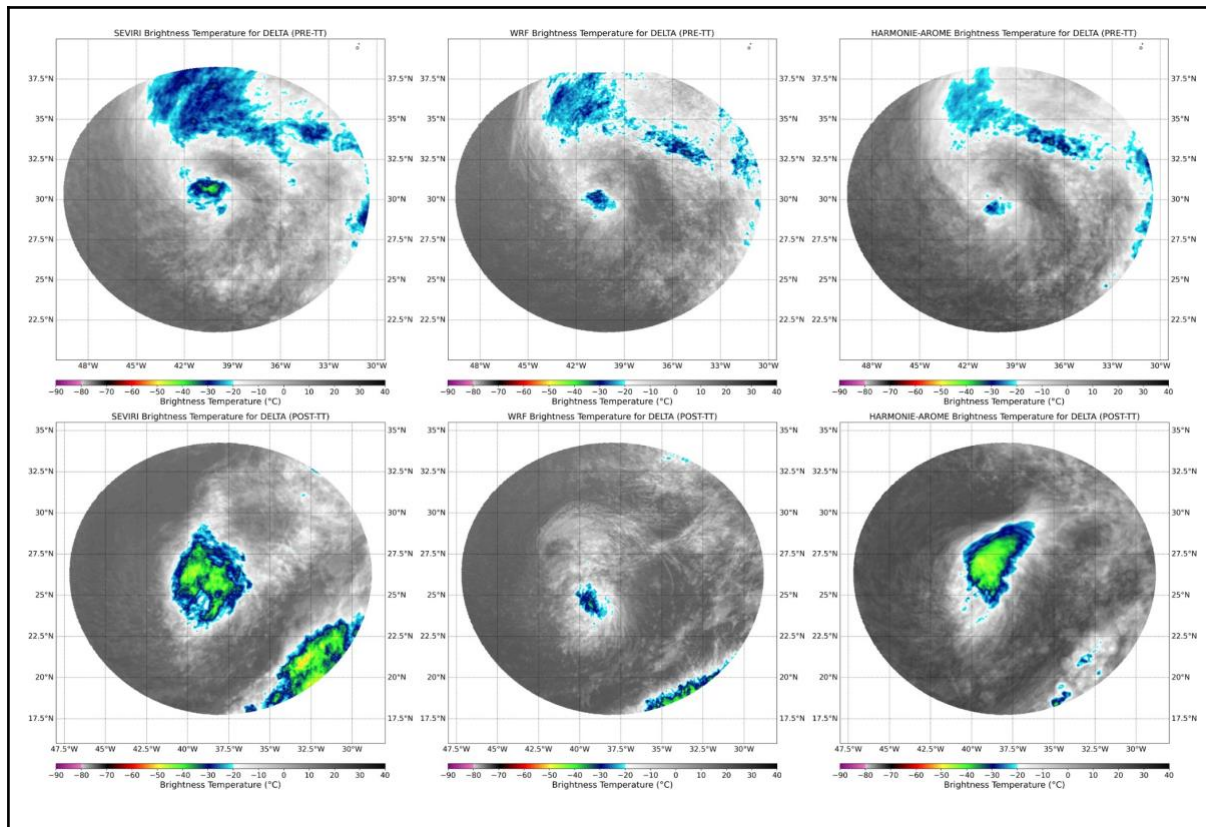


**Figure 3a:** IMERG and Accumulated Precipitation examples for PRE period in TT Delta, Leslie, Ophelia and Theta.

### IMERG and Accumulated Precipitation POST period examples



**Figure 3b:** IMERG and Accumulated Precipitation examples for POST period in TT Delta, Leslie, Ophelia and Theta.



**Figure 3A.** Delta's (top) BT (K) mean for the MSG-SEVIRI satellite (first column), WRF (second column), and HARMONIE-AROME model (third column) during the pre-TT (top) and post-TT (bottom) period.

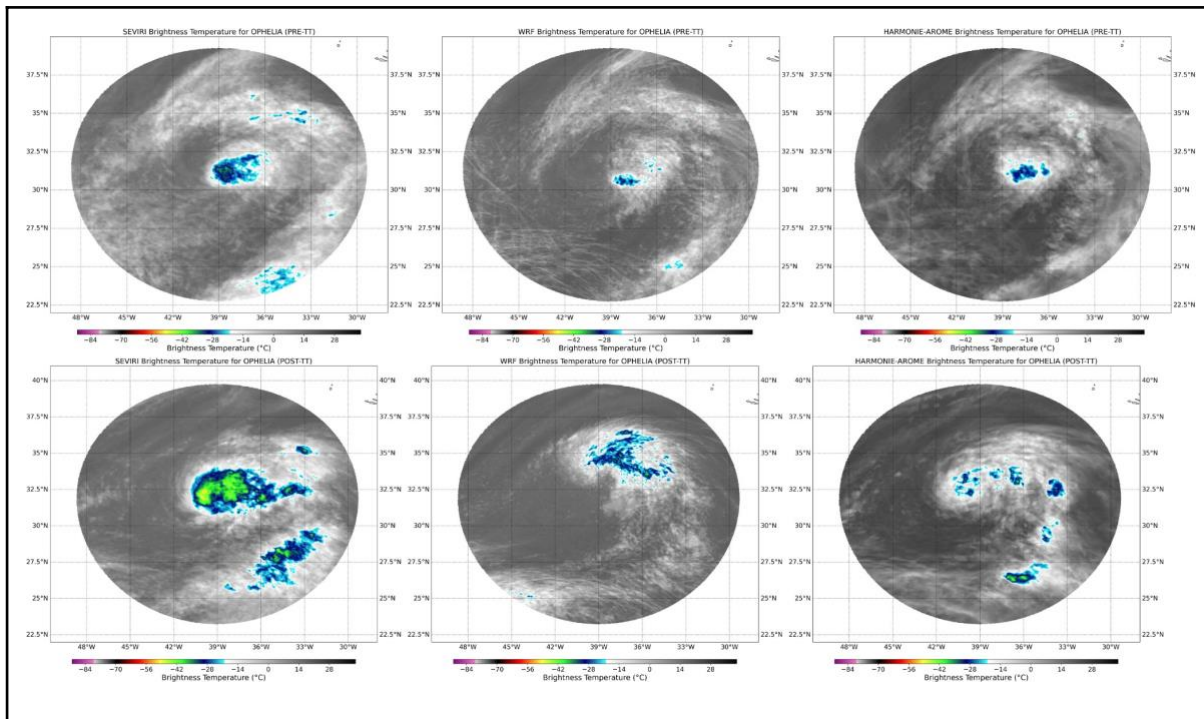


Figure 3B. Same as Figure 1A except for cyclone Ophelia.

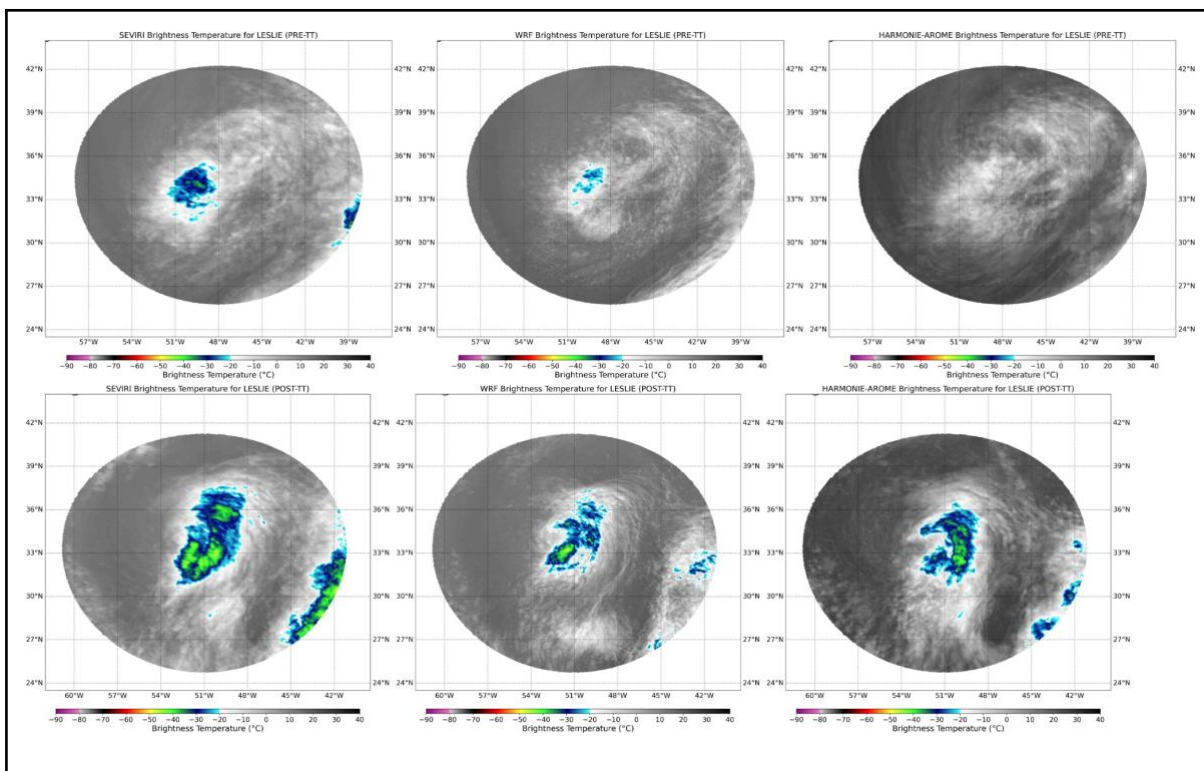


Figure 3C. Same as Figure 1A except for cyclone Leslie.



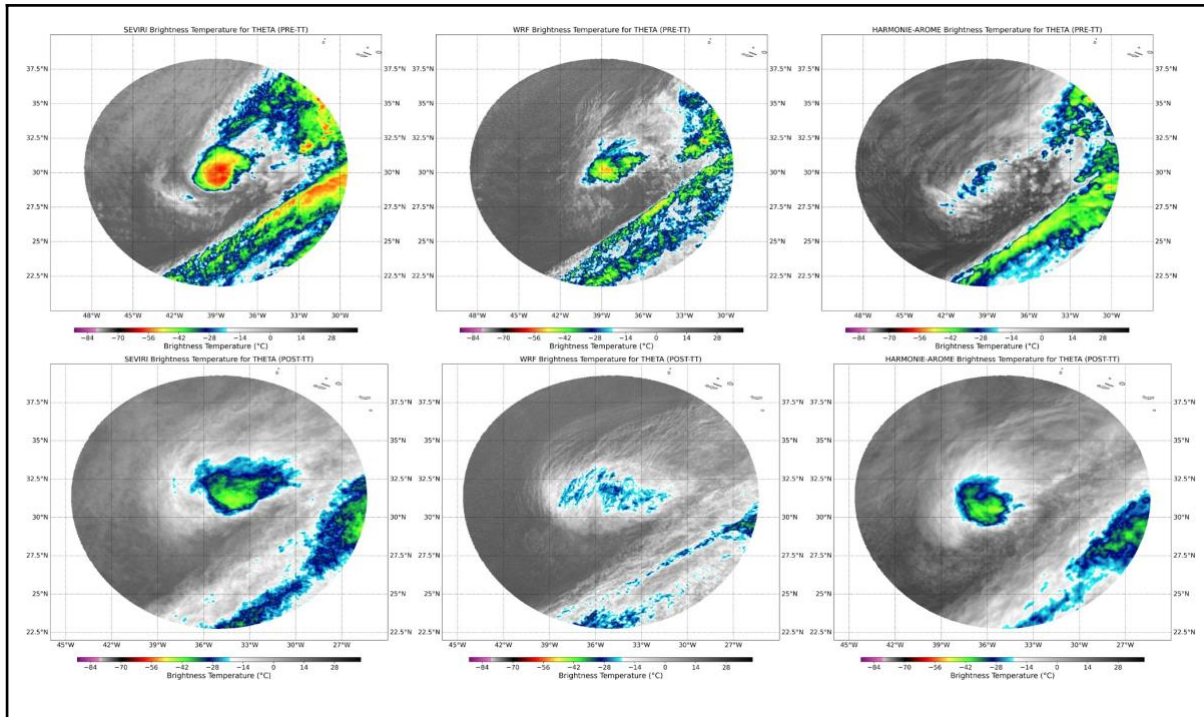


Figure 3D. Same as Figure 1A except for cyclone Theta.

