

PM2.5 Bias Update

**Presented at SAMWG
10/16/03**

Basics

- Bias estimated using PEP Program
- 25% sites within reporting org. 4 times a year
- PEP
 - ▶ contractors all 10 regions
 - ▶ 2 National Labs for filter prep/weighing
 - ▶ collocate portable instrument (usually BGI)
 - ▶ perform leak/temp/bp/flowrate check at each set-up
 - ▶ collect sample within 48 hours (usually 24)

$$\text{Bias} = \frac{\text{primary-PEP}}{\text{PEP}} \times 100$$

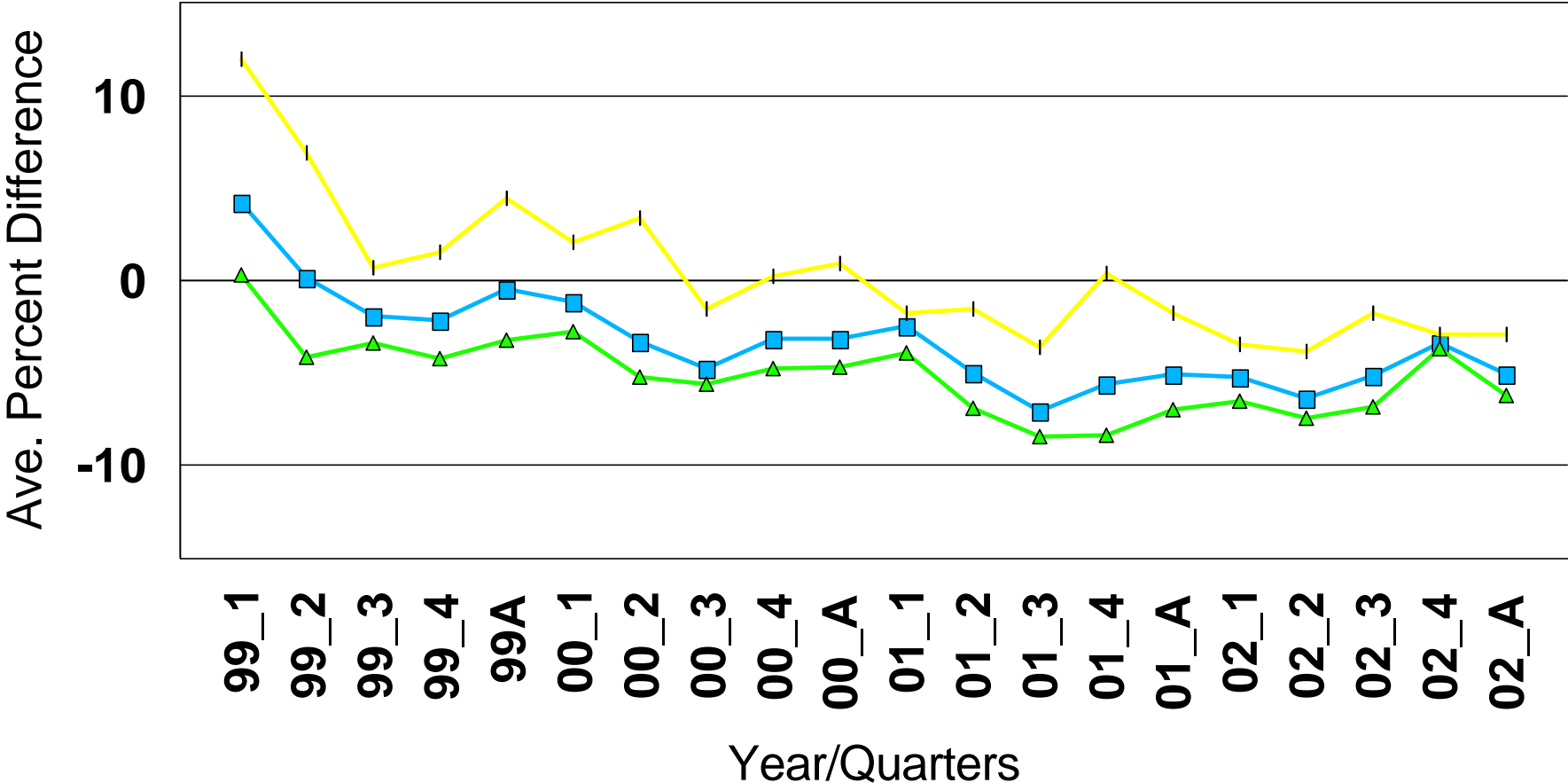
Findings/Patterns

- Bias moving in a negative direction over the first 3 years; pattern changes some in 2002
- Seemed to be a pattern within year with the first quarter providing the "highest" bias value, while the third quarter providing the "lowest"
- Patterns break down a little at the regional level

