National Atmospheric Deposition Program
Spring 2001 Interim Meeting
Attachments to NOS Committee Meeting Minutes

1. USGS External QA Report Part I by John Gordon
2. Field Blank and Reference Sample Results 1997-1999 by John Gordon
3. Interlaboratory Comparison Results 1997-1999 by John Gordon
4. Intersite Comparison Studies 1998-2000 by Natalie Latysh
5. Collocated Sampler Program 1998-2000 by Natalie Latysh
6. Examinations of [H+] concentrations measured in the field and in the laboratory by Natalie Latysh
7. Site Sketch and Siting Criteria violation displays by Scott Dossett

Field Blank Results

1997-1999

NADP/NTN ITERIM MEETING
April 23-25, 2001
Tucson, Arizona

Locally Weighted Scatterplot

Smoothing was used to depict patterns in field blank results from 1997-1999

- 75th percentile
- 50th percentile
- 25th percentile

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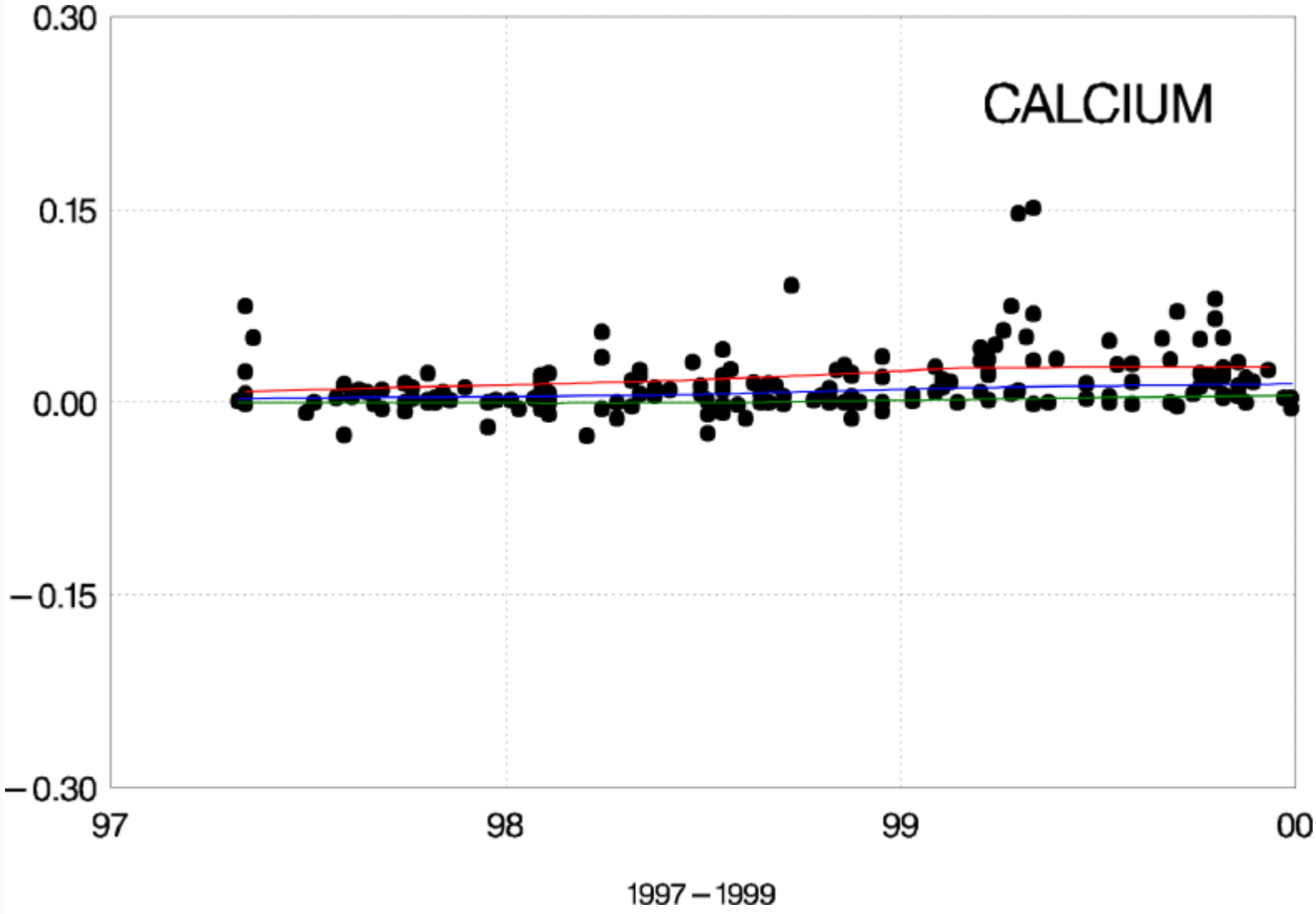
Paired Field Blank Sample Differences

mg/L



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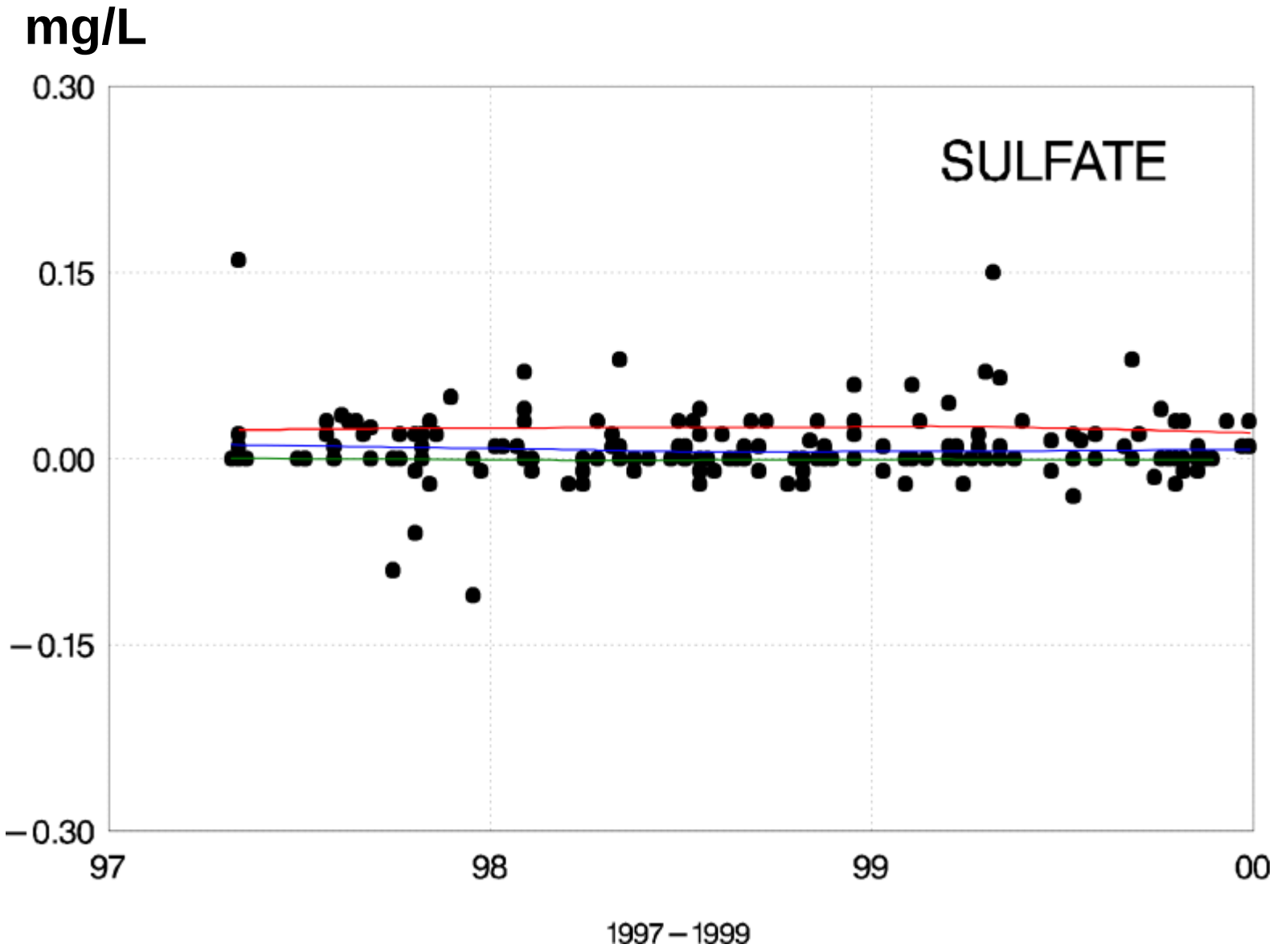

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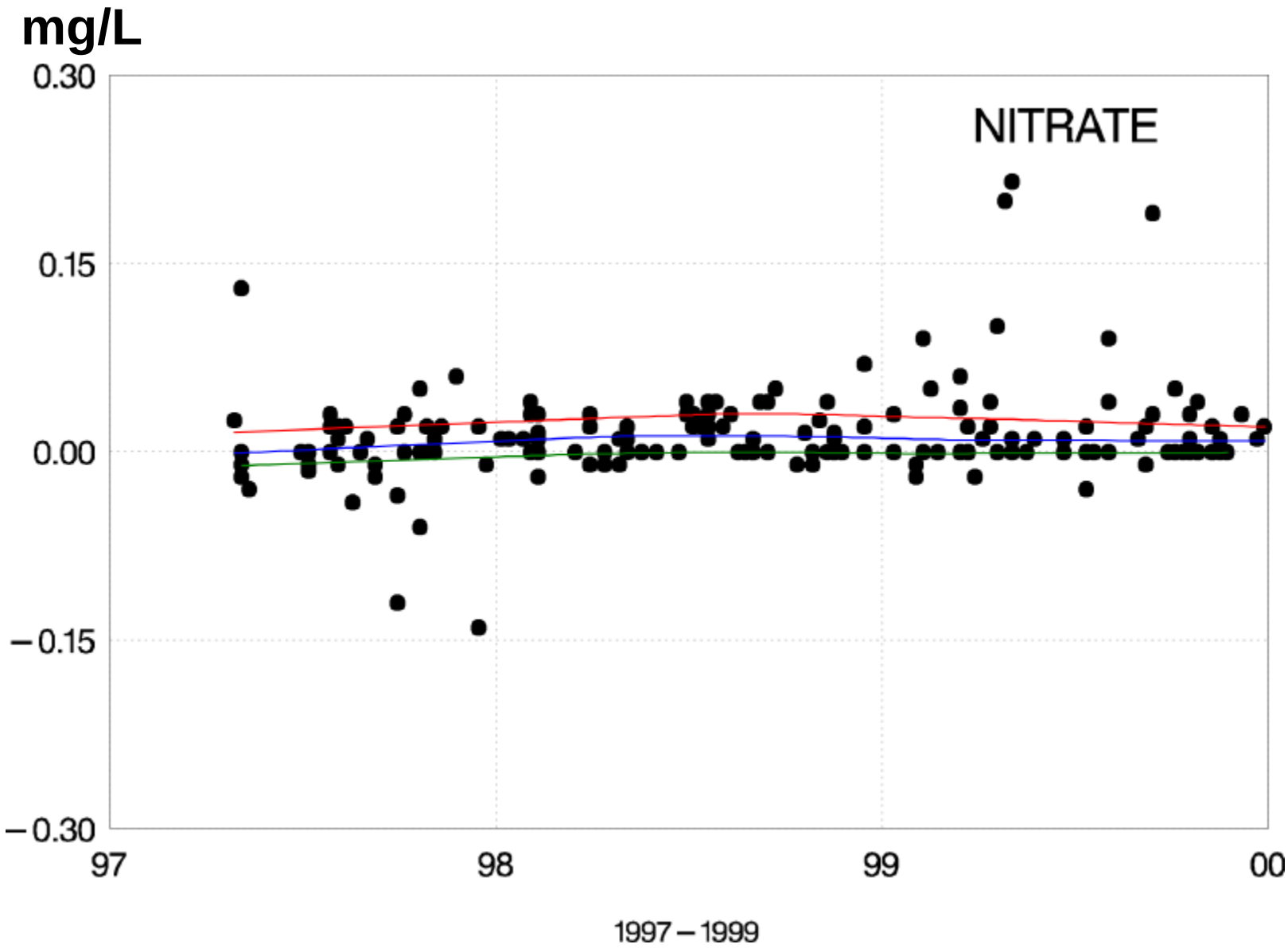

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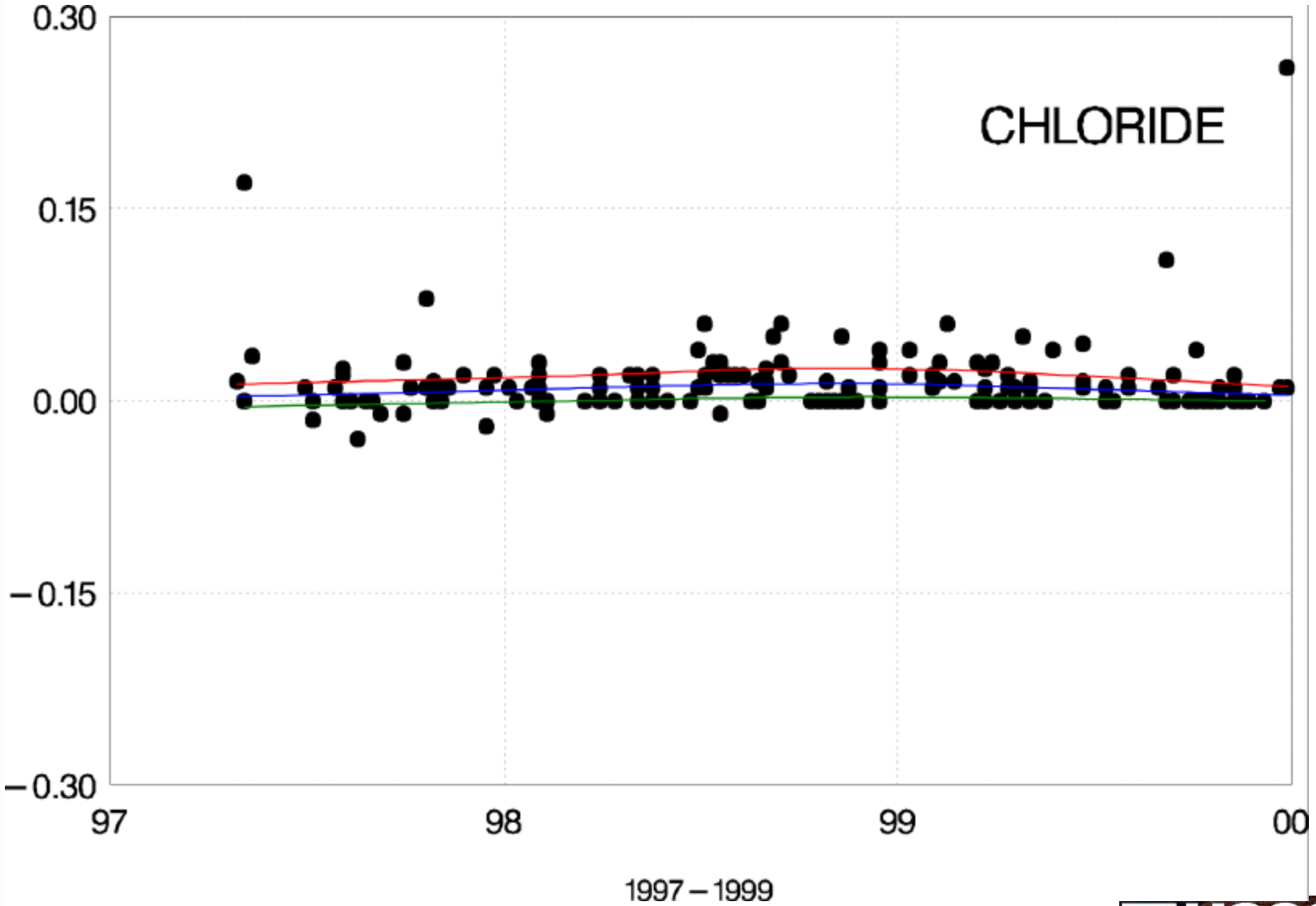

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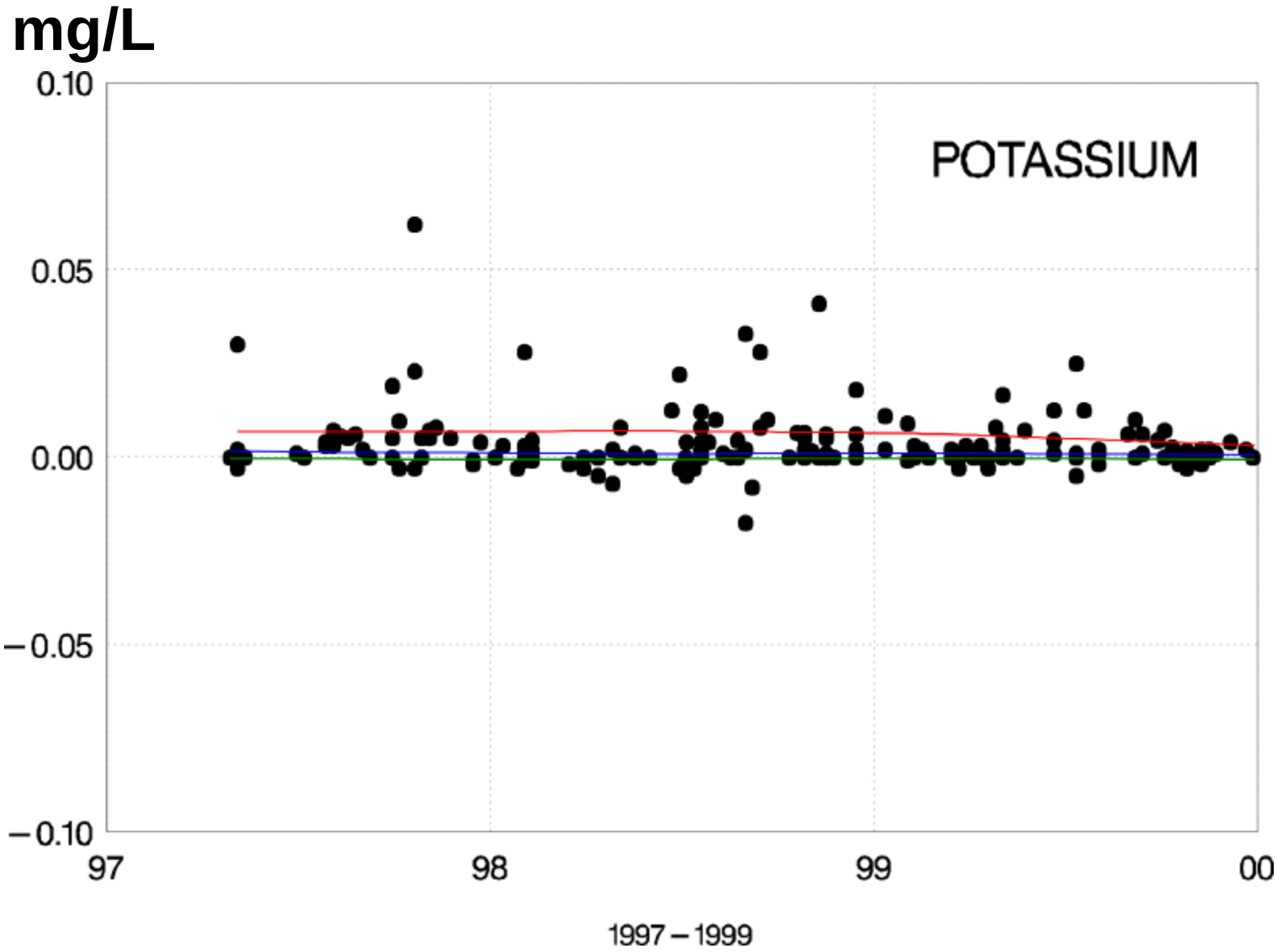

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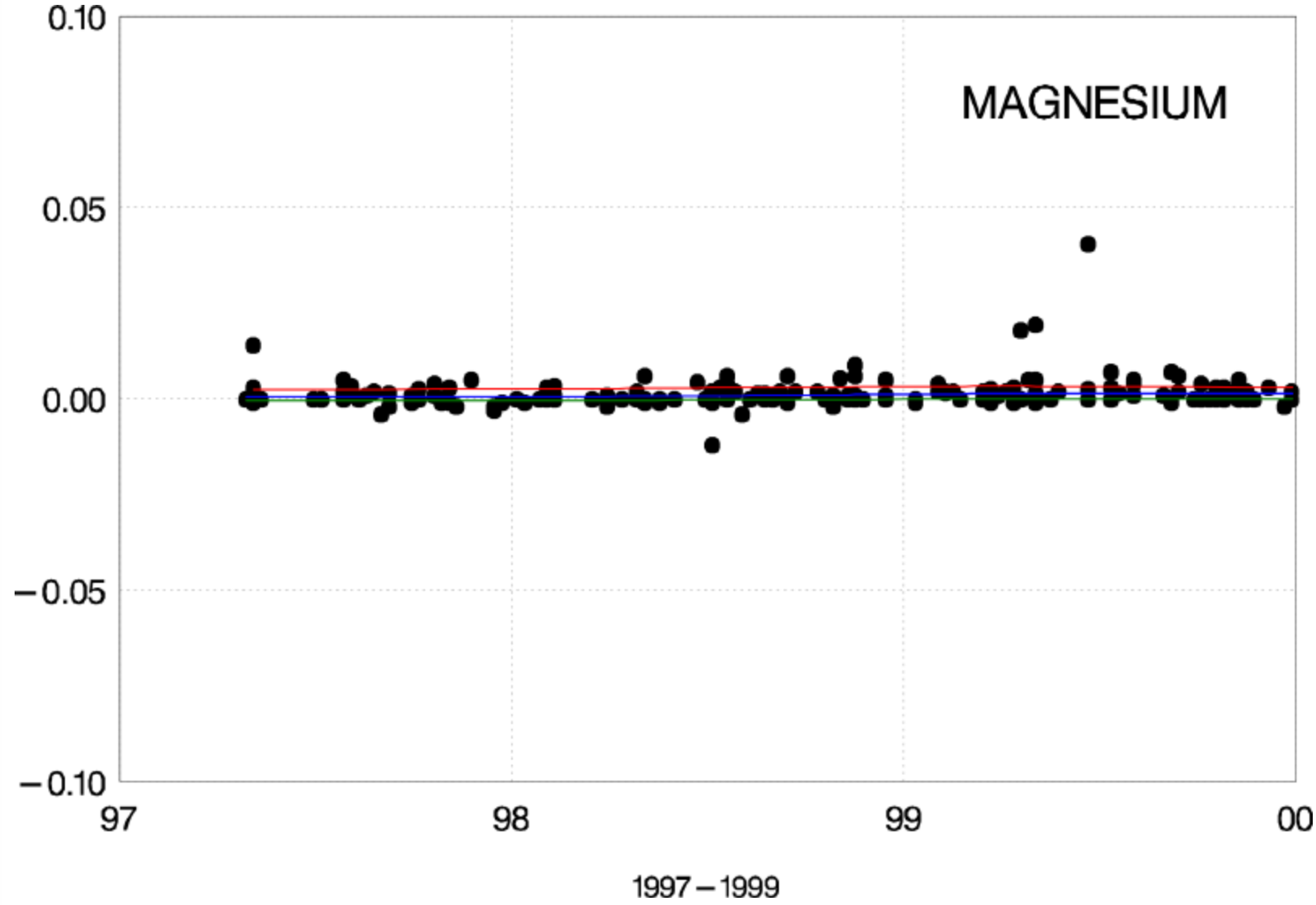

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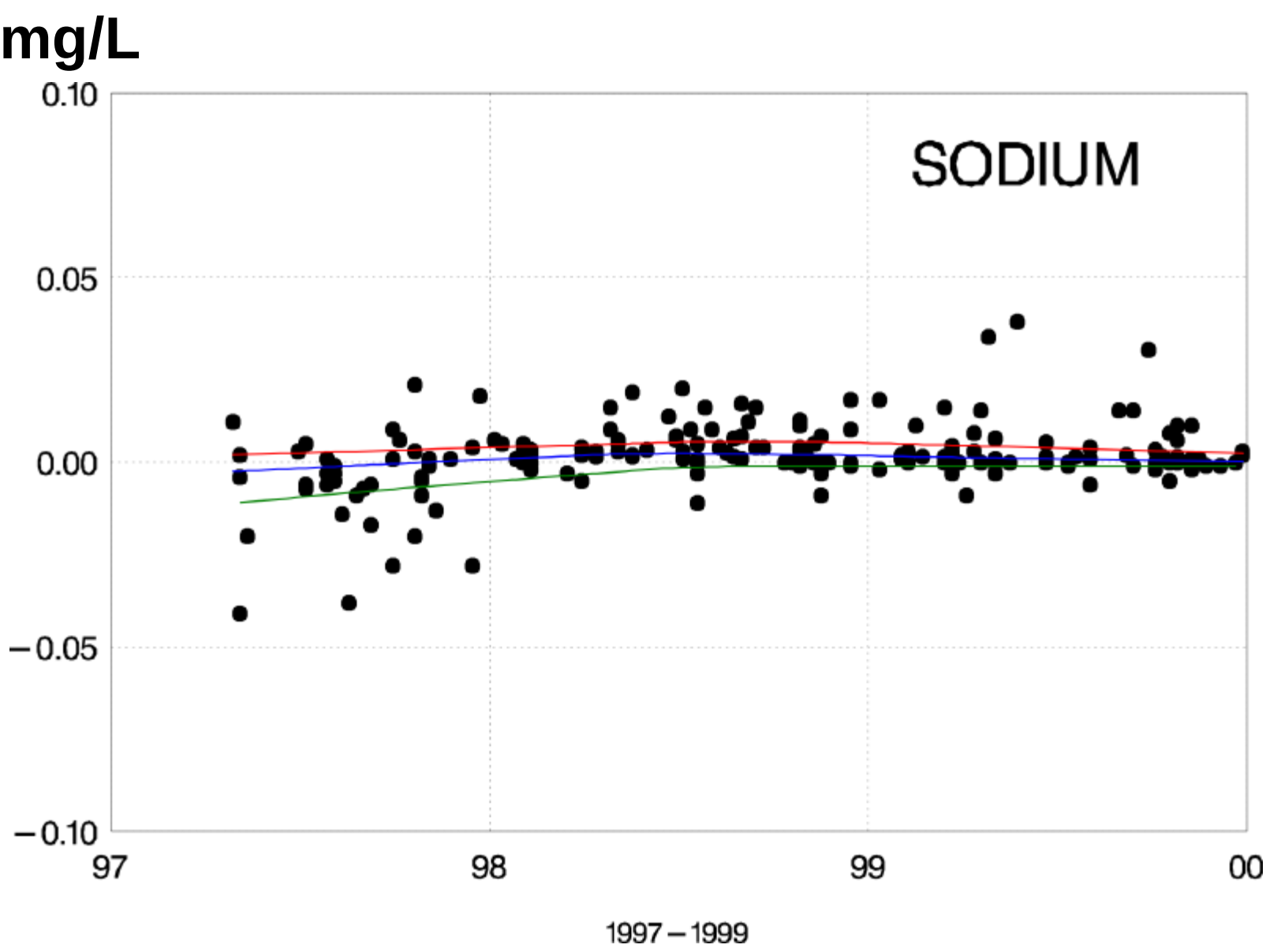