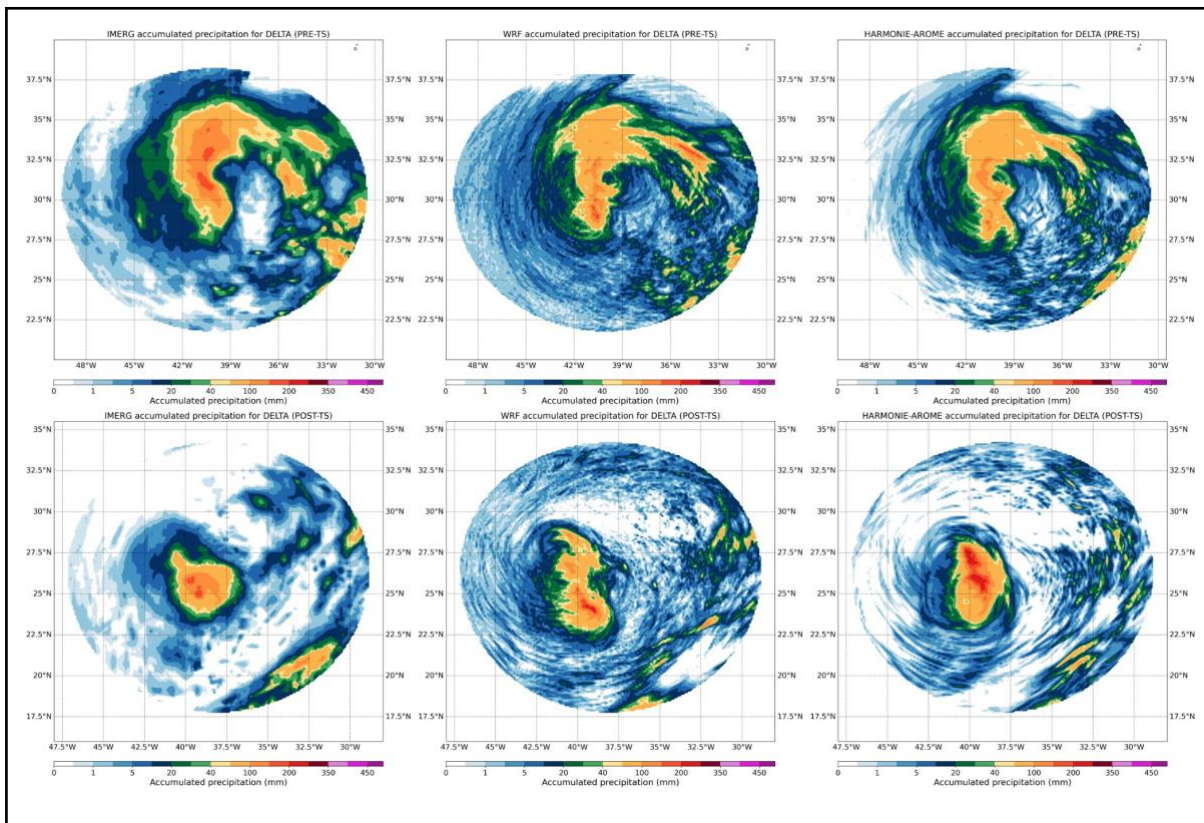
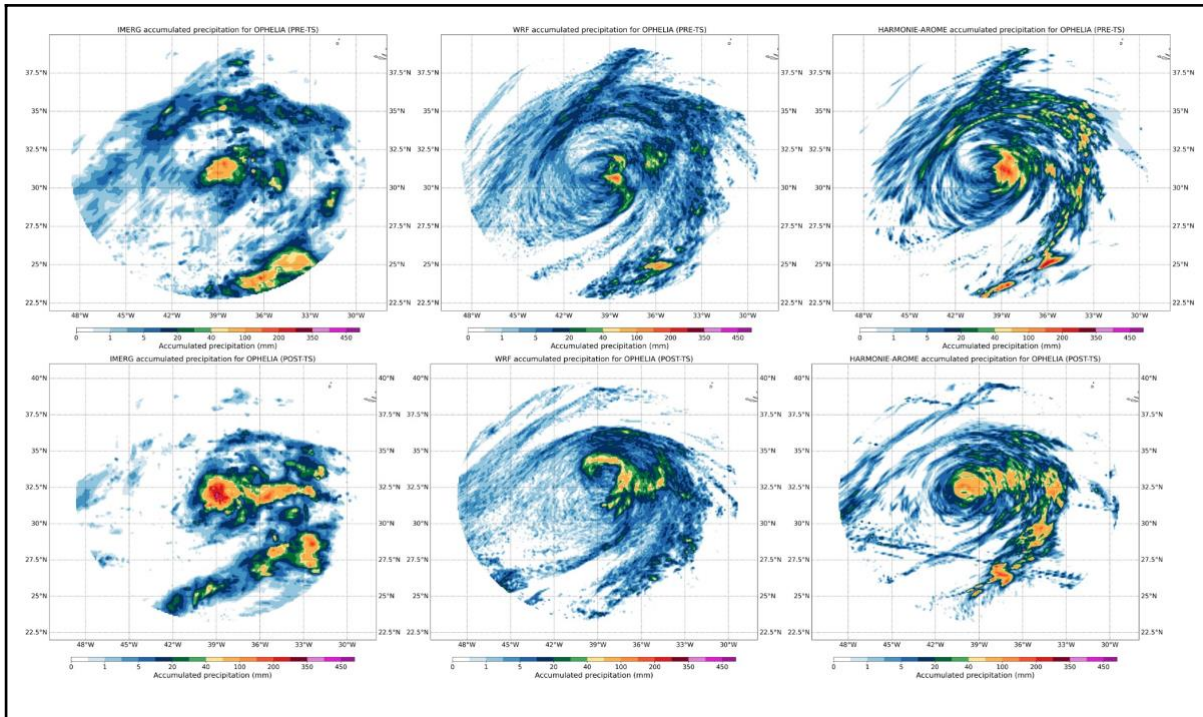
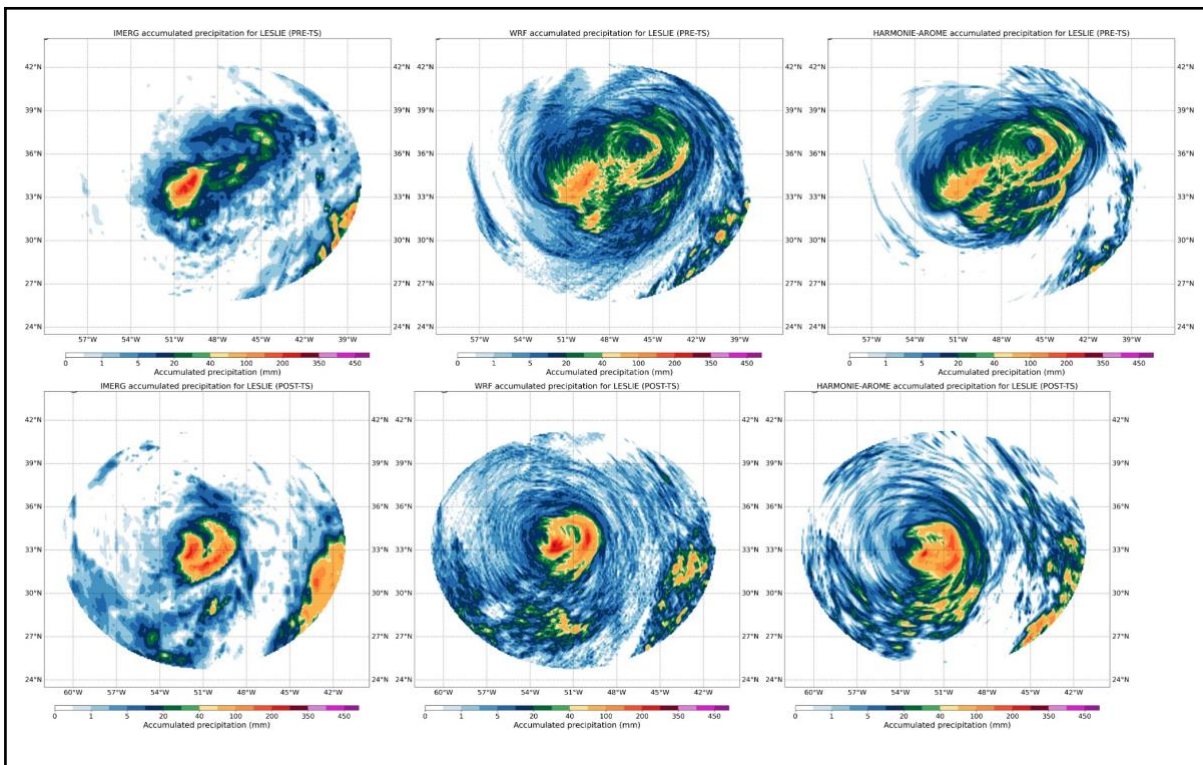


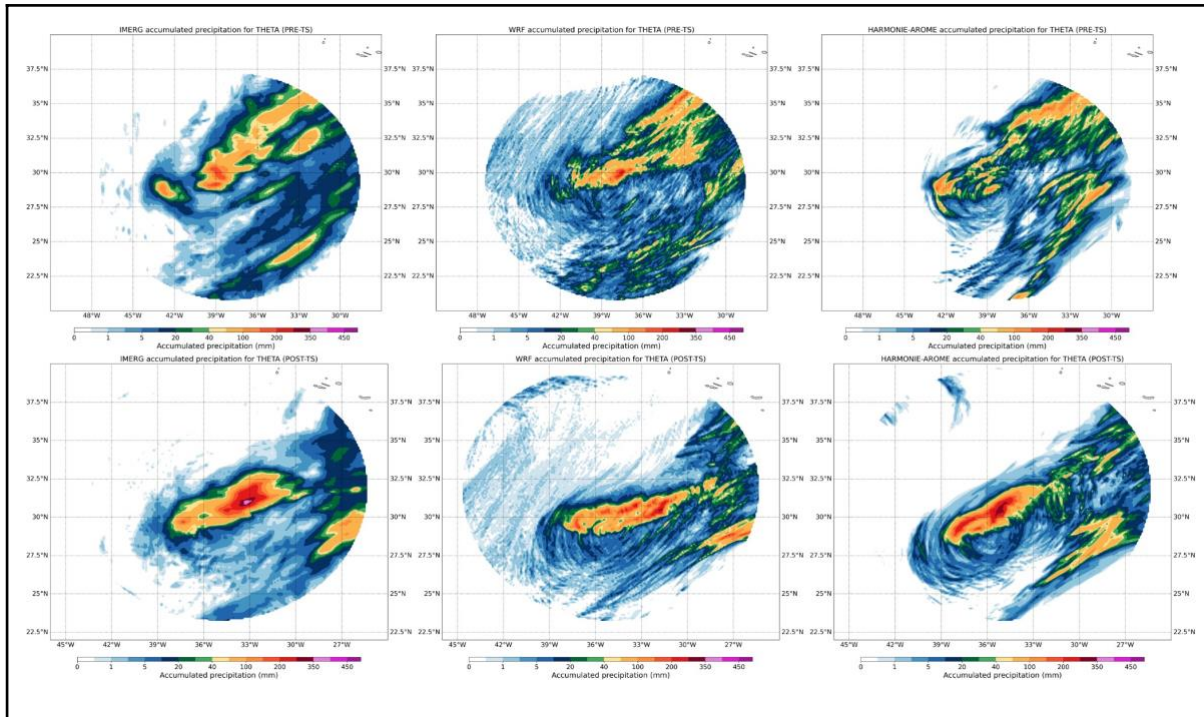
Figure 4A. Same as Figure 2A except for the accumulated precipitation.