Bias Estimate

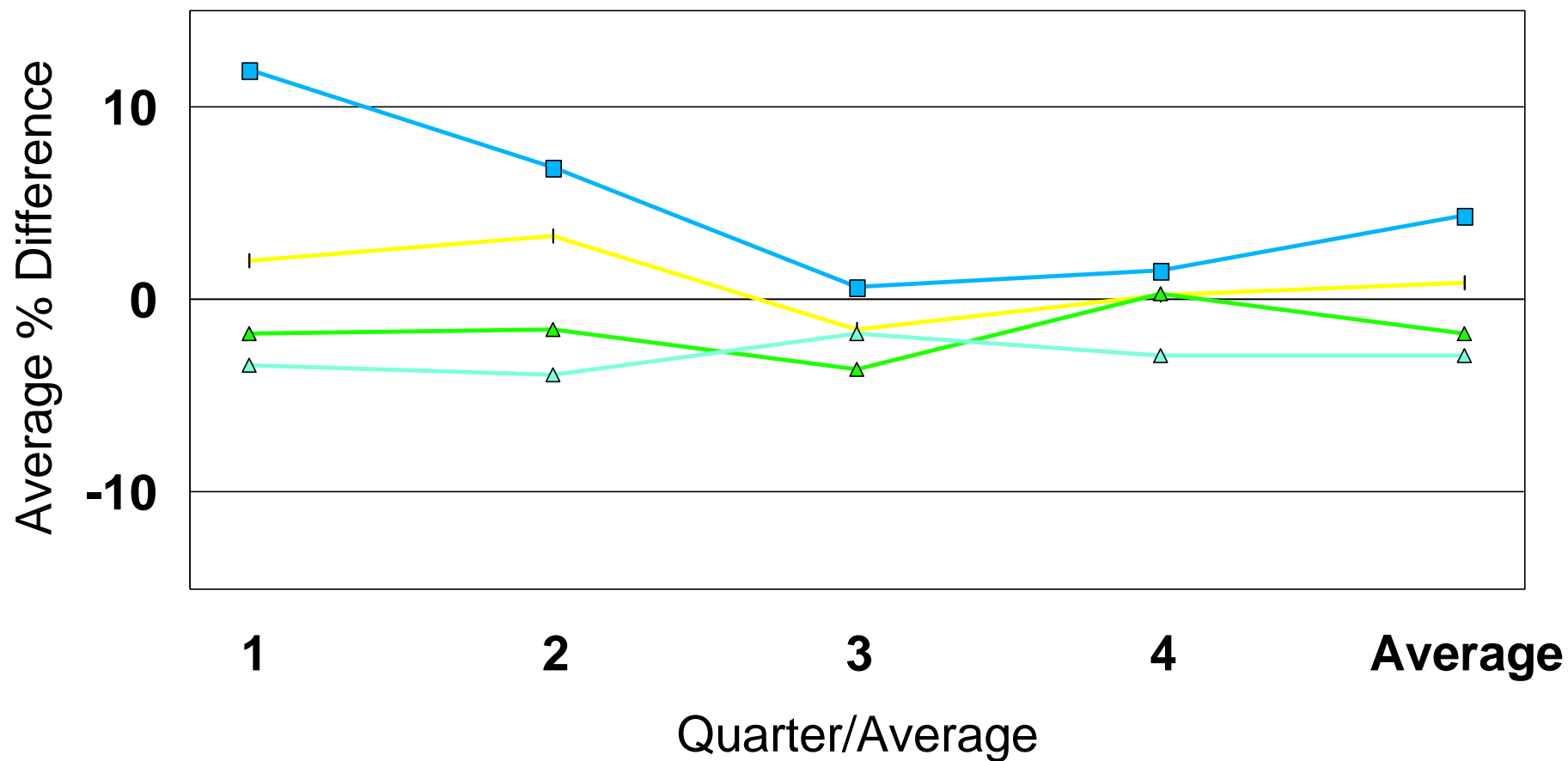
National Aggregation

Overall AND_S R&P_S



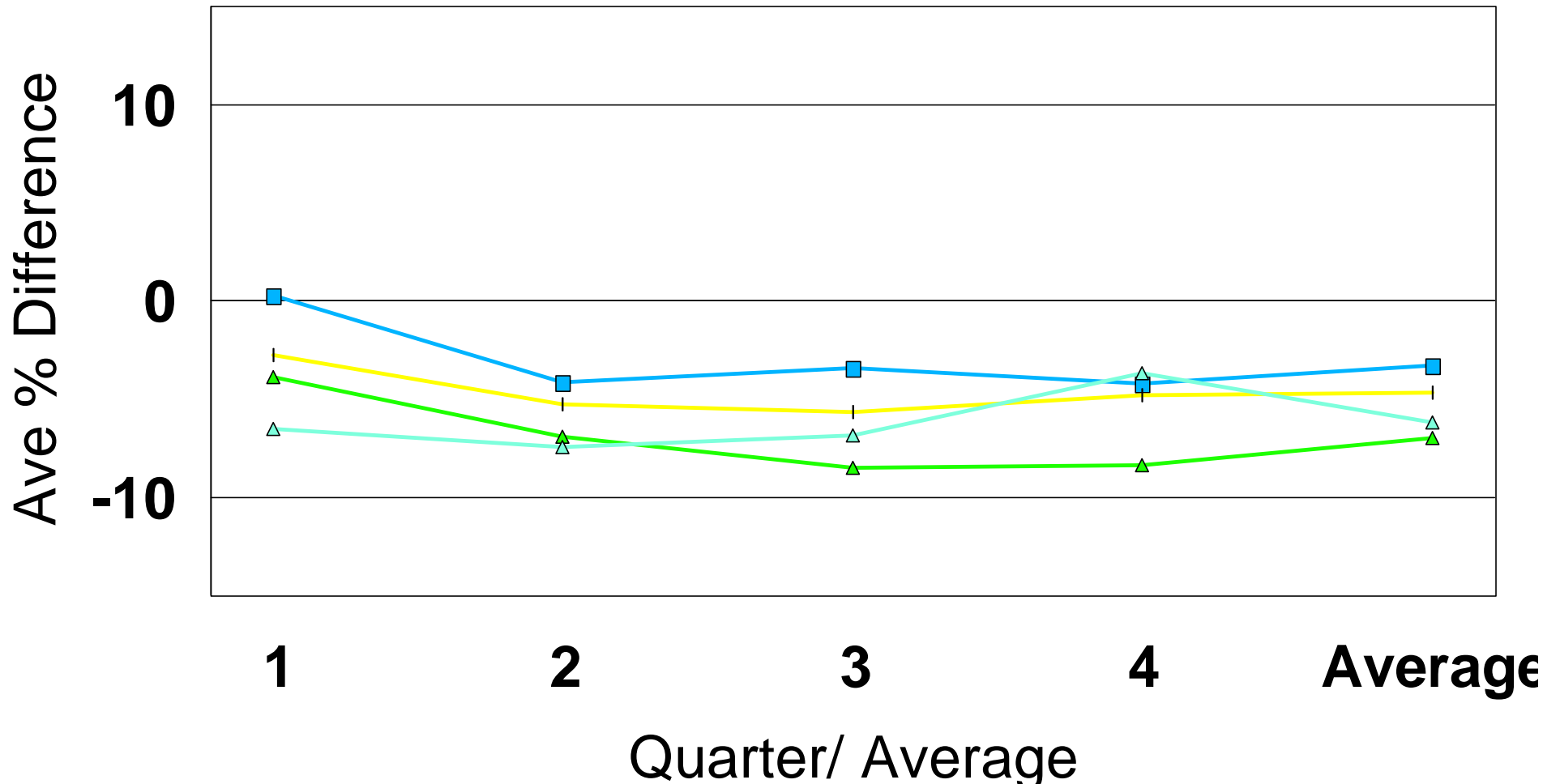