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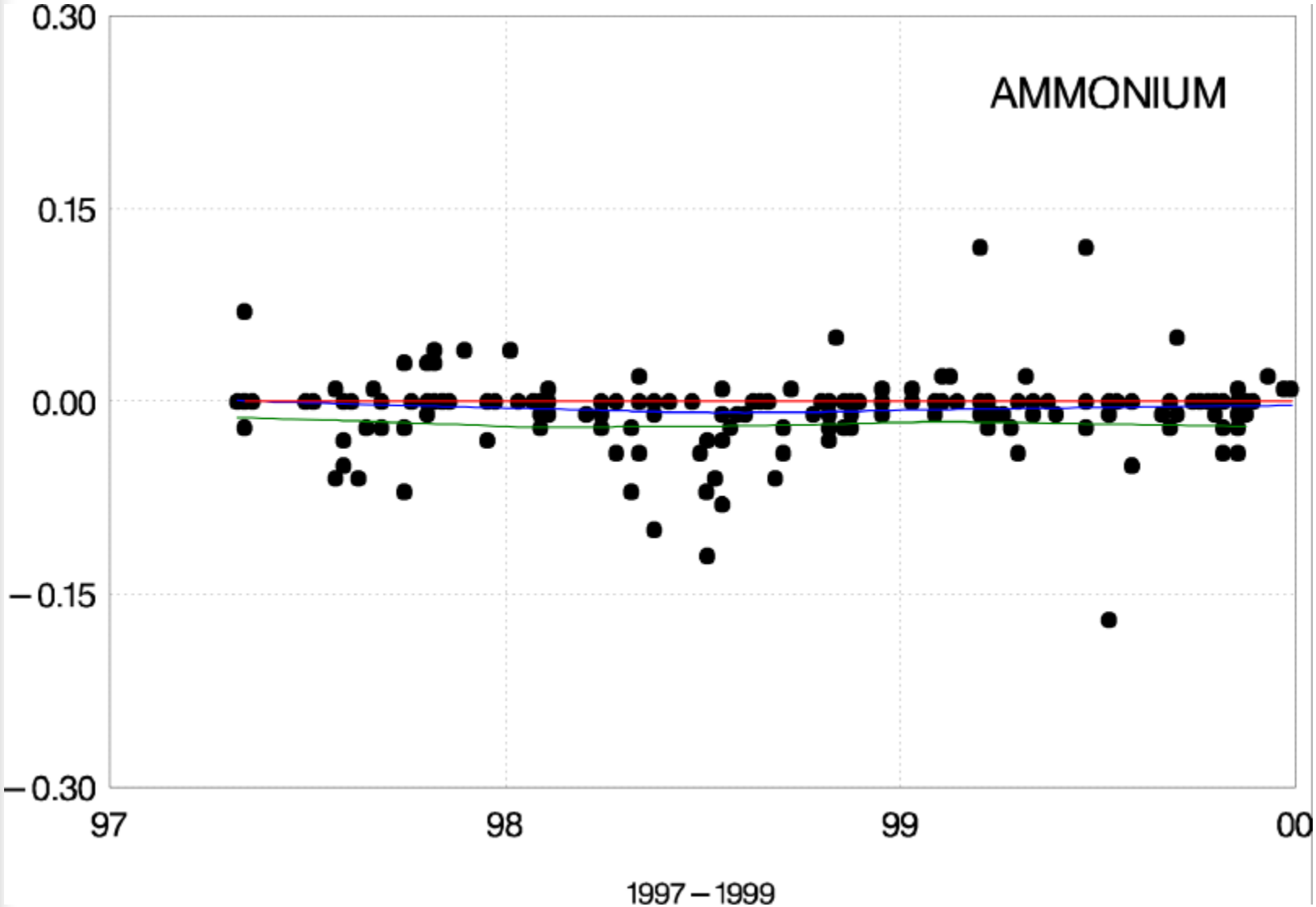

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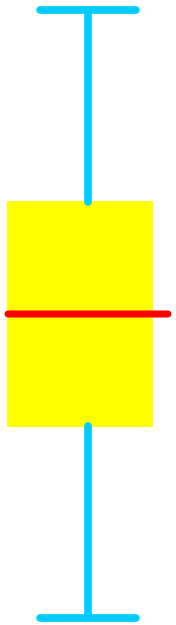
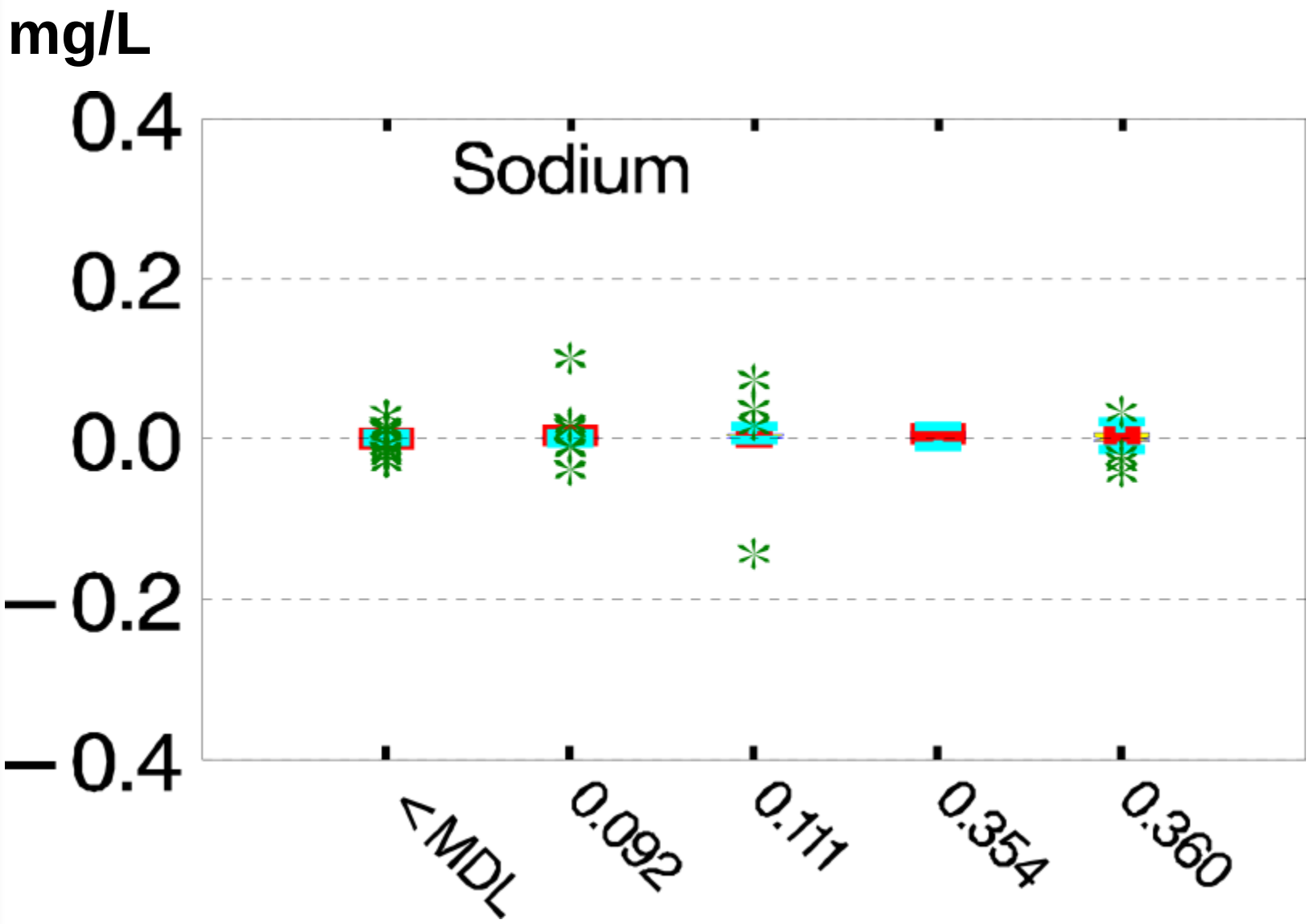


Upper Quartile

Median

Lower Quartile

Paired Field Blank Sample Differences



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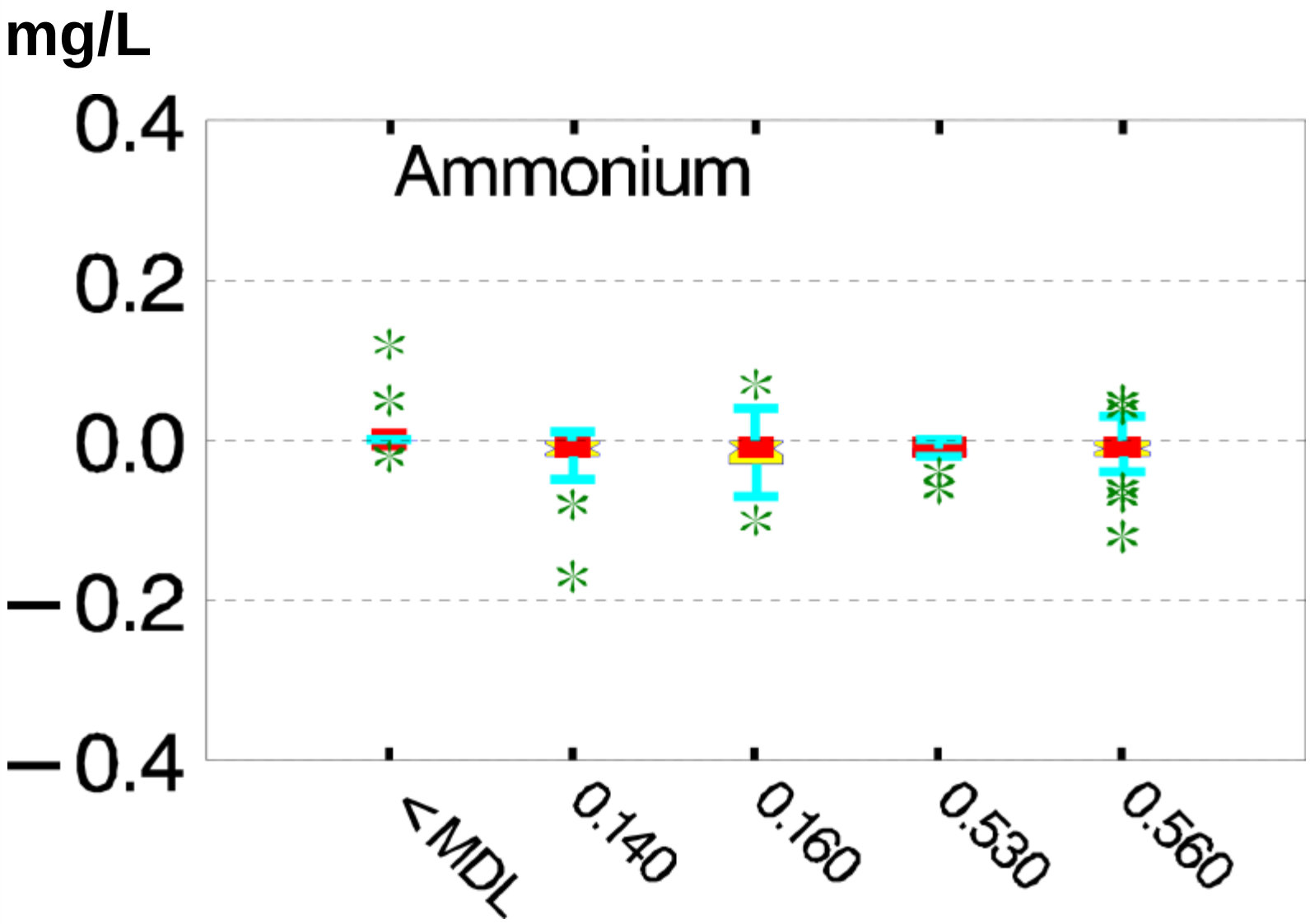

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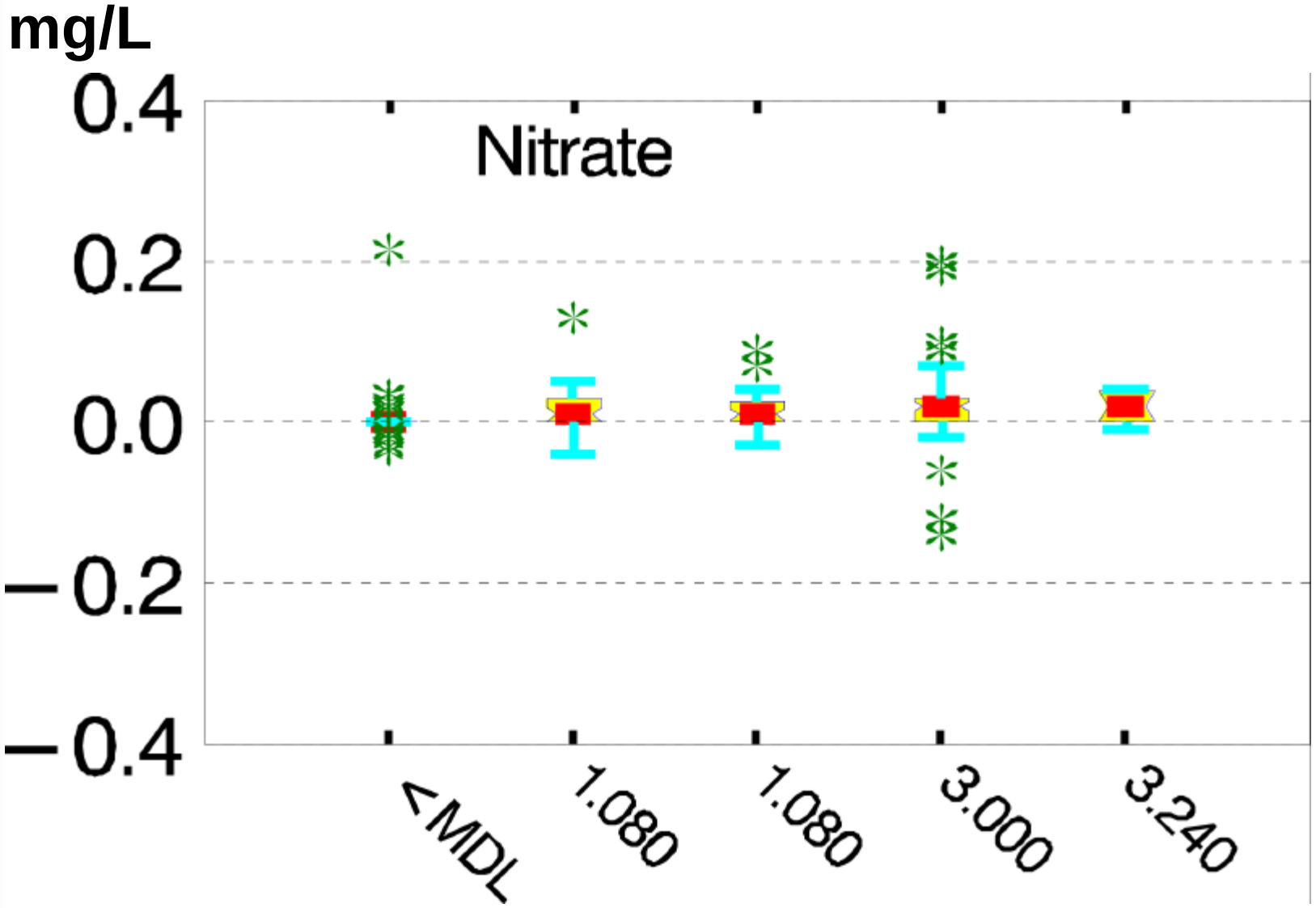

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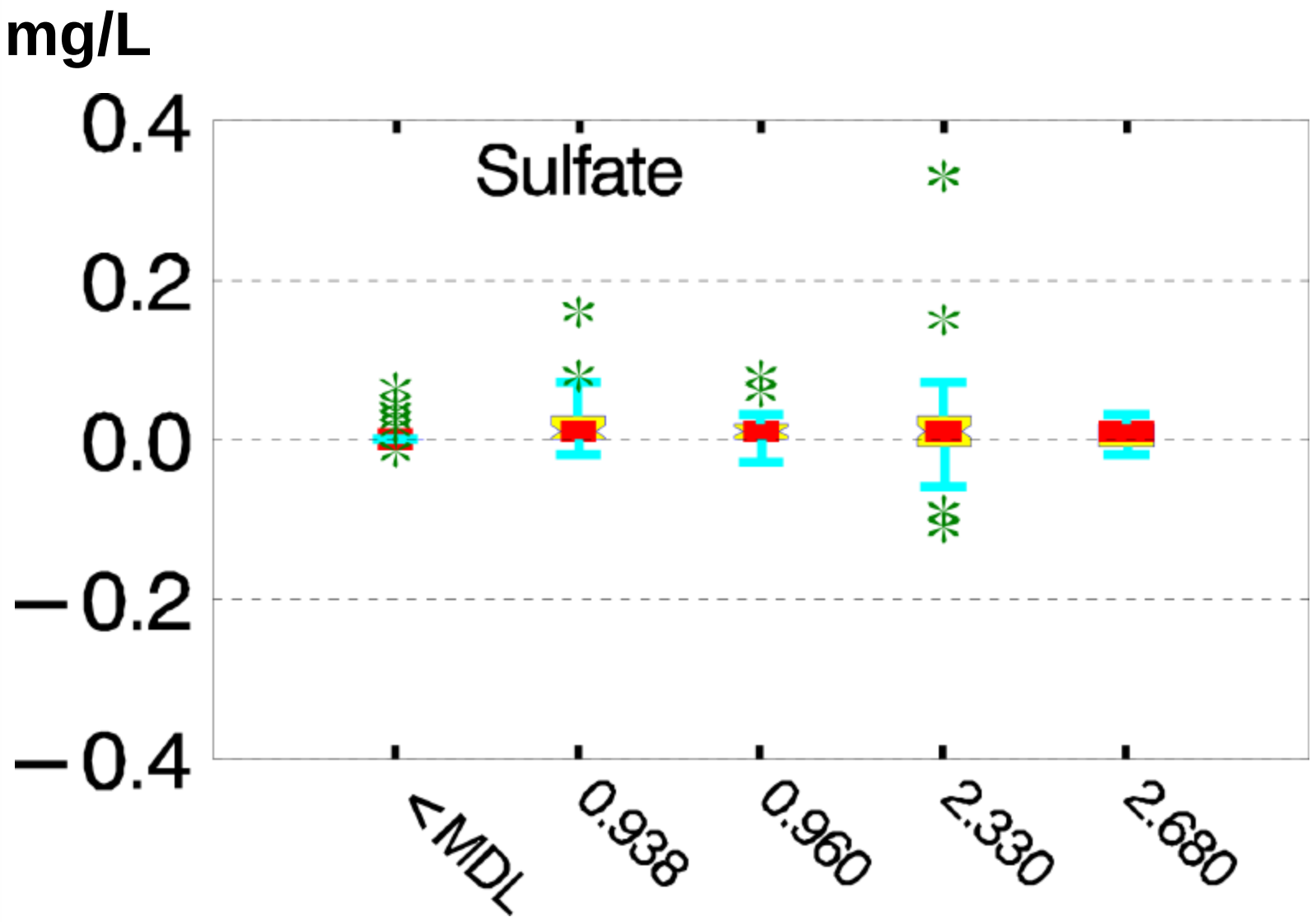

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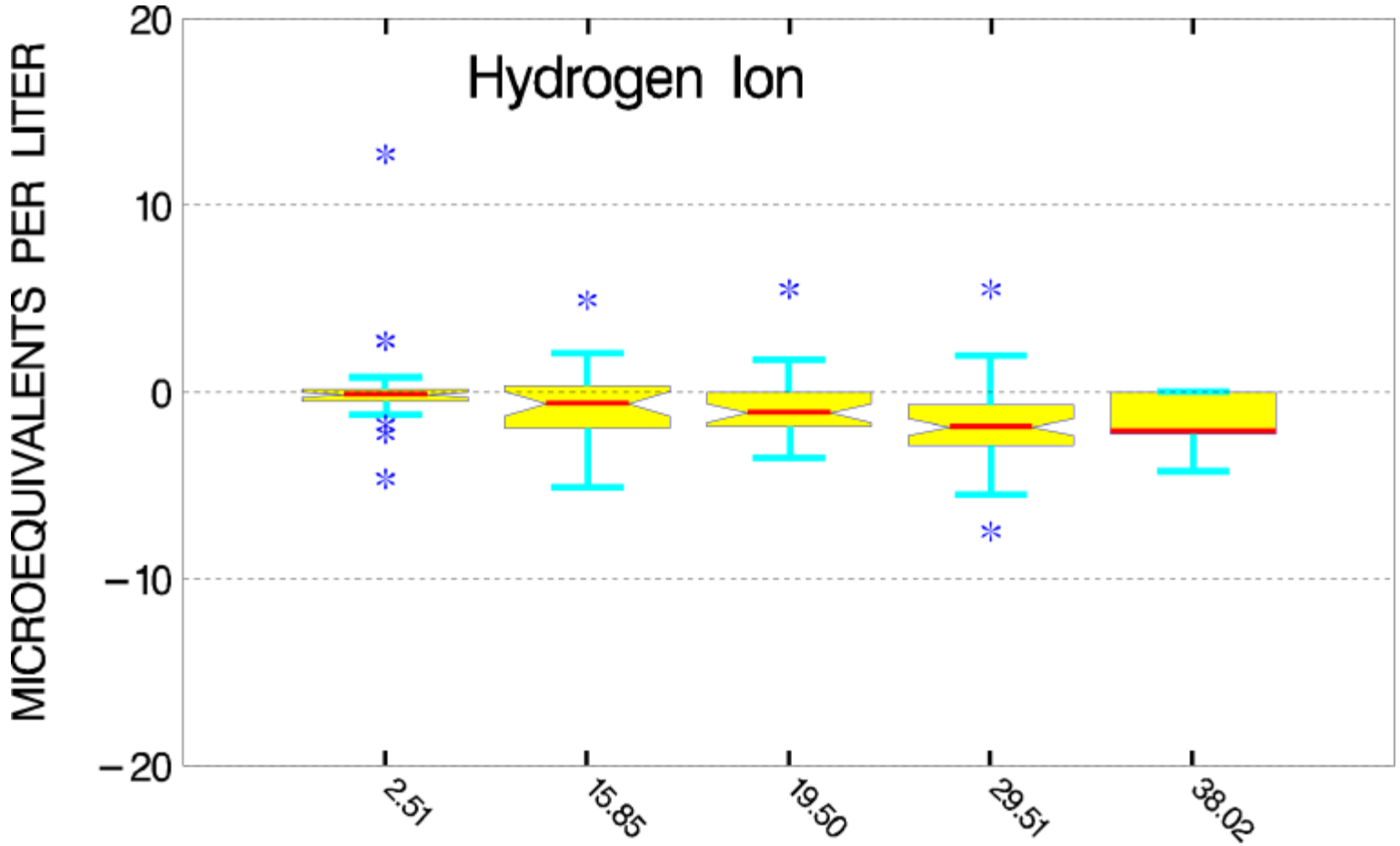

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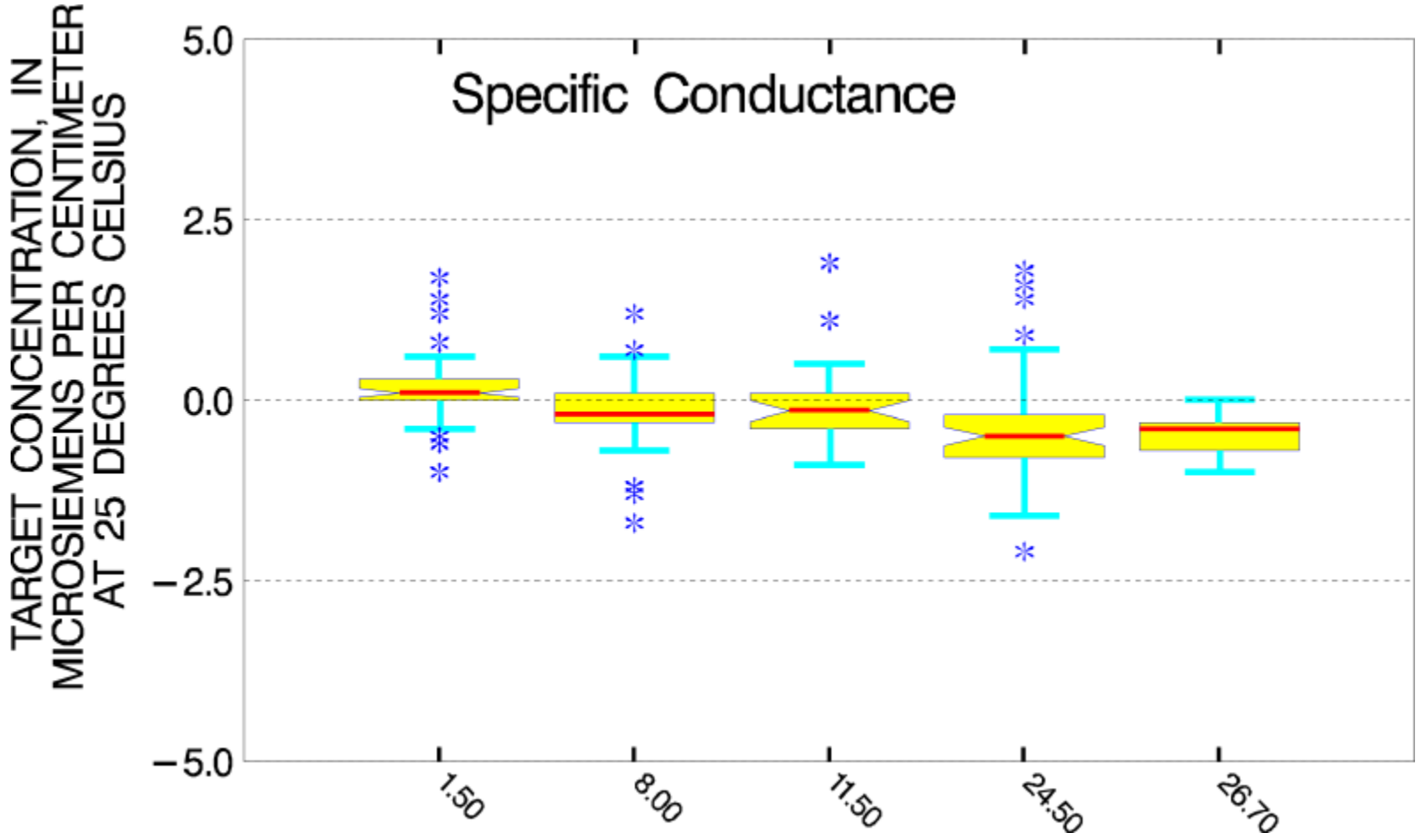

