

Retail Motor Fuel Dispenser

Performance Testing

By

Nebraska Weights and Measures

Analysis By

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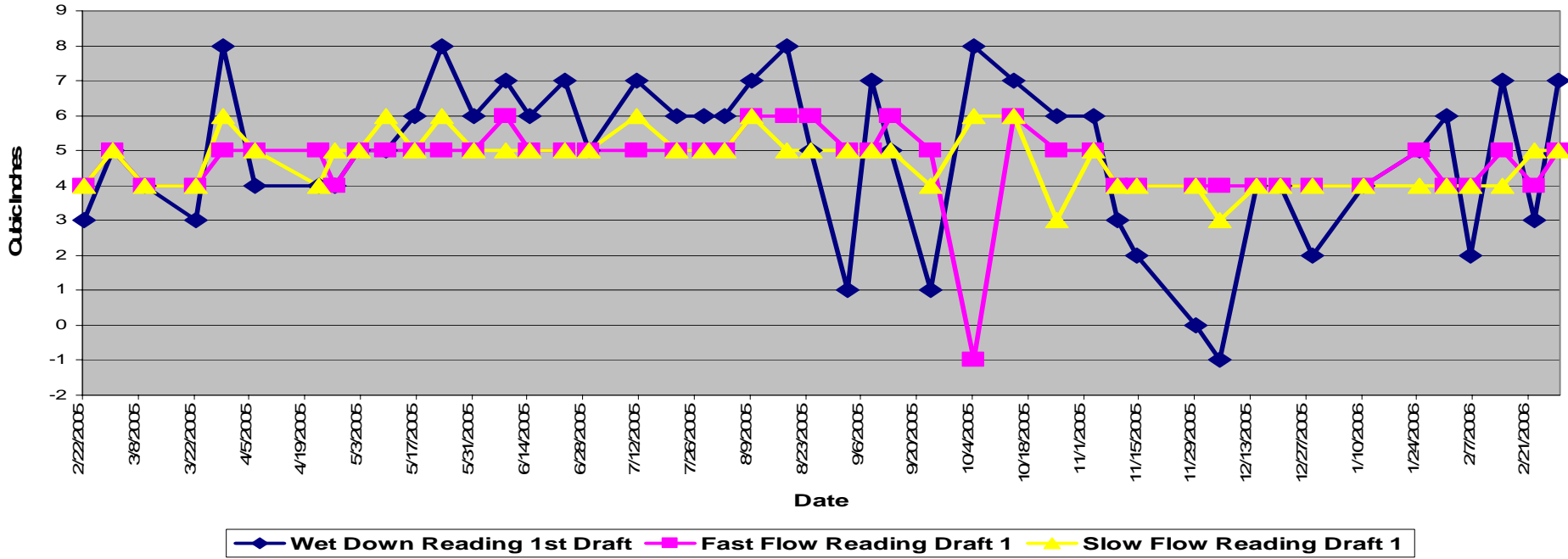
Testing Protocol

- 5 Meters at 3 location for 52 weeks
 - Unleaded, E10 and Diesel Fuel
- Conditions monitored
 - Barometric pressure
 - Ambient Temperature
 - Pump Pressures (closed and open nozzle)
 - Fuel Temperatures at 5 and 30 Gallons
 - Fuel Temperature in the storage tanks