**Figure 4B.** Same as Figure 3A except for the Ophelia.

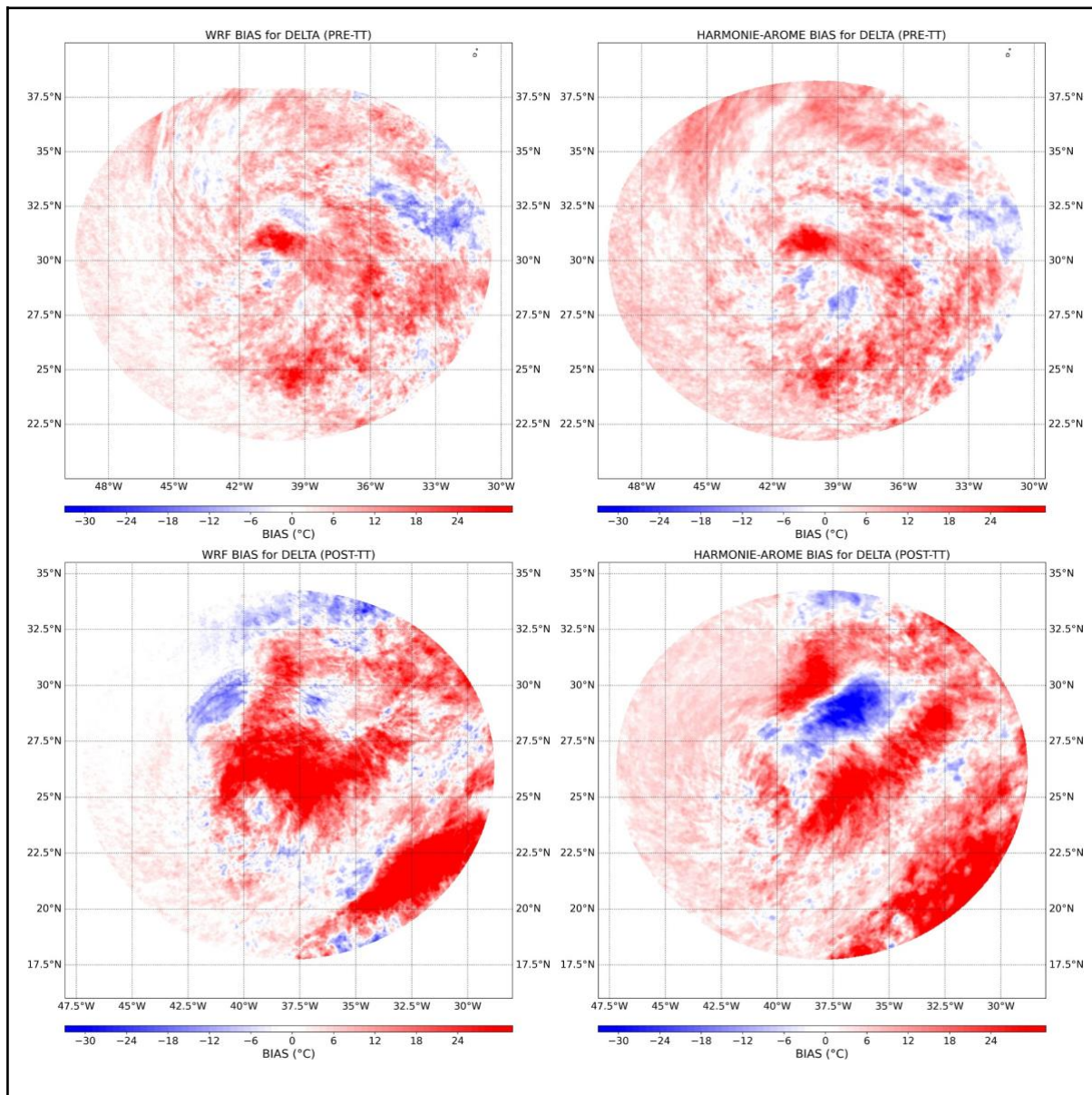


**Figure 4C.** Same as Figure 3A except for cyclone Leslie.

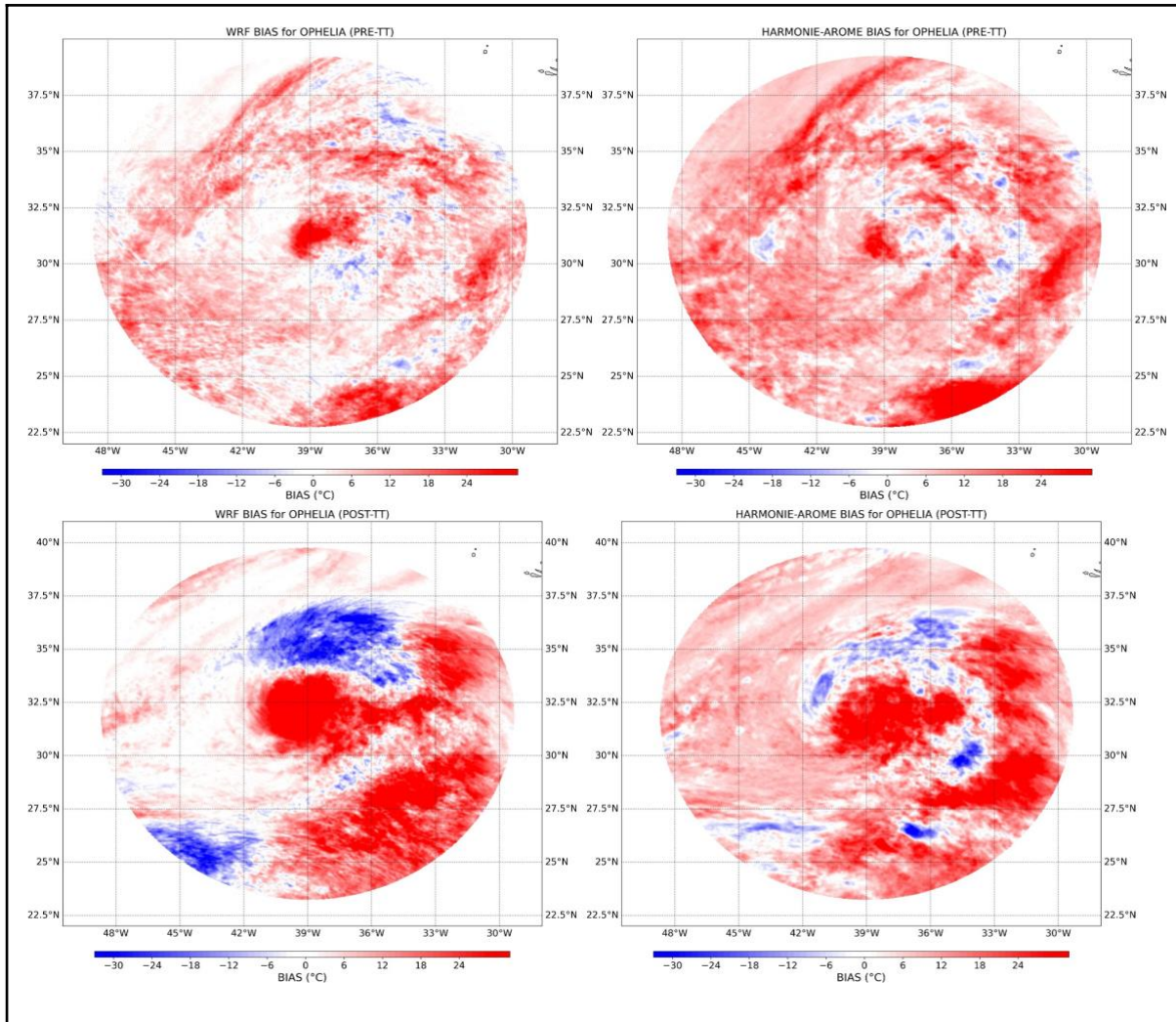


**Figure 4D.** Same as Figure 3A except for cyclone Theta.

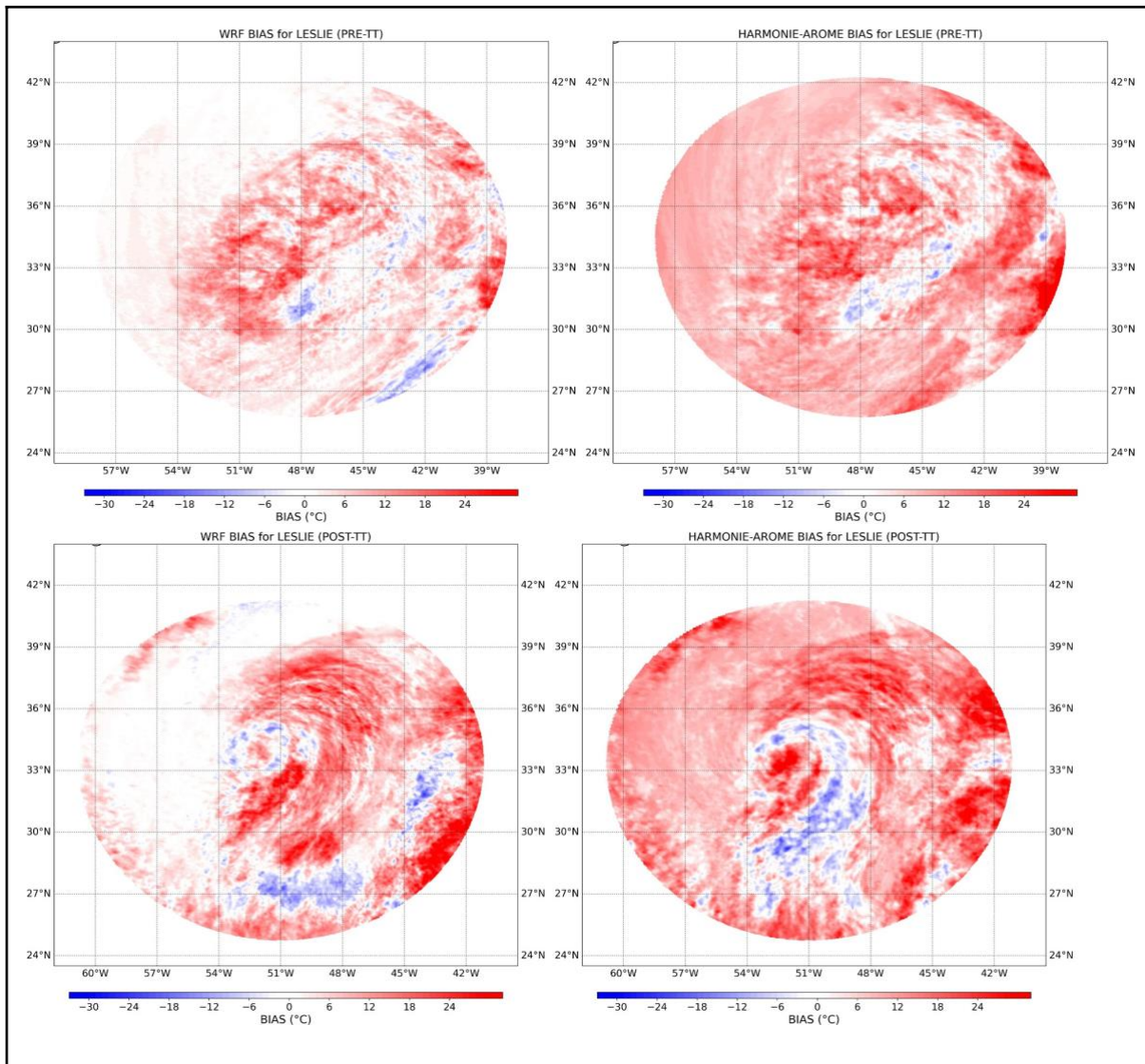
# BRIGHTNESS TEMPERATURE SPATIAL SKILL SCORES



**Figure 5A.** Delta's BT (K) BIAS results for the a), c) WRF, and b), d) HARMONIE-AROME model for the (top) pre-STC and (bottom) pure-STC period.



**Figure 5B.** Same as Figure 4A except for cyclone Ophelia.



**Figure 5C.** Same as Figure 4A except for cyclone Leslie.

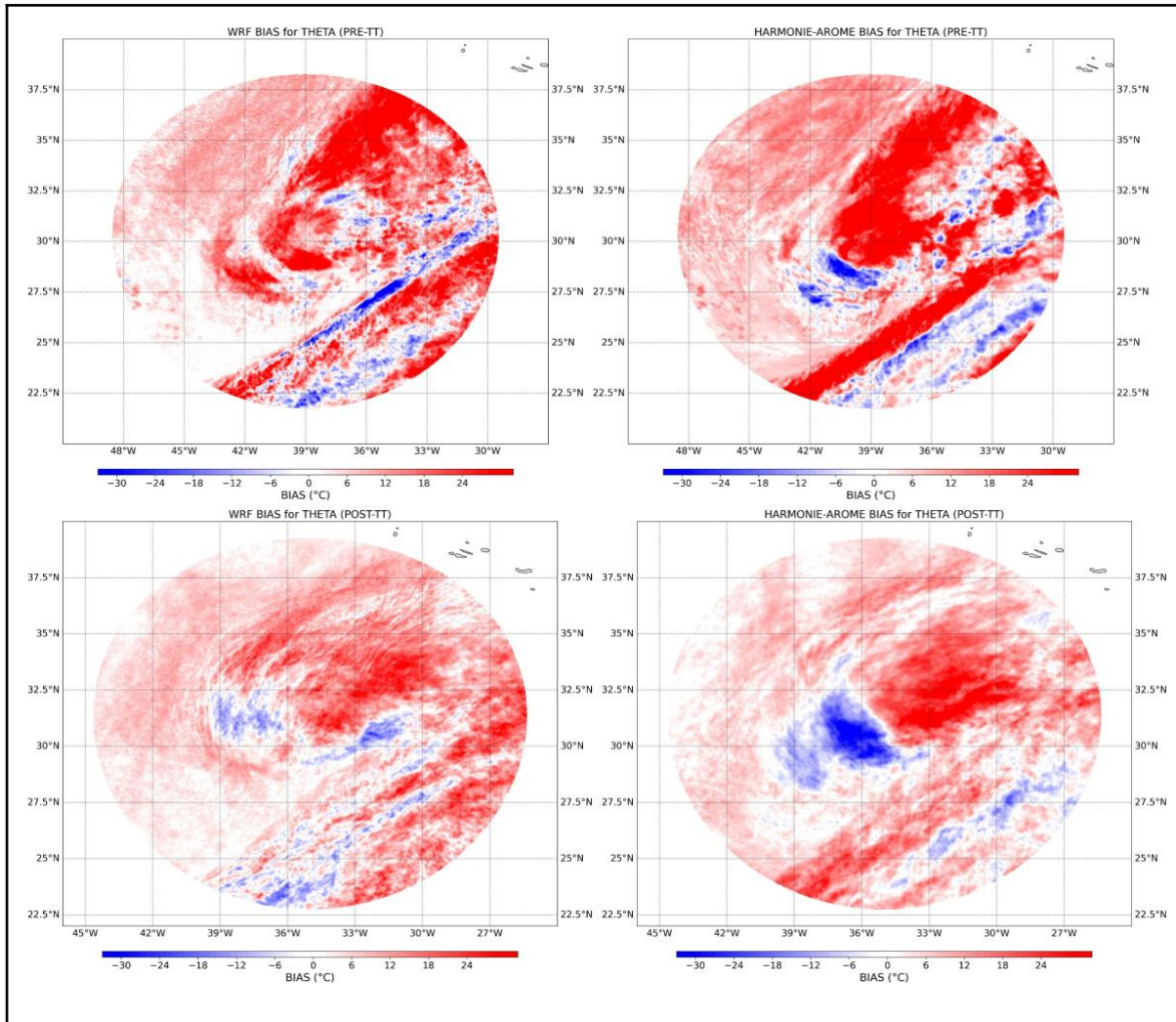
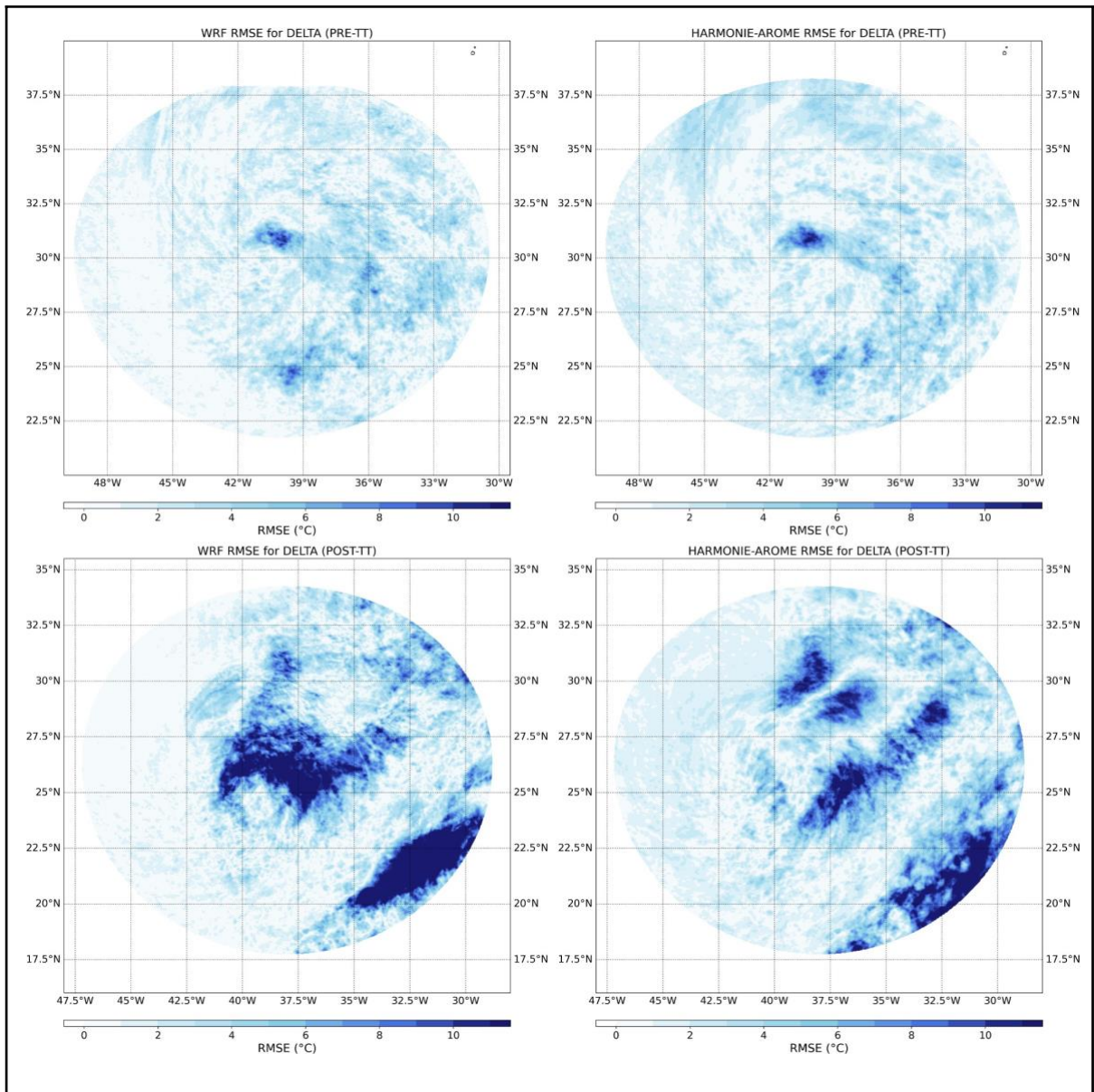
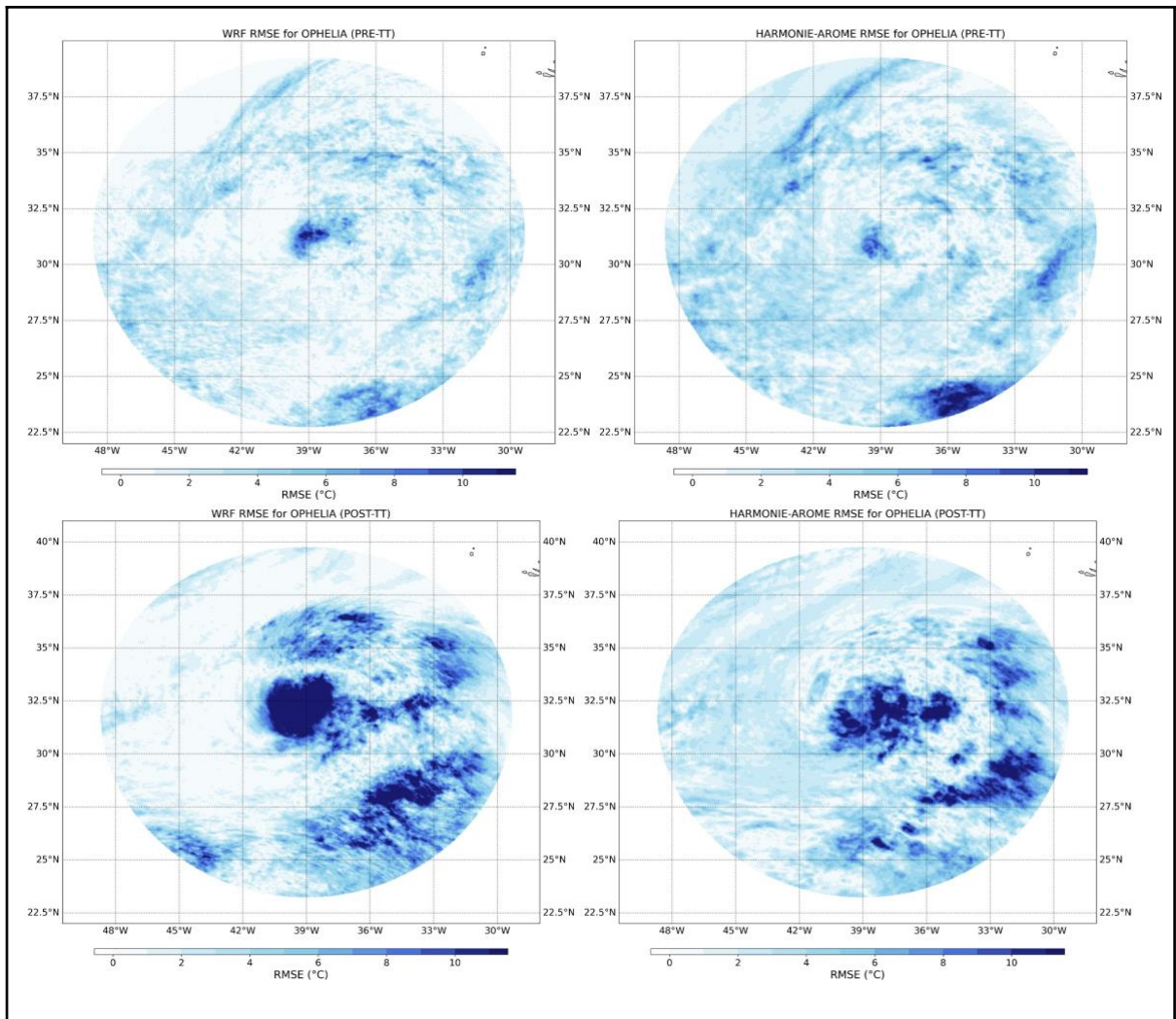


