

# Preliminary Analysis of June 24 Test Flight HDSS Data

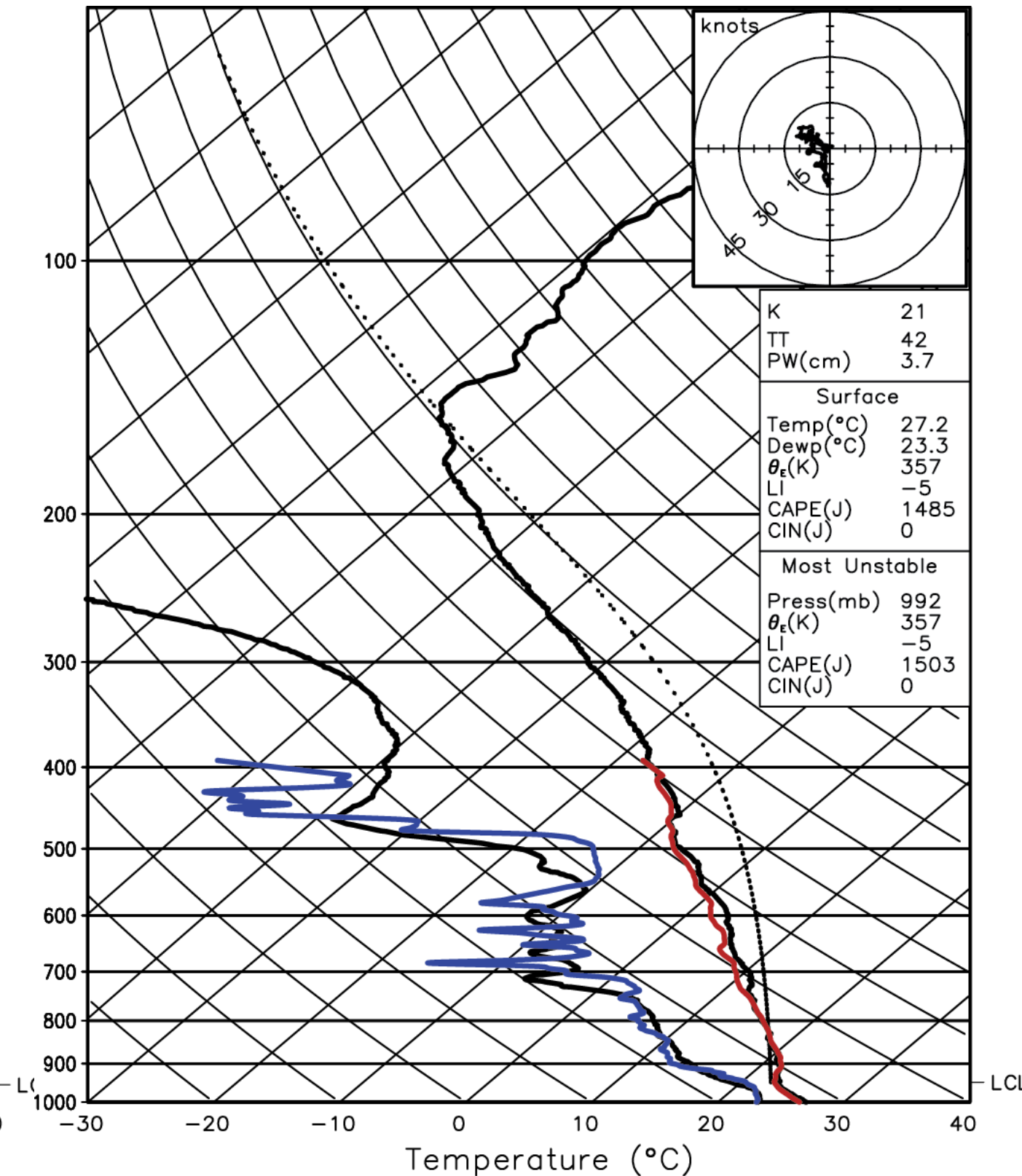