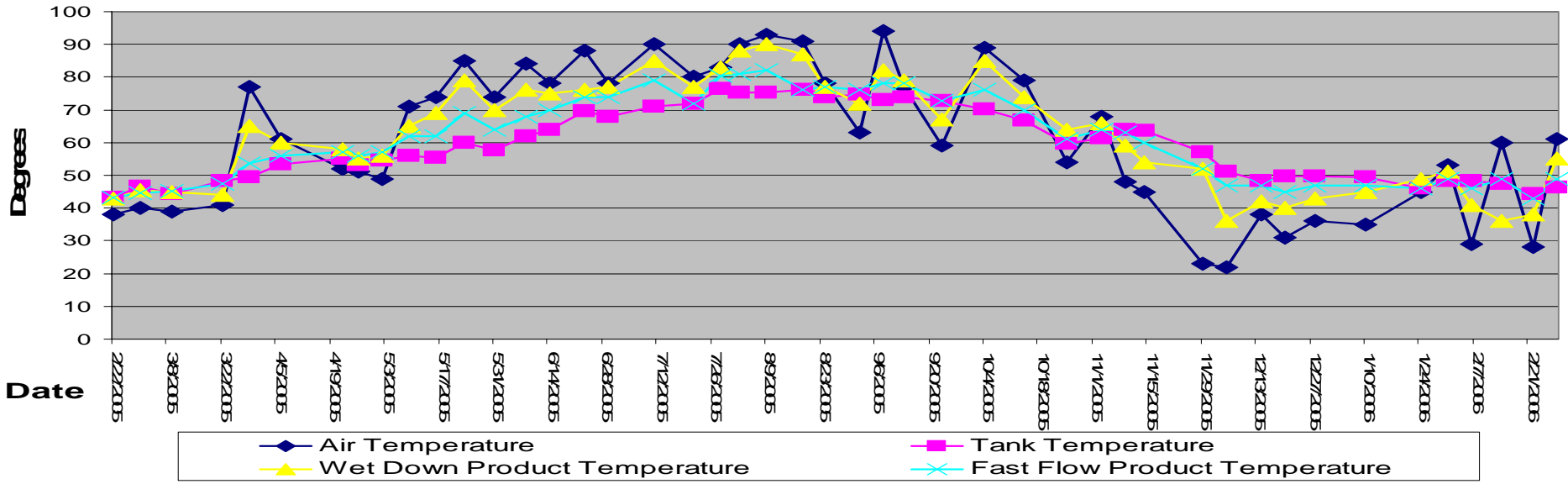
Testing Protocol Continued

- 3 Wet Down Drafts of 5 gallons recording each draft's errors
- Fuel Temperature 1st Wet Down Draft
- 3 Fast Flow Drafts of 5 gallons recording each draft's errors
- Fuel Temperature 3rd Fast Flow Draft
- 3 Slow Flow Drafts of 5 gallons recording each draft's errors

