

Application of Innovation Statistics to Diagnose Biases in the HAFS system

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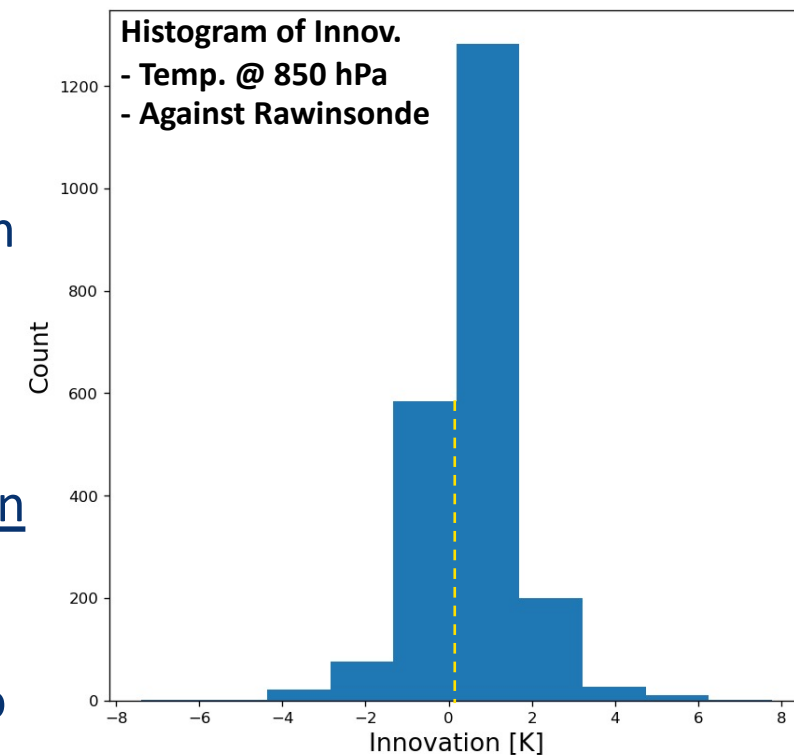
July 14, 2021

□ Project Background

- NWP models are complex; therefore, biases can be difficult to identify and diagnose
 - Can be a function of space/time
 - Can be different in the TC vs. environment
- One strategy for identifying biases is to evaluate the long-term statistics from a data assimilation system
 - Can be taken from system and continuously monitored

□ Goal

- Employ the innovation statistics from the HAFS data assimilation system to diagnose systematic biases from this model in both the earth and TC-relative framework (Underlined: completed).
- In addition, explore application of machine learning methods to identify bias patterns.
- The readiness level: RL-5



Work performed

- Obtained 8-day HAFS assimilation data from Bin Liu (NOAA/EMC)
 - 1800 UTC 19 August 2020 – 1800 UTC 27 August 2020 (8 days)
- Developed python software suite that reads innovation files and stratifies data in an earth-relative framework based on:
 - observation type
 - horizontal location
 - vertical level

