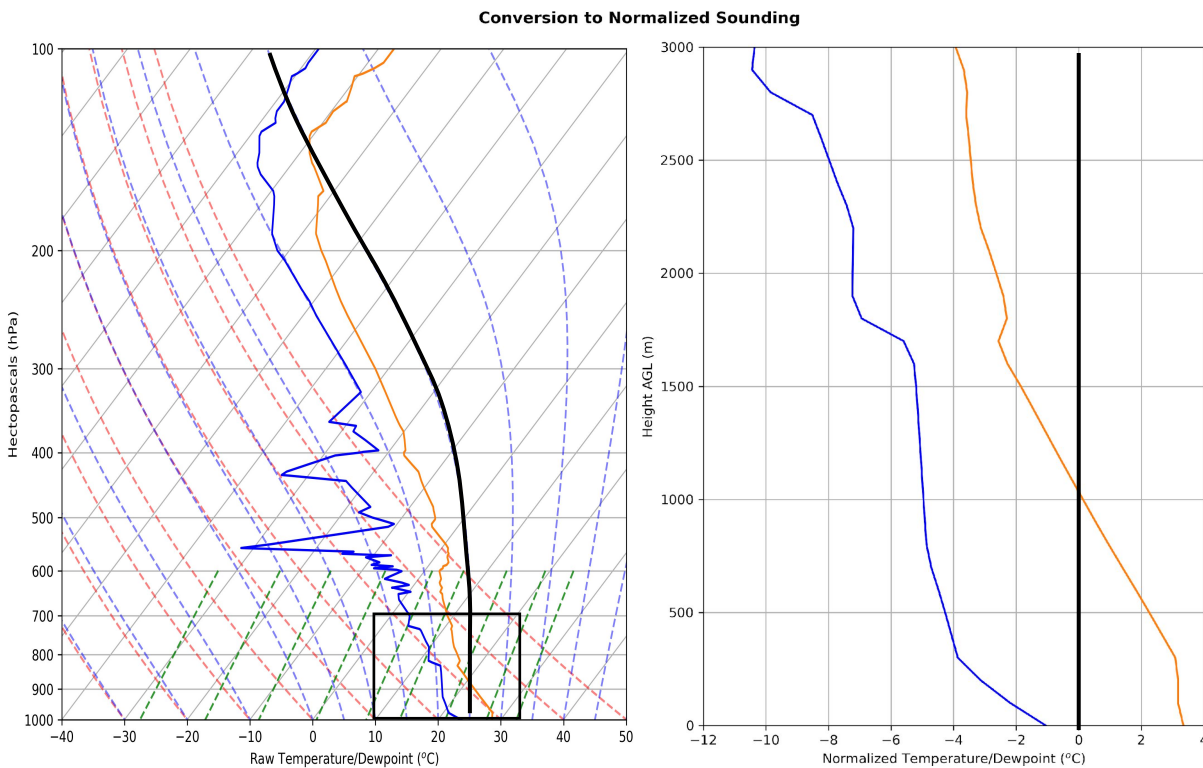# Verification of GFS Vertical Sounding Short-Range Forecasts Using an Objective Classification Method For Observational Soundings
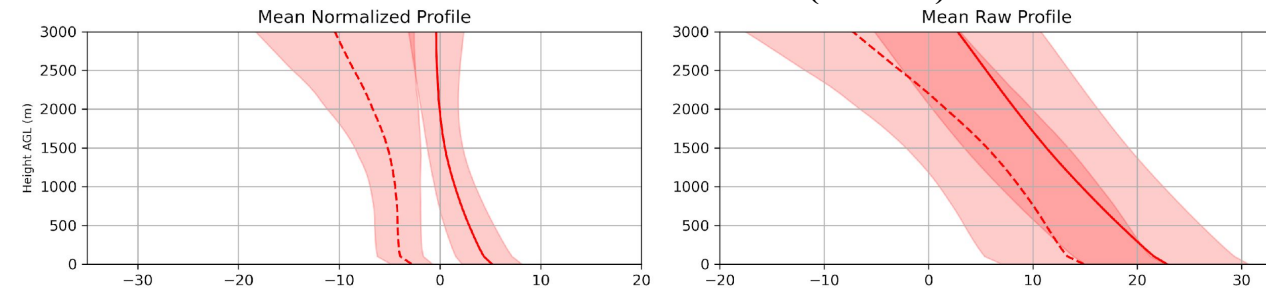
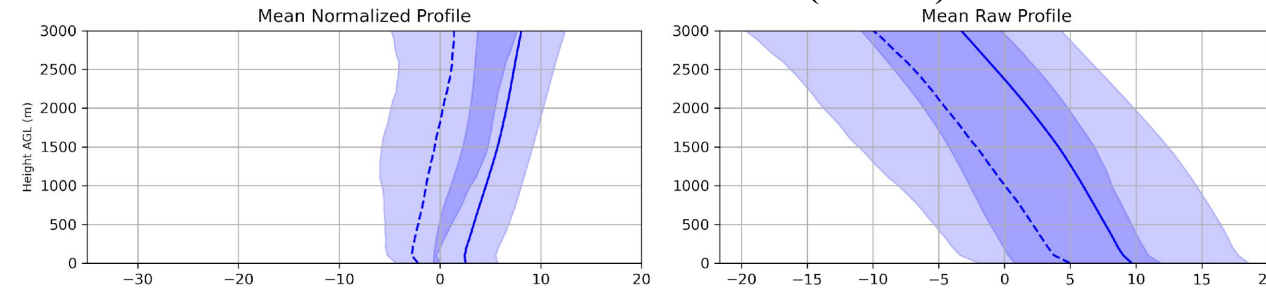*Dillon Blount, Clark Evans, Israel Jirak, Andy Dean, Sergey Kravtsov*