Field Blank Program:

$$\frac{[\text{Bucket}] - [\text{Bottle}]}{[\text{Target}]} * 100$$

Median Relative Percent Differences

Analytes	1997	1998	1999
Ammonium	0.00	-7.14	0.00
Calcium	2.16	3.01	9.12
Chloride	5.13	5.88	2.22
Hydrogen Ion	-3.82	-3.87	-6.67
Magnesium	0.00	0.00	2.86
Nitrate	0.00	0.94	0.33
Potassium	13.04	4.35	1.63
Sodium	-2.61	2.69	0.69
Sulfate	0.52	0.00	0.00
Spec Cond	-0.92	-1.79	-1.42

Field Blank Program:

Median Absolute Percent Differences

$$\left| \frac{[\text{Bucket}] - [\text{Bottle}]}{[\text{Target}]} \right| * 100$$

Analytes	1997	1998	1999
Ammonium	3.23	7.14	1.79
Calcium	2.62	4.67	9.12
Chloride	5.13	5.88	2.22
Hydrogen Ion	5.90	7.23	6.91
Magnesium	2.06	2.13	2.86
Nitrate	2.01	0.94	0.33
Potassium	13.04	8.70	3.33
Sodium	4.48	3.14	1.73
Sulfate	1.57	1.05	0.64
Spec Cond	3.21	2.68	3.39

Field Blank Program:
Paired-Sample Concentration Differences

Analytes	Year	Minimum	25%	Median	75%	Maximum
Sulfate in mg/L	1997	-0.110	0.000	0.005	0.020	0.160
	1998	-0.020	0.000	0.000	0.018	0.080
	1999	-0.030	0.000	0.000	0.020	1.055
Nitrate in mg/L	1997	-0.140	-0.010	0.000	0.020	0.130
	1998	-0.020	0.000	0.010	0.030	0.070
	1999	-0.030	0.000	0.000	0.030	1.625

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Blind Audit v. Field Blank: $\frac{[\text{Bucket}] - [\text{Bottle}]}{[\text{Target}]} * 100$

Median Relative Percent Differences

Analytes	1998	
	BLIND AUDIT	FIELD BLANK
Ammonium	0.00	-7.14
Calcium	1.52	3.01
Chloride	2.22	5.88
Hydrogen Ion	-5.32	-3.87
Magnesium	2.20	0.00
Nitrate	0.93	0.94
Potassium	2.78	4.35
Sodium	1.67	2.69
Sulfate	1.06	0.00
Spec Cond	-1.70	-1.79

Analytes	1999	
	BLIND AUDIT	FIELD BLANK
Ammonium	1.41	0.00
Calcium	4.35	9.12
Chloride	4.17	2.22
Hydrogen Ion	-5.81	-6.67
Magnesium	2.98	2.86
Nitrate	1.75	0.33
Potassium	5.00	1.63
Sodium	2.20	0.69
Sulfate	1.75	0.00
Spec Cond	-2.05	-1.42

Blind Audit v. Field Blank: $\left|\frac{[\text{Bucket}] - [\text{Bottle}]}{[\text{Target}]}\right| * 100$

Median Absolute Percent Differences

Analytes	1998	
	BLIND AUDIT	FIELD BLANK
Ammonium	4.41	7.14
Calcium	3.57	4.67
Chloride	3.39	5.88
Hydrogen Ion	7.93	7.23
Magnesium	4.08	2.13
Nitrate	0.95	0.94
Potassium	8.70	8.70
Sodium	2.22	3.14
Sulfate	2.08	1.05
Spec Cond	3.74	2.68

Analytes	1999	
	BLIND AUDIT	FIELD BLANK
Ammonium	4.41	1.79
Calcium	5.22	9.12
Chloride	4.17	2.22
Hydrogen Ion	6.67	6.91
Magnesium	3.57	2.86
Nitrate	1.90	0.33
Potassium	5.36	3.33
Sodium	2.86	1.73
Sulfate	1.77	0.64
Spec Cond	3.36	3.39

Field Blank Results

1997-1999

NADP/NTN ITERIM MEETING
April 23-25, 2001
Tucson, Arizona

Locally Weighted Scatterplot

Smoothing was used to depict patterns in field blank results from 1997-1999

- 75th percentile
- 50th percentile
- 25th percentile

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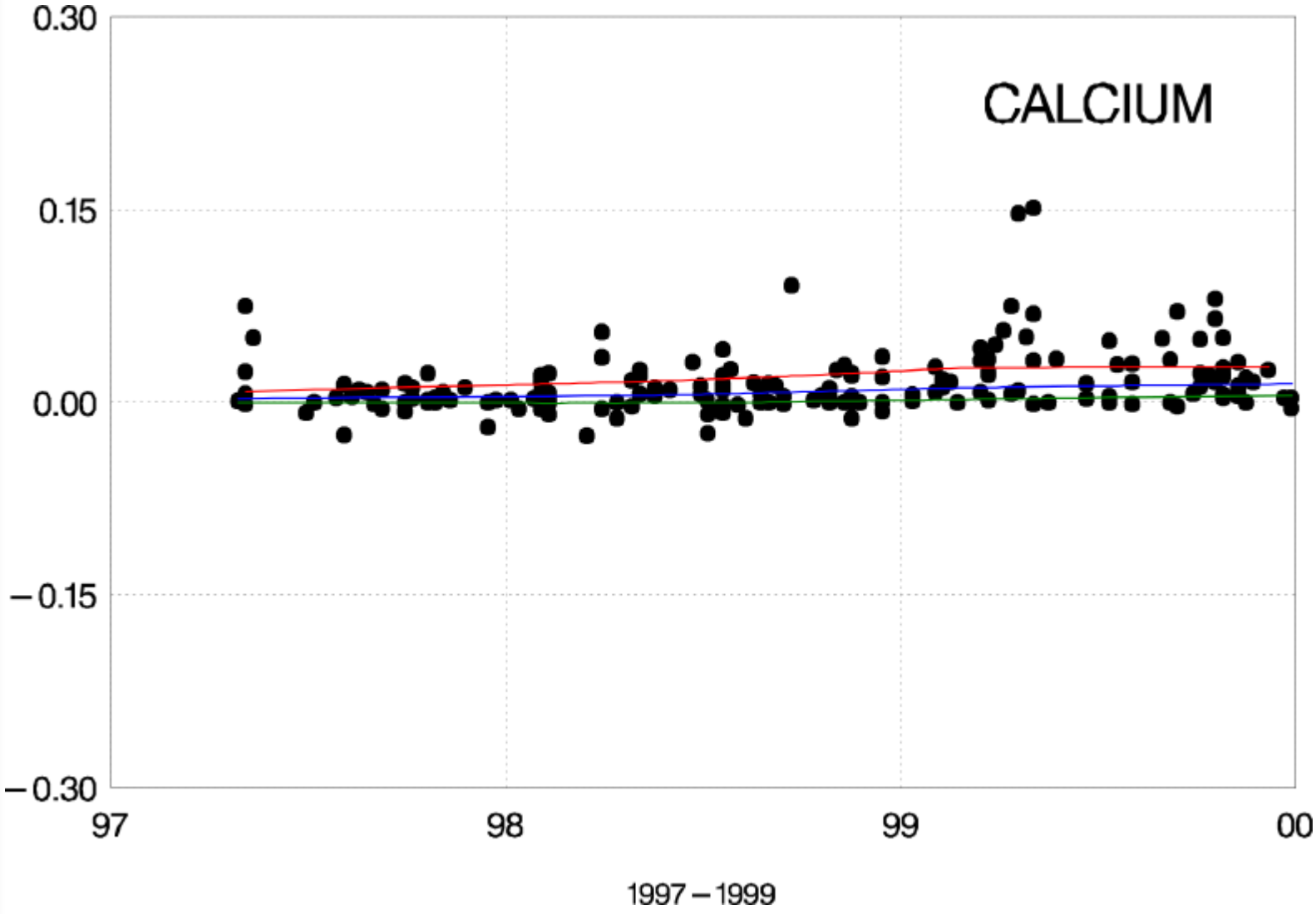
Paired Field Blank Sample Differences

mg/L



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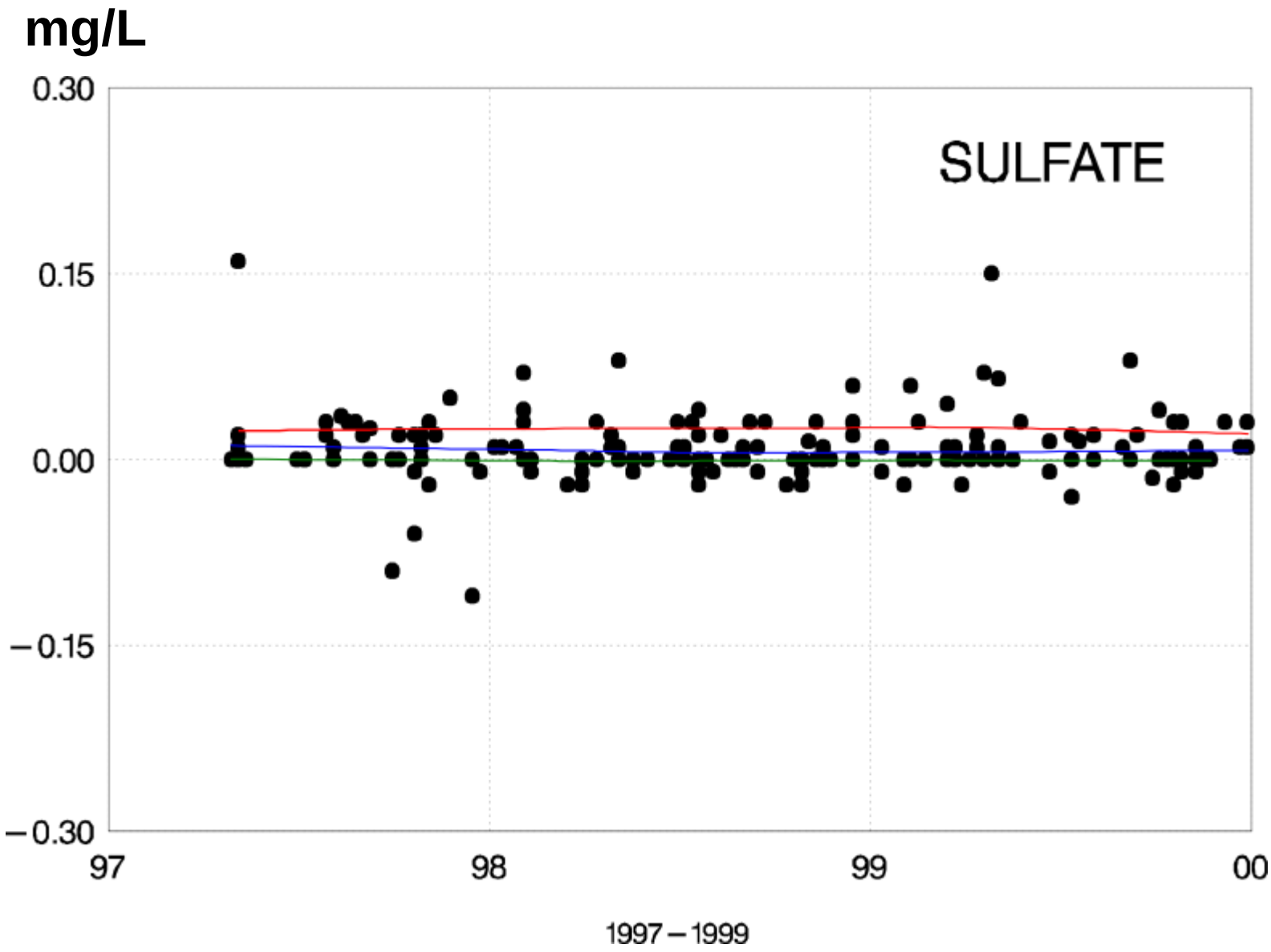

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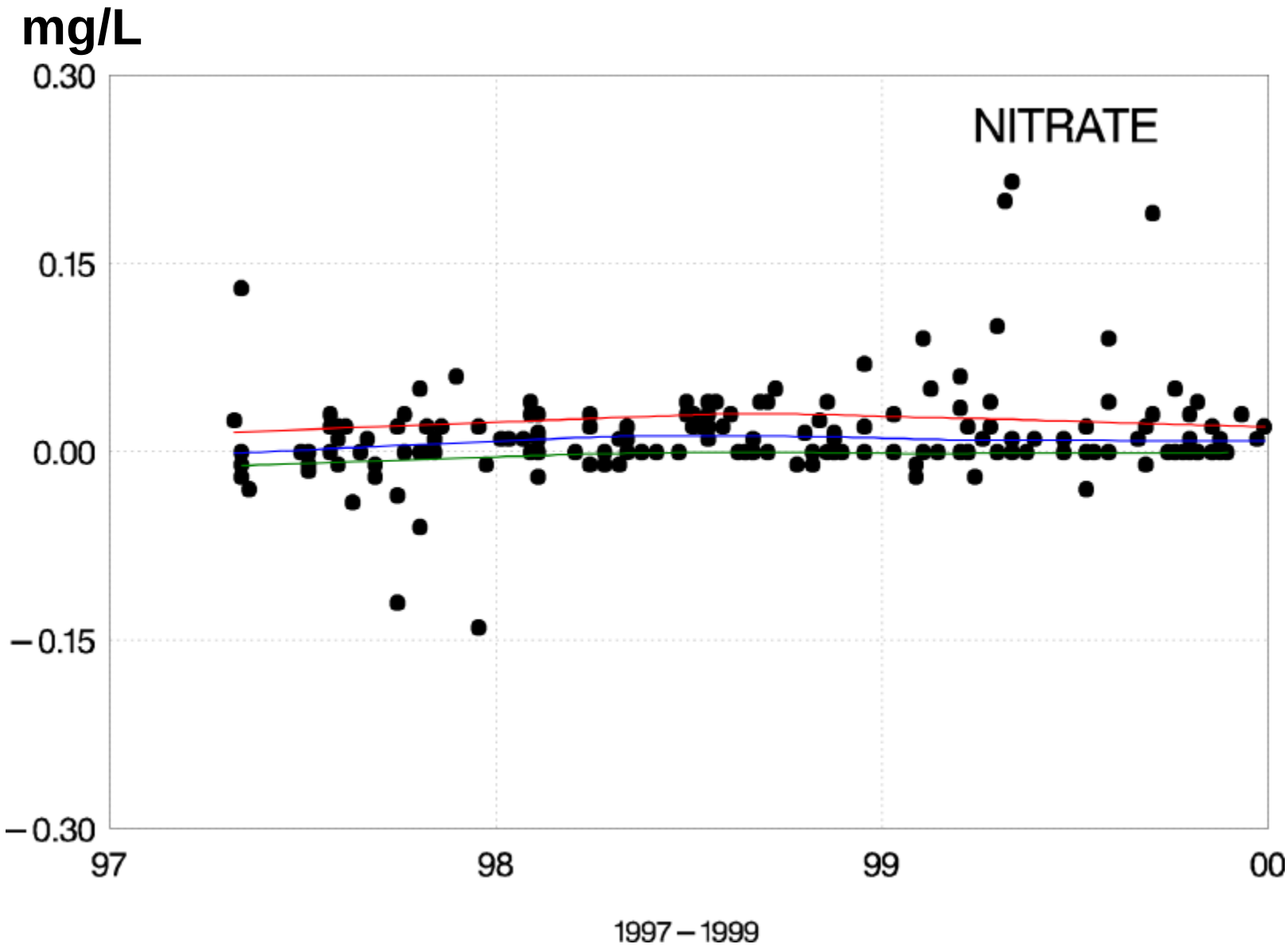

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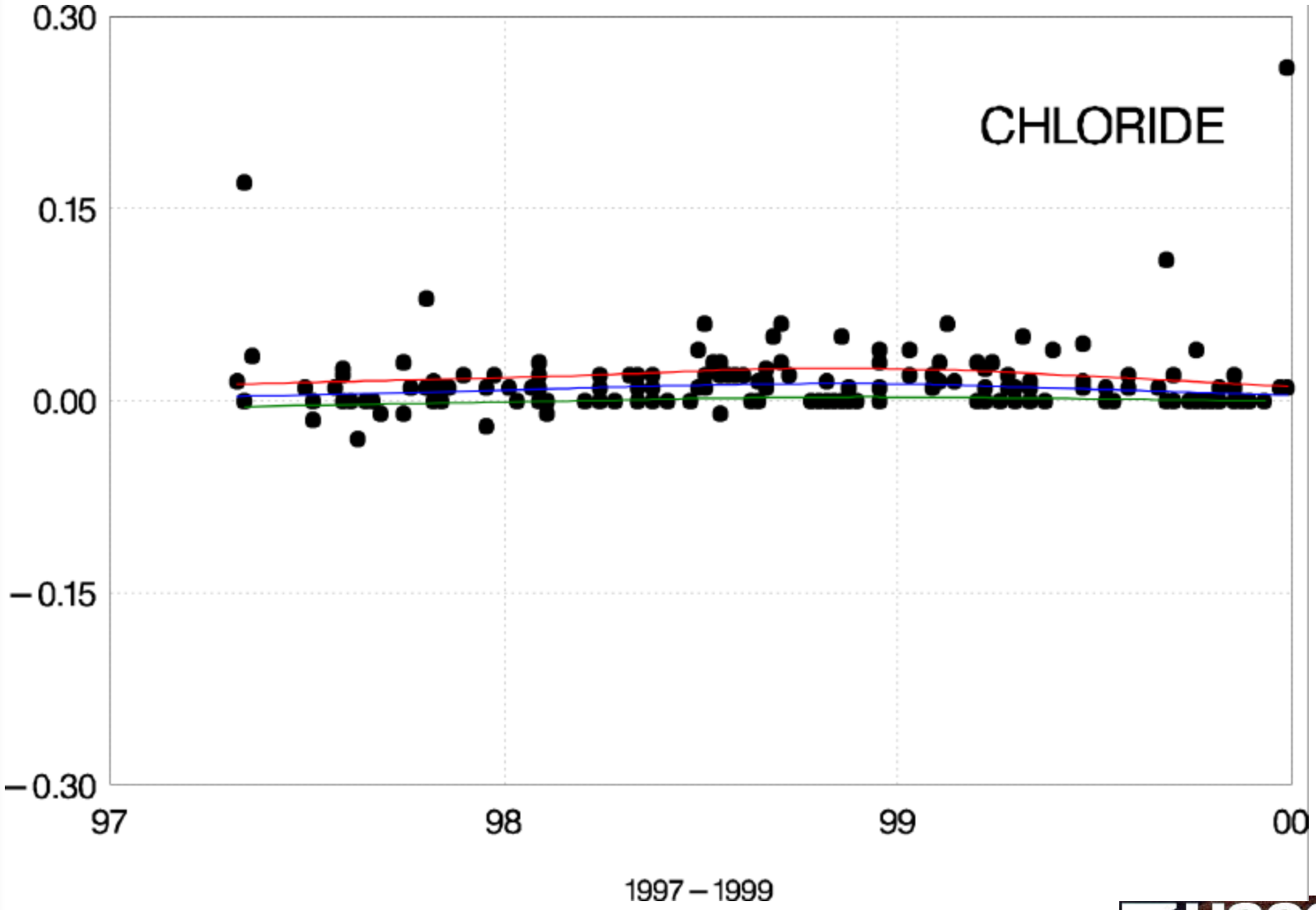

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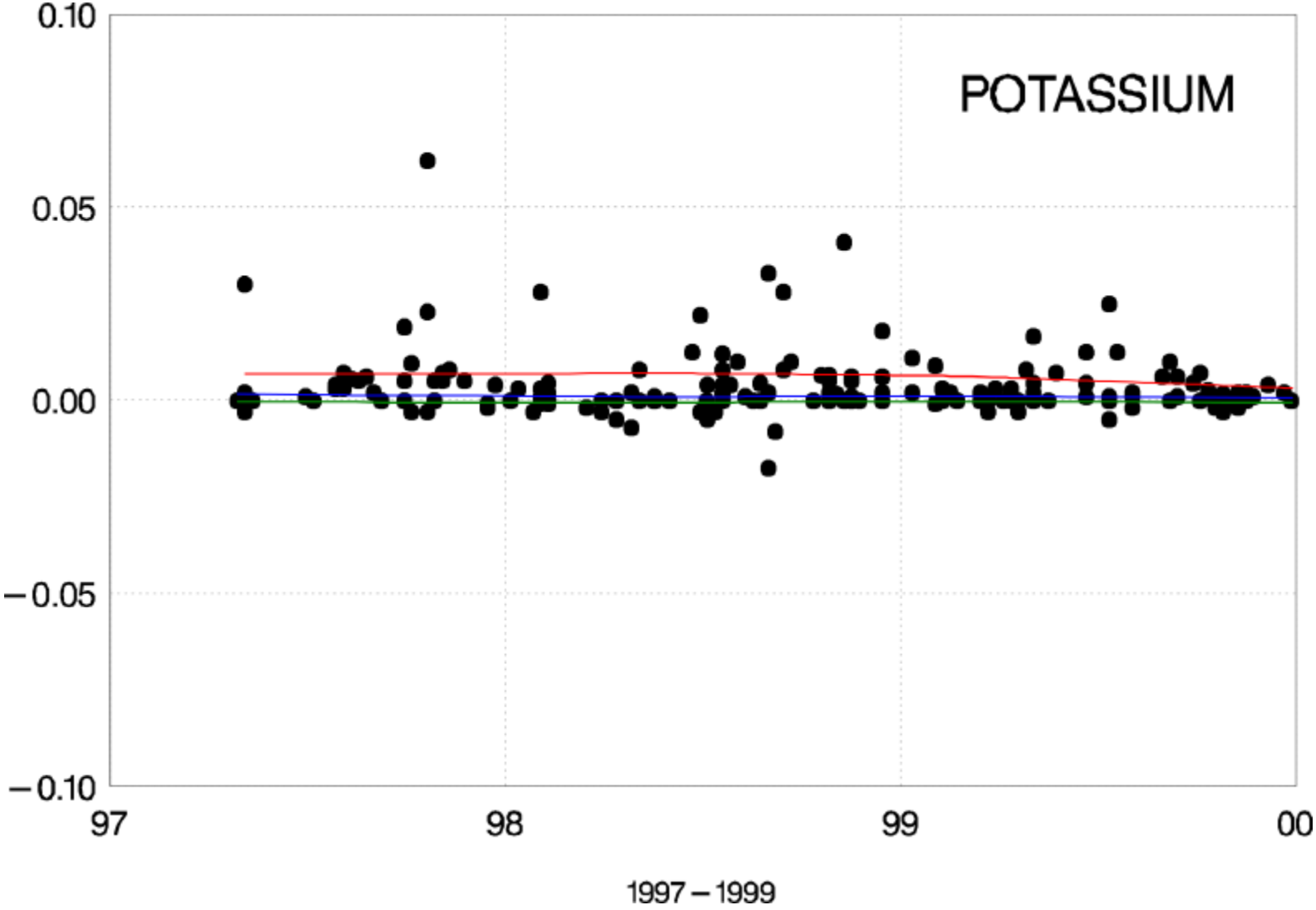

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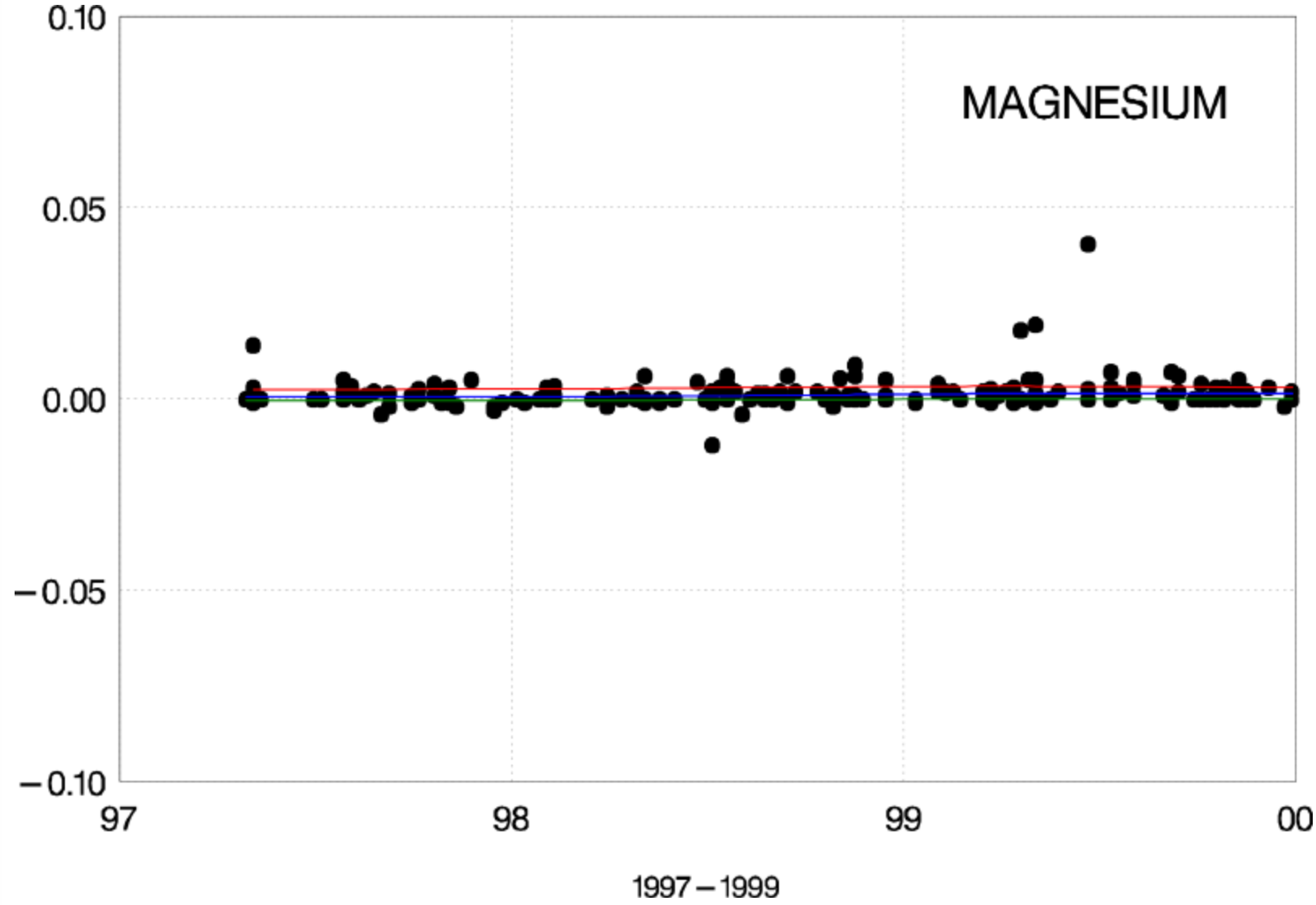