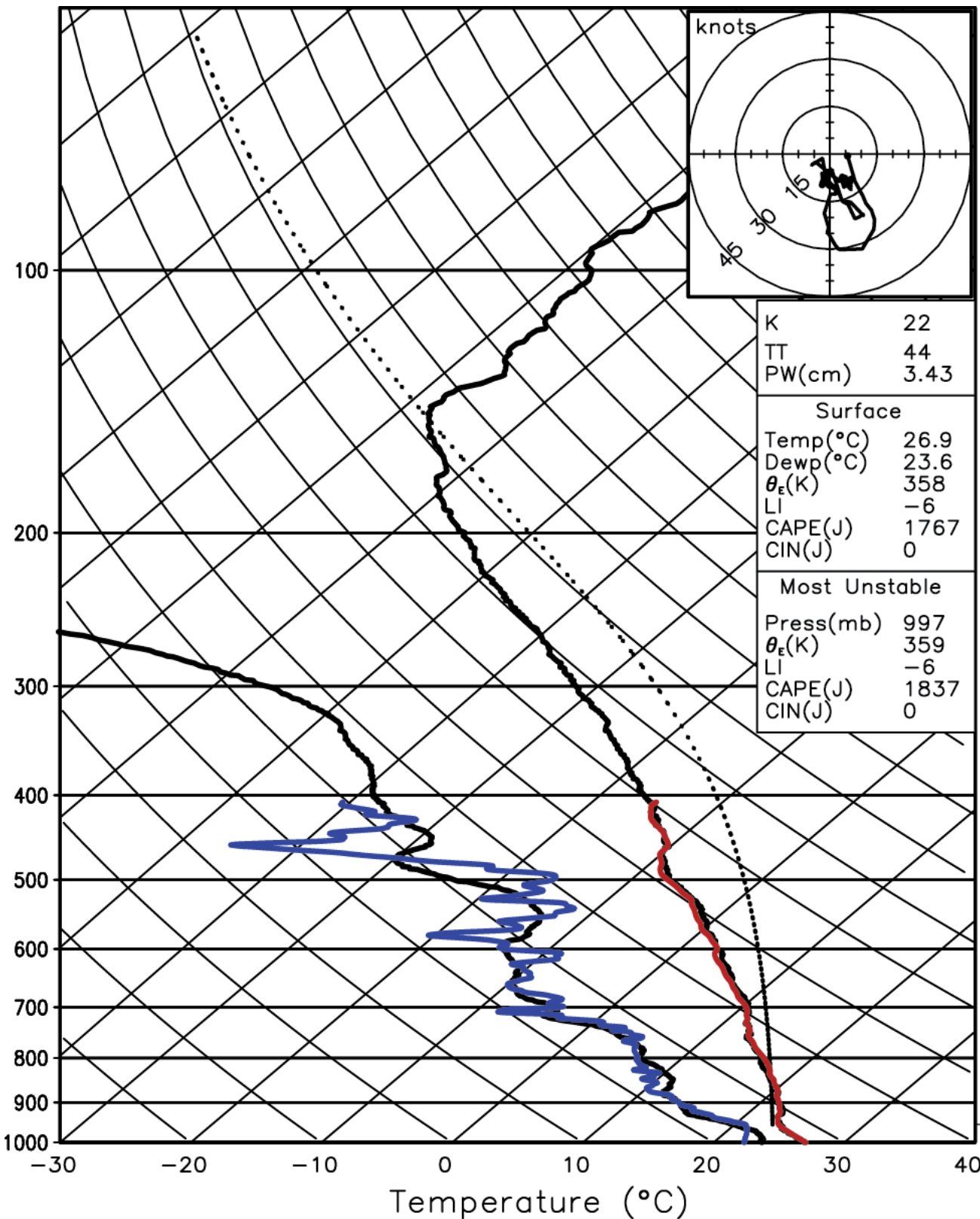
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# Goals and *Methodology*