Bias Estimates Andersen Sequential

1999 2000 2001 2002

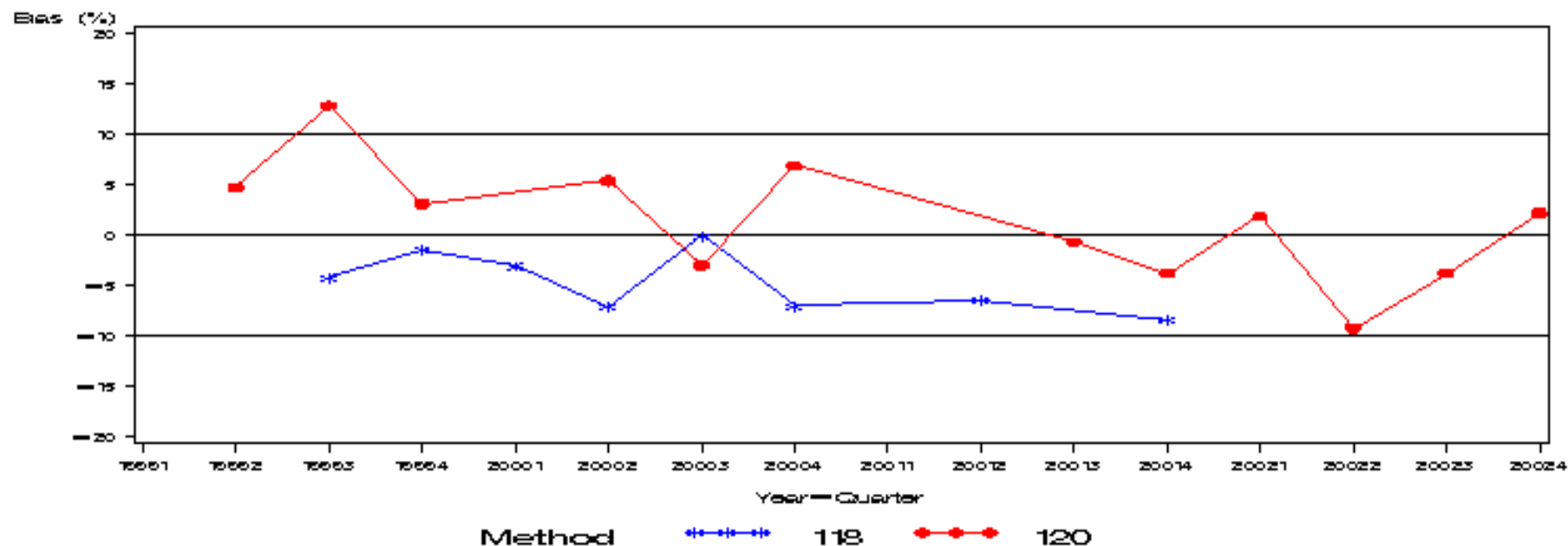


Bias Estimates R & P Sequential

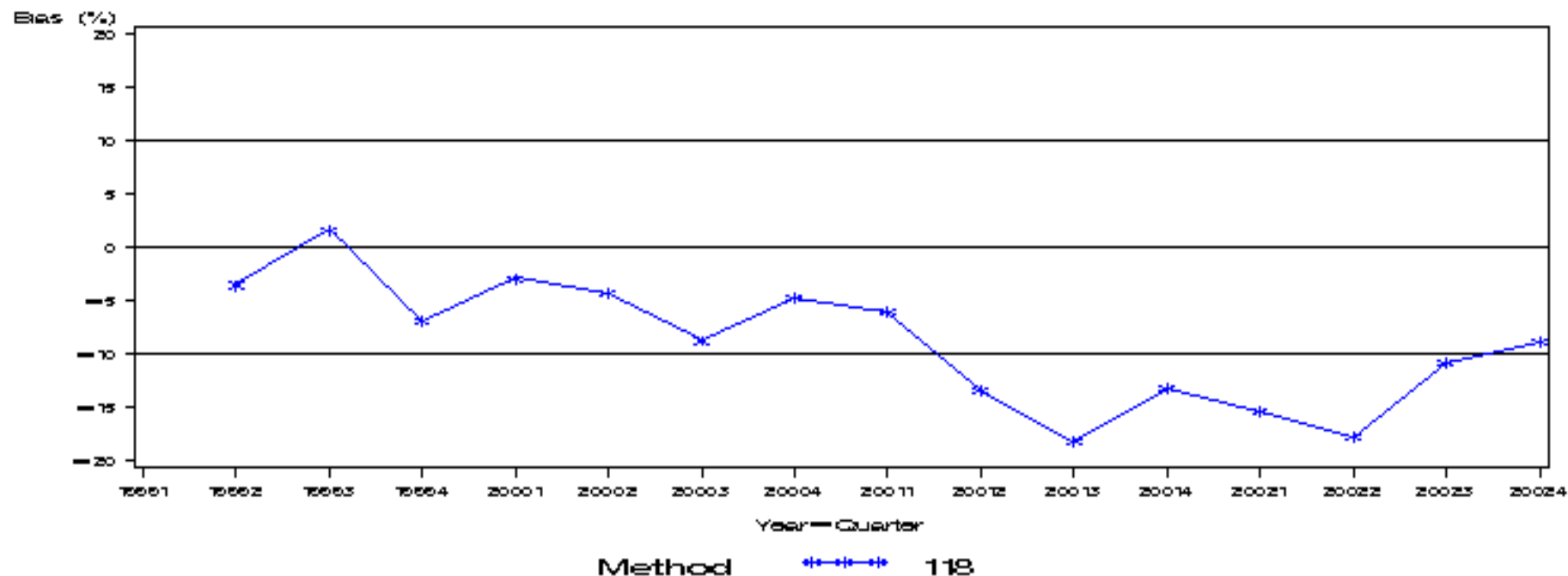