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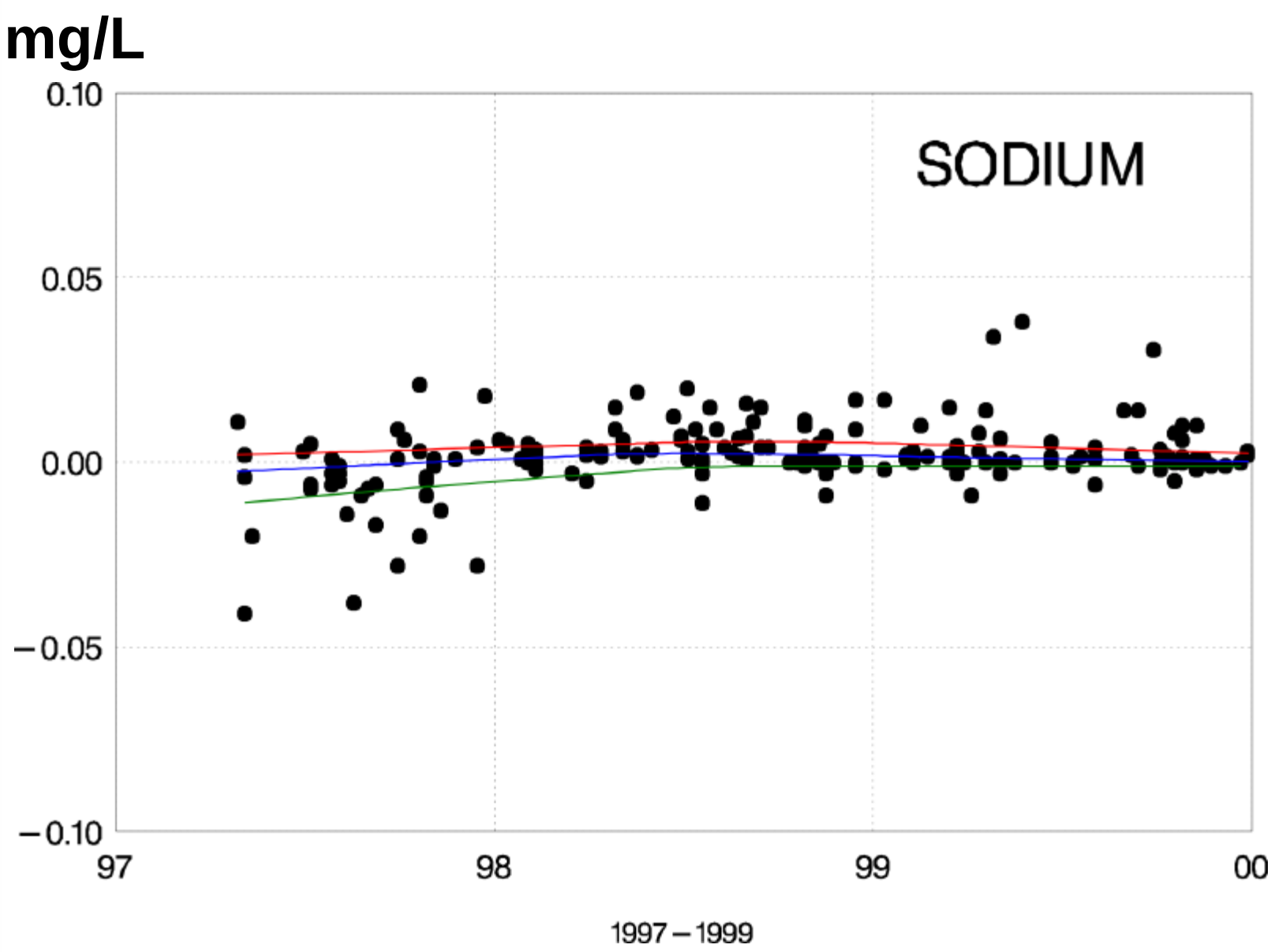

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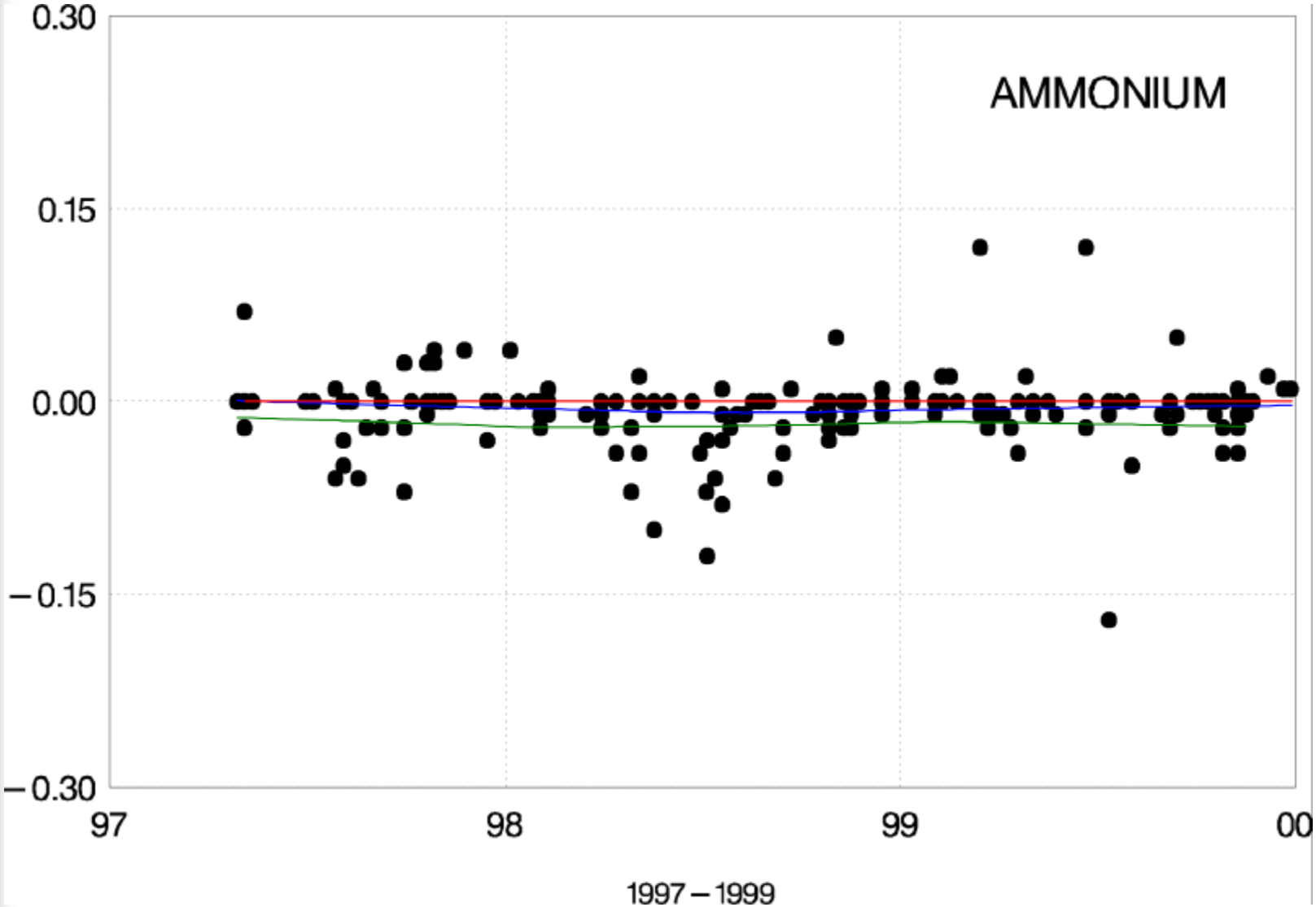

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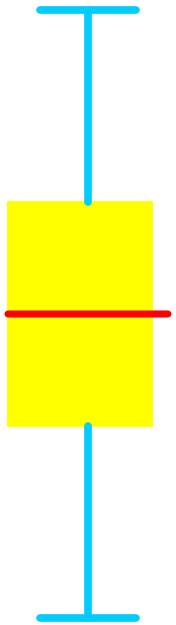

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Median

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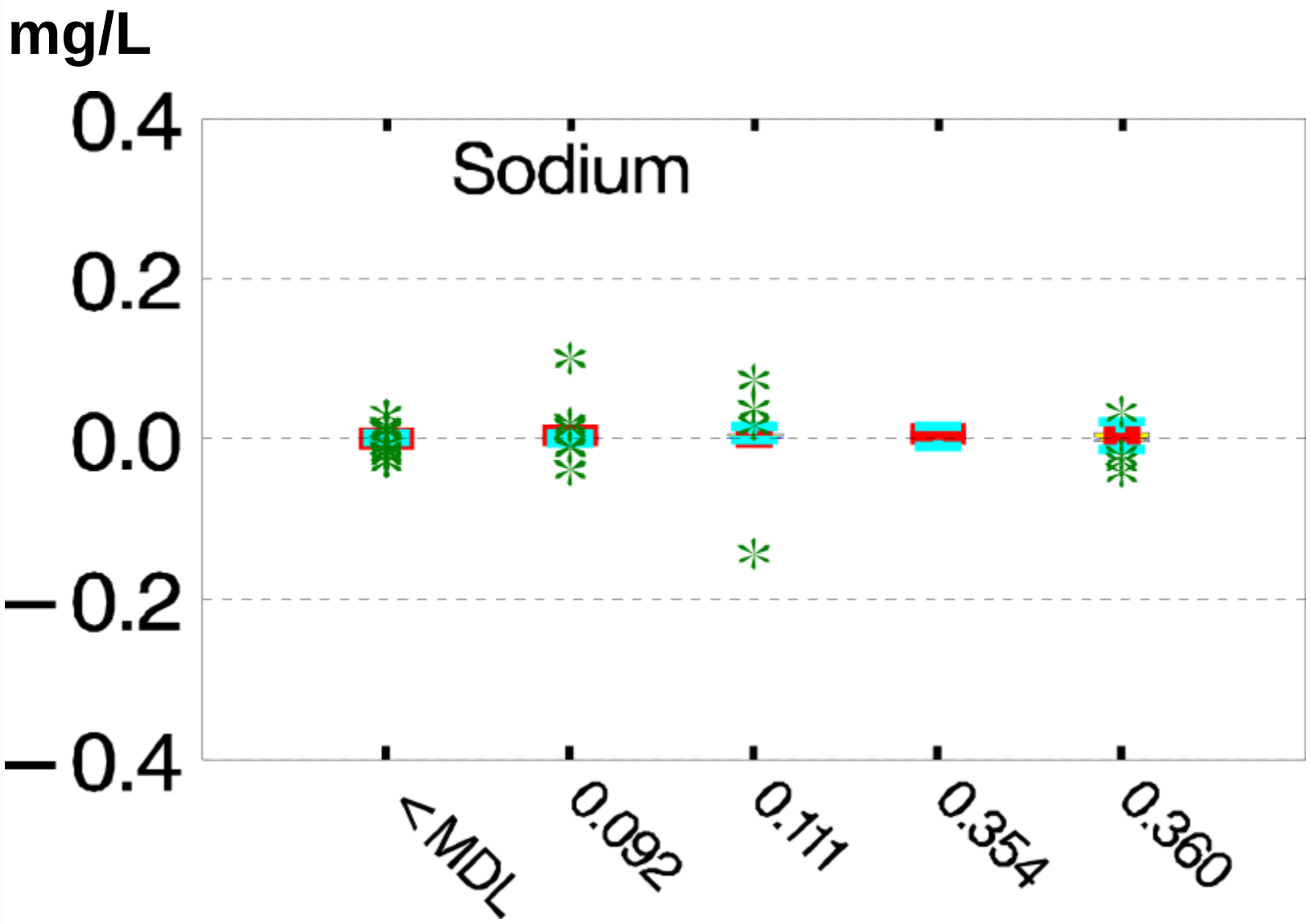

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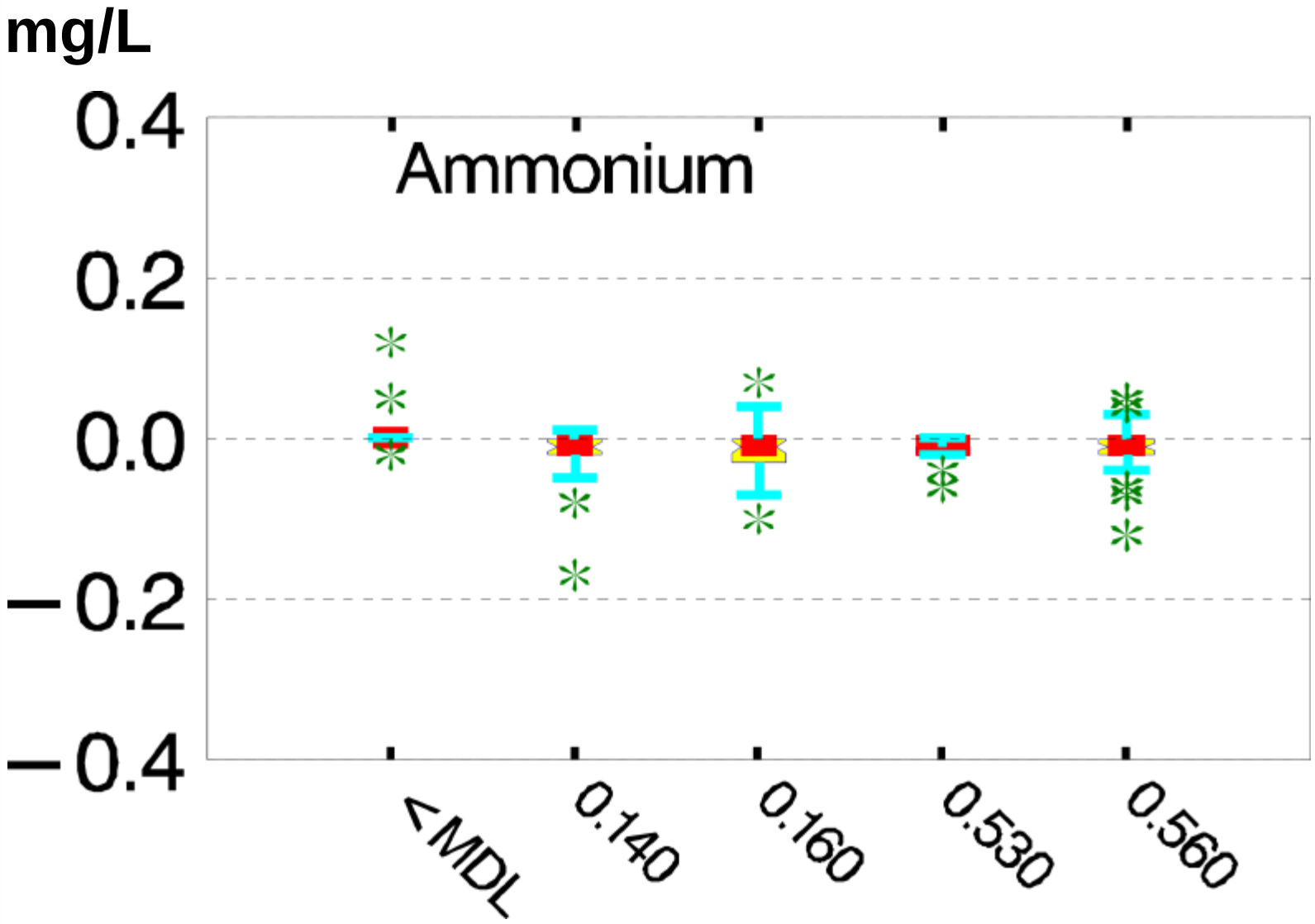

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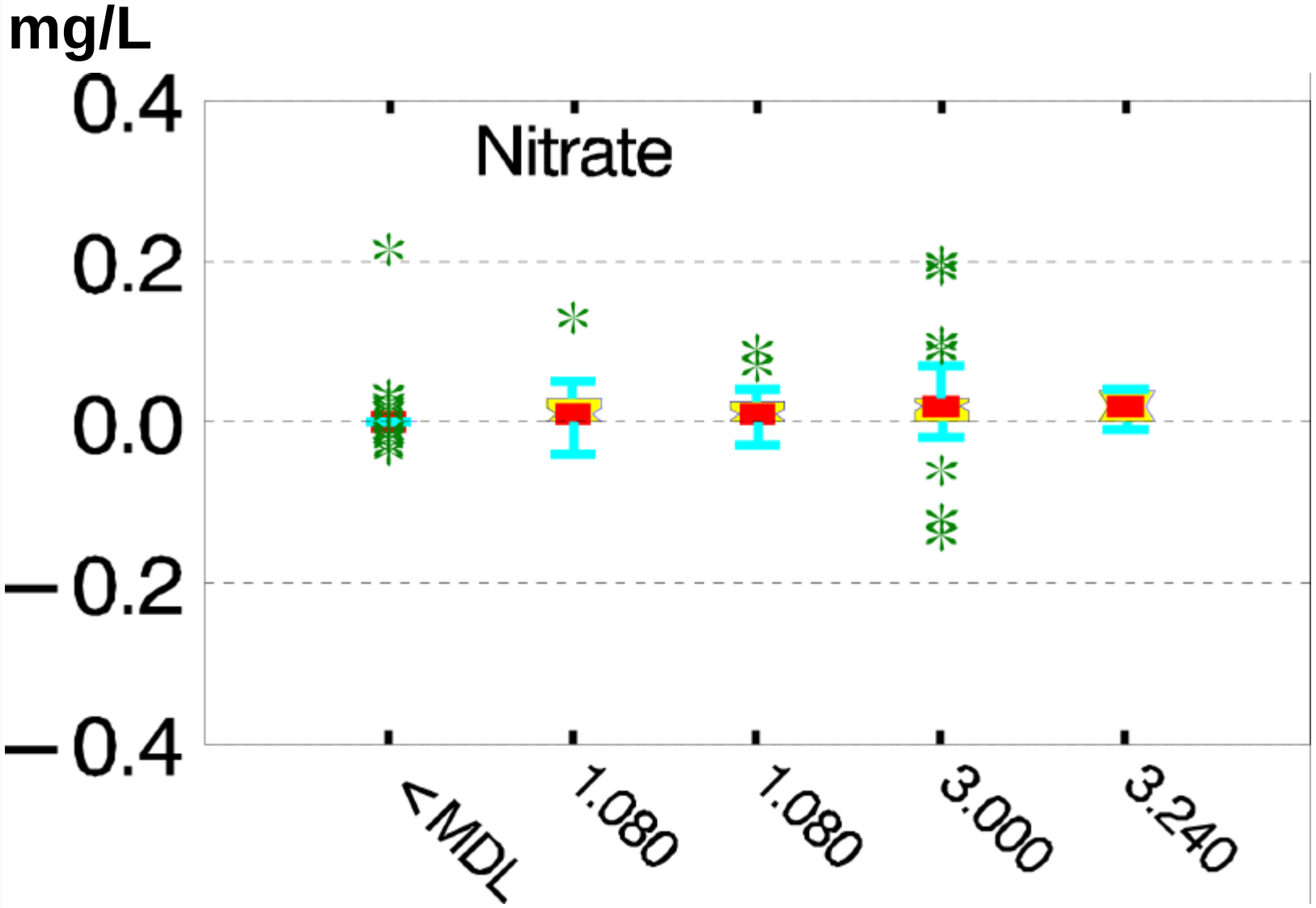

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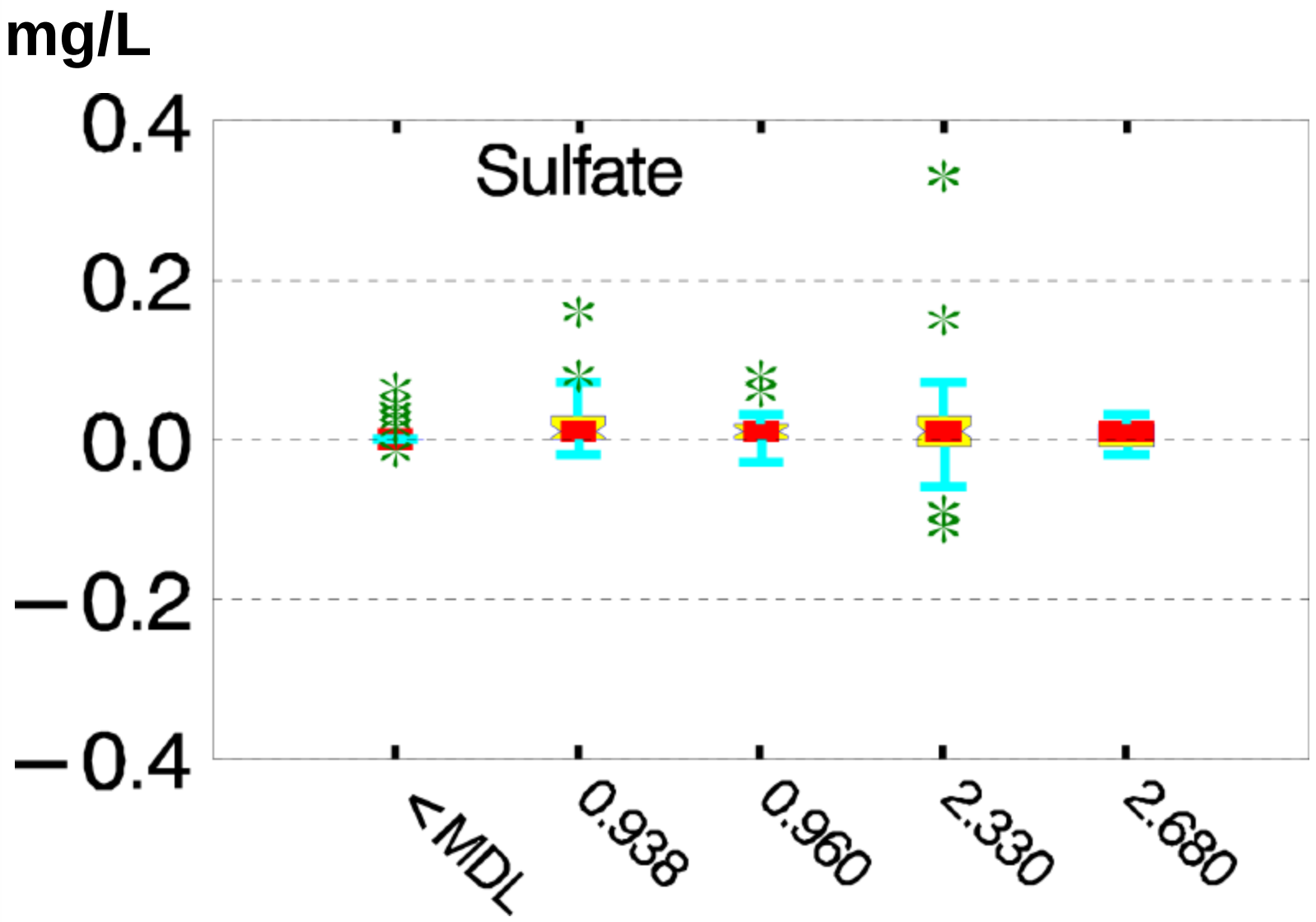

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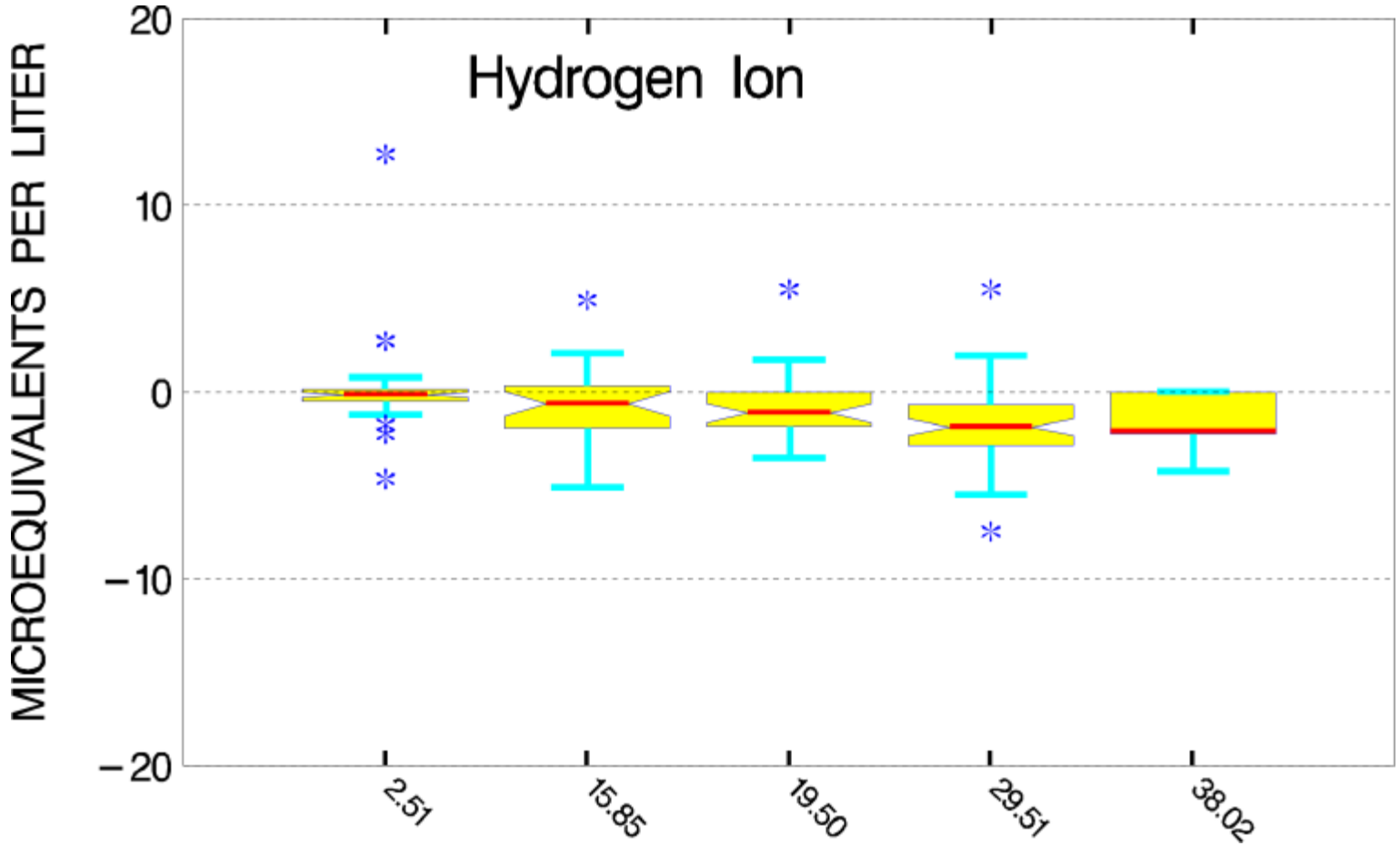