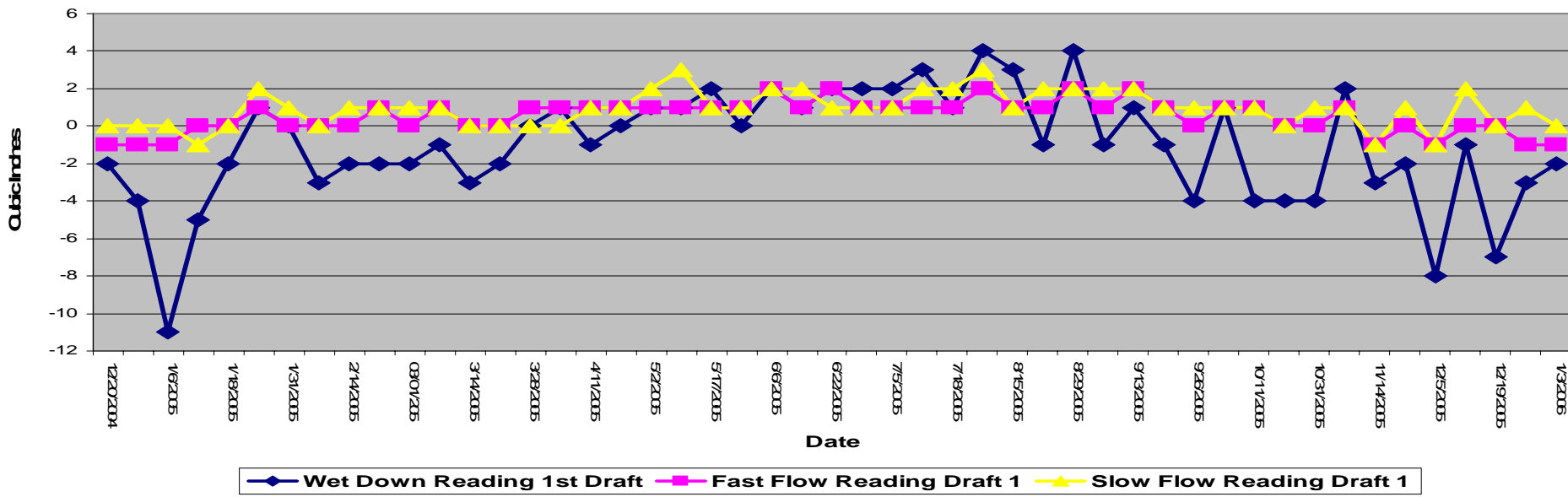
Omaha Diesel Pump Errors



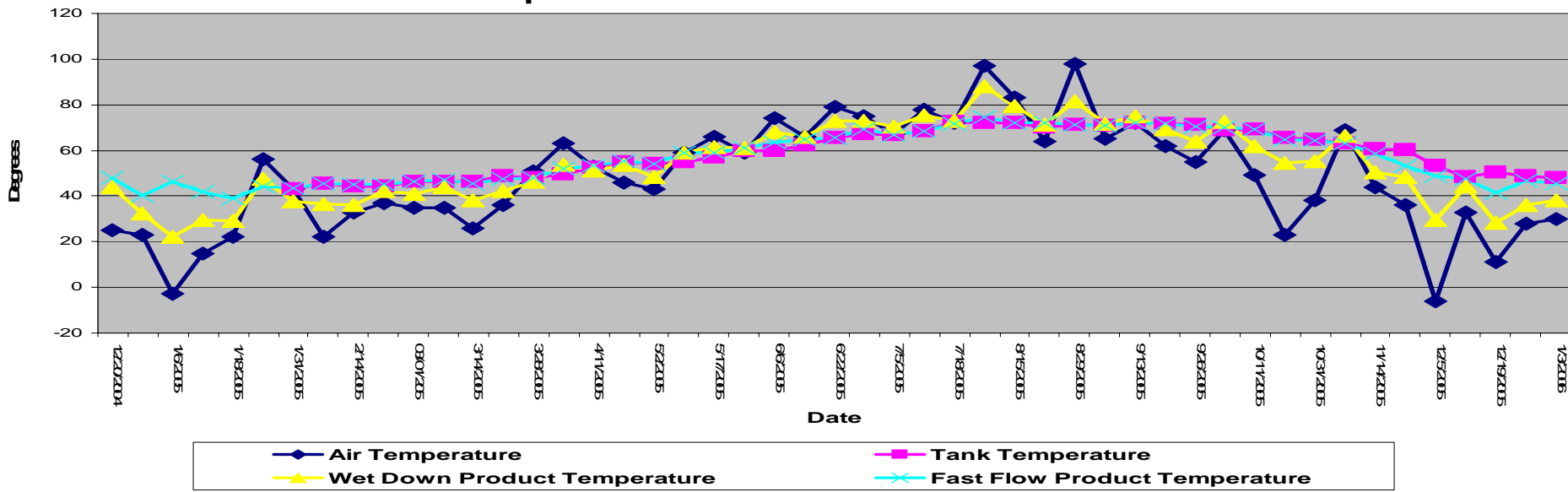
Diesel Fuel Temperature



Norfolk 02 Unleaded W/Ethanol Pump Errors

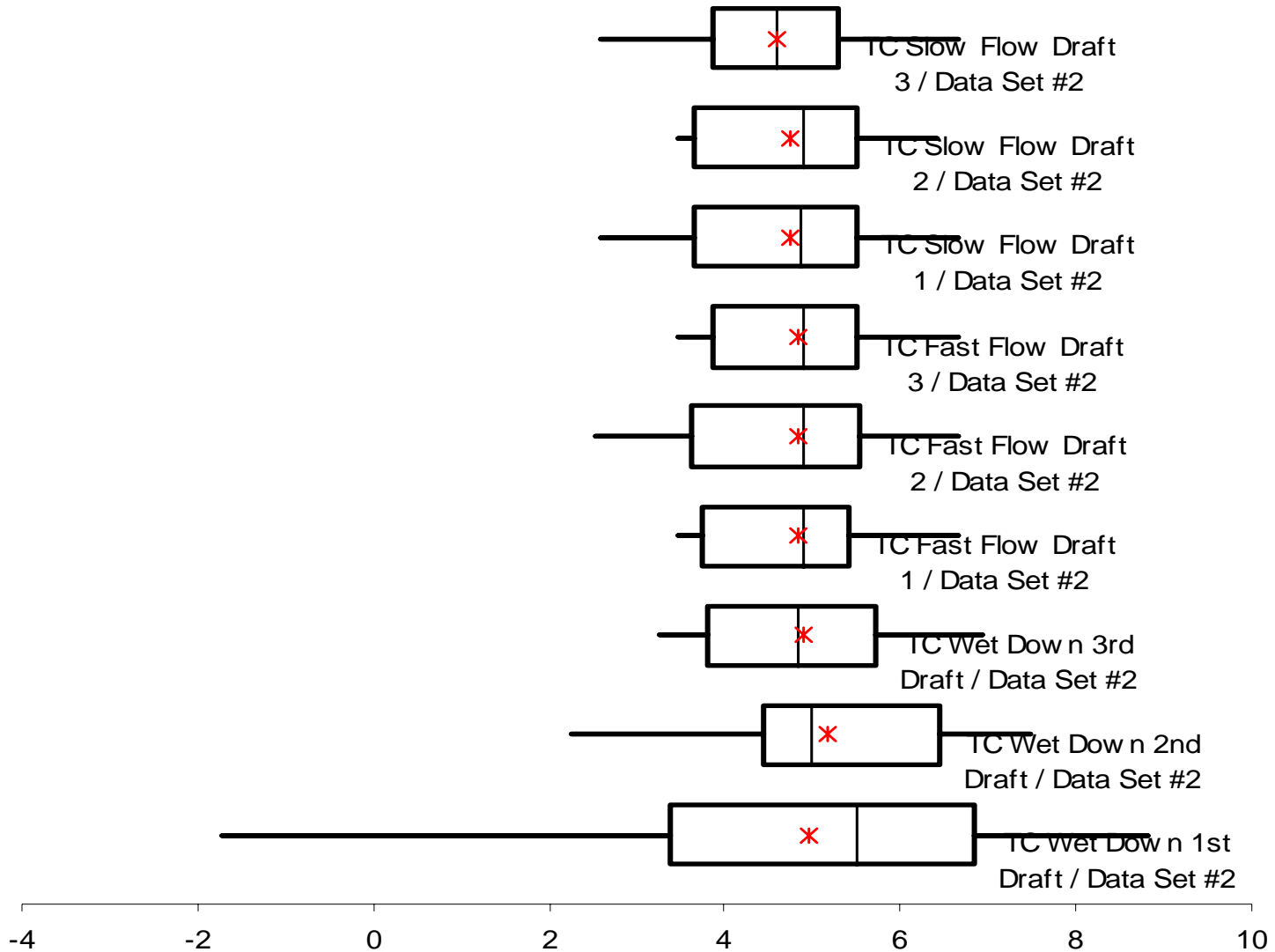