Figure 5D. Same as Figure 4A except for cyclone Theta.

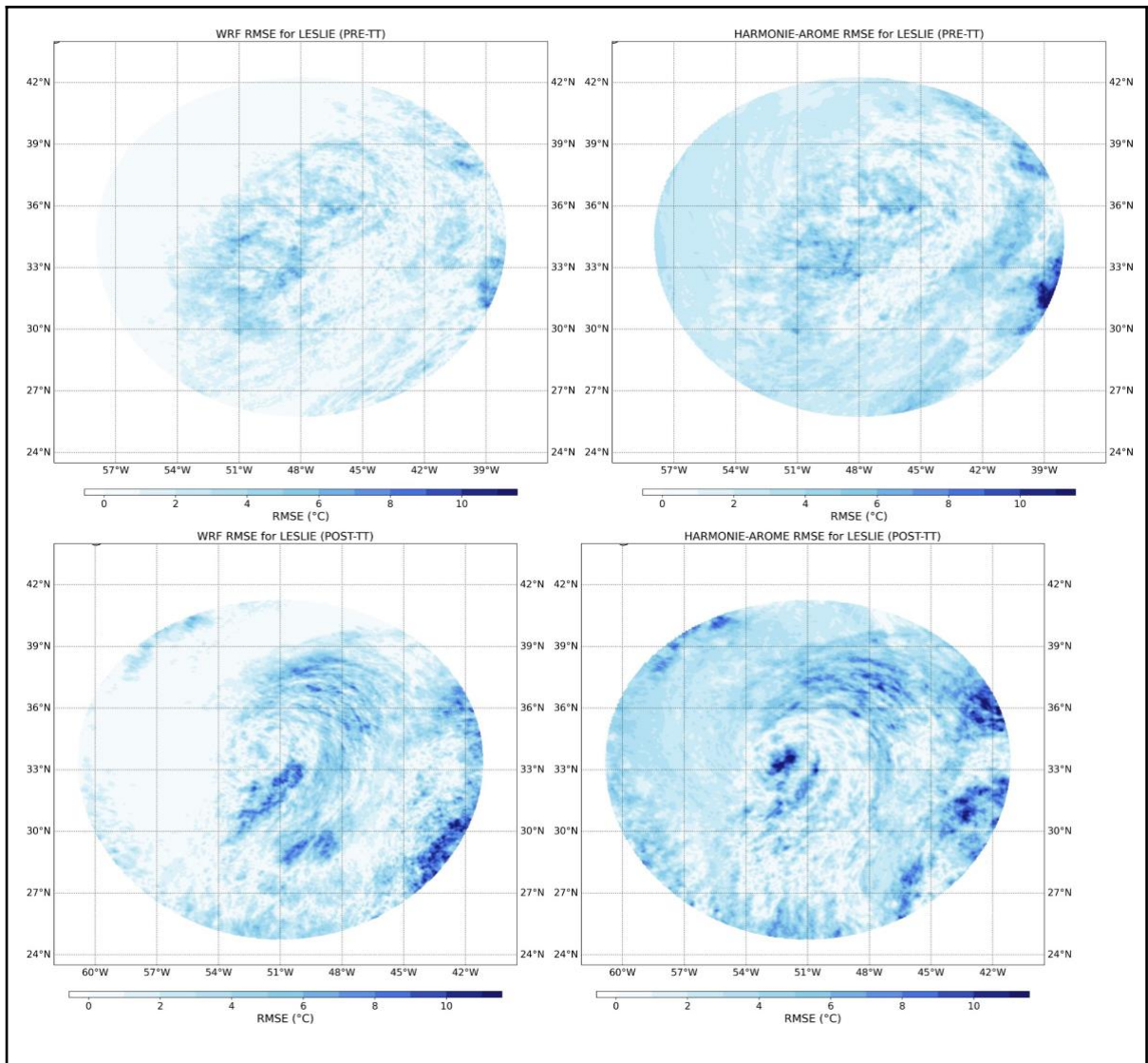


**Figure 6A.** Same as Figure 4A except for cyclone Delta RMSE results.





**Figure 6B.** Same as Figure 5A except for cyclone Ophelia.



**Figure 6C.** Same as Figure 5A except for cyclone Leslie.

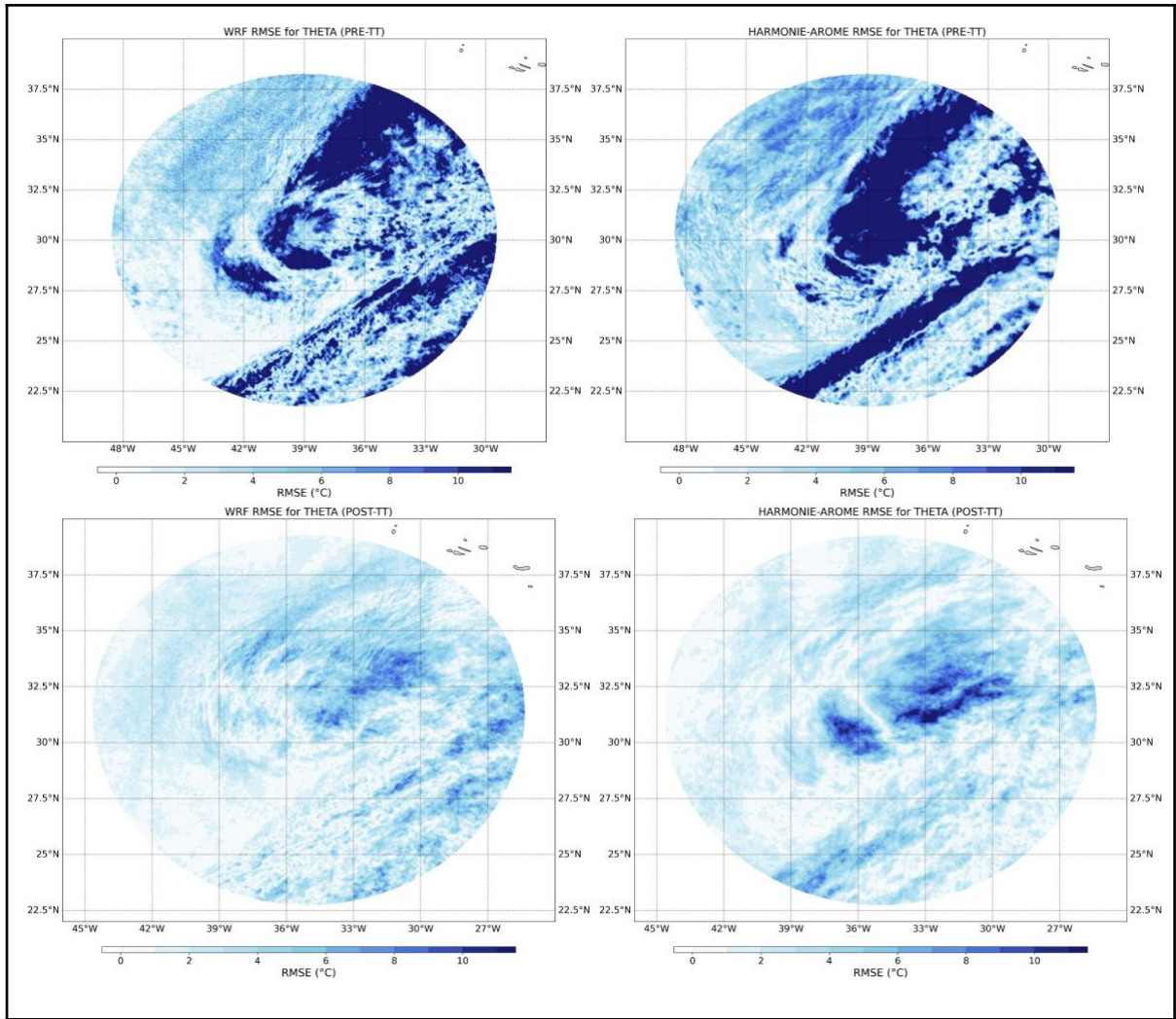
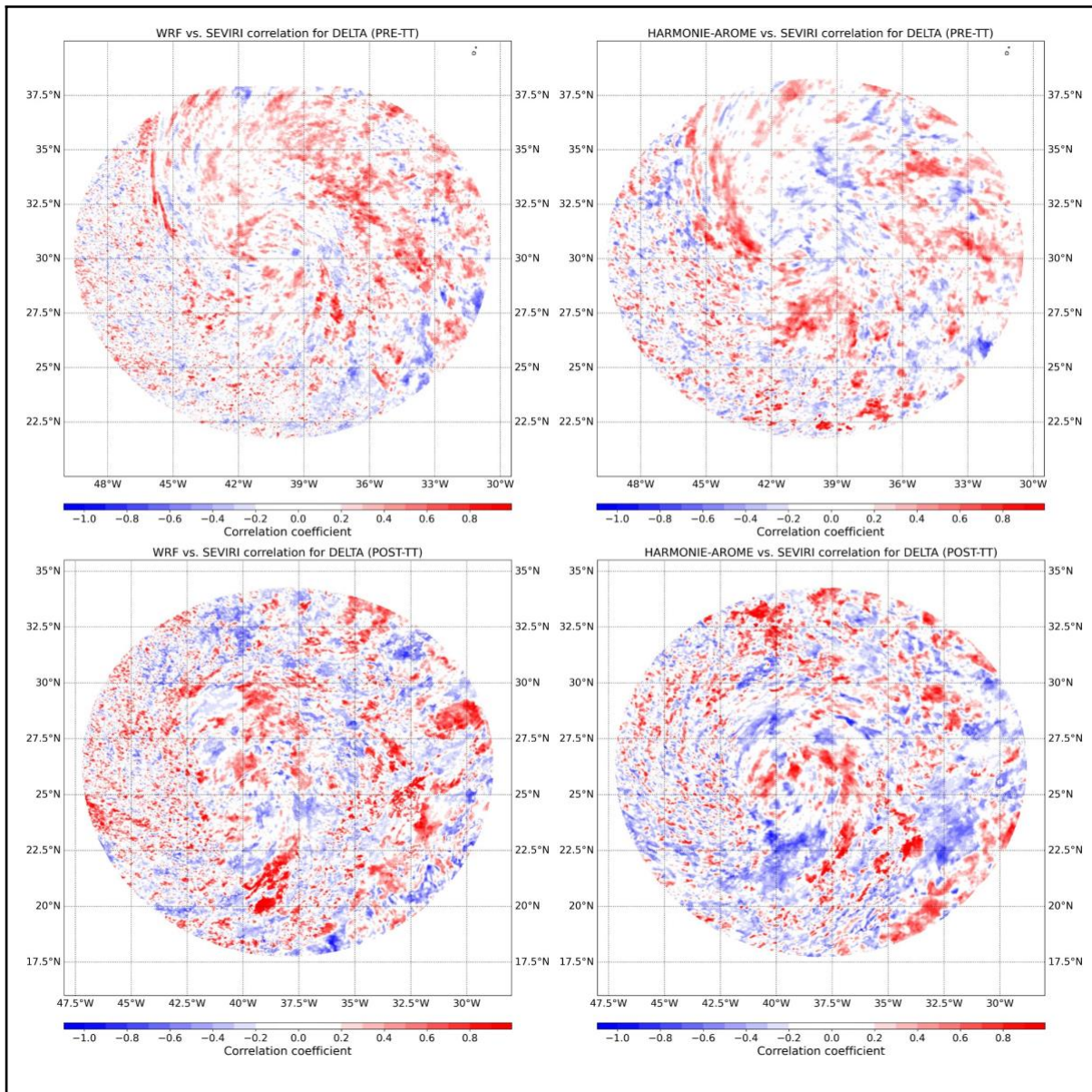
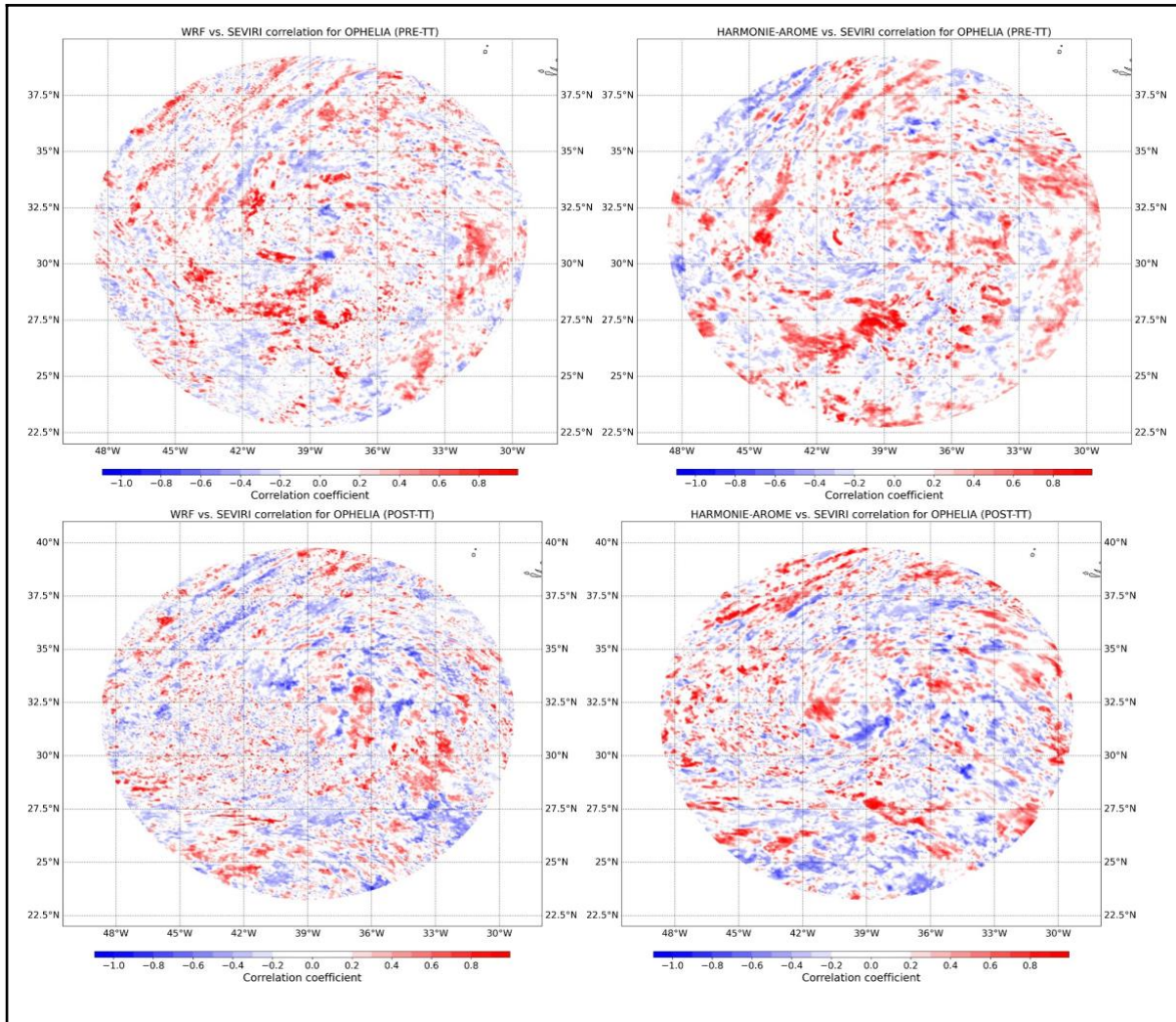