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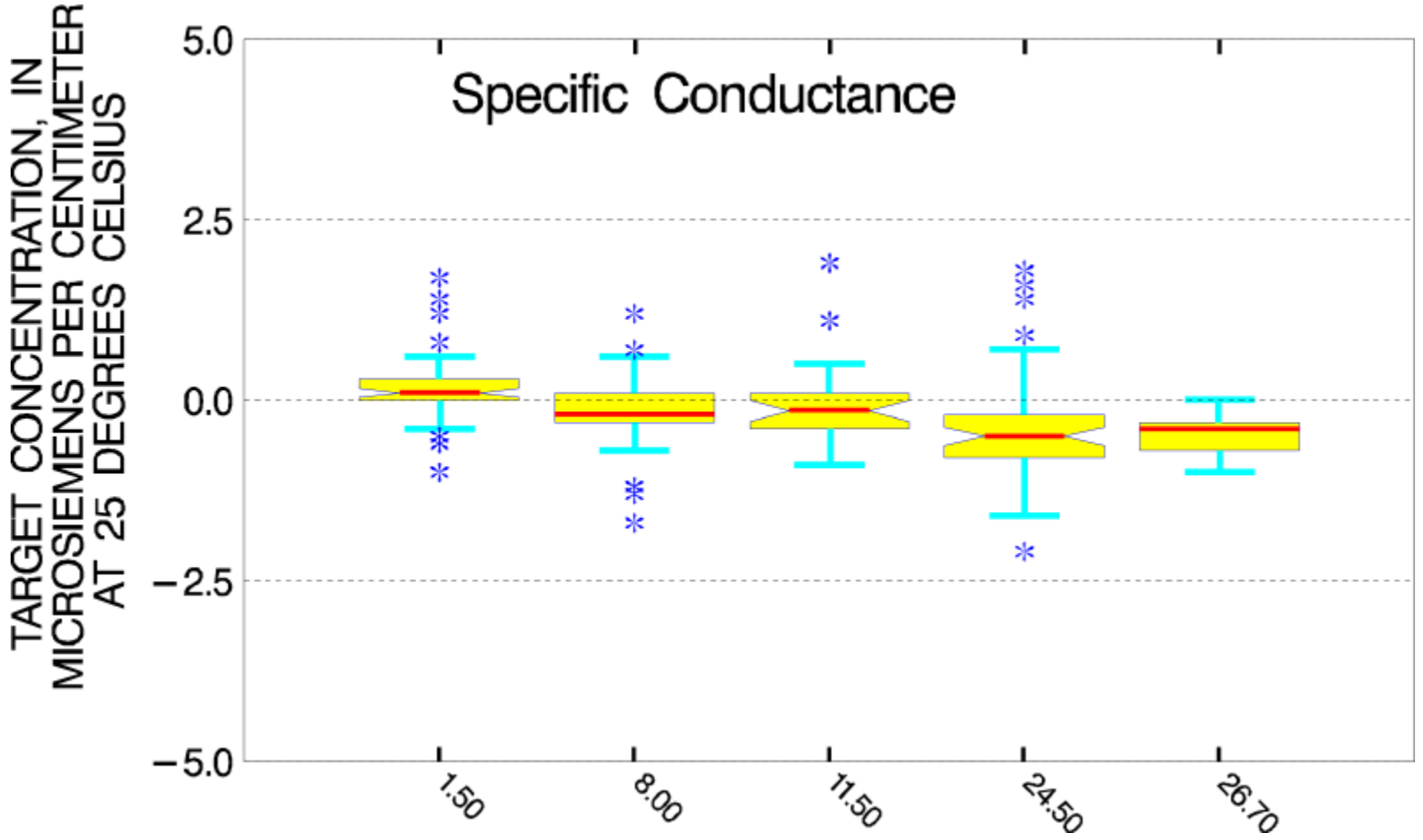

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Interlaboratory Comparison Study Results

1997-1999

NADP/NTN ITERIM MEETING

April 23-25, 2001

Tucson, Arizona

Interlaboratory Comparison Program

- Quantify bias and precision of data produced by the CAL
- Compare performance of the CAL with other laboratories routinely analyzing low ionic strength samples

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Each laboratories 50th and 90th percentile differences on replicate sample was summed….

CAL ptile 50th	CAL ptile 90	cal sum	ESE ptile 50	ESE 90	ESE sum
0	0.01	0.01	0.01	0.32	0.33
0.001	0.005	0.006	0.002	0.01	0.012
0	0.01	0.01	0	0.02	0.02

…and the labs were ranked on the basis of the sum of the 50th and 90th percentiles

Ammonium

lab	ranked	
MSC	0.01	
CAL	0.01	tie 1st
MOE	0.01	
SA	0.01	
ESE	0.33	

How did CAL rank on replicate sample analysis?

ANALYTE	1997	1998	1999
Calcium	3rd	1st	4th
Magnesium	tie 1st	2nd	tie 1st
Sodium	1st	1st	4th
Potassium	3rd	1st	1st
Ammonium	1st	tie 1st	1st
Chloride	2nd	tie 1st	tie 2nd
Nitrate	4th	tie 1st	tie 1st
Sulfate	1st	1st	2nd
Hydrogen ion	1st	3rd	2nd
Specific cond.	1st	3rd	2nd

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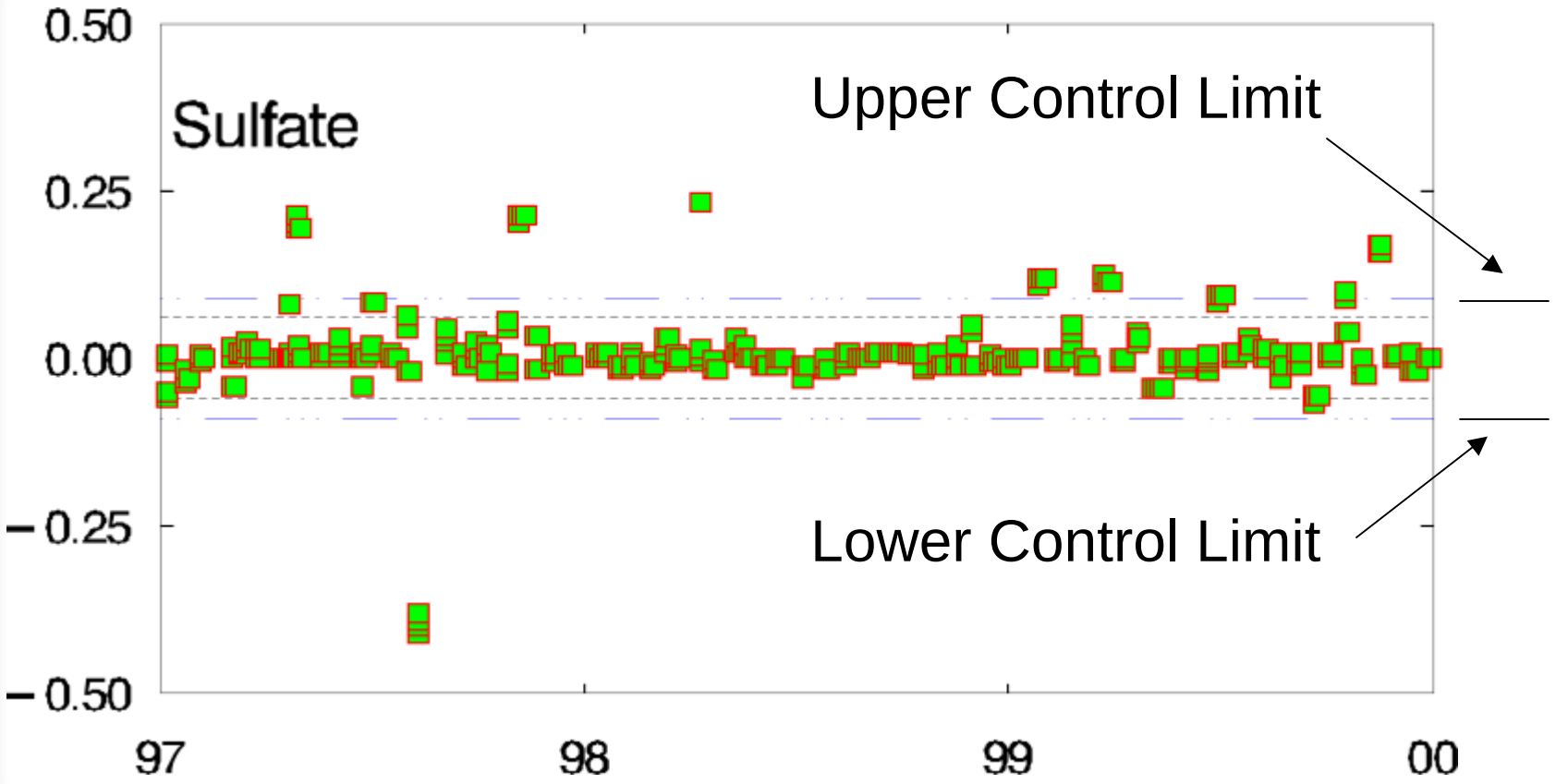
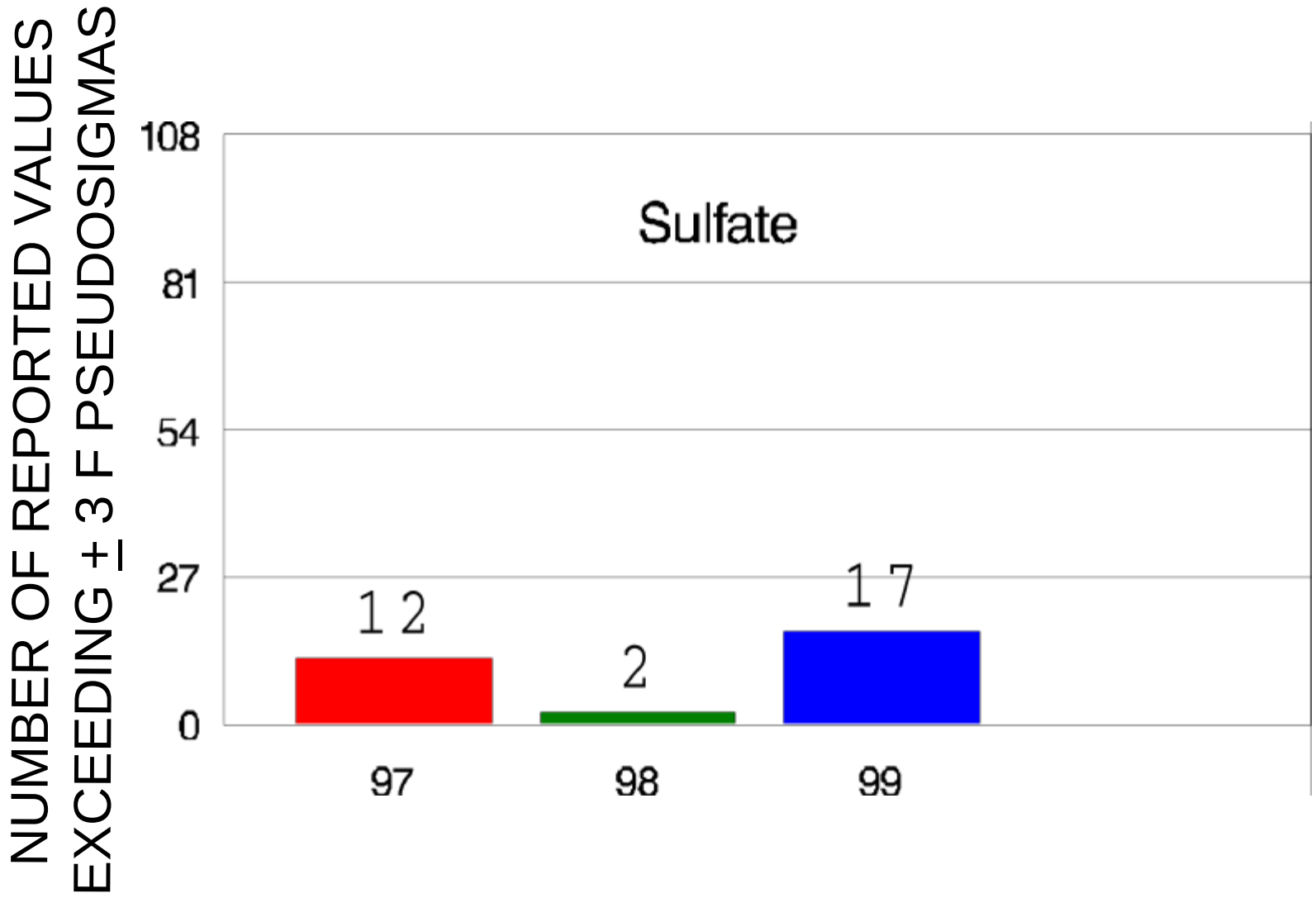
Ultrapure Sample Results

- Concentration values reported for all analytes were below the reporting limits in 1997, 1998 and 1999
- Only participating laboratory with no false positives for all three years

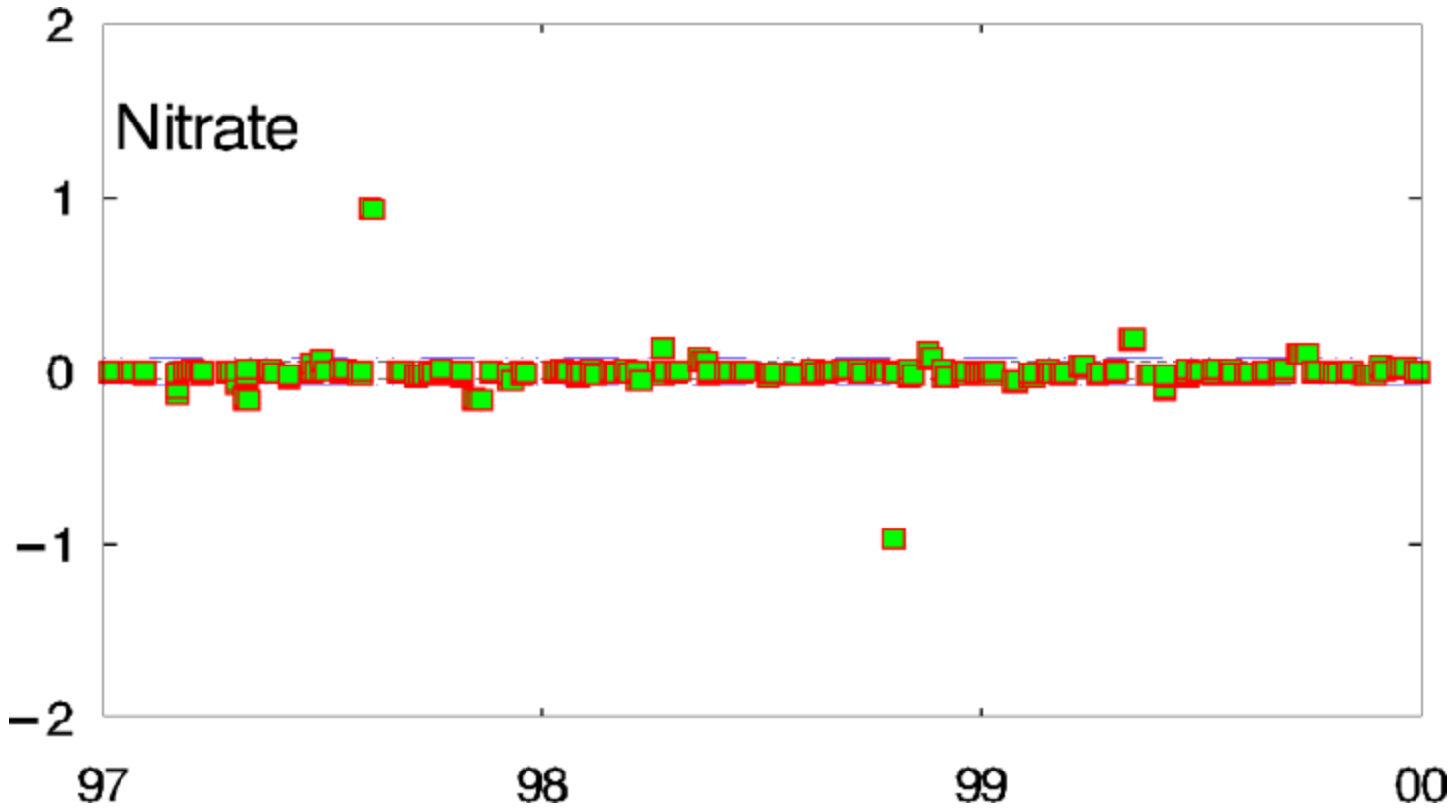
Control Chart depicting CAL's Interlaboratory Comparison Study Results, 1997- 1999



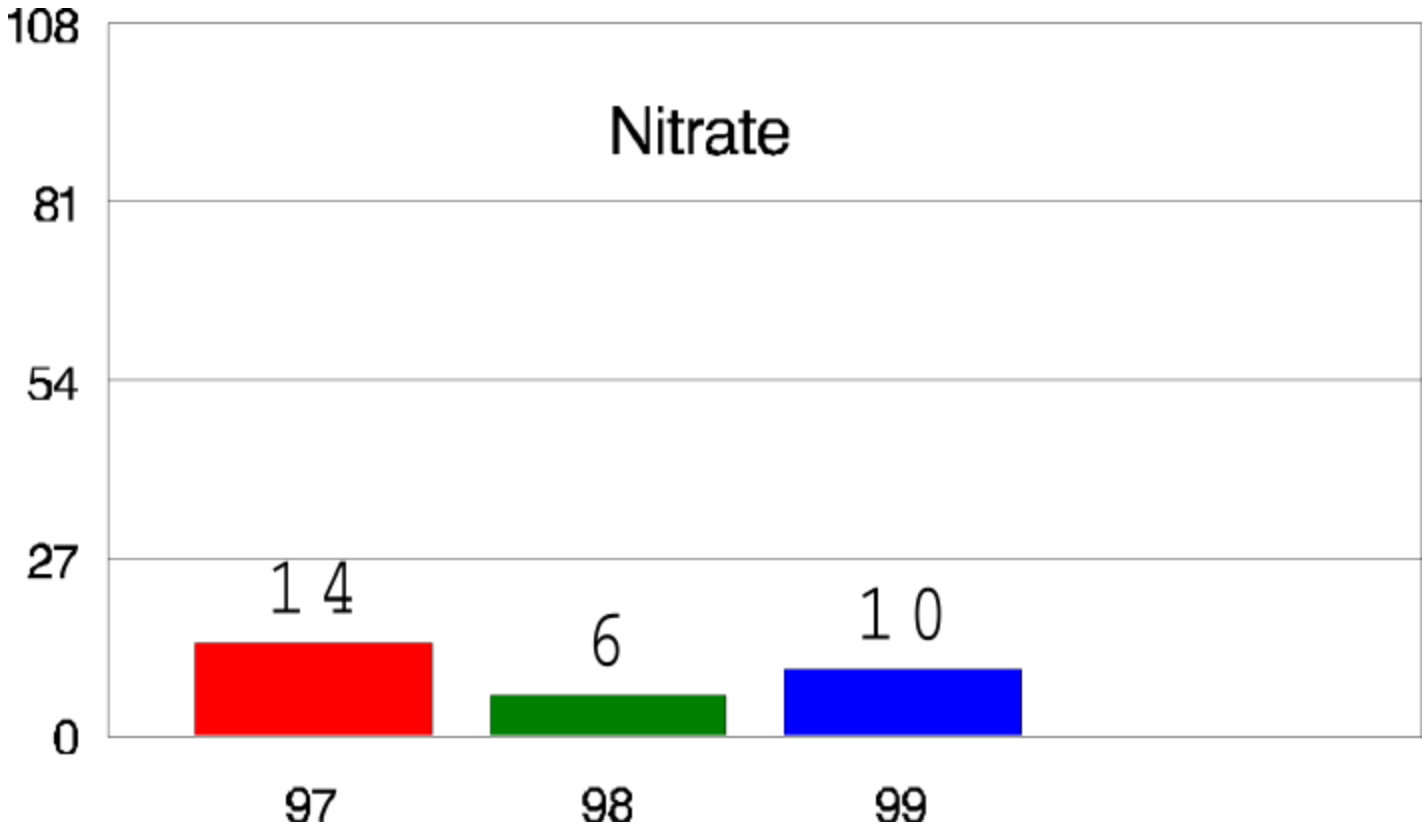
Sulfate values outside control limits for the CAL increased in 1999



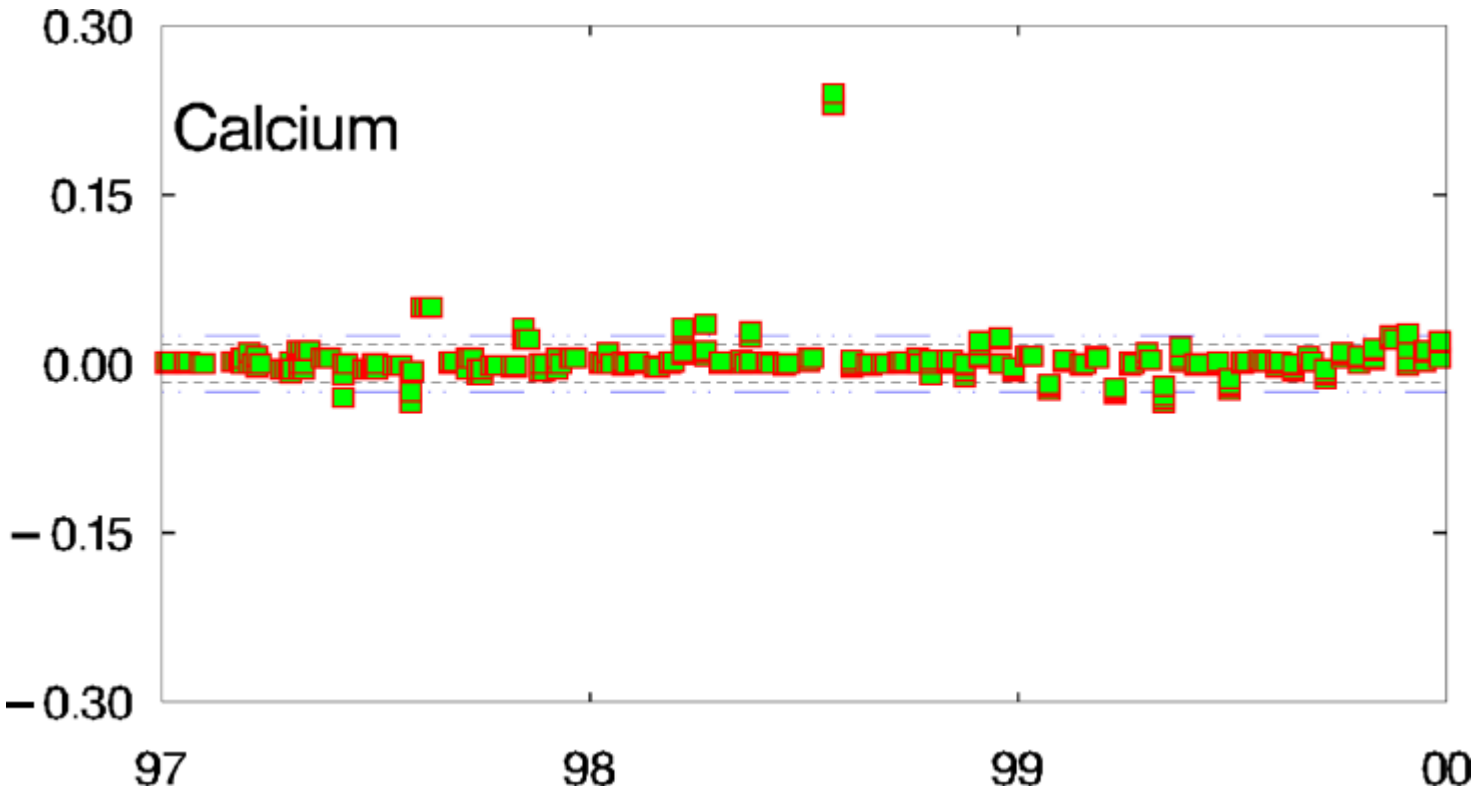
Control Chart depicting CAL's Interlaboratory Comparison Study Results, 1997- 1999



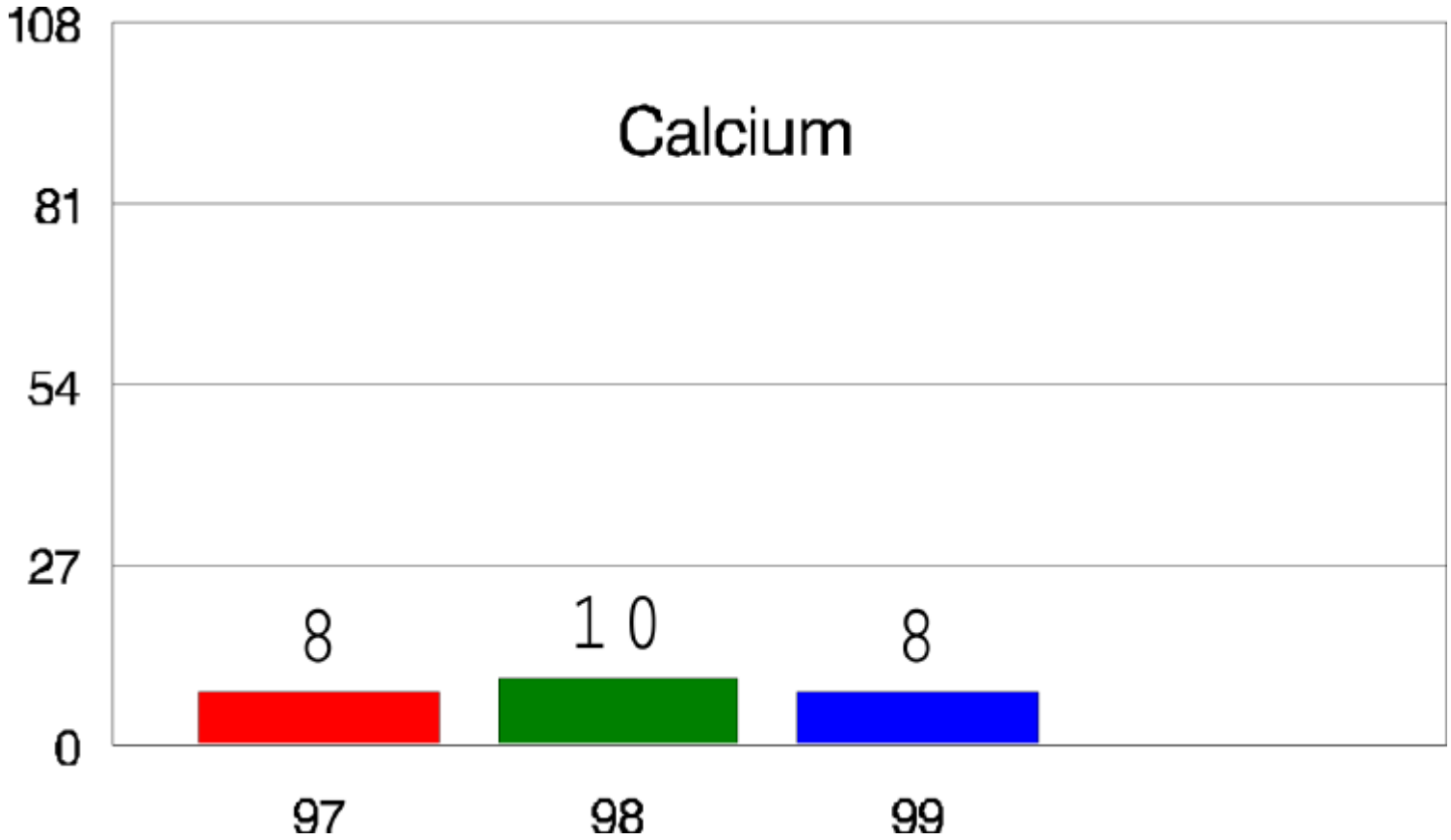
NUMBER OF REPORTED VALUES EXCEEDING ± 3 F PSEUDOSIGMAS