Norfolk 02 Temperature Unleaded W/Ethanol Fuel



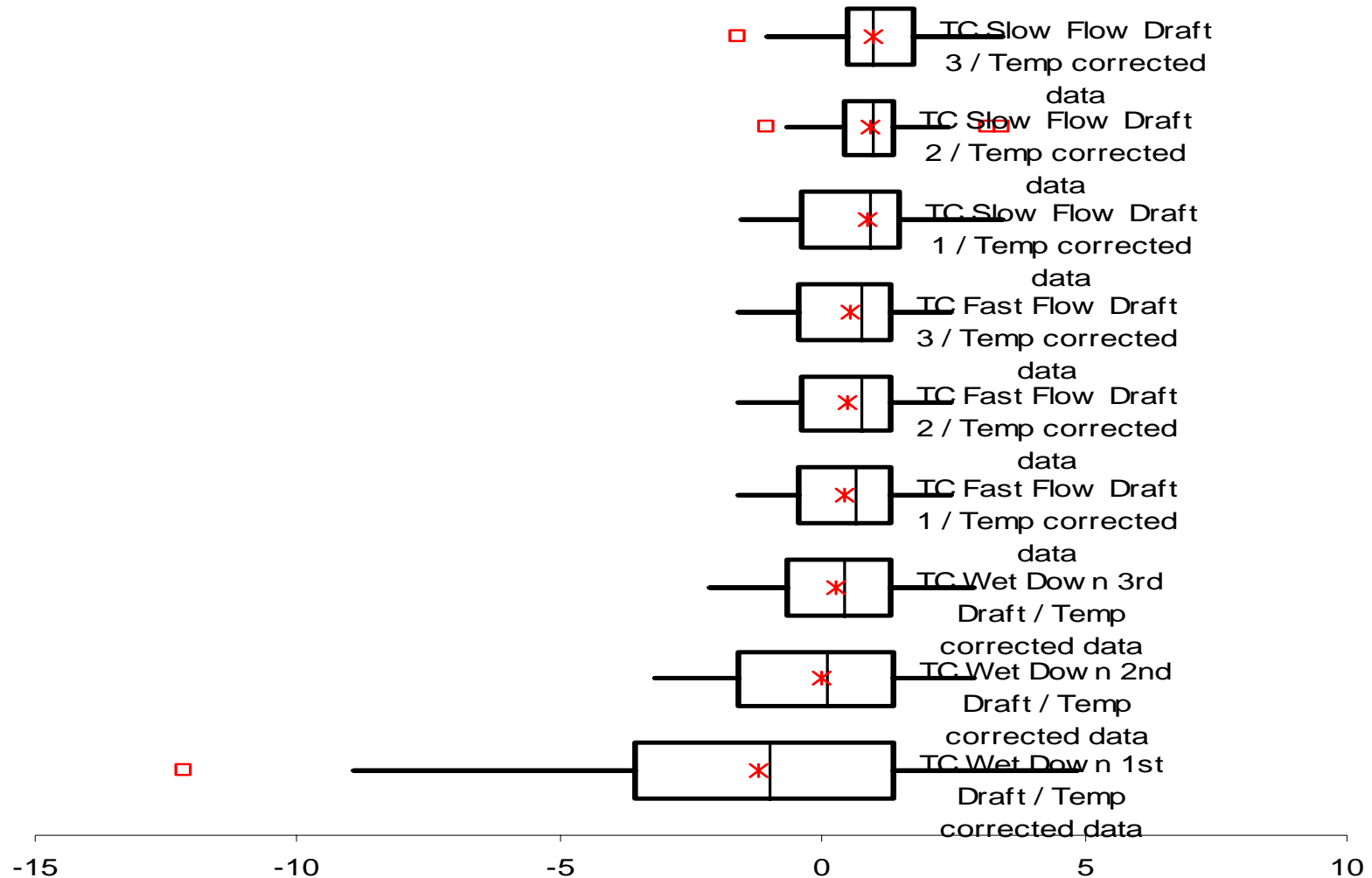
Omaha 1 Diesel Fuel; Gilbarco Meter

Box Plot Comparison for Omaha Unit 1 Diesel Fuel



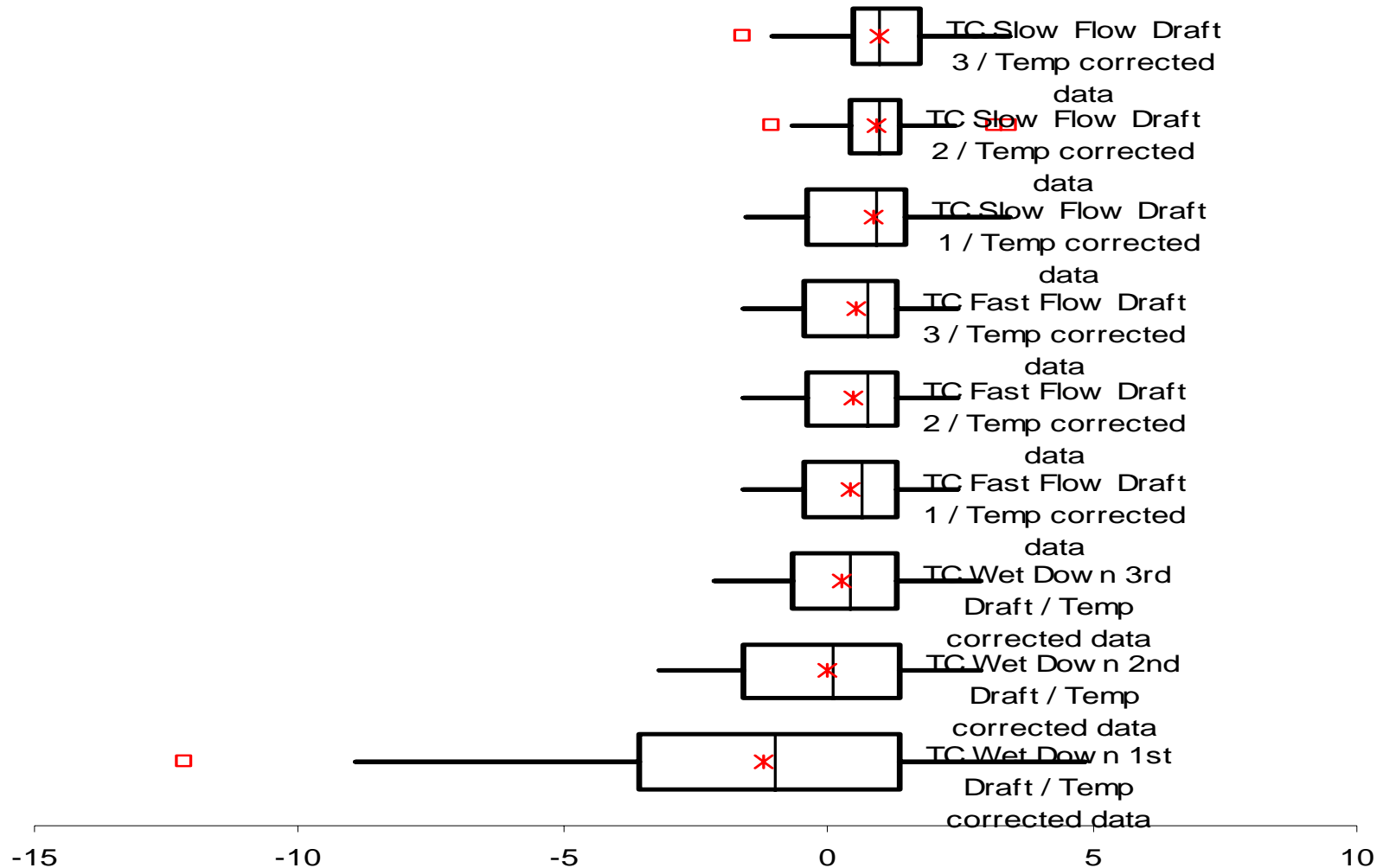
Norfolk 2 Gilbarco Meter

Box Plot Comparison