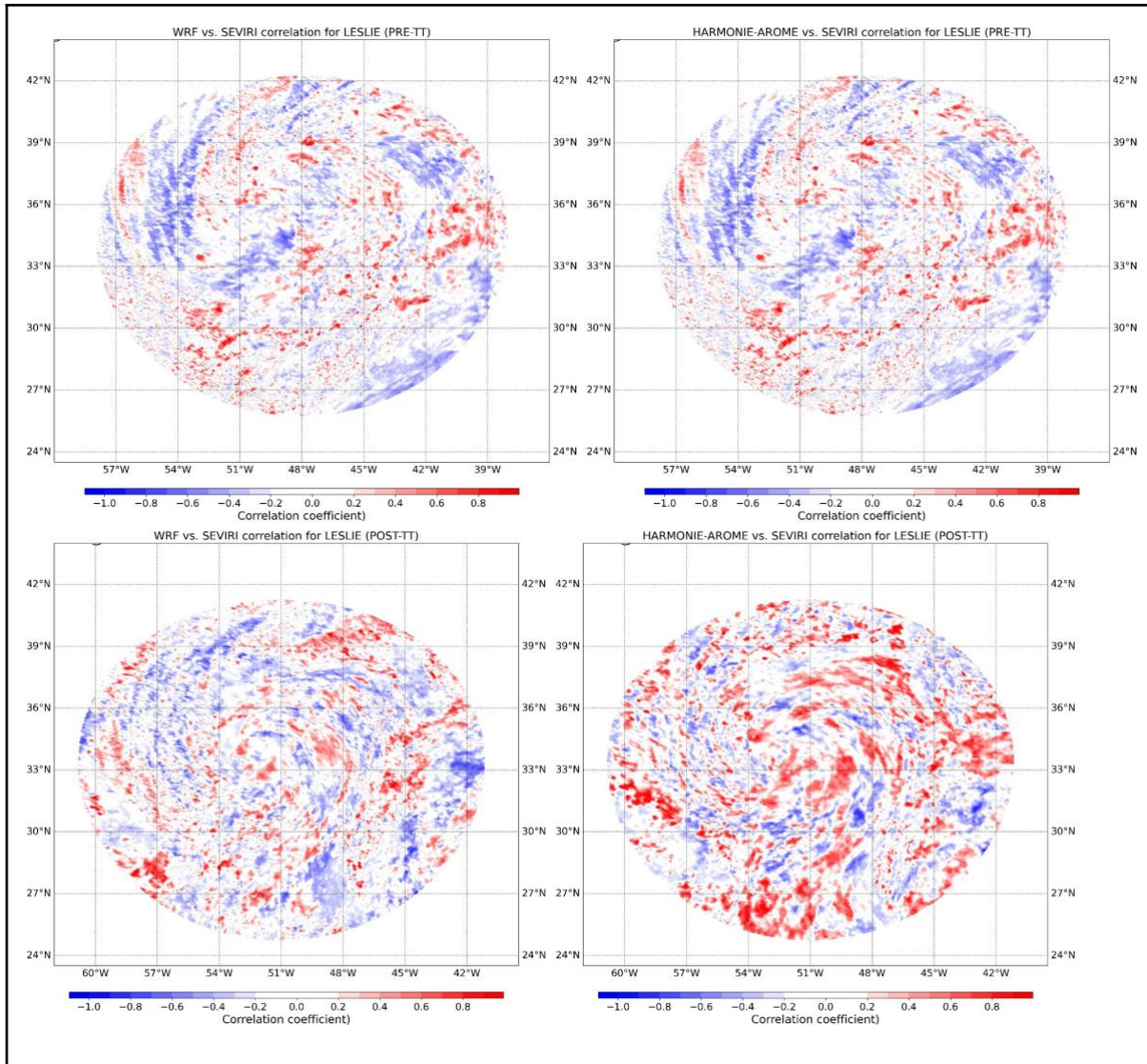
Figure 6D. Same as Figure 5A except for cyclone Theta.



**Figure 7A.** Same as Figure 4A except for cyclone Delta correlation results.



**Figure 7B.** Same as Figure 6A except for cyclone Ophelia.



**Figure 7C.** Same as Figure 6A except for cyclone Leslie.

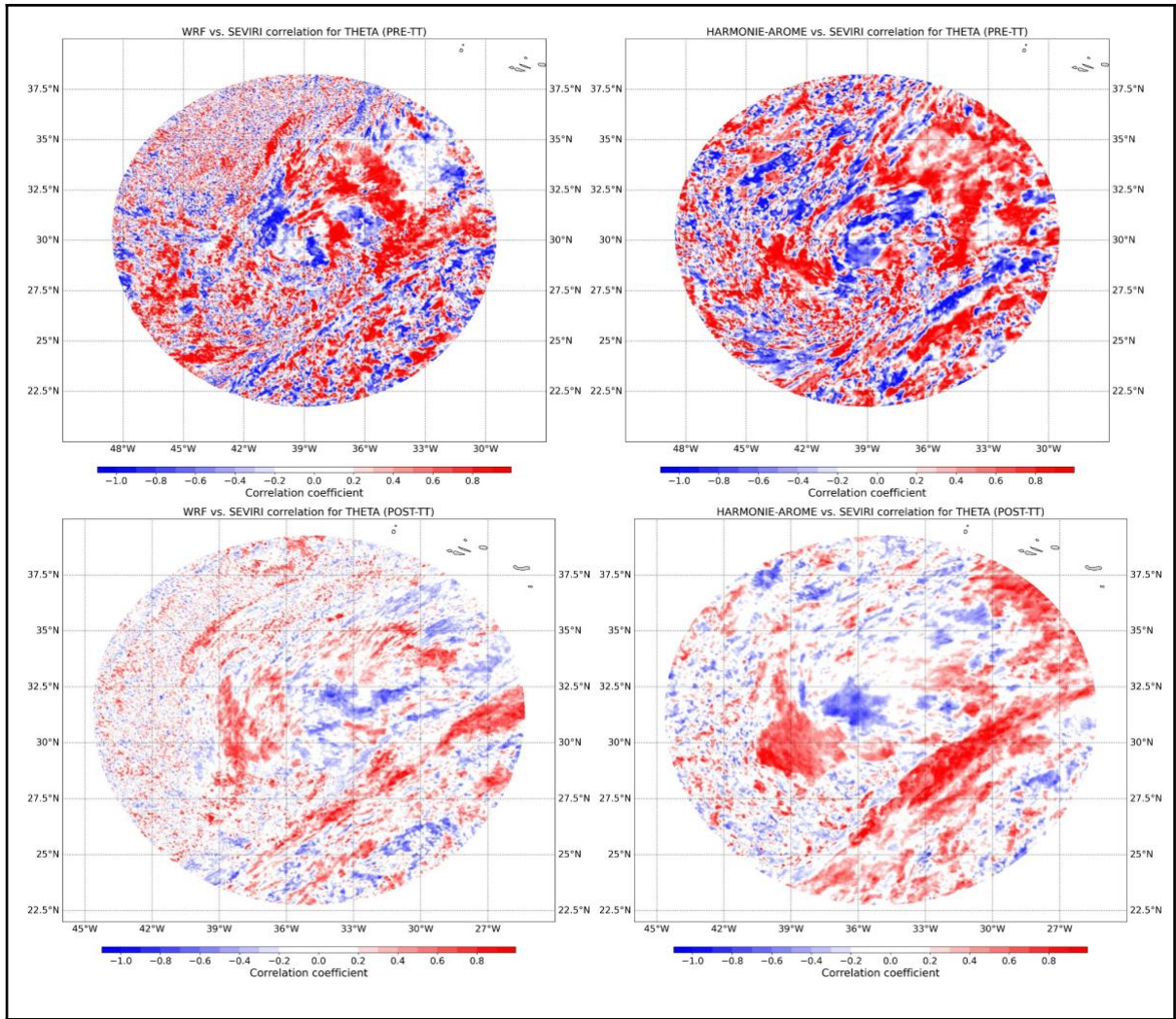
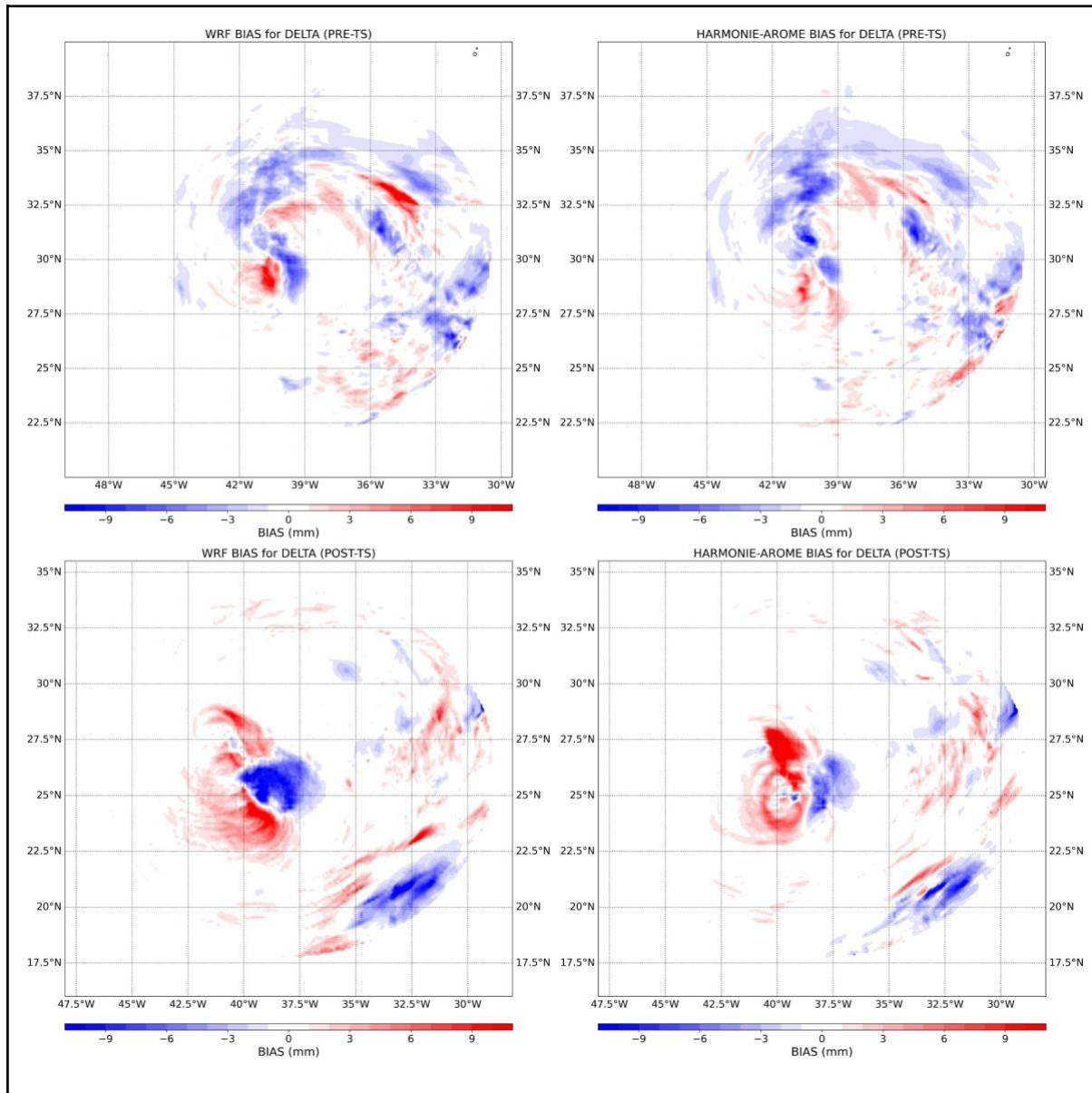


Figure 7D. Same as Figure 6A except for cyclone Theta.