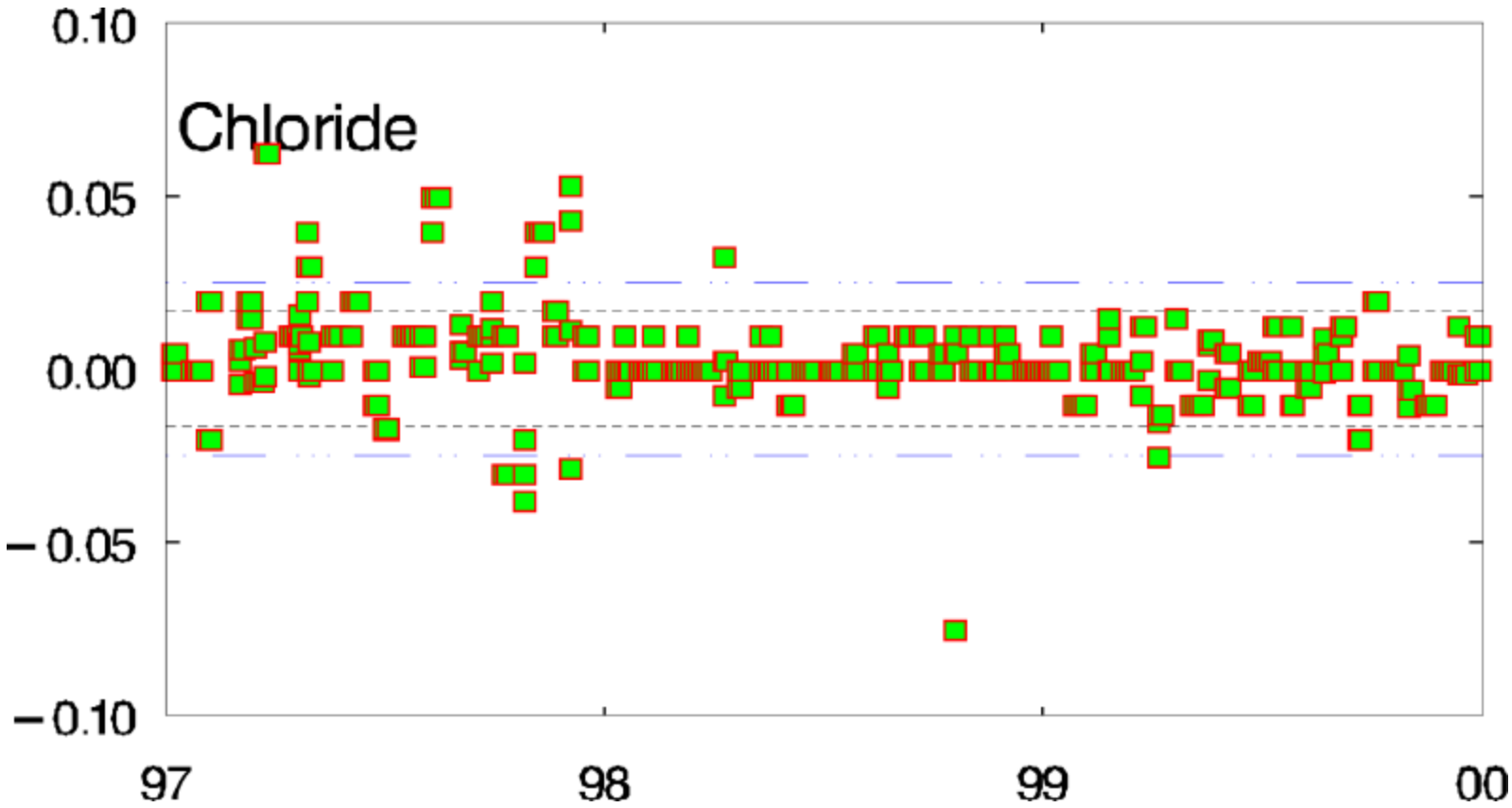
Control Chart depicting CAL's Interlaboratory Comparison Study Results, 1997- 1999



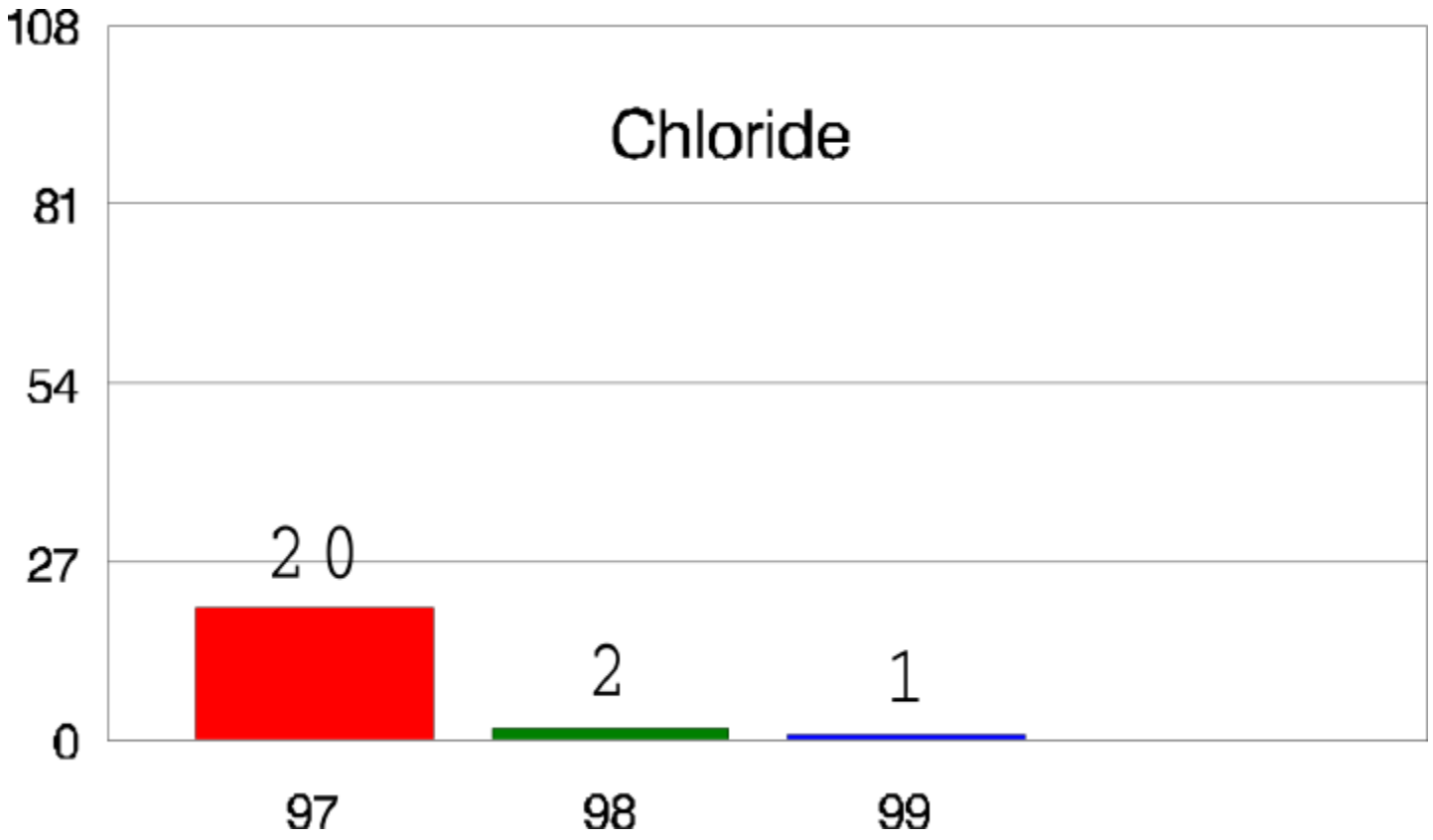
NUMBER OF REPORTED VALUES EXCEEDING ± 3 F PSEUDOSIGMAS



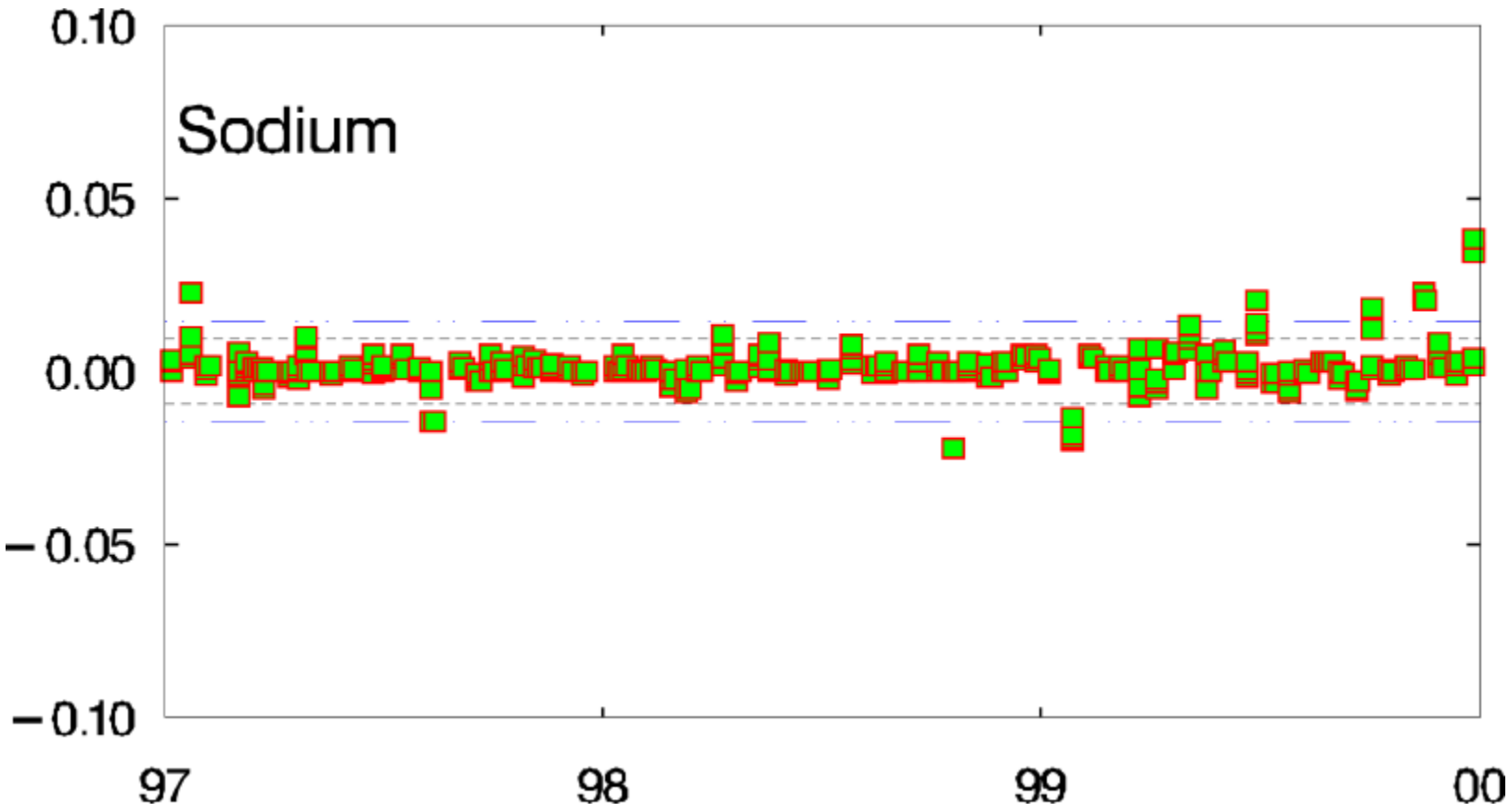
Control Chart depicting CAL's Interlaboratory Comparison Study Results, 1997- 1999



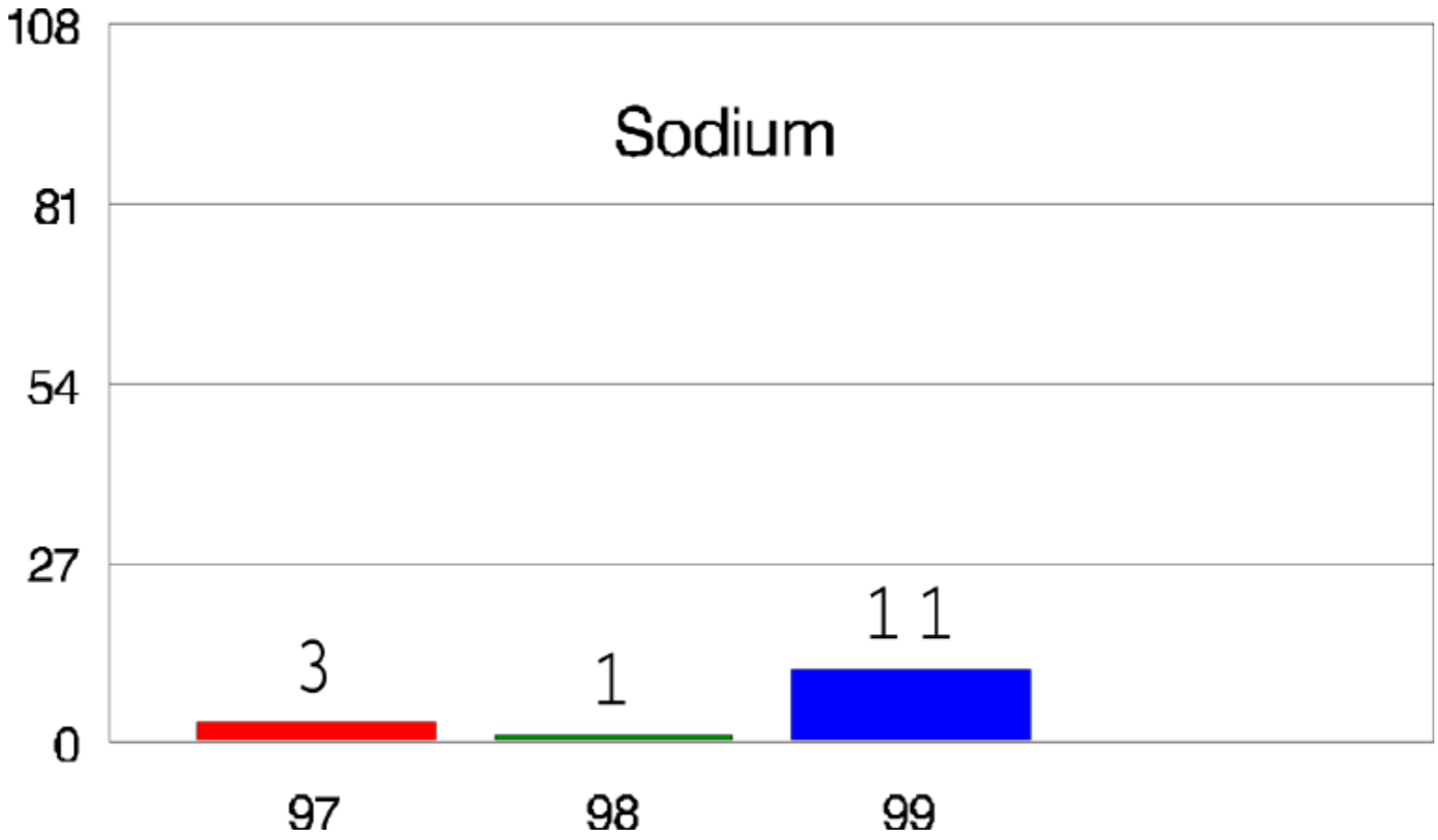
NUMBER OF REPORTED VALUES EXCEEDING ± 3 F PSEUDOSIGMAS



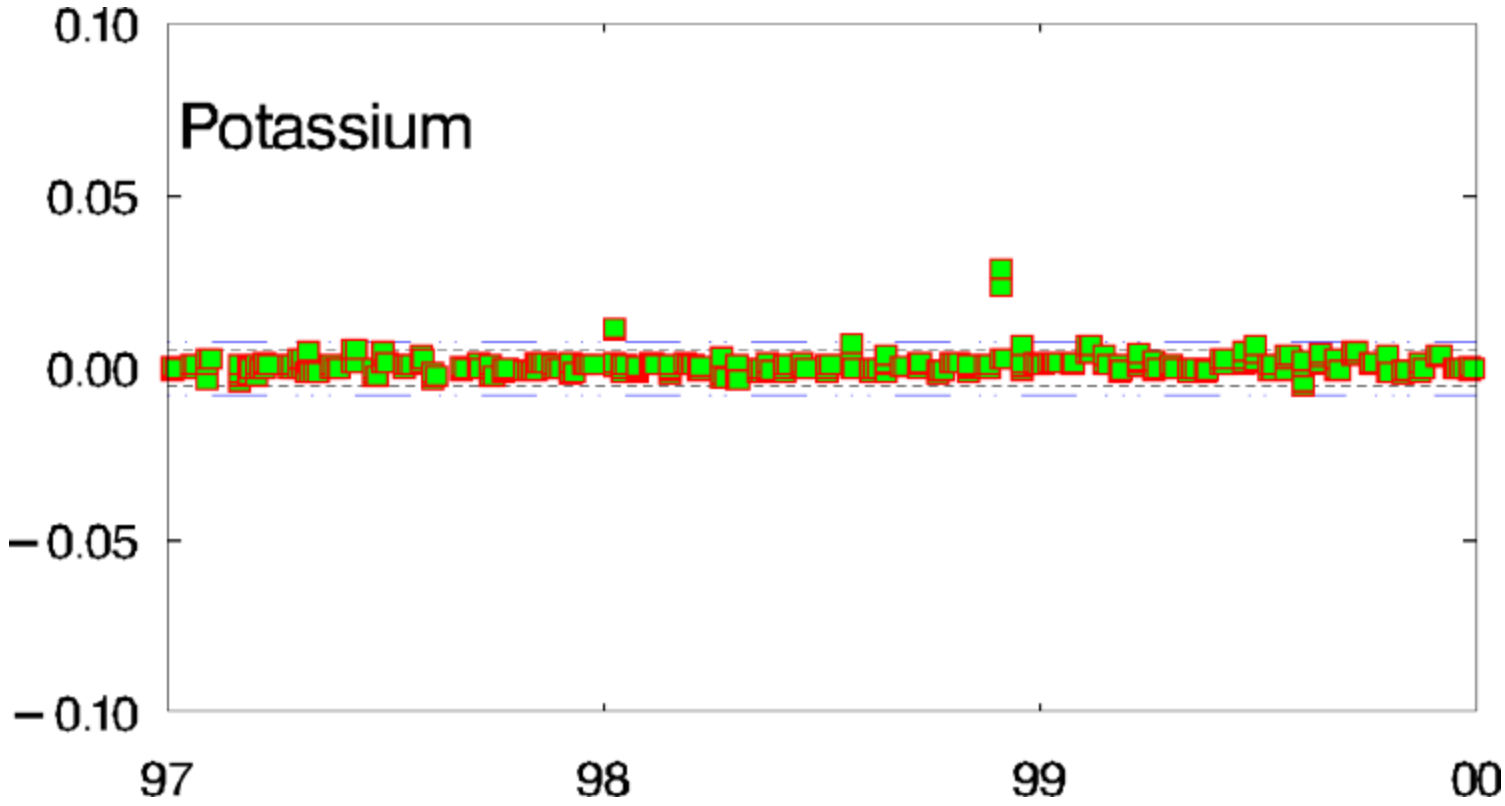
Control Chart depicting CAL's Interlaboratory Comparison Study Results, 1997- 1999



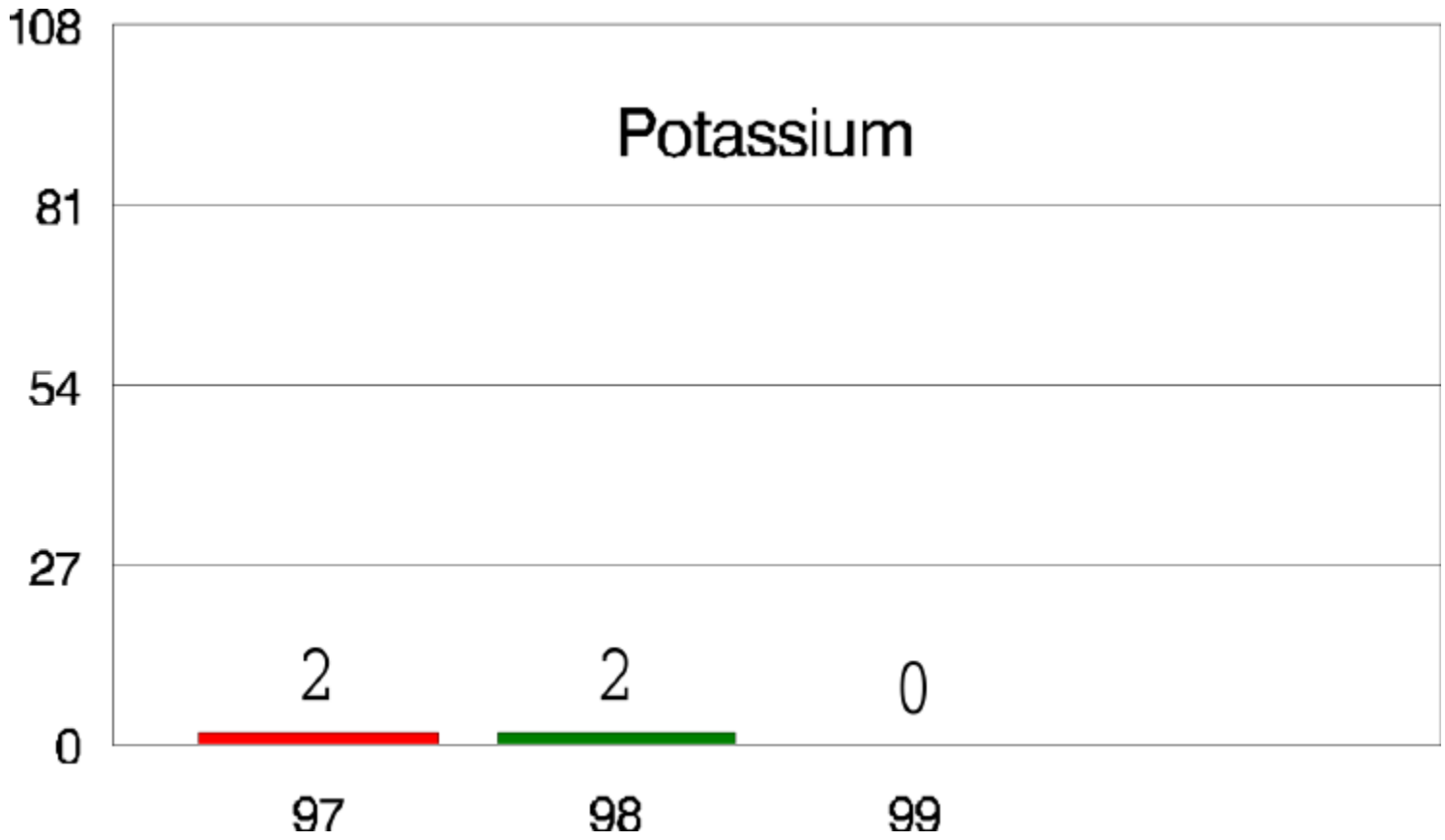
NUMBER OF REPORTED VALUES EXCEEDING ± 3 F PSEUDOSIGMAS



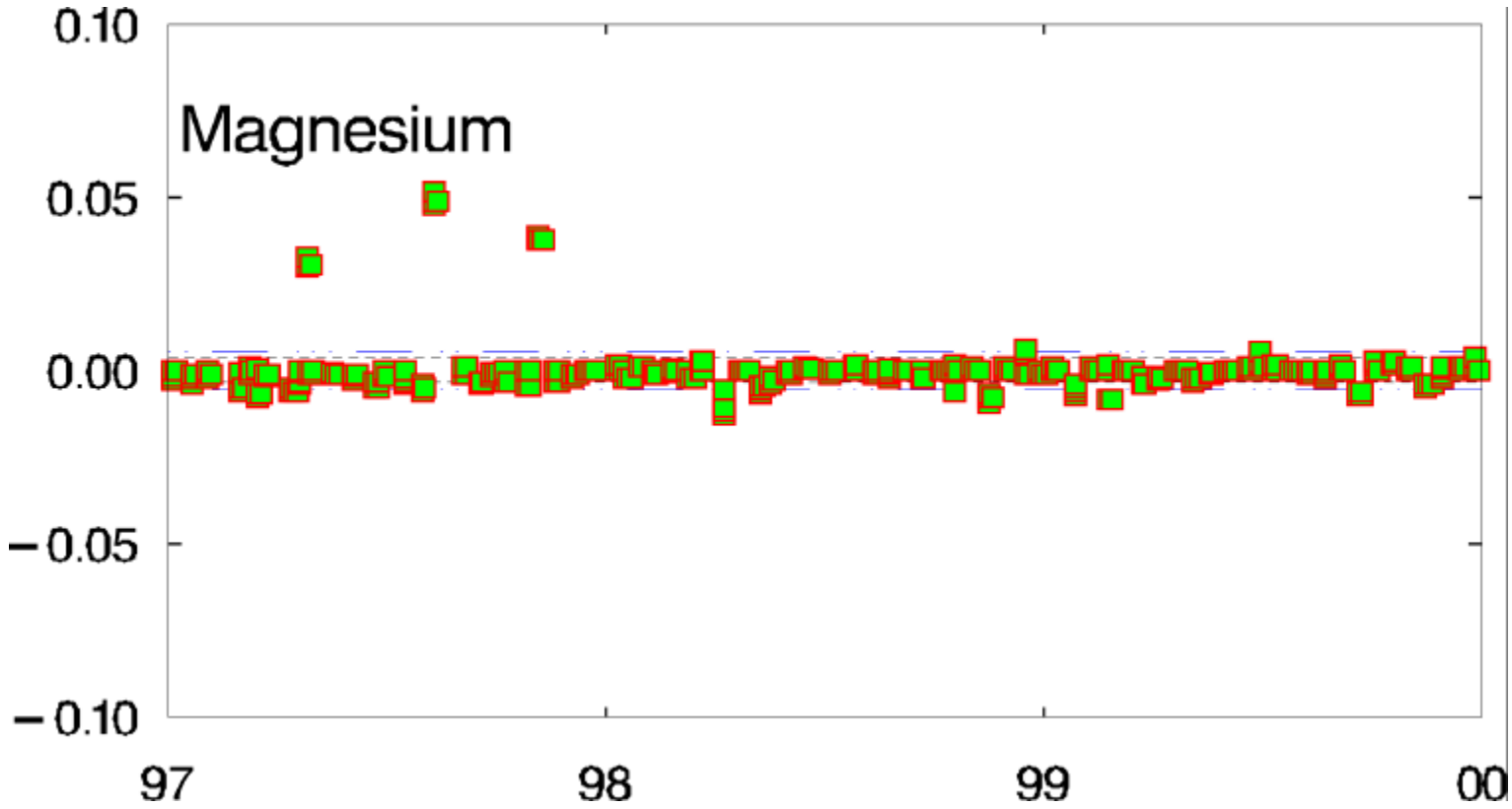
Control Chart depicting CAL's Interlaboratory Comparison Study Results, 1997- 1999