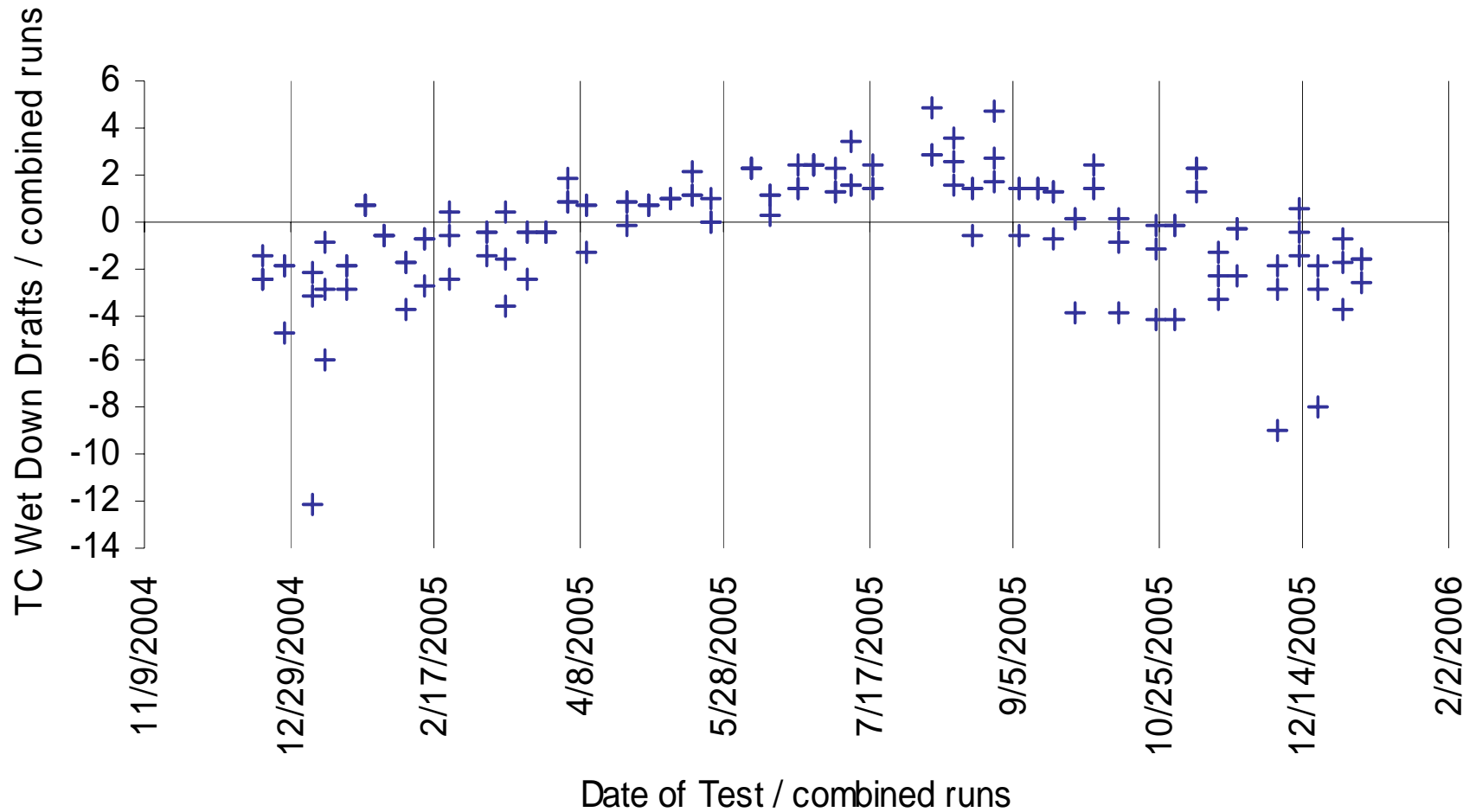
Aurora 3 Tokheim Meter

Box Plot Comparison



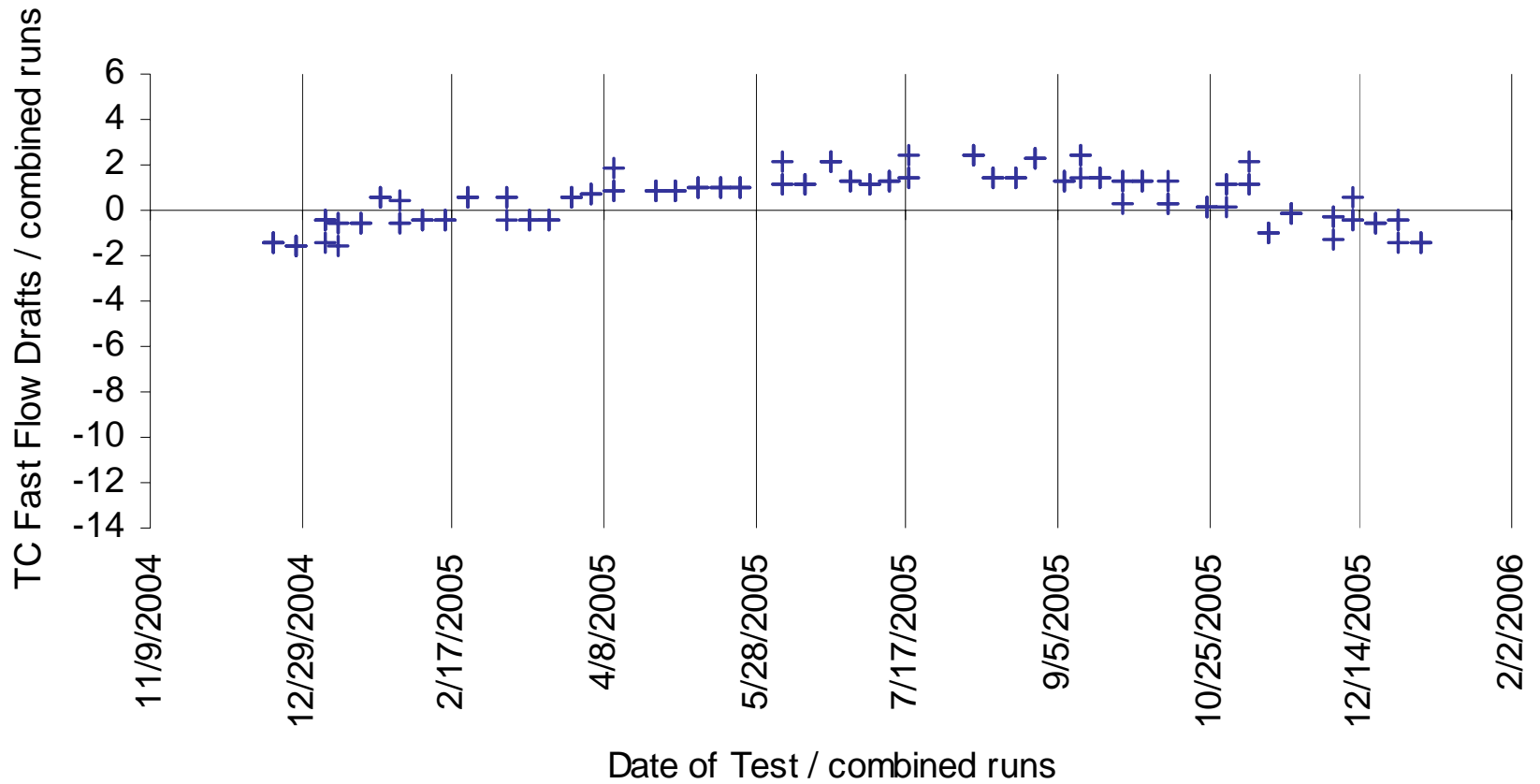
Norfolk 2 Gilbarco Meter

Scatterplot of TC Wet Down Drafts vs Date of Test of combined runs