# ACCUMULATED PRECIPITATION SPATIAL SKILL SCORES:



**Figure 8A.** Accumulated precipitation (mm) BIAS results for the a), c) WRF, and b), d) HARMONIE-AROME model for the (top) pre-STC and (bottom) pure-STC period.



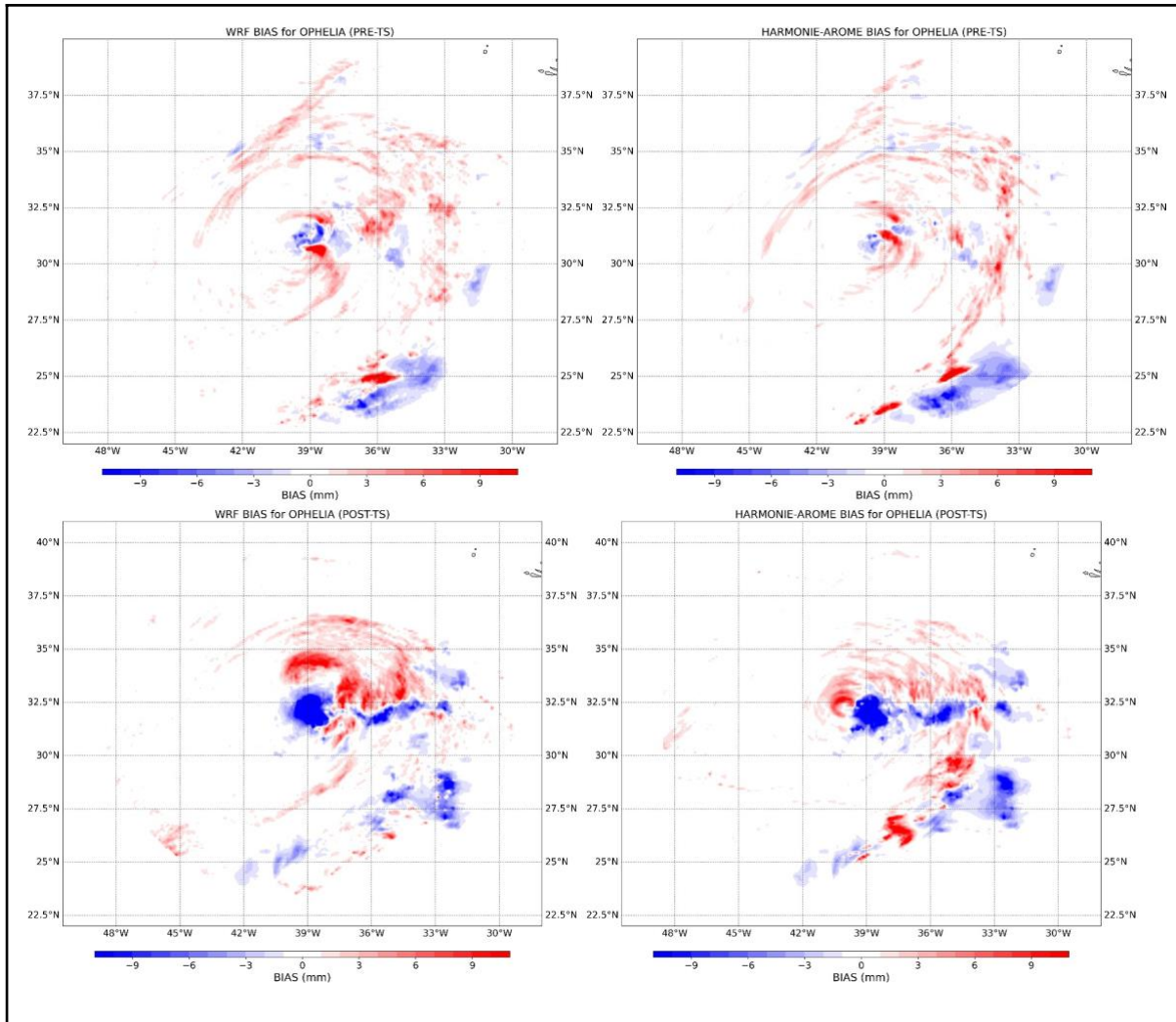
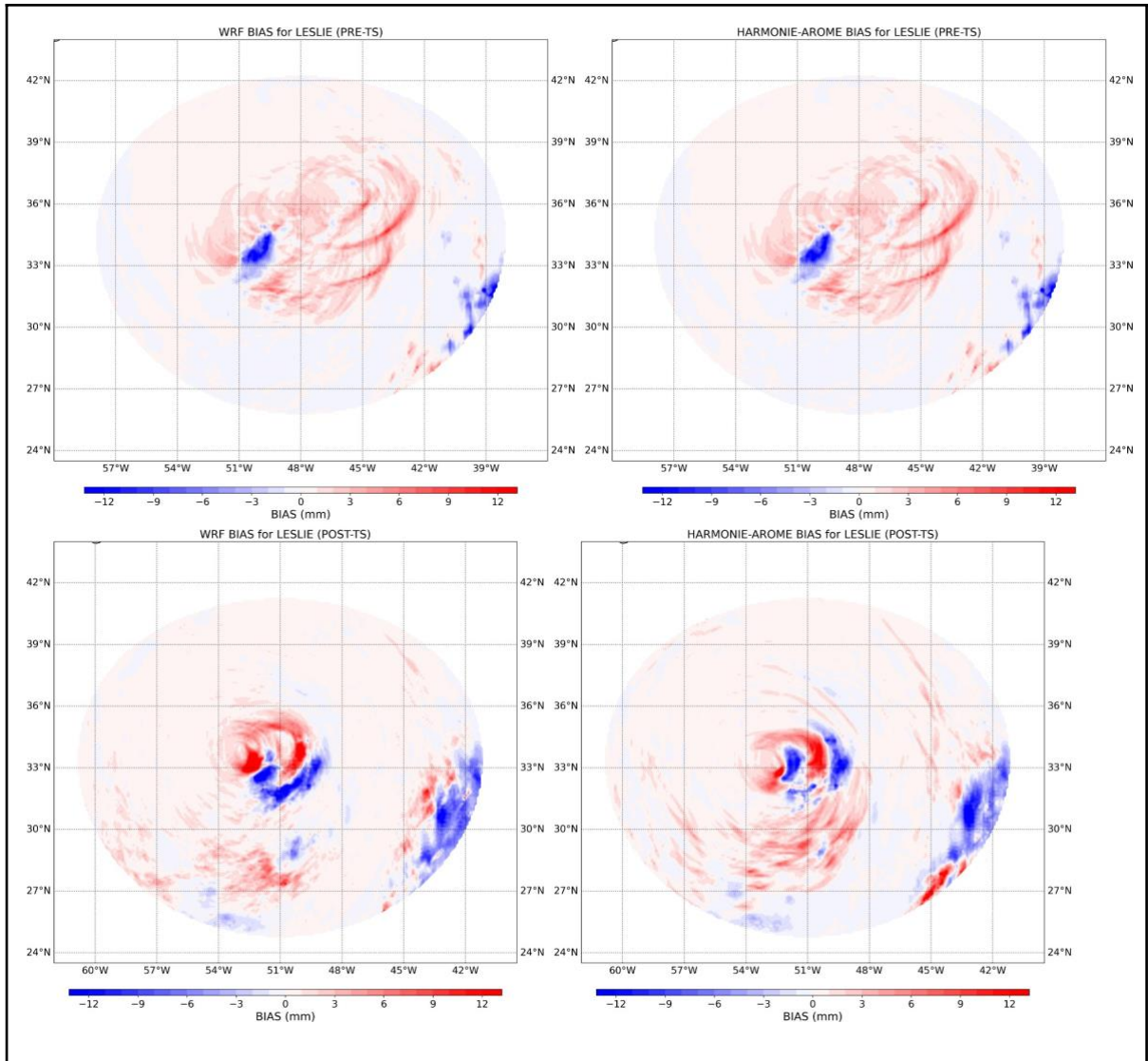


Figure 8B. Same as Figure 7A except for the Ophelia.