- Soundings from May – November 2019 (15,489)
- Soundings transformed to new height and normalized coordinates
- Soundings were input into a multivariate EOF analysis
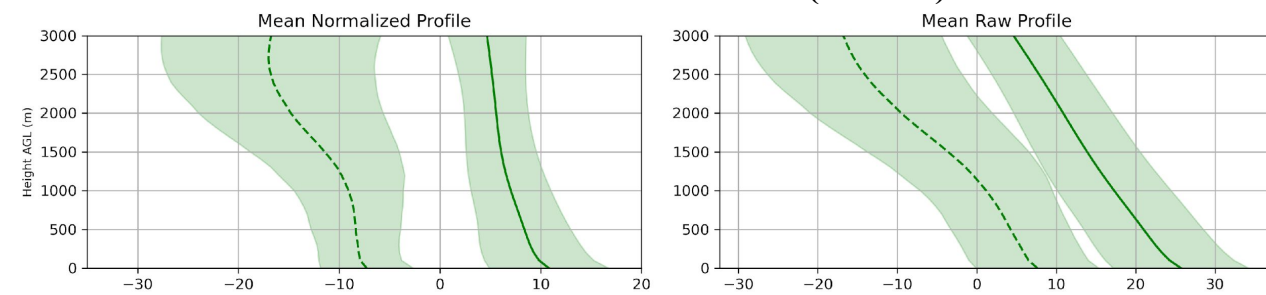- k-means clustering algorithm used to obtain k=3 clusters