1999 2000 2001 2002



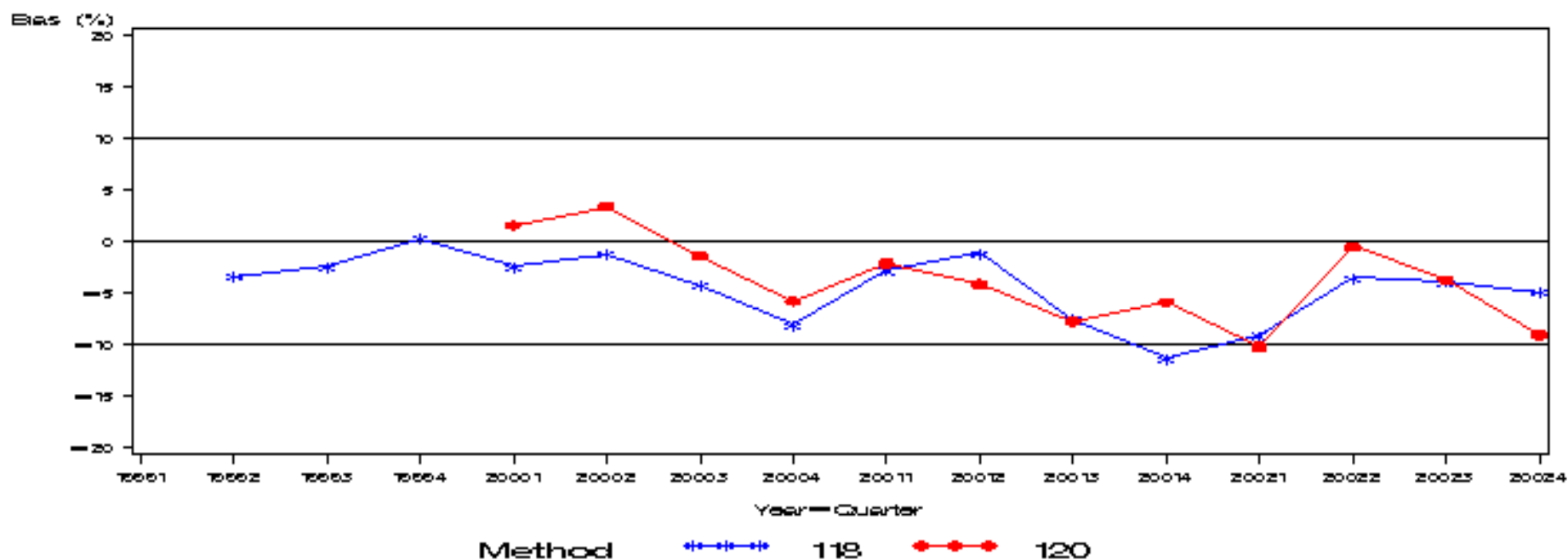
Mean Bias by Region, Pairs where Abs(Bias) > 50% Deleted, # Pairs > = 6
Region= 1