**Figure 8C.** Same as Figure 7A except for cyclone Leslie.

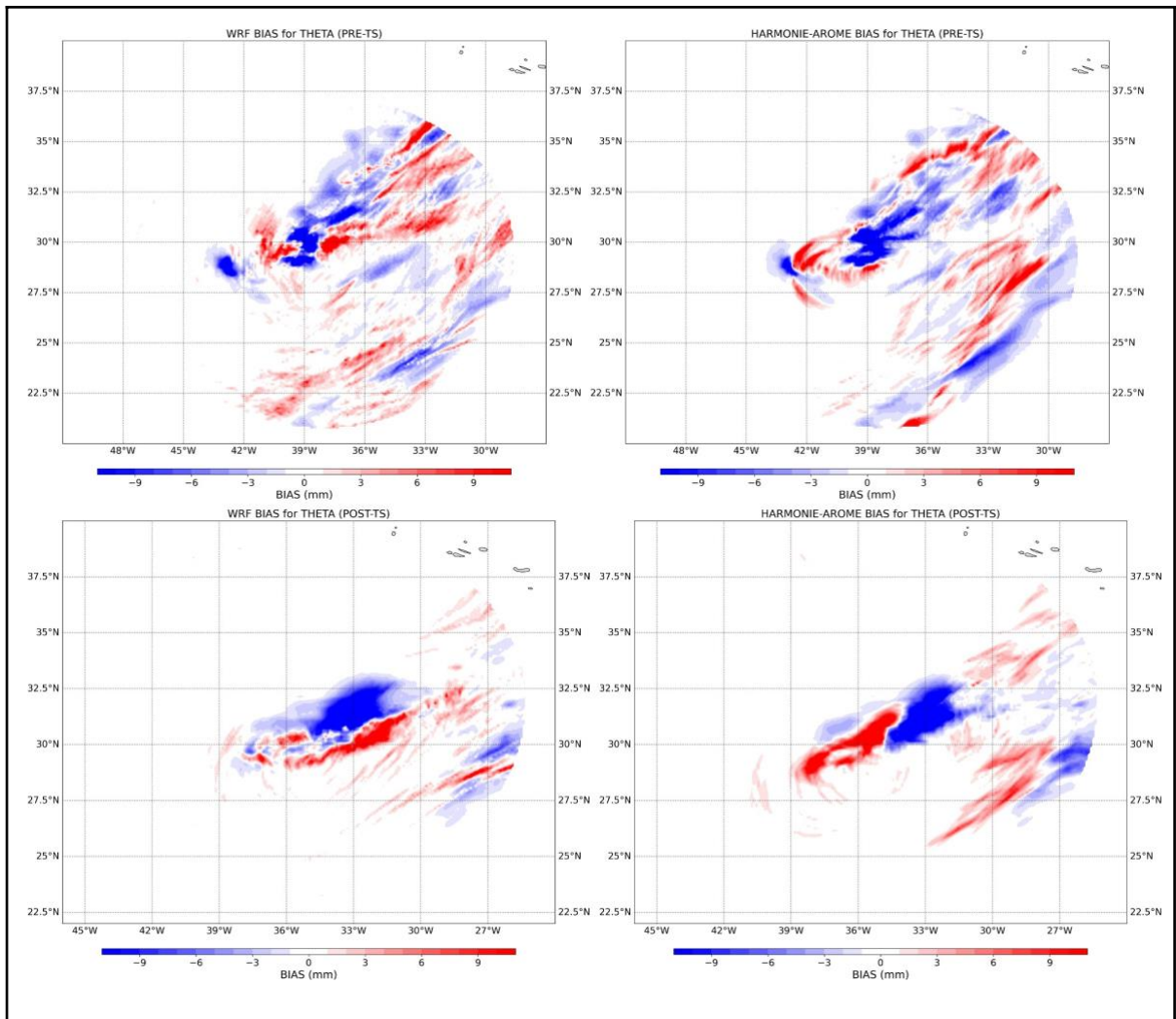
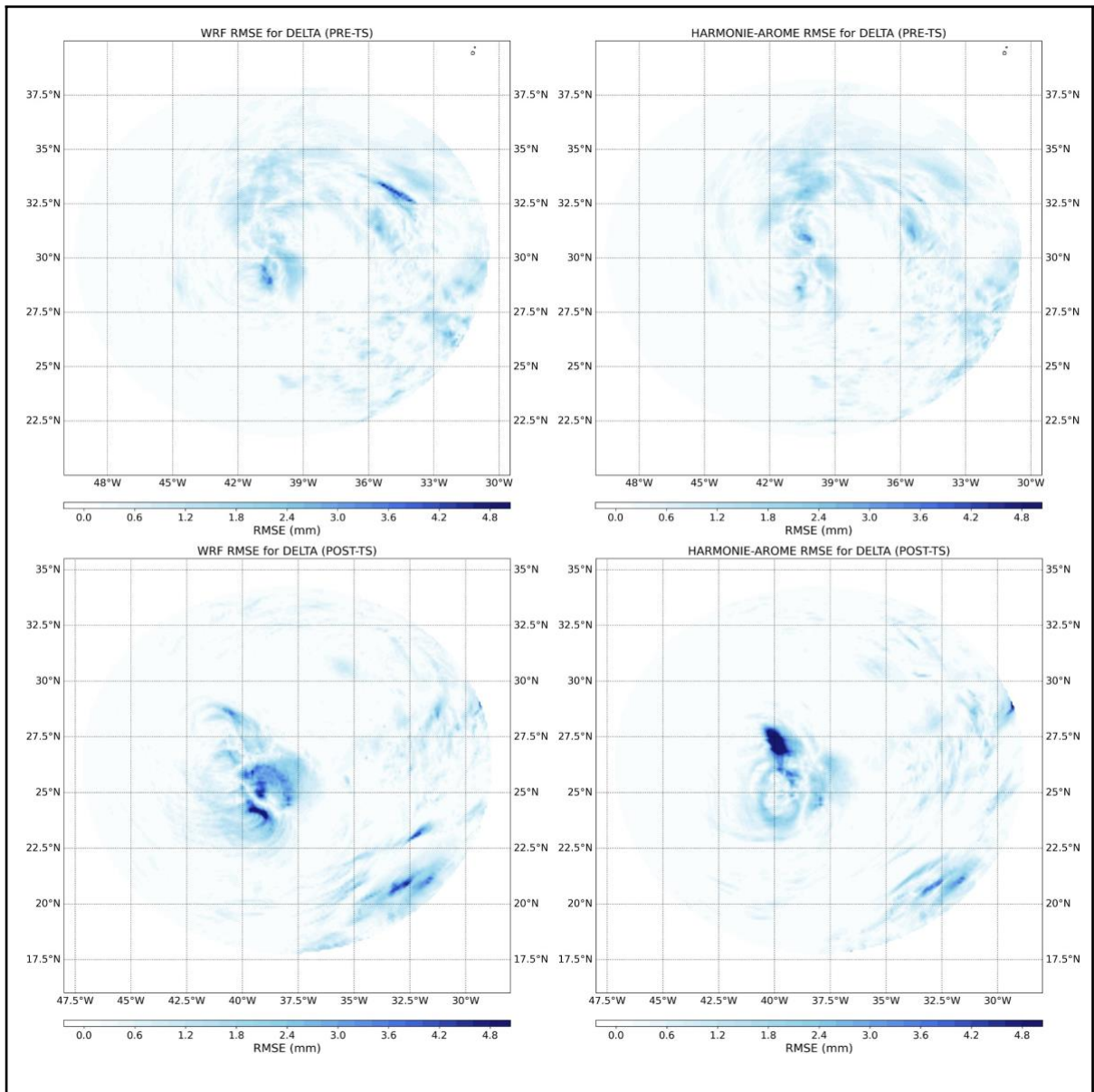
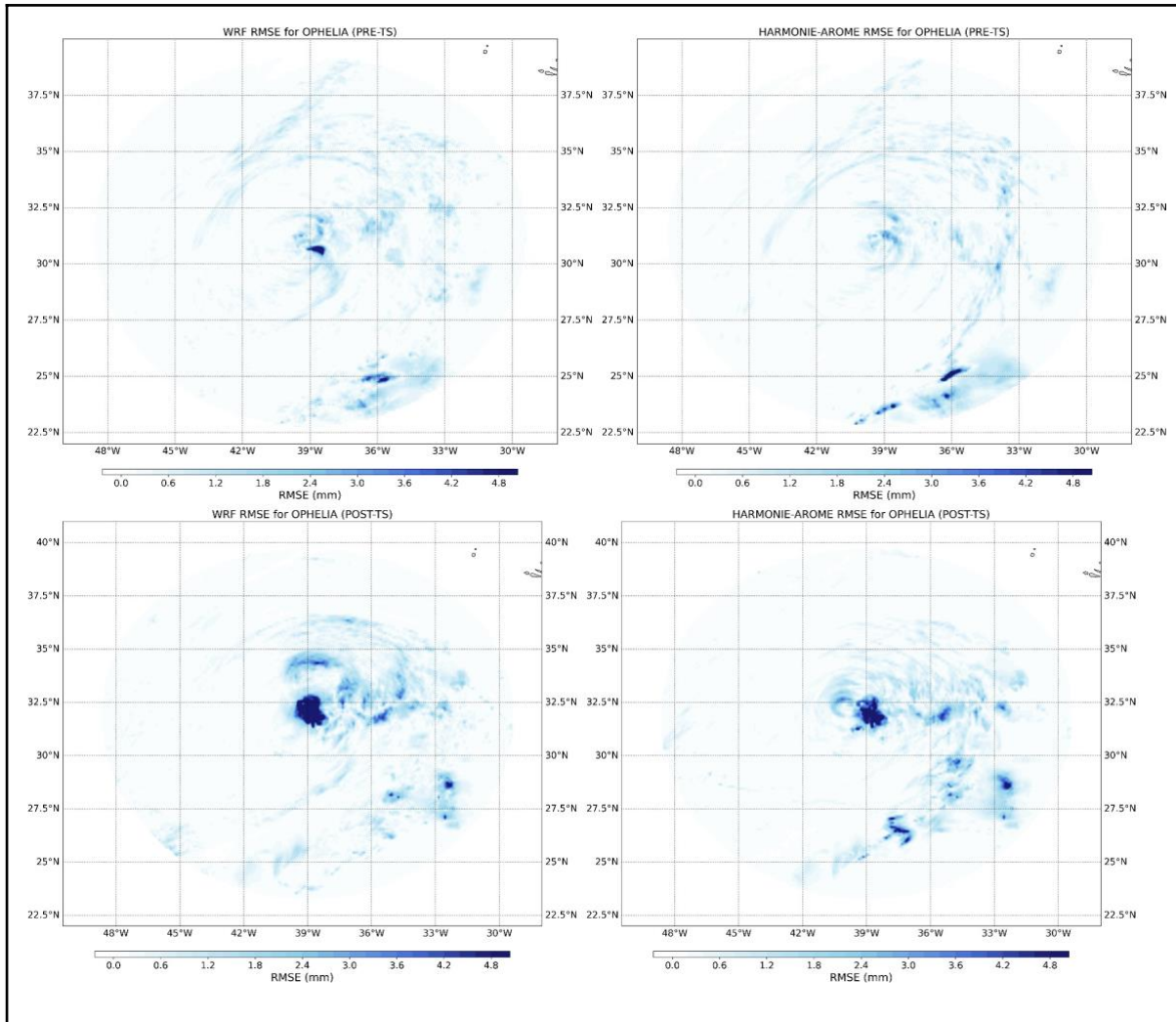


Figure 8D. Same as Figure 7A except for cyclone Theta.



**Figure 9A.** Same as Figure 7A except for cyclone Delta RMSE results.



**Figure 9B.** Same as Figure 8A except for the Ophelia.

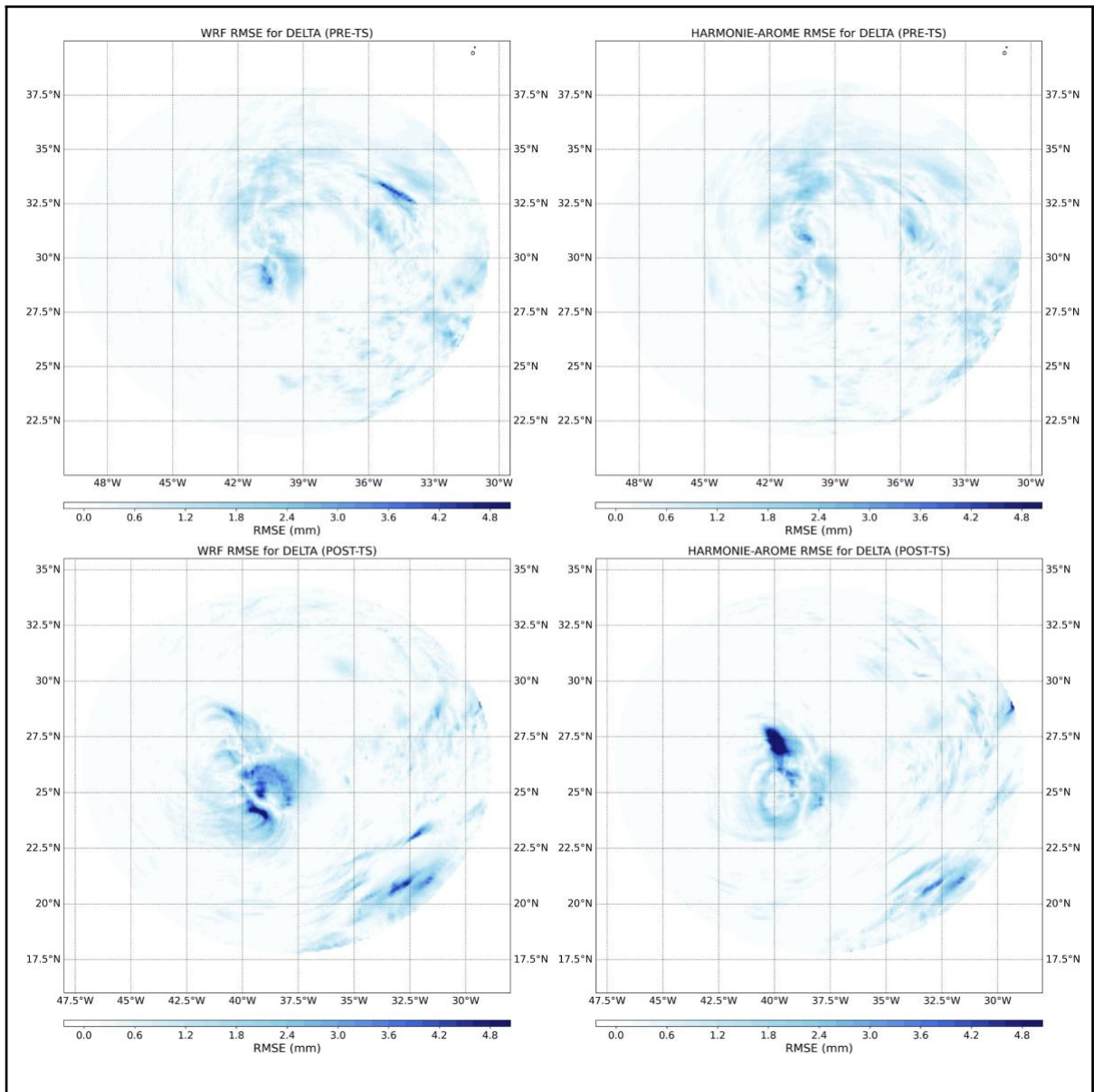


Figure 9C. Same as Figure 8A except for cyclone Leslie.

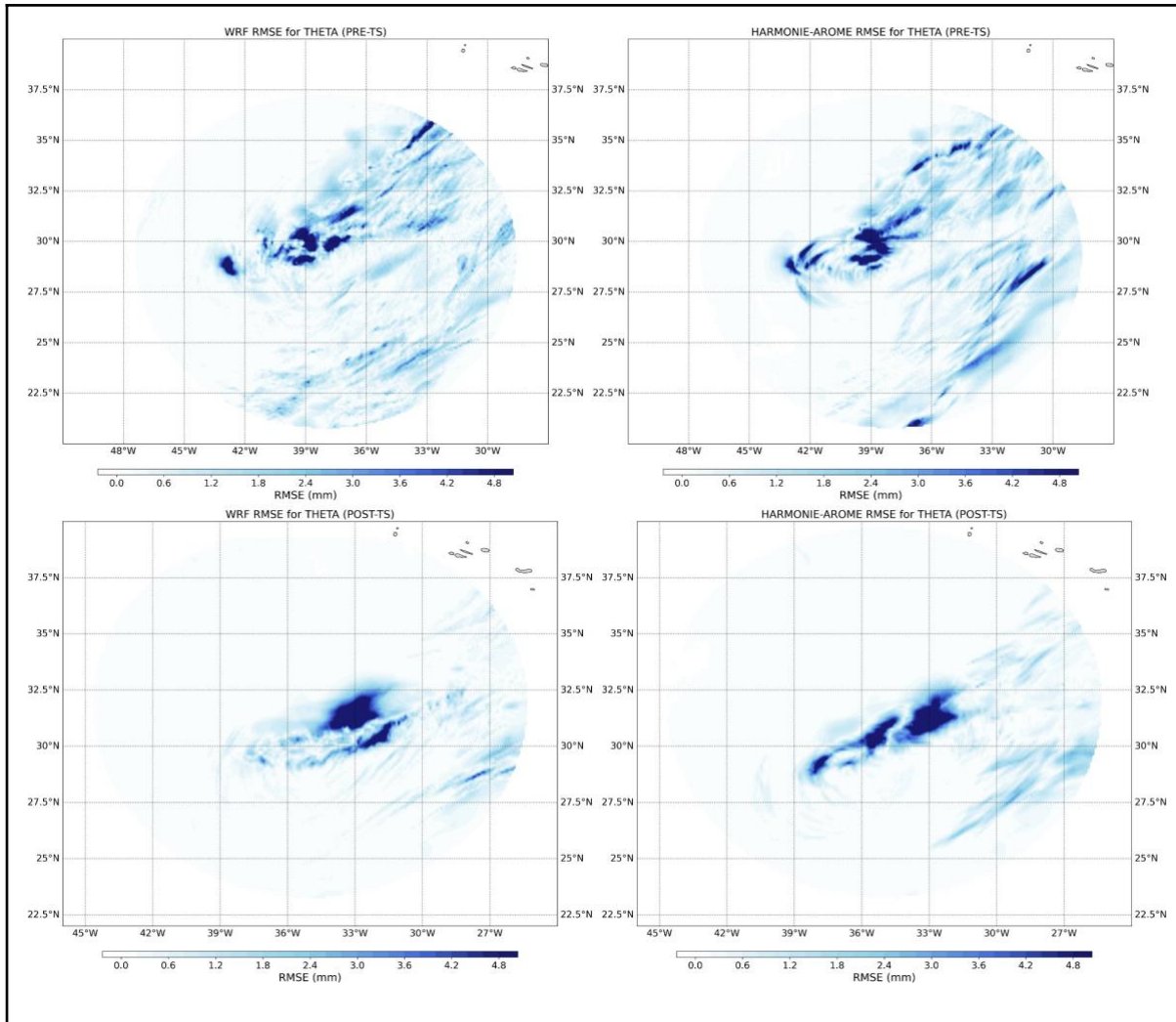
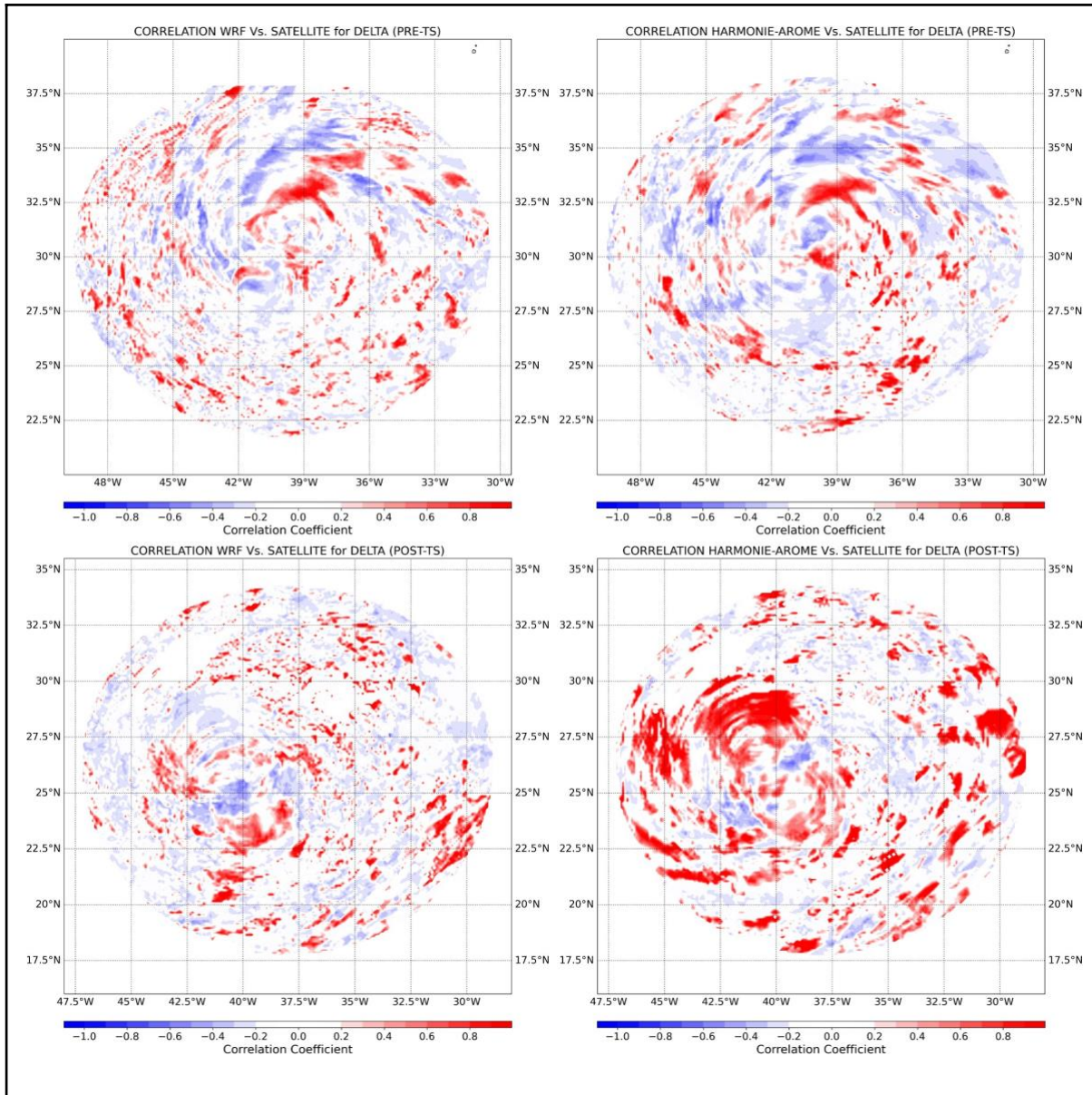