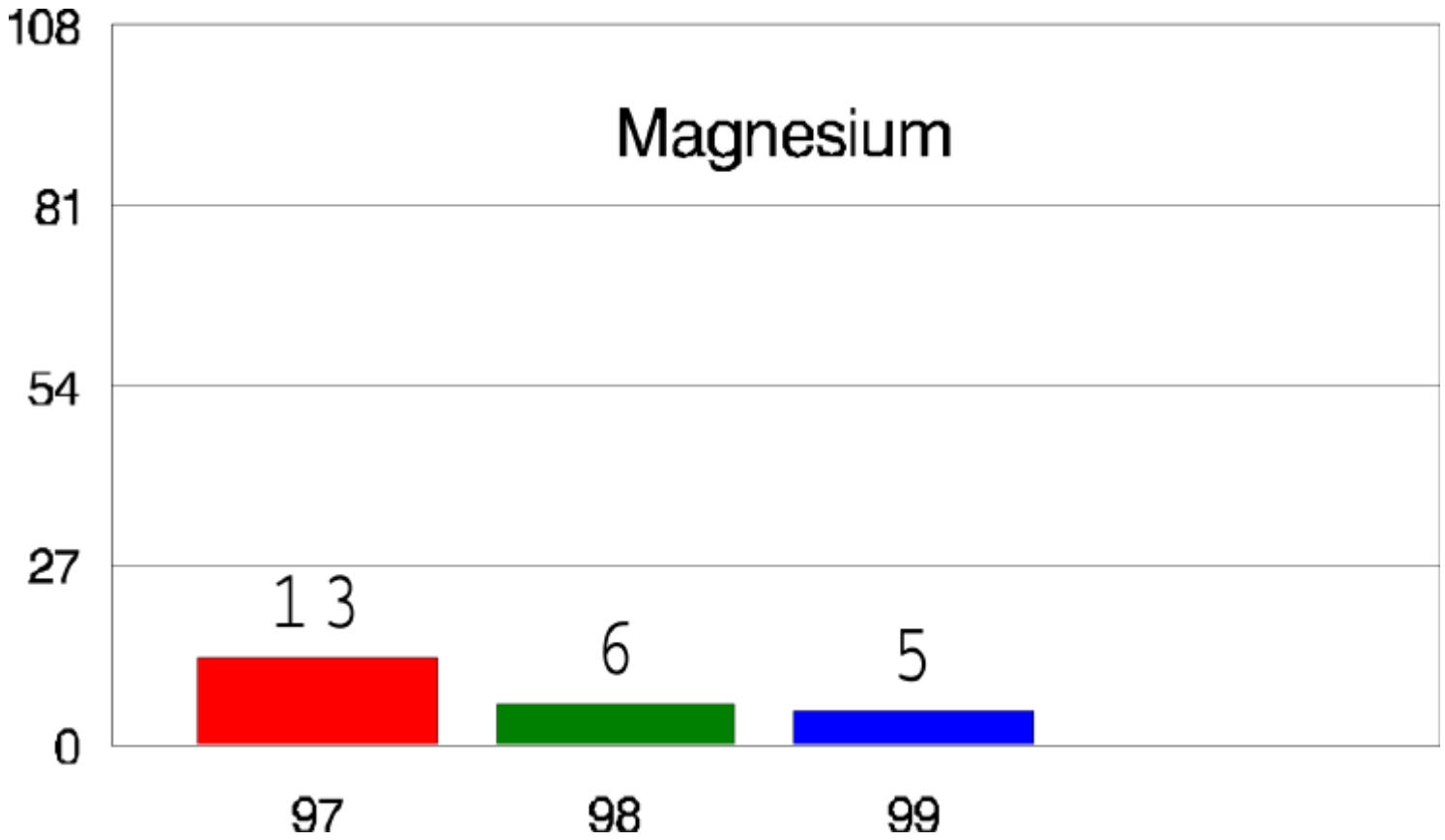
NUMBER OF REPORTED VALUES EXCEEDING ± 3 F PSEUDOSIGMAS



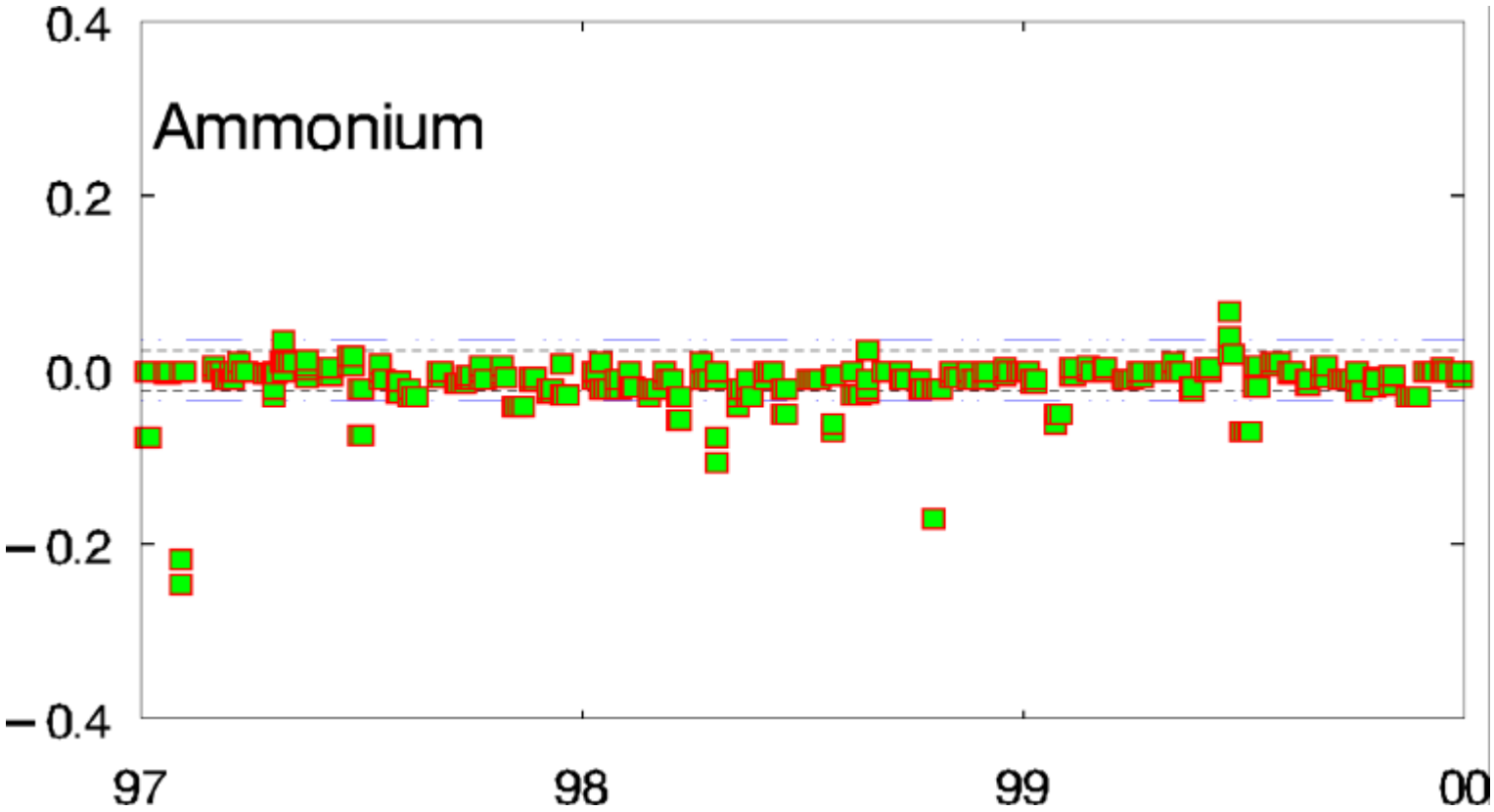
Control Chart depicting CAL's Interlaboratory Comparison Study Results, 1997- 1999



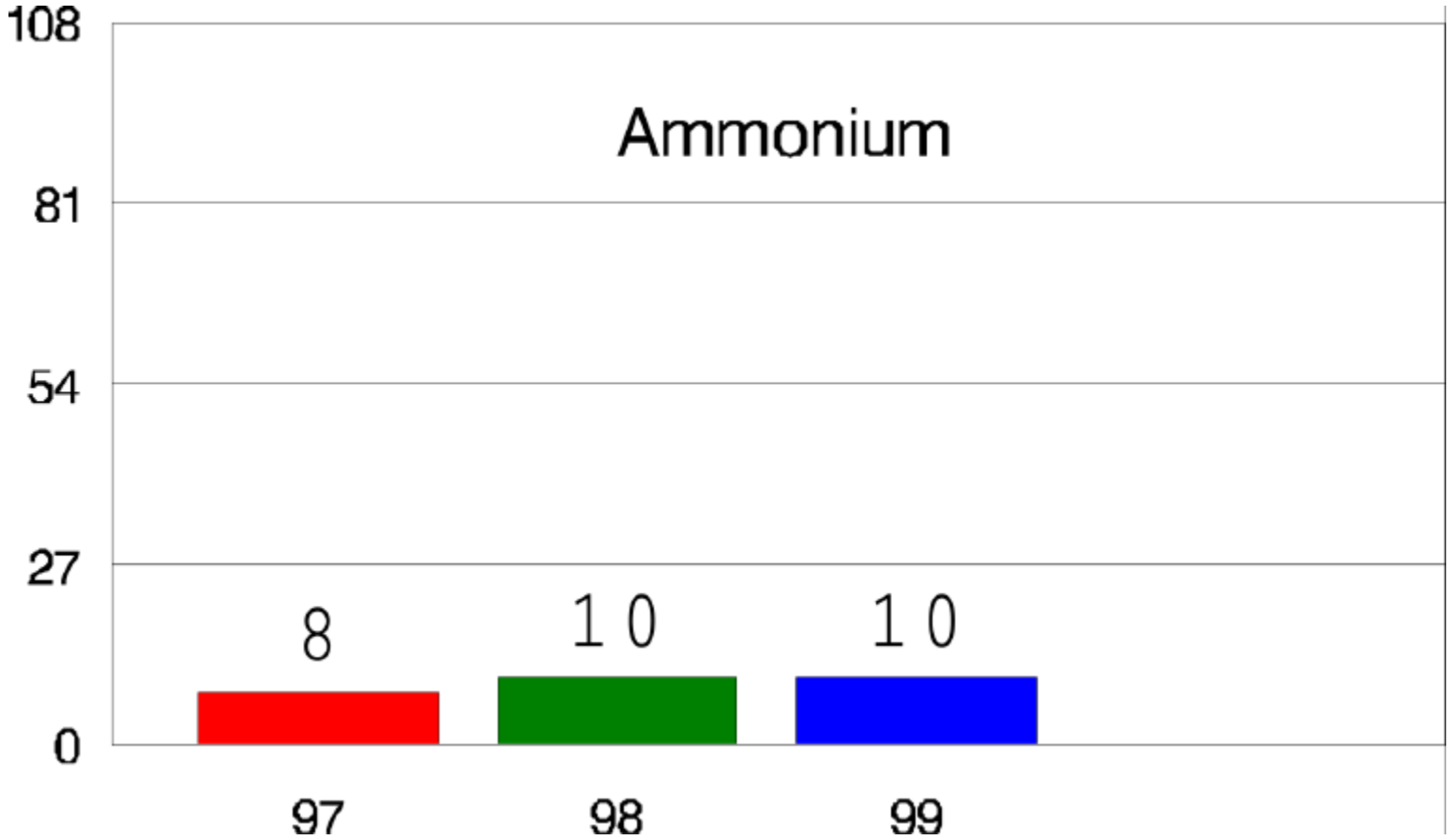
NUMBER OF REPORTED VALUES EXCEEDING ± 3 F PSEUDOSIGMAS



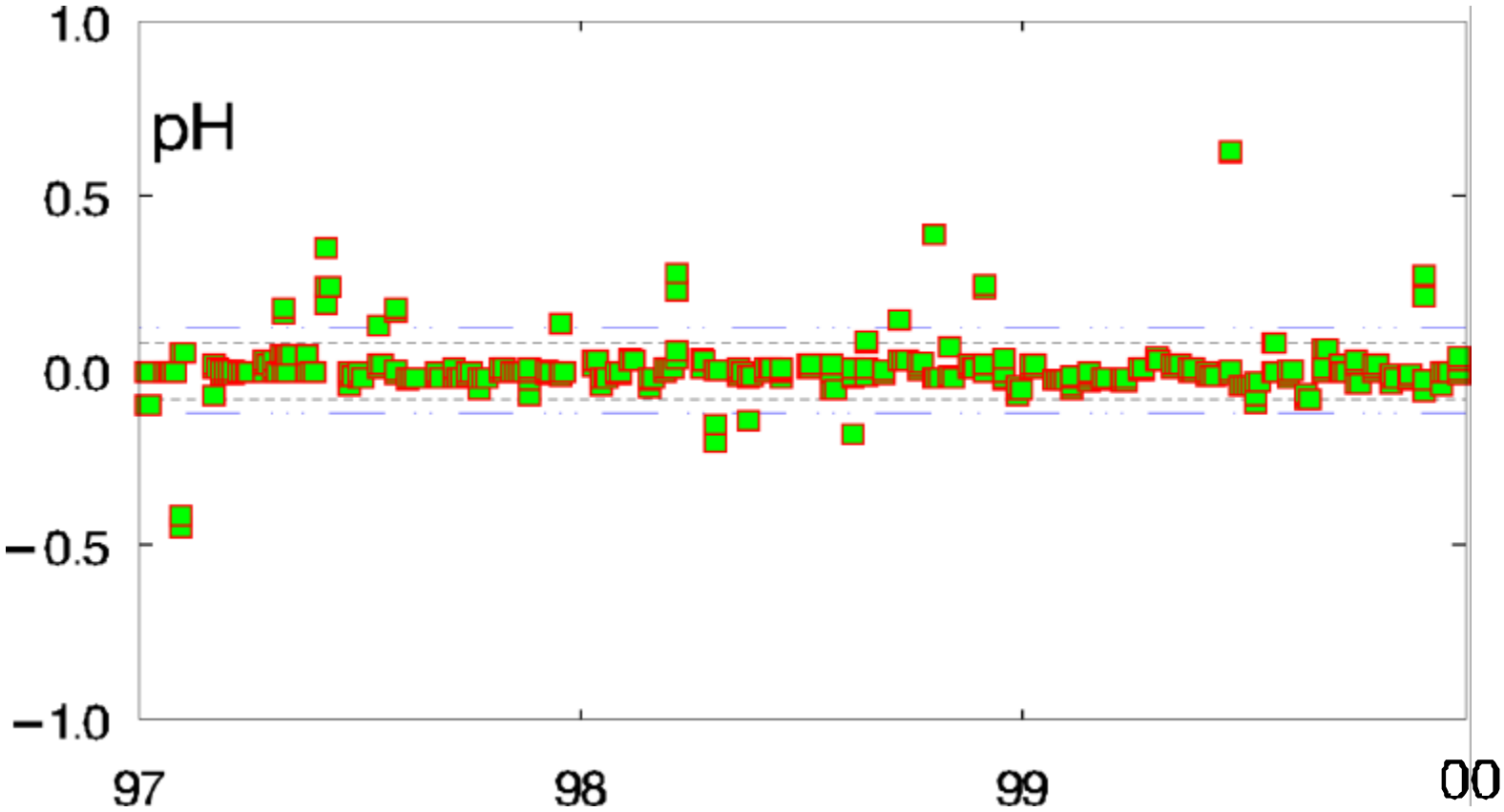
Control Chart depicting CAL's Interlaboratory Comparison Study Results, 1997- 1999



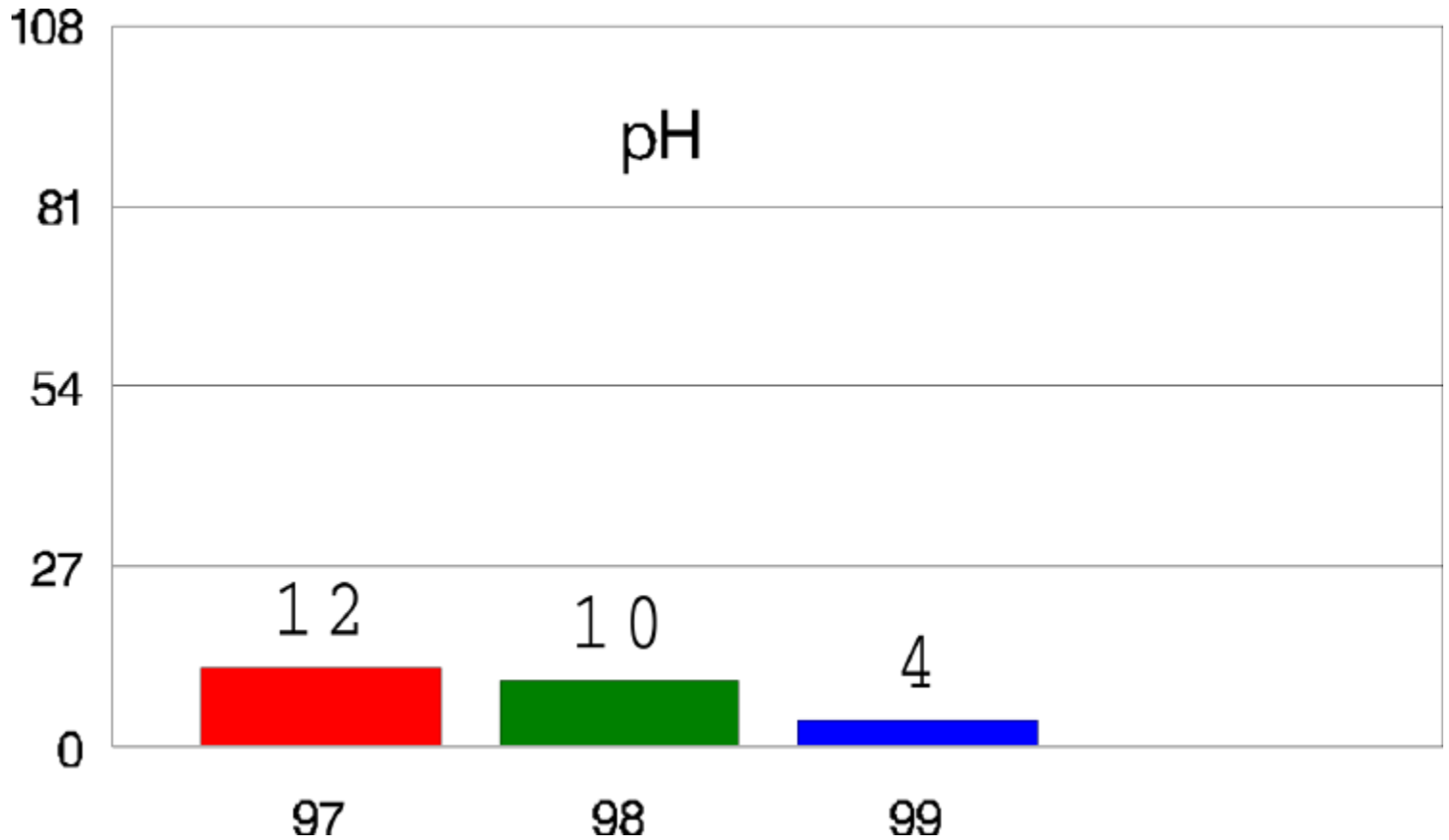
NUMBER OF REPORTED VALUES EXCEEDING ± 3 F PSEUDOSIGMAS



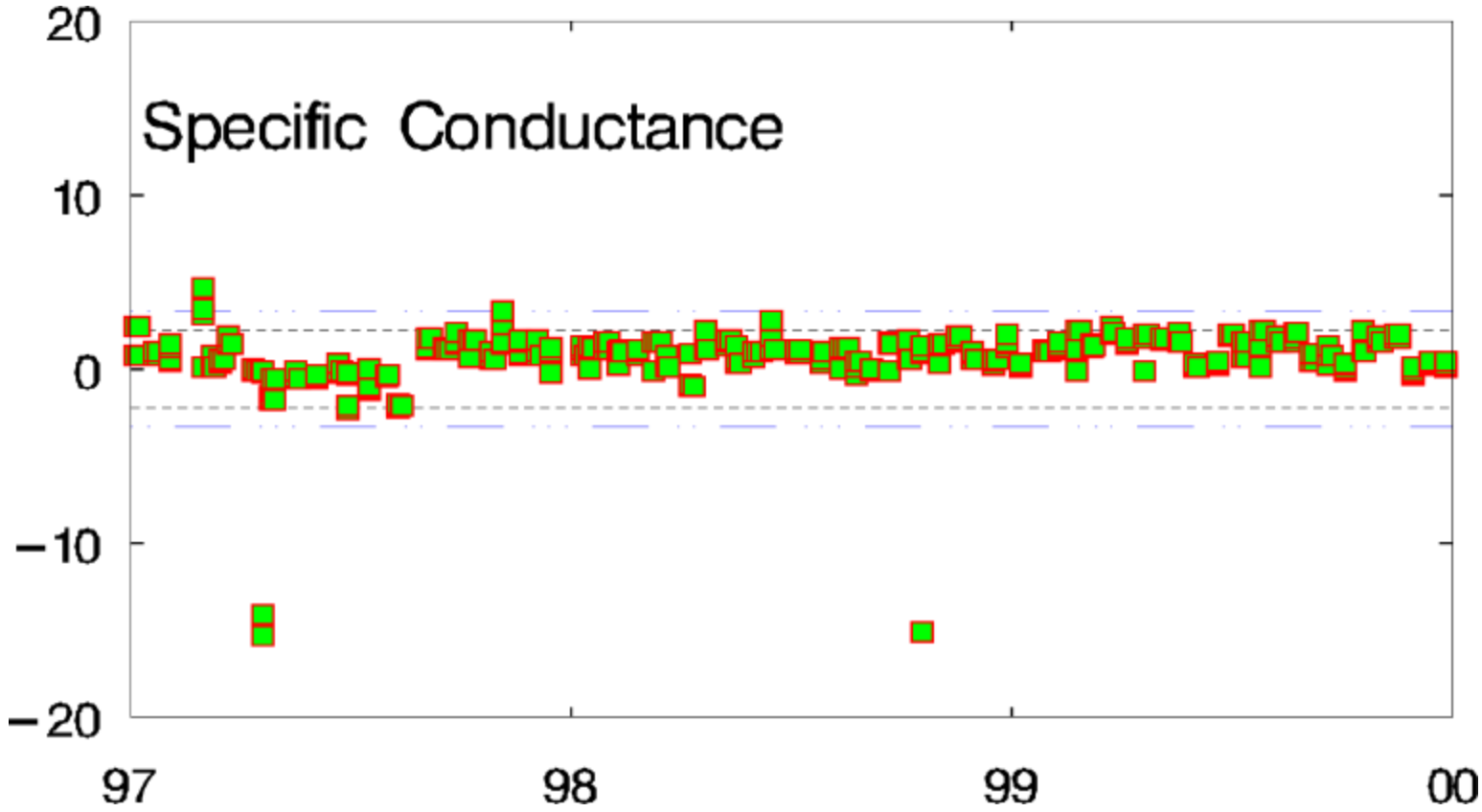
Control Chart depicting CAL's Interlaboratory Comparison Study Results, 1997- 1999



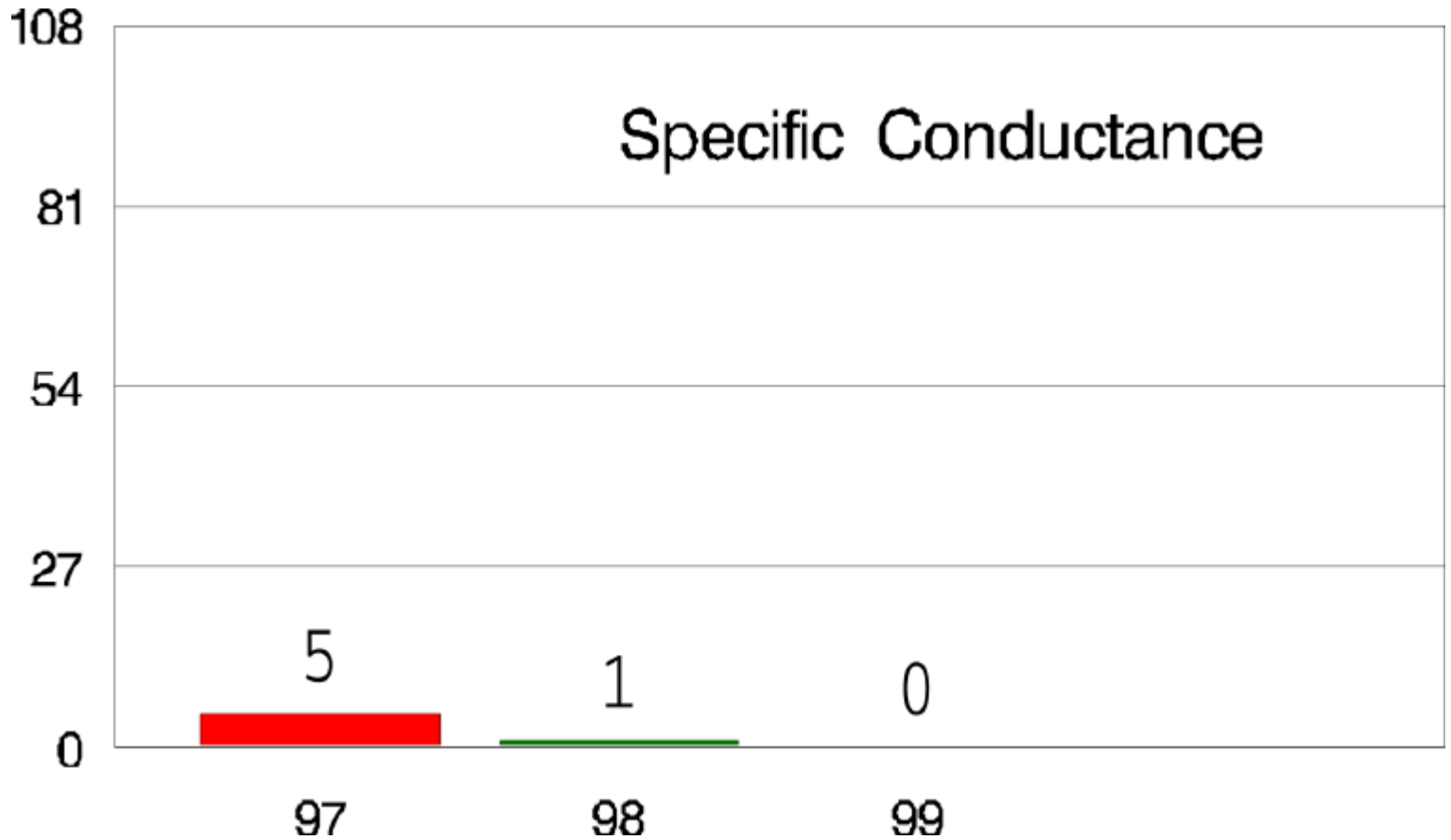
NUMBER OF REPORTED VALUES EXCEEDING ± 3 F PSEUDOSIGMAS