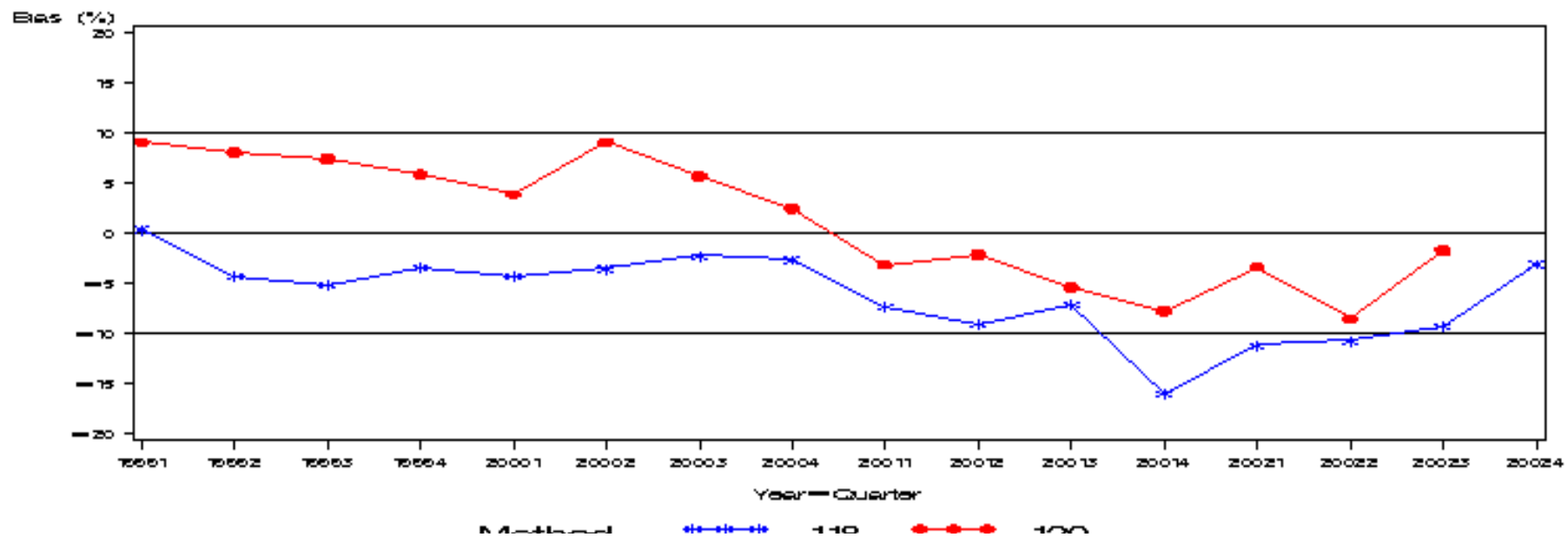
Mean Bias by Region, Pairs where Abs(Bias) > 50% Deleted, # Pairs > = 6
Region= 2



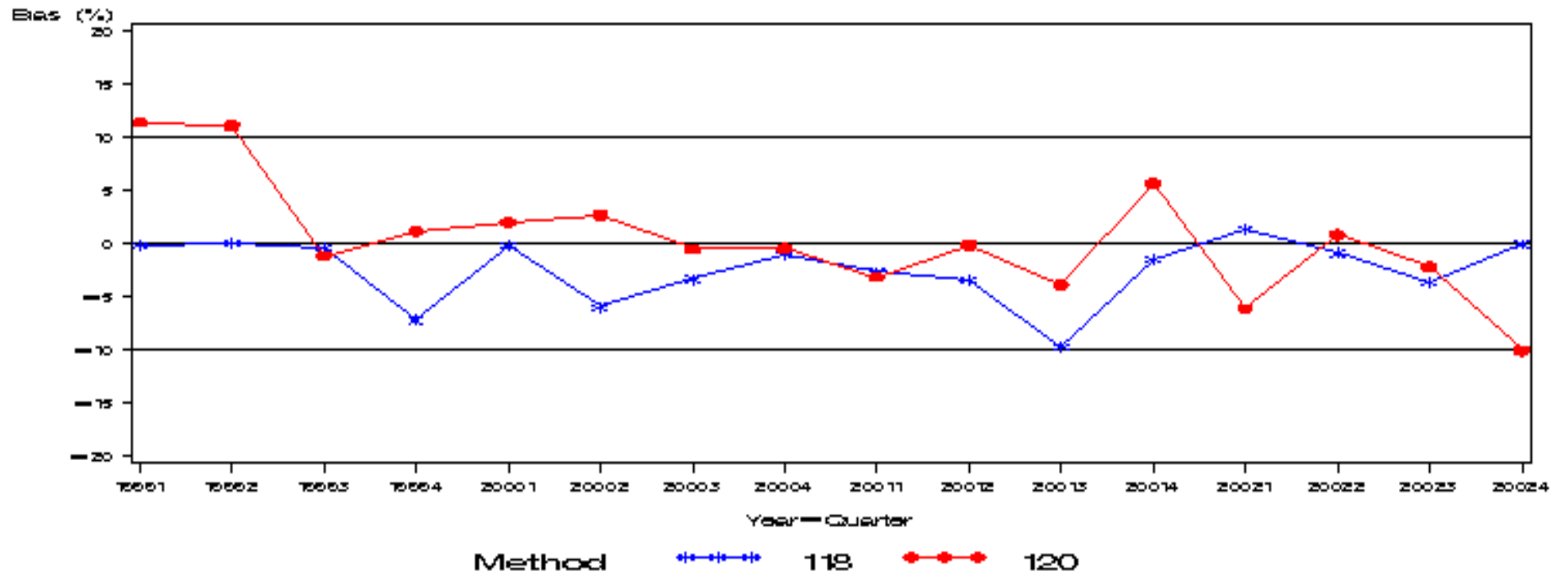
Mean Bias by Region, Pairs where Abs(Bias) >= 50% Deleted, # Pairs >= 6
Region= 3