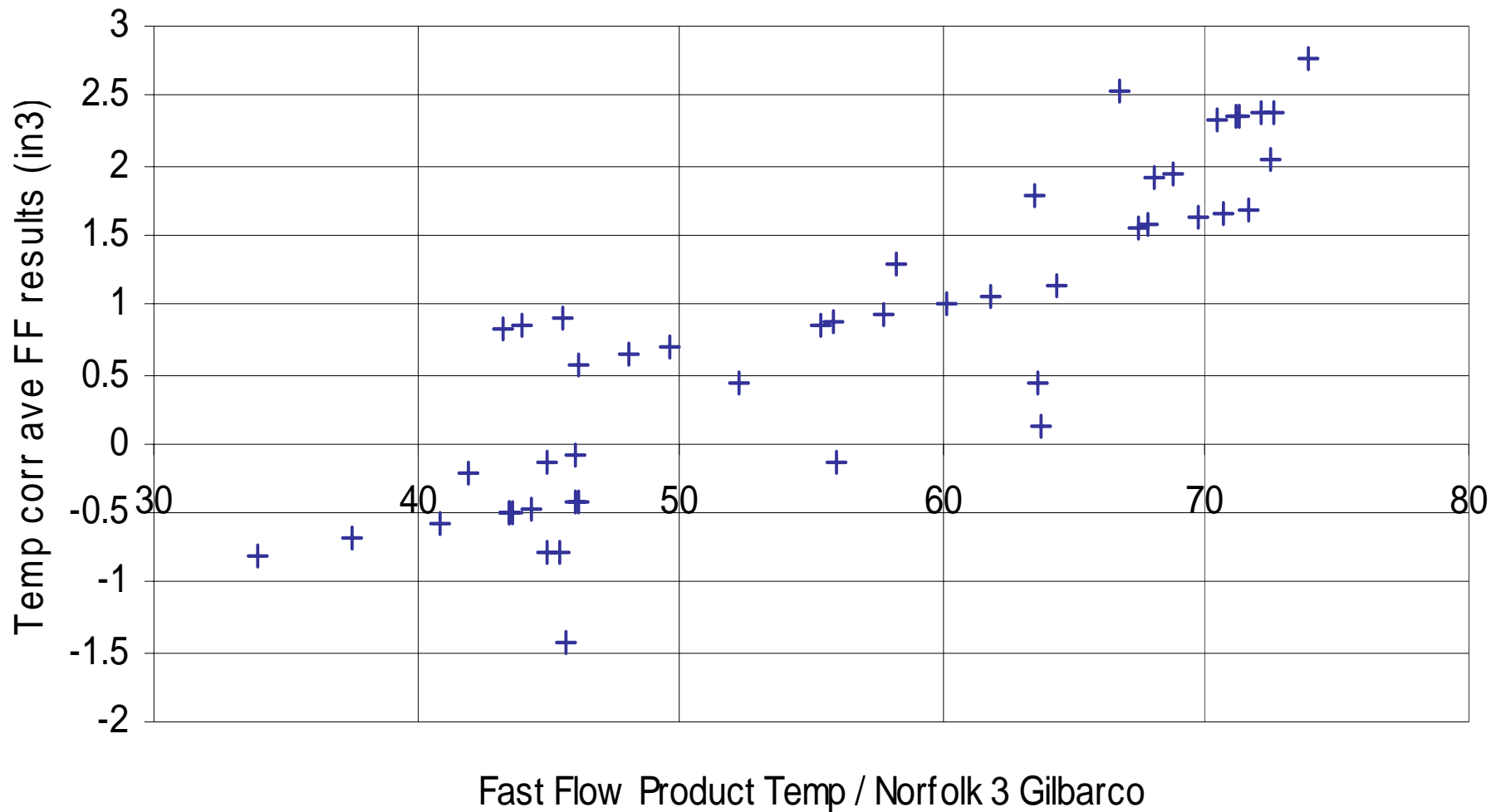


Norfolk 2 Gilbarco Meter

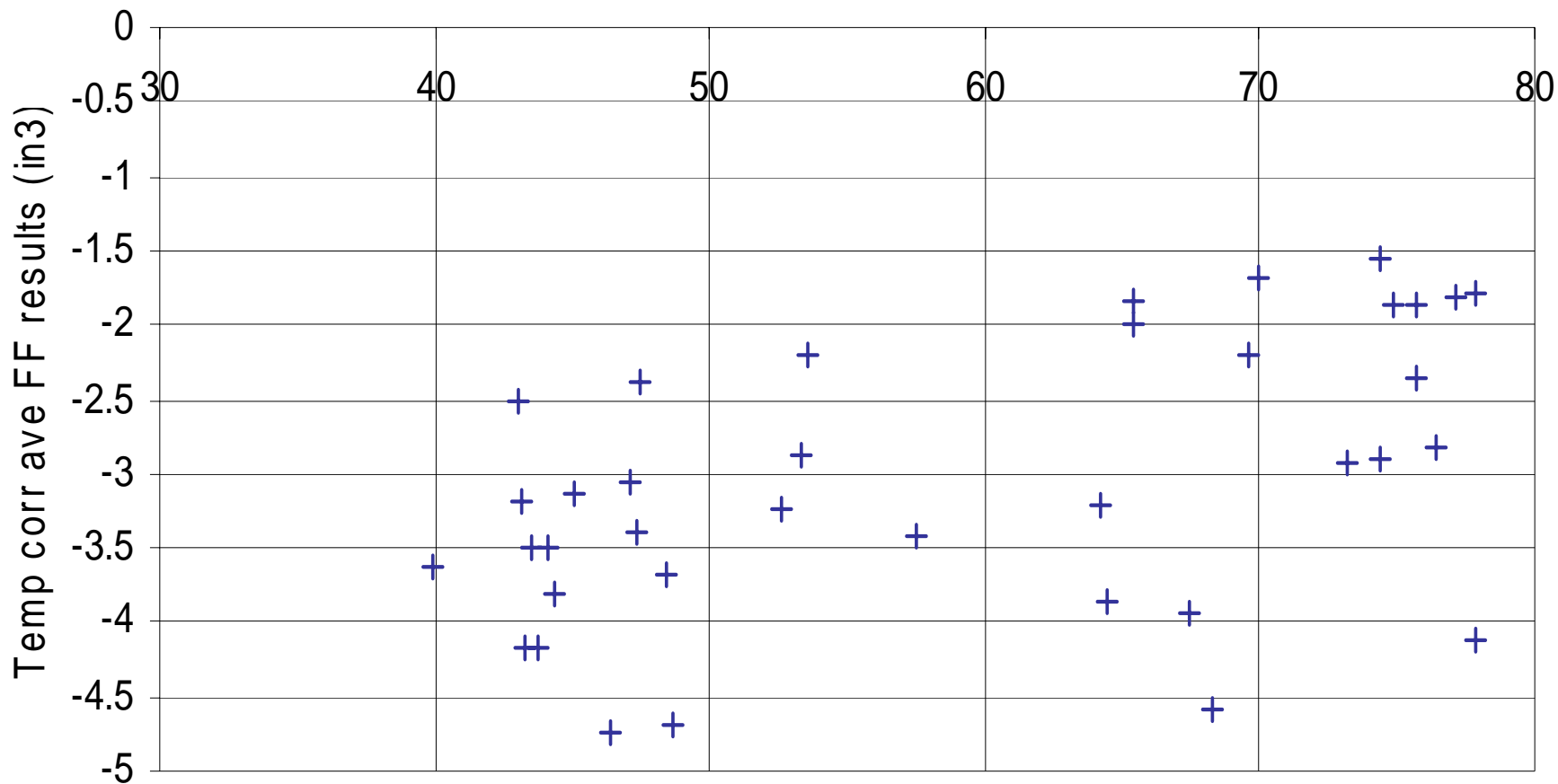
Scatterplot of TC Fast Flow Drafts vs Date of Test of combined runs



Scatterplot of Temp corr ave FF results (in3) vs Fast Flow Product Temp Norfolk 3 Gilbarco



Scatterplot of Temp corr ave FF results (in3) vs Fast Flow Product Temp of Aurora 4 Tokheim



Fast Flow Product Temp Aurora 4 Tokheim

Observations

- First drafts may not reflect device performance.
- The meters have a error slope between 0.029 and 0.096 cubic inches per degree of temperature change (1 to 4 in³/°F)
 - Meter type
 - Product type
- Volume corrections for SS prover is 6/10 in³/20°F
- Product temperatures have a relationship to the ambient temperature