- **Evaluate WB-57 HDSS XDD sondes vs. USAF AVAPS RD-94 sondes**
- **Evaluate “streamer” vs. “fast-fall” sondes**
- *Compare data points using similar QC methodology (ASPEN) at nearby locations (Thanks to Jason Dunion for USAF QC)*
  - Compute difference if GPS altitude difference  $< 10$  m
  - Subjective evaluation suggested  $< 50$  km separation produced similar statistics
  - Comparison limited to 400 hPa and below ( $>2000$  points except for streamer winds which were  $\sim 800$ )

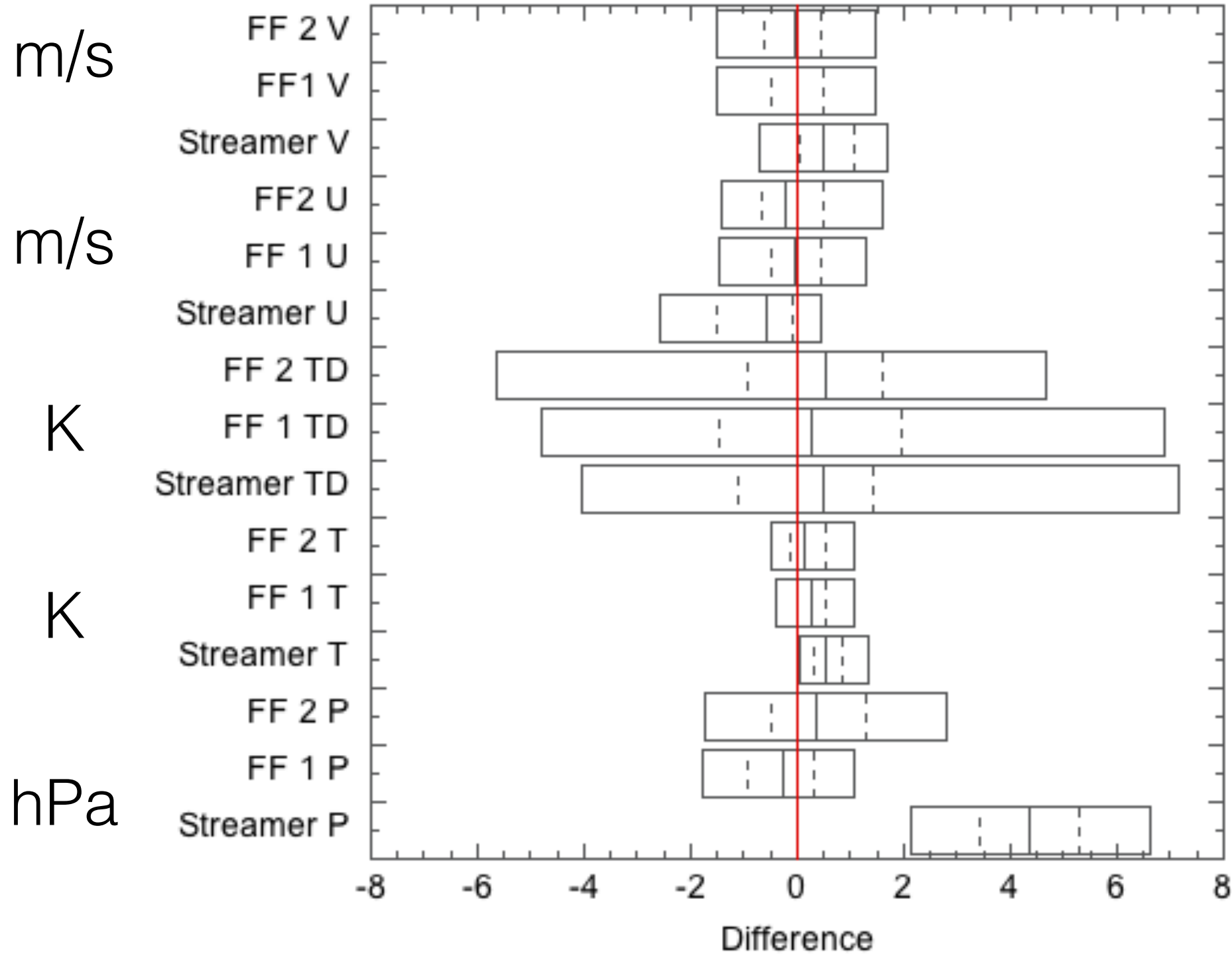
# USAF RD-94 vs.