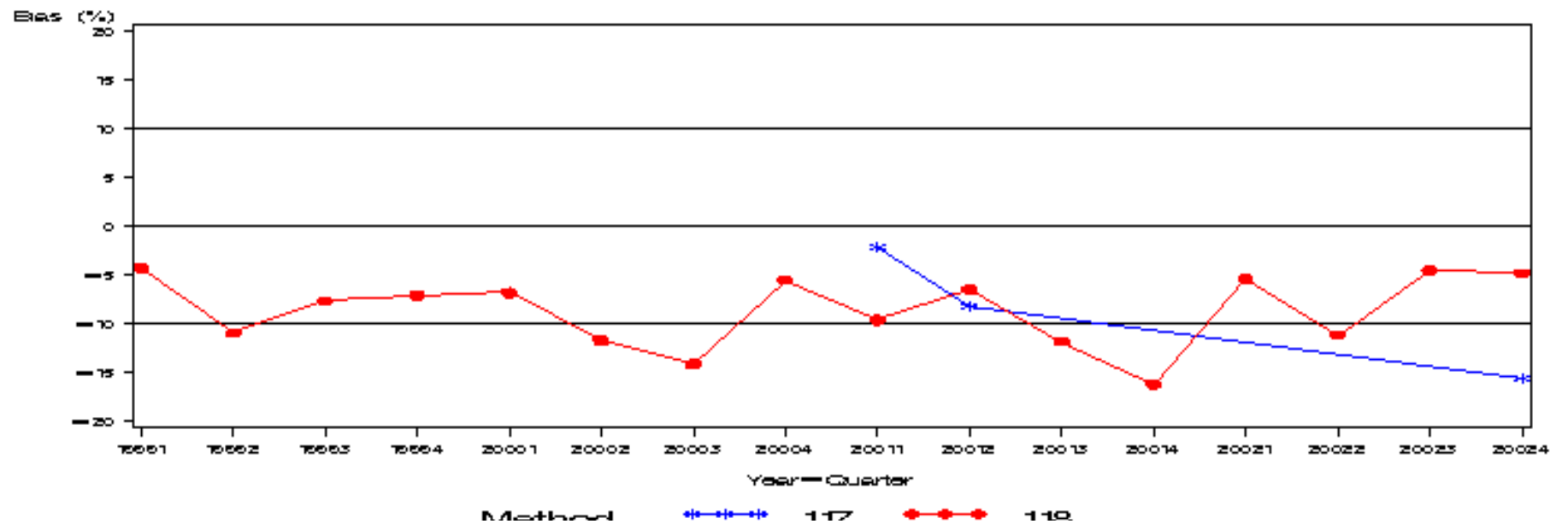
Mean Bias by Region, Pairs where Abs(Bias) >= 50% Deleted, # Pairs >= 6
Region= 4



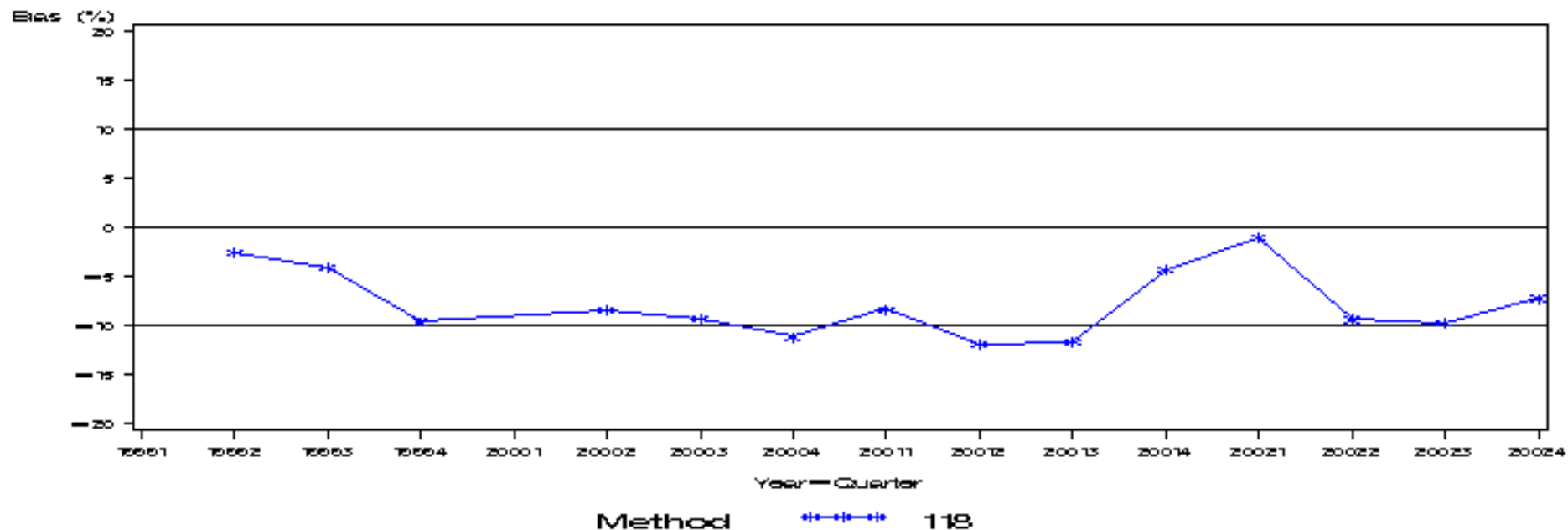
Mean Bias by Region, Pairs where Abs(Bias) > 50% Deleted, # Pairs >= 6
Region= 5