Figure 9D. Same as Figure 8A except for cyclone Theta.



**Figure 10A.** Same as Figure 8A except for cyclone Delta correlation results.



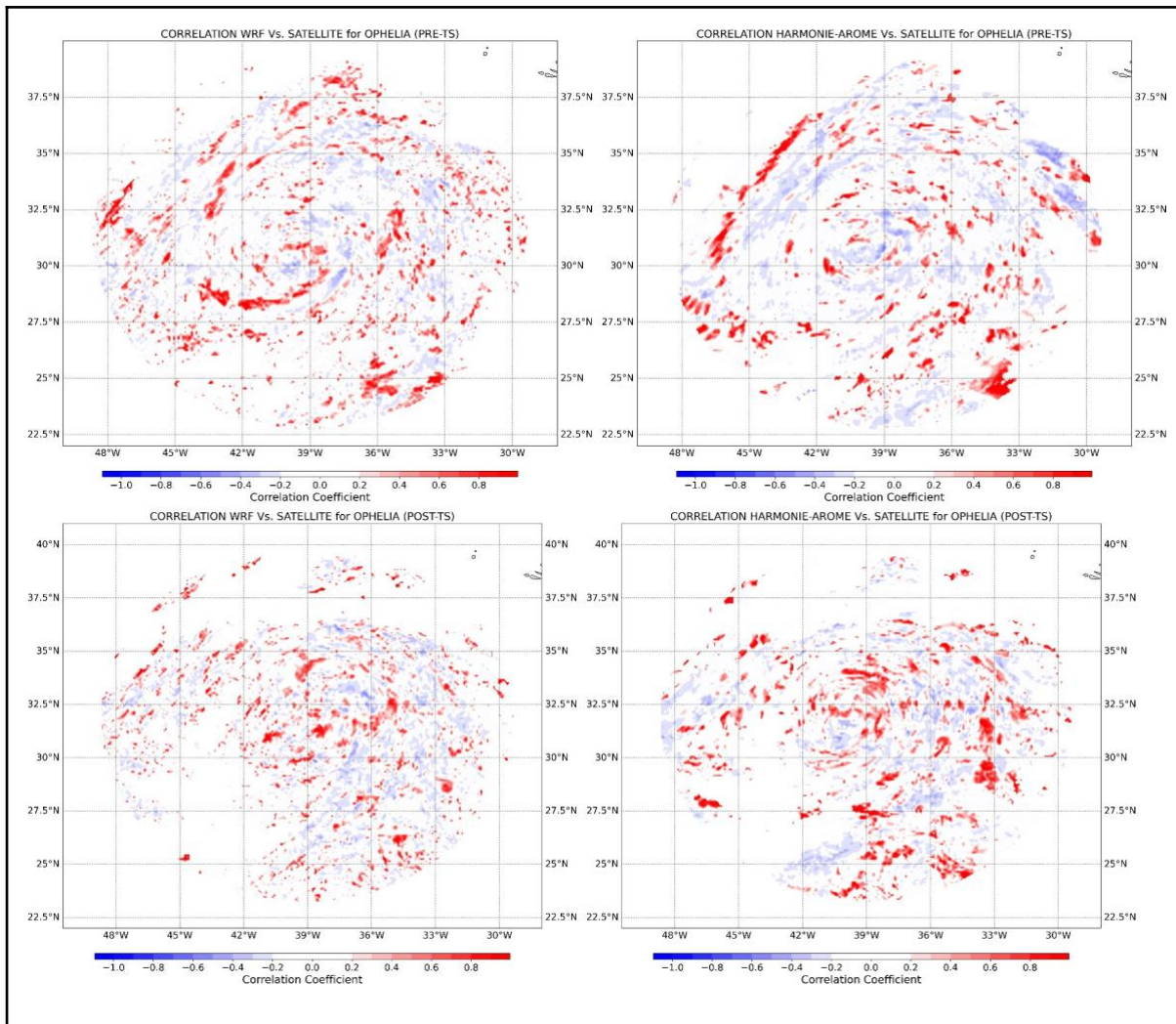
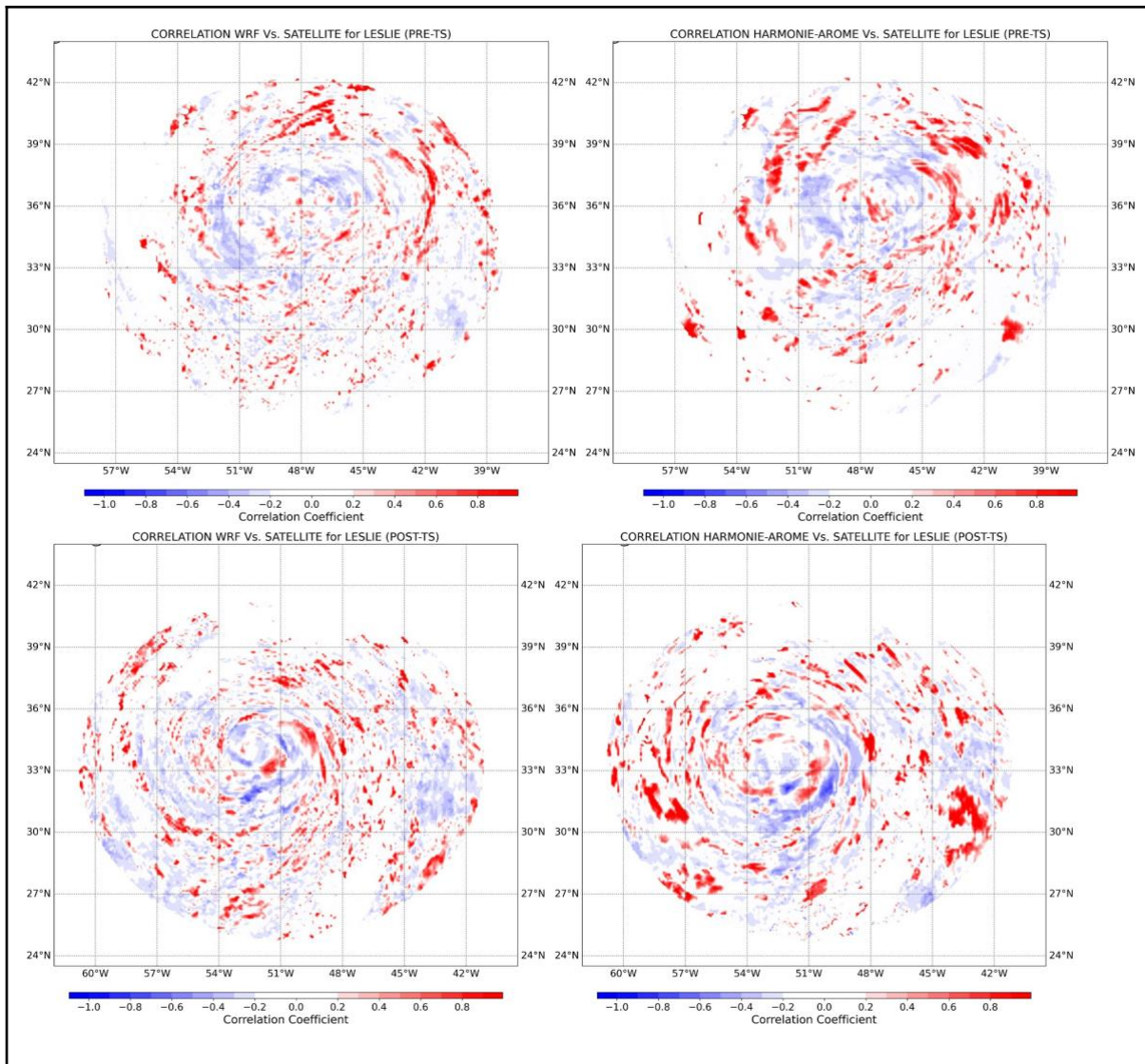


Figure 10B. Same as Figure 9A except for the Ophelia.



**Figure 10C.** Same as Figure 9A except for cyclone Leslie.

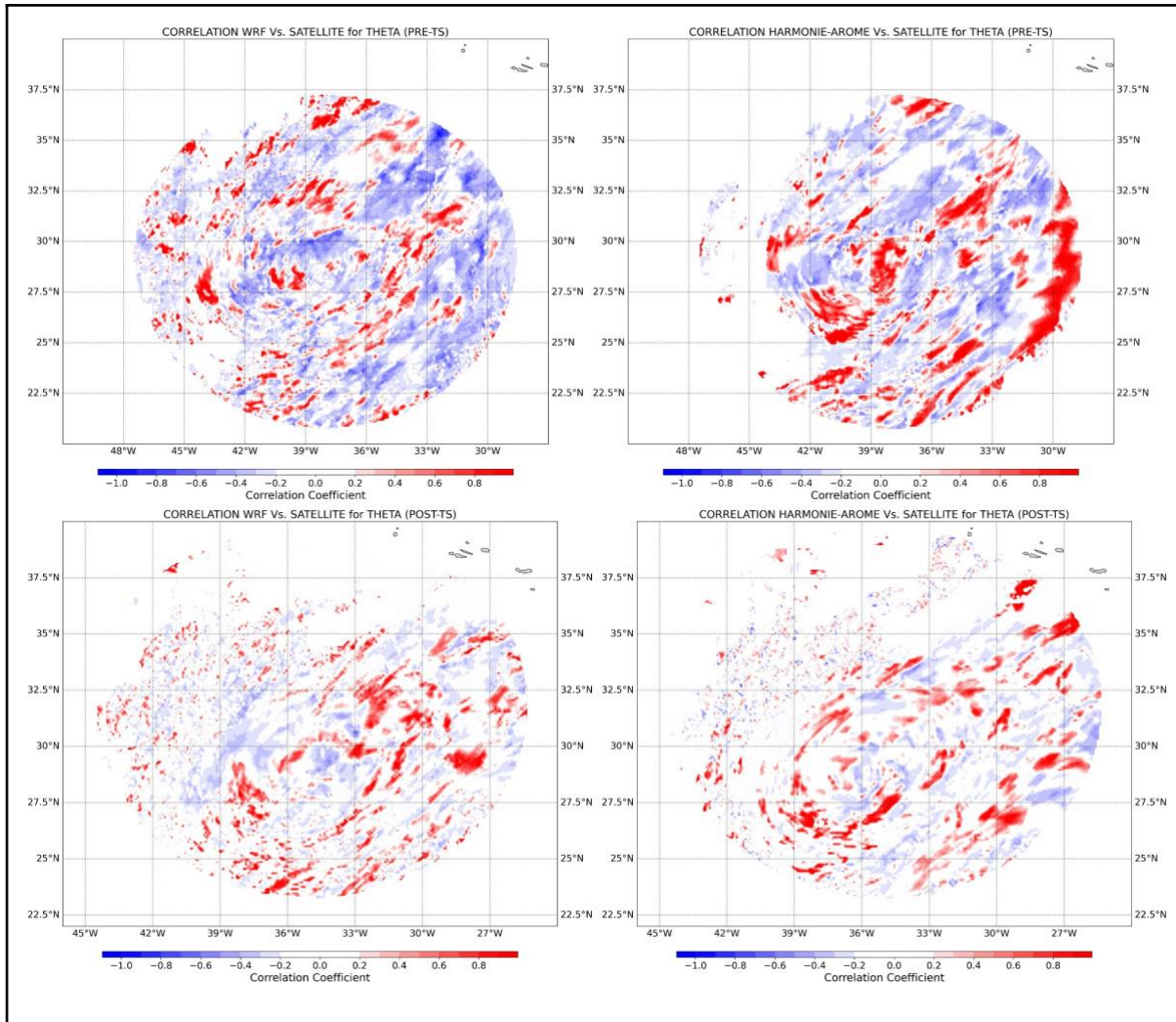


Figure 10D. Same as Figure A except for cyclone Theta.