Conversion to Normalized Sounding

0000 UTC Cluster 1 (n=8780)

Mean Normalized Profile · Mean Raw Profile

0000 UTC Cluster 2 (n=2855)

Mean Normalized Profile · Mean Raw Profile

0000 UTC Cluster 3 (n=3854)
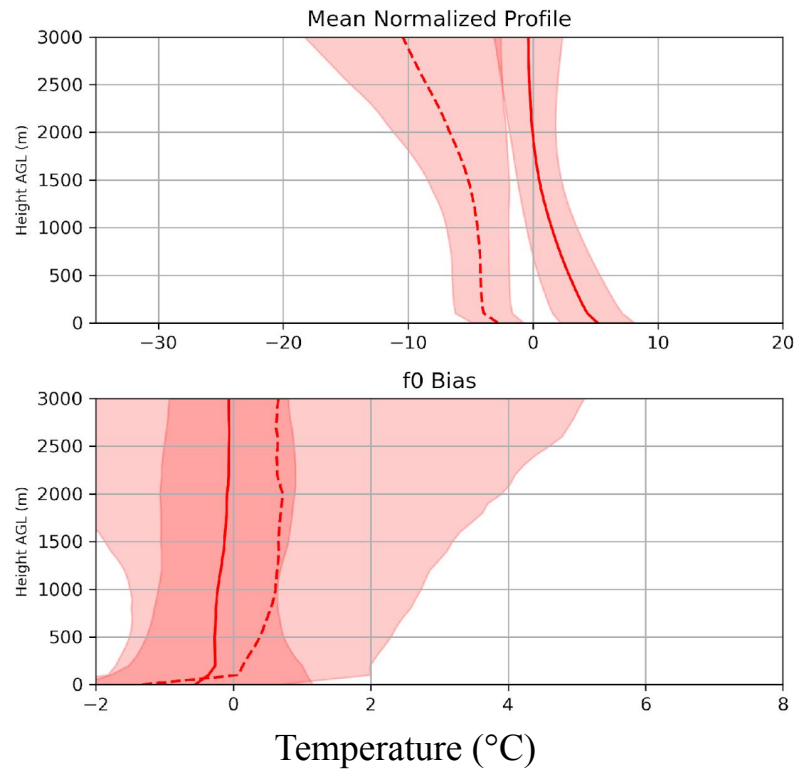

Mean Normalized Profile · Mean Raw Profile

Verification of GFS Vertical Sounding Short-Range Forecasts Using an Objective Classification Method For Observational Soundings

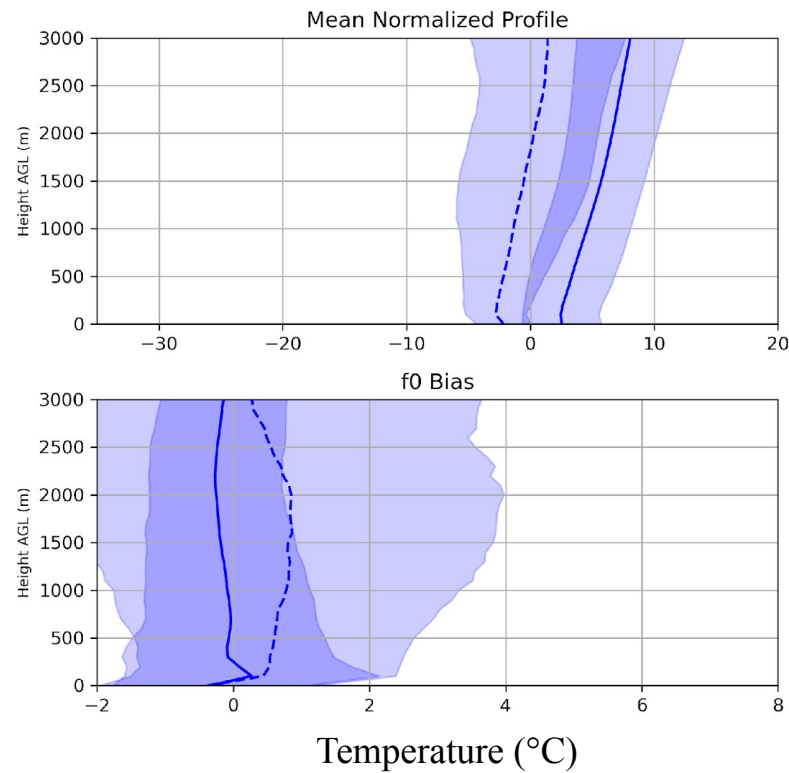*Dillon Blount, Clark Evans, Israel Jirak, Andy Dean, Sergey Kravtsov*

Application: This can be used to verify GFS short-range forecast soundings based on the environmental conditions.