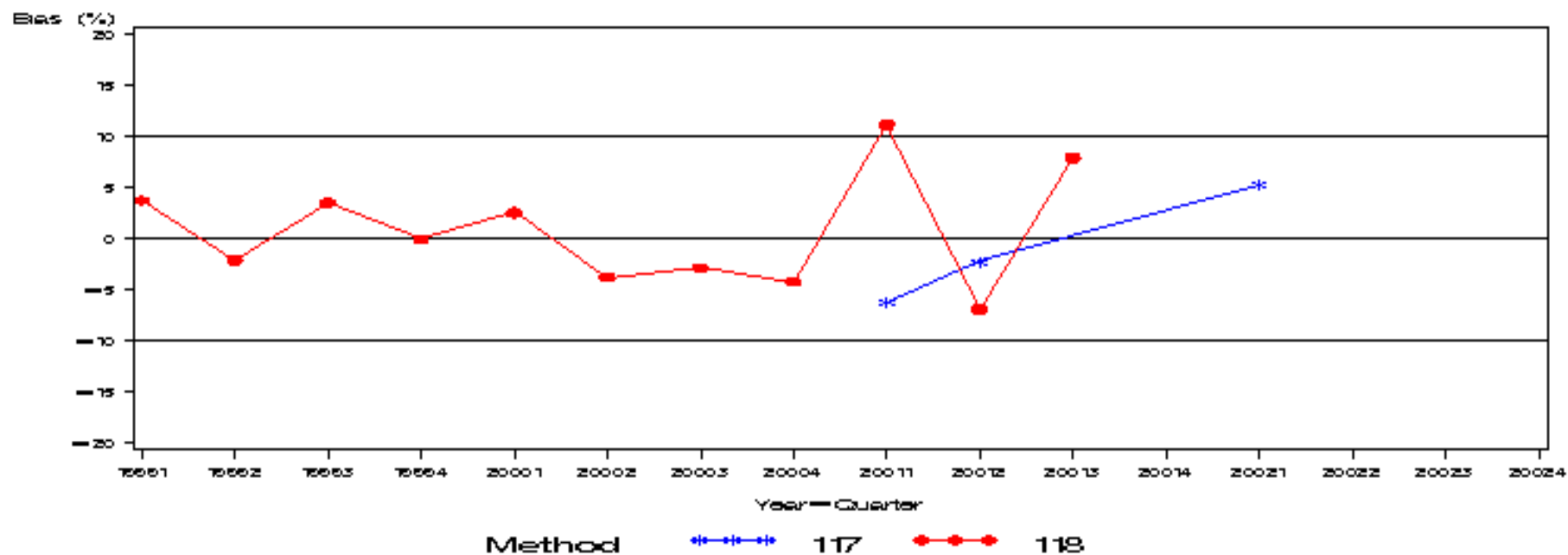
Mean Bias by Region, Pairs where Abs(Bias) > 50% Deleted, # Pairs >= 6
Region= 6



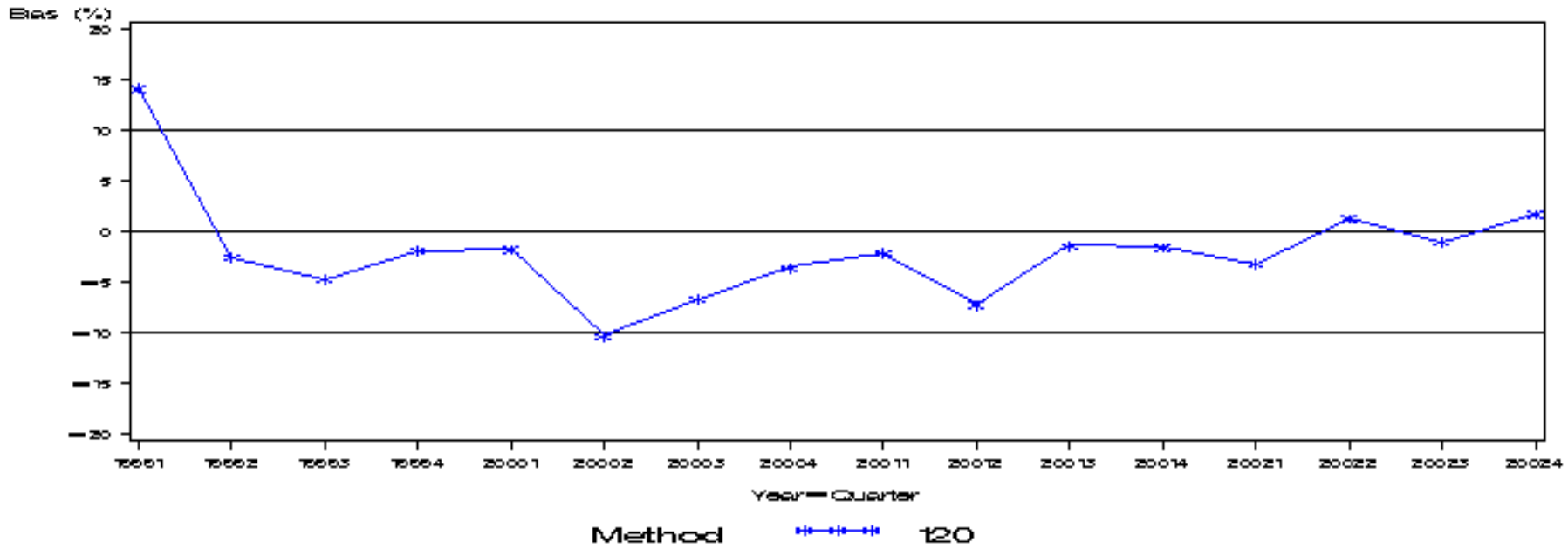
Mean Bias by Region, Pairs where Abs(Bias) > 50% Deleted, # Pairs > = 6
Region = 7