# “Streamer” (E3D8) and Fast Fall (199B)

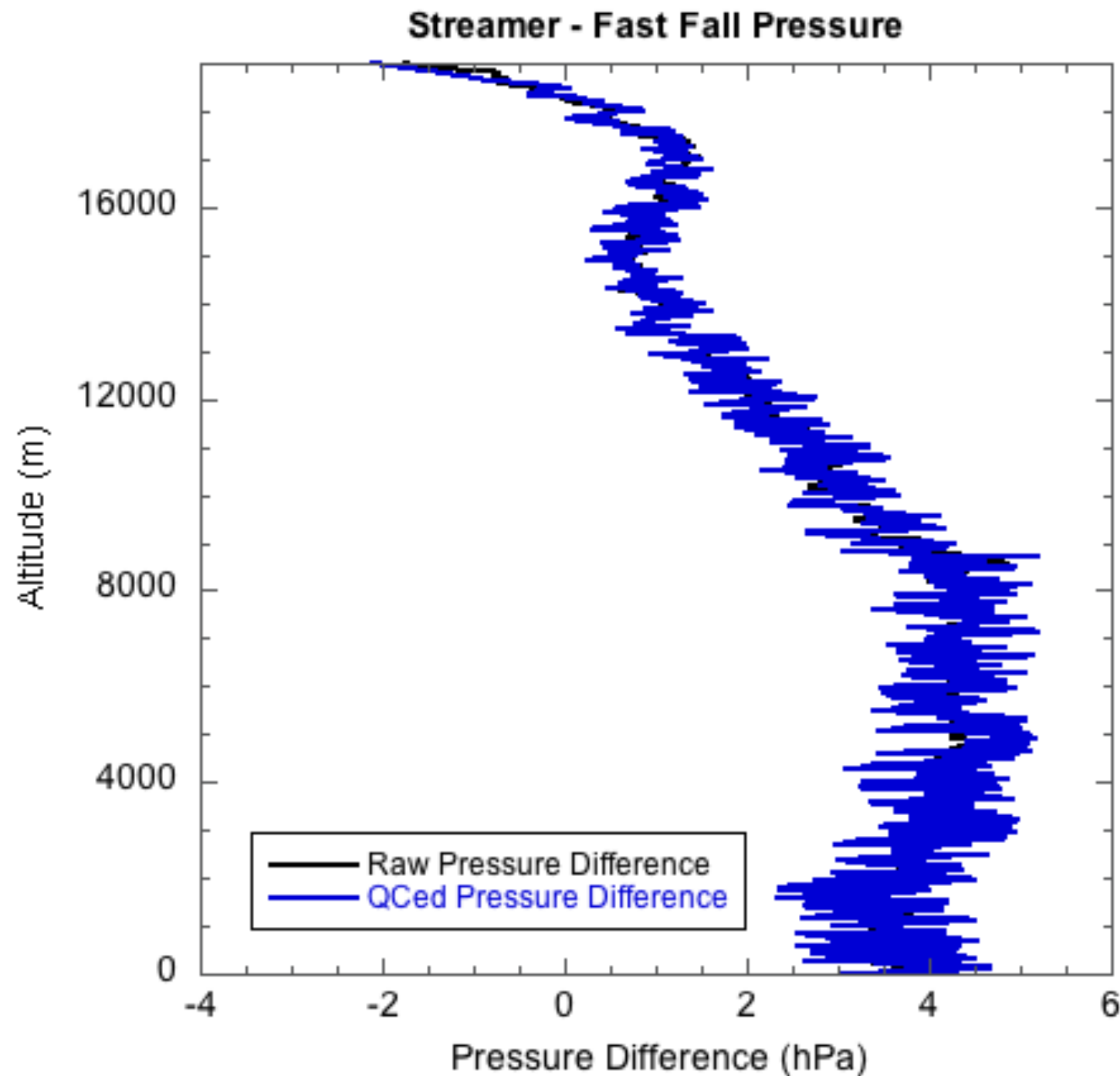


# Percentile Plot

HDSS - USAF Distribution (50 km limit)