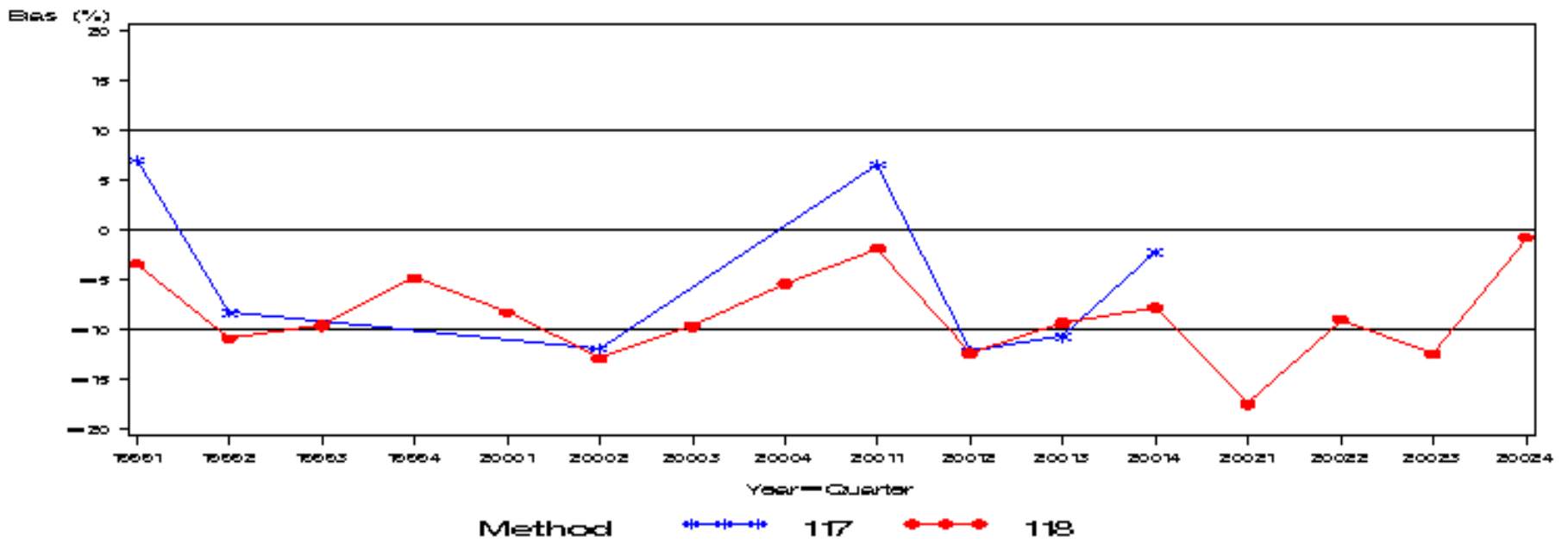
Mean Bias by Region, Pairs where Abs(Bias) > 50% Deleted, # Pairs > = 6
Region = 8



Mean Bias by Region, Pairs where Abs(Bias) > 50% Deleted, # Pairs > = 6
Region = 9



Mean Bias by Region, Pairs where Abs(Bias) > 50% Deleted, # Pairs > = 6
Region = 10



Work to date

- Worked with Texas to determine if flow was an issue- not a problem
- Looked at Temp (Volatiles) and BP (volume meas.) data in AQS- Weak correlations
- Comparison with speciation (STN) data
 - ▶ Not enough much data available for meaningful; evaluation
- May try some mini-intercomparisons with select SLTs

3-Year Upper Confidence Limit Site level Percentiles

Percentile	O3		CO		NO2		SO2	
	Bias	CV	Bias	CV	Bias	CV	Bias	CV
	Upper Bound	Upper Bound	Upper Bound	Upper Bound	Upper Bound	Upper Bound	Upper Bound	Upper Bound
0 th	0.3	0.7	0.6	0.7	0.6	1	0.6	0.8
5 th	0.9	1.2	1.1	1.3	1.6	1.9	1.3	1.5
10 th	1.2	1.5	1.4	1.5	2.2	2.3	1.6	1.9
25 th	1.8	2.1	1.9	2.1	3	3.4	2.2	2.6
50 th	2.7	3	2.8	2.9	4.2	4.7	3.3	3.5
75 th	3.8	4.1	4.1	4.2	5.7	6	4.5	4.8
90 th	5.1	5.4	5.3	5.3	7	7.4	5.7	5.9
95 th	6.2	6.6	6.4	6.5	8.2	8.4	7	7.4
100 th	42.4	30.4	13.8	17.3	13	15.2	19.6	13.6