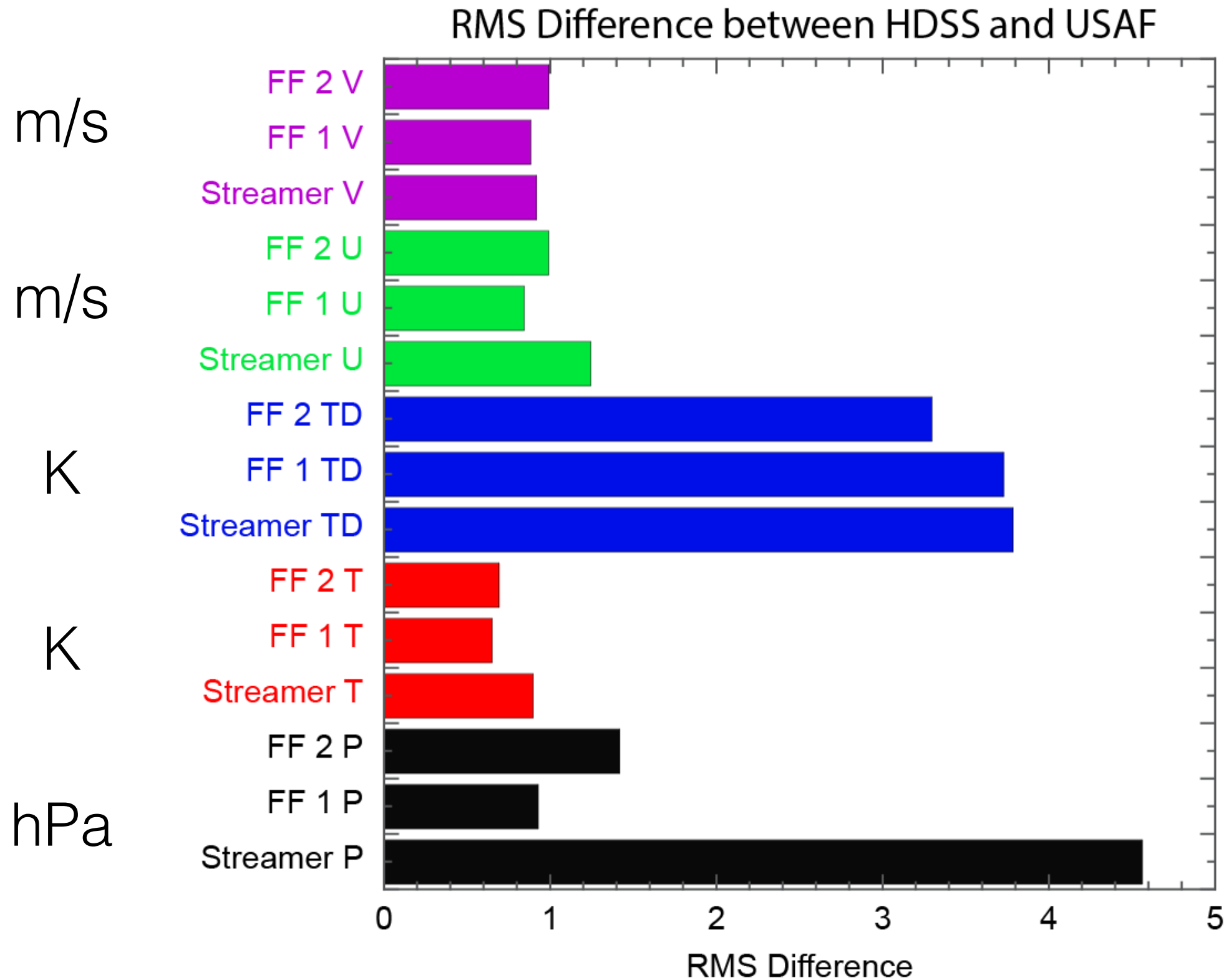


# Pressure Difference between Streamer and Fast-fall



- “Vertical velocity check” fails in ASPEN due to mismatch between pressure and GPS velocity, removing ~80% of QCed winds

# RMS Difference between HDSS and RD-94



# Summary

- Differences between WB-57 HDSS XDD and USAF AVAPS RD-94 at the same altitude (<10 m vertically) and general location (< 50 km horizontally) are generally small and have low bias, except:
  - 4 hPa difference in pressure for streamer vs. USAF, with similar difference to fast-fall sondes
    - “Vertical velocity check” fails in ASPEN due to pressure & GPS discrepancy and removes ~80% of QCed winds
  - Largest differences in dewpoint due to slow RH sensor
  - Streamer bias and RMS higher than fast-fall sondes for all variables
  - **Very limited sample size**, but 2 good fast-falls compare better with USAF sondes than streamer in this test