Control Chart depicting CAL's Interlaboratory Comparison Study Results, 1997- 1999



NUMBER OF REPORTED VALUES EXCEEDING ± 3 F PSEUDOSIGMAS



Summary

The Central Analytical Laboratory performed very well in the USGS interlaboratory comparison program during 1997-199

Between 1997 and 1999, the number of reported values for CAL exceeding the control chart limits decreased for NO_3, Cl, pH and SC

CAL was ranked first or second on replicate sample analysis for 8 of 10 analytes among 7 participating laboratories in 1999

Intersite Comparison Program
1998-2000

Intersite Comparison Program

Onsite pH measurements are considered to be more accurate of precipitation chemistry than subsequent laboratory measurements

Intersite-Comparison Program is designed to assess the accuracy of onsite pH and specific conductance measurements

A synthetic precipitation sample prepared by the USGS is mailed to all site operators, who are asked to determine the pH and specific conductance

If measurements are outside of the acceptable range, the operator is asked to participate in a follow-up study and perform pH and specific conductance measurements on additional samples

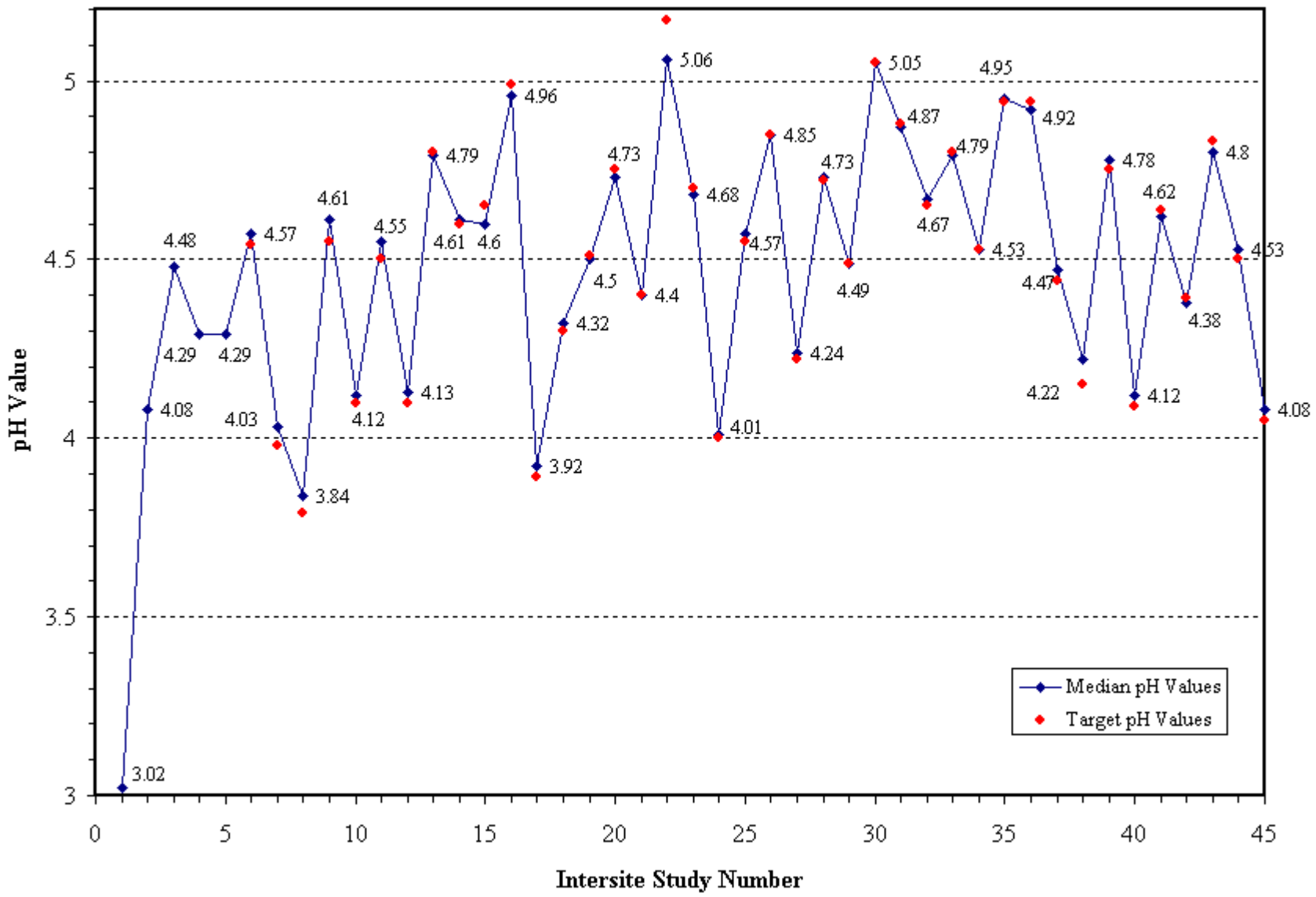
Intersite Comparison Program

•Five Intersite-Comparison studies were conducted during Spring and fall of 1998-2000

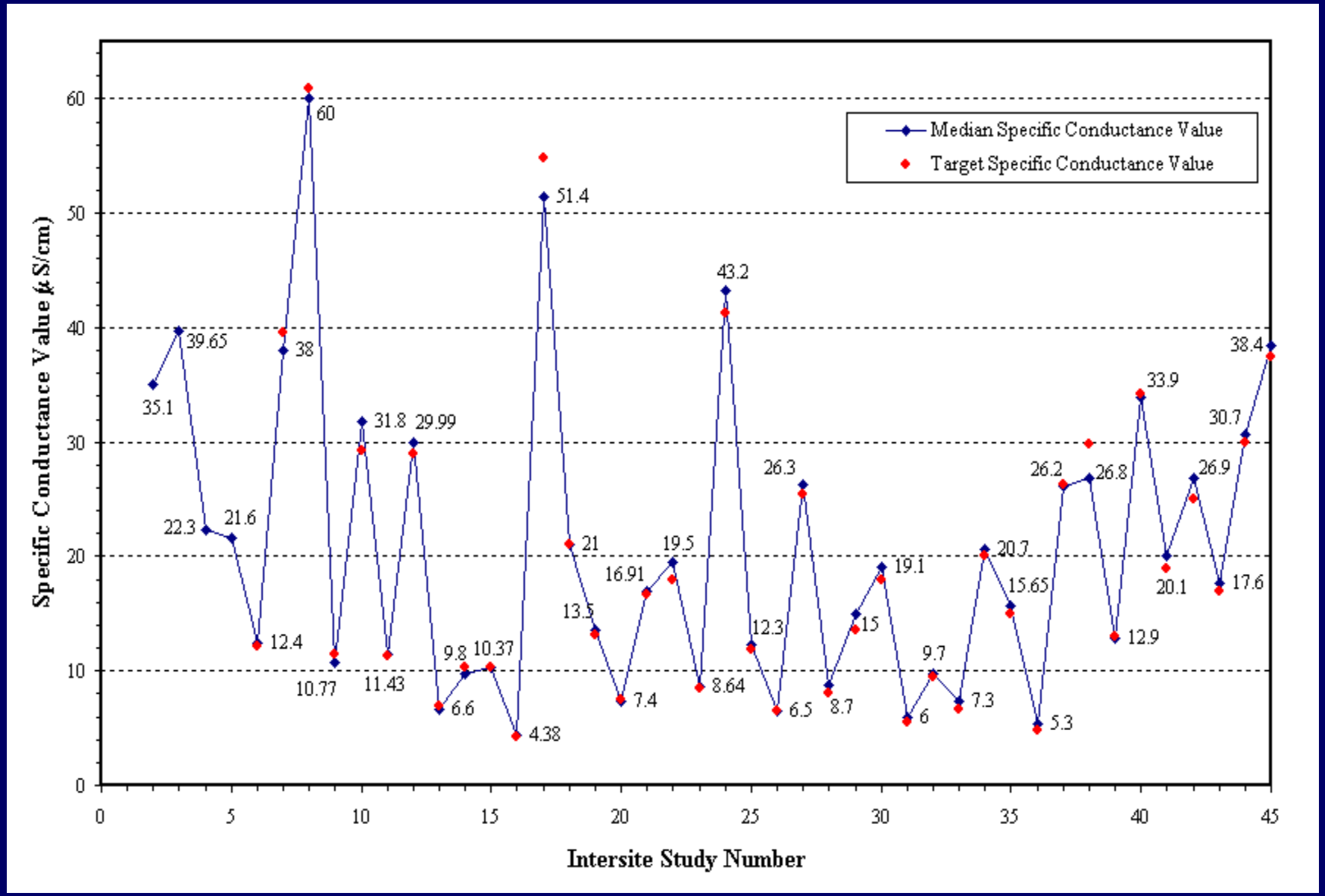
•High participation indicates that site operators show willingness and interest in the study:

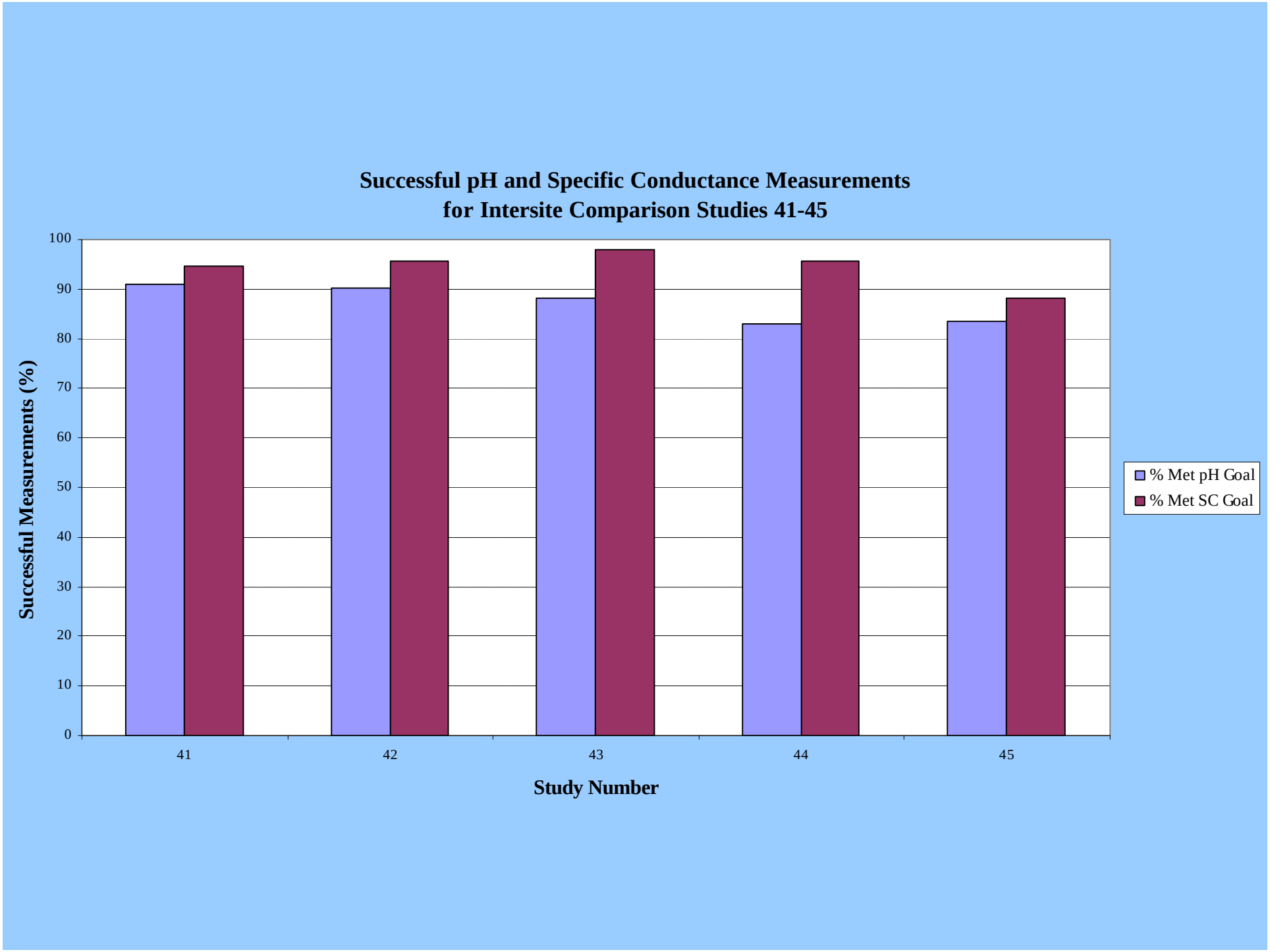
Study	Active Sites	Responses
41	199	187
42	198	183
43	209	196
44	218	205
45	219	207

pH Values from Previous Intersite-Comparison Studies

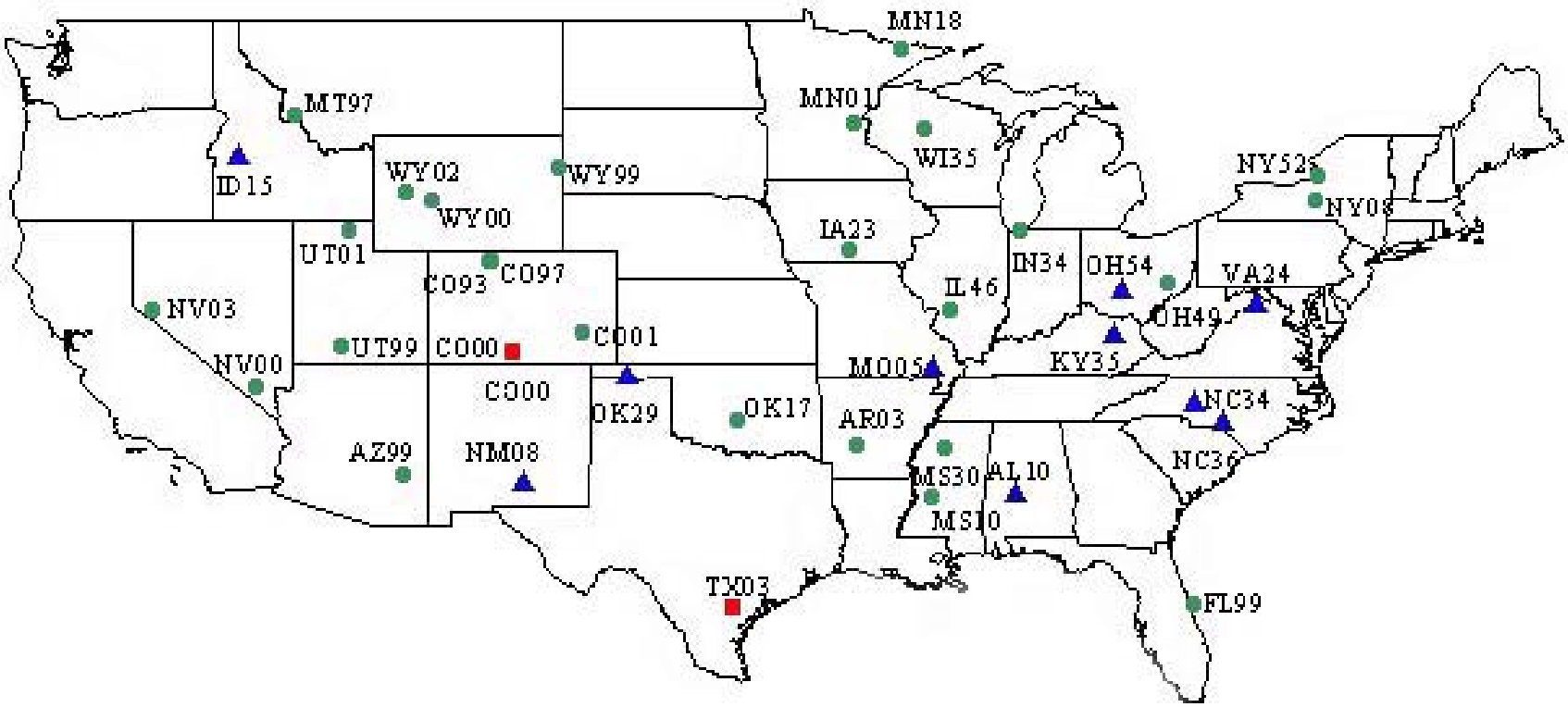


Specific Conductance Values from Previous Intersite-Comparison Studies

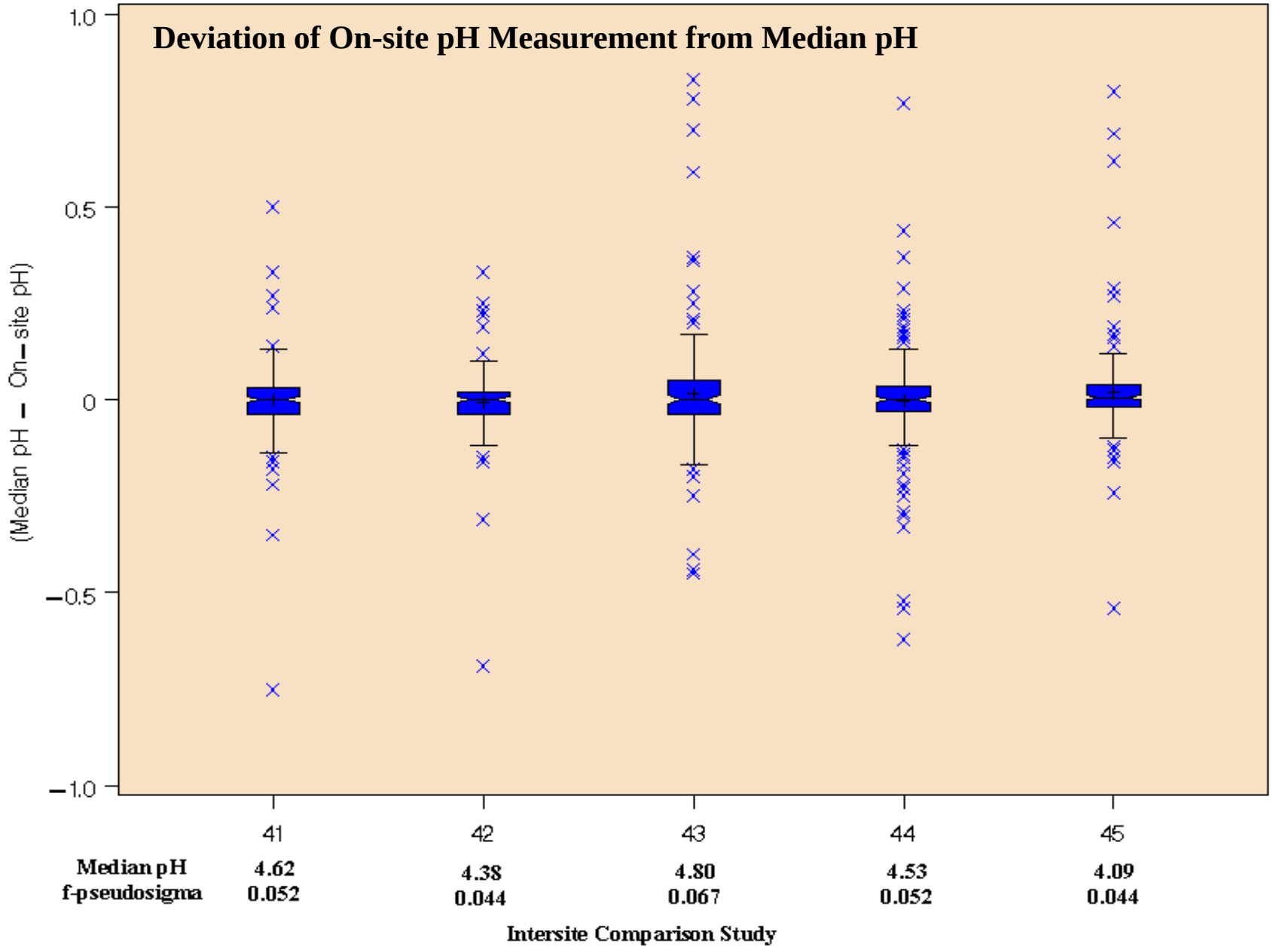



Successful pH and Specific Conductance Measurements
for Intersite Comparison Studies 41-45
Successful Measurements (%)
100
90
80
70
60
50
40
30
20
10
0
41
42
43
44
45
Study Number
% Met pH Goal
% Met SC Goal

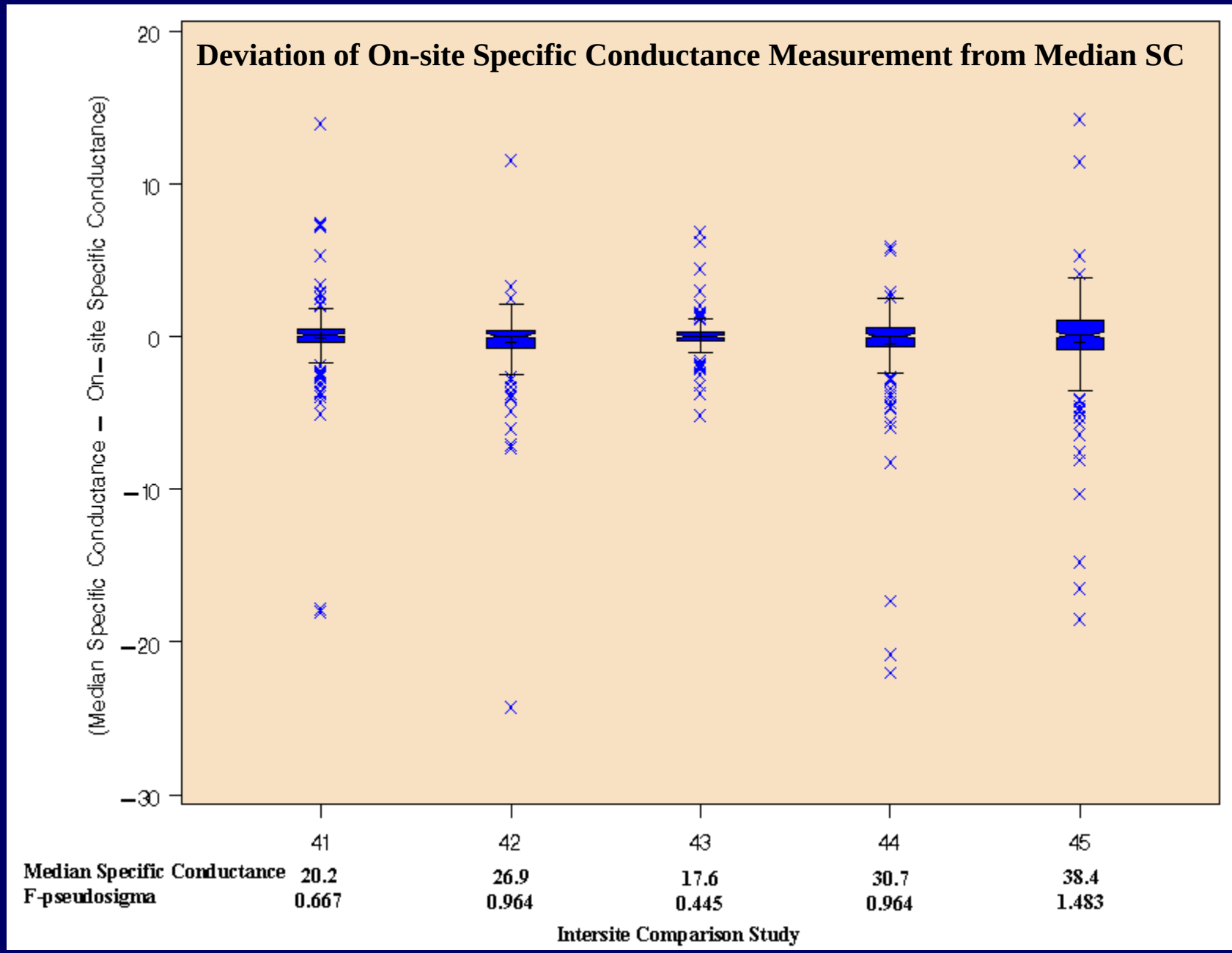
Intersite Comparison Program



Intersite Comparison Program



Intersite Comparison Program



Intersite Comparison Program

Follow-up

Evaluation of Site Operator's Performance

Z-score = $\frac{x - x_m}{fps}$

where x = individual observation

x_m = median of all observations

fps = f-pseudosigma of all observations

$$\frac{(75^{th} - 25^{th} \text{ percentile})}{1.349}$$

- **Z-values account for deviation from accuracy limits, based on difficulty of measuring pH at specific hydrogen ion concentrations**

- **Cumulative z-values are considered for three previous intersite-comparison studies in assigning site operators, who failed to meet accuracy goals, into four categories**

Intersite Comparison Program

Follow-up

Study	Eligible Operators	Non-Responders	% Successful pH Re-measurements
41	17	6	36
42	33	12	67
44	32	1	71
45	29	6	65

* A follow-up for Study 43 was not conducted

Intersite Comparison Program

Please visit our website:

http://btdqs.usgs.gov/precip/project_overview/index.htm

Collocated Study Results

1997-1999

NADP/NTN ITERIM MEETING

April 23-25, 2001

Tucson, Arizona

1997 - 1999 Collocated Sites

1997 Sites:

- OR09/09OR – Silver Lake Ranger Station
- FL14/14FL – Quincy

1998 Sites:

- WY95/95WY - Brooklyn Lake
- VA28/28VA - Shenandoah National Park

1999 Sites:

- MA08/08MA - Quabbin Reservoir
- MN01/01MN - Cedar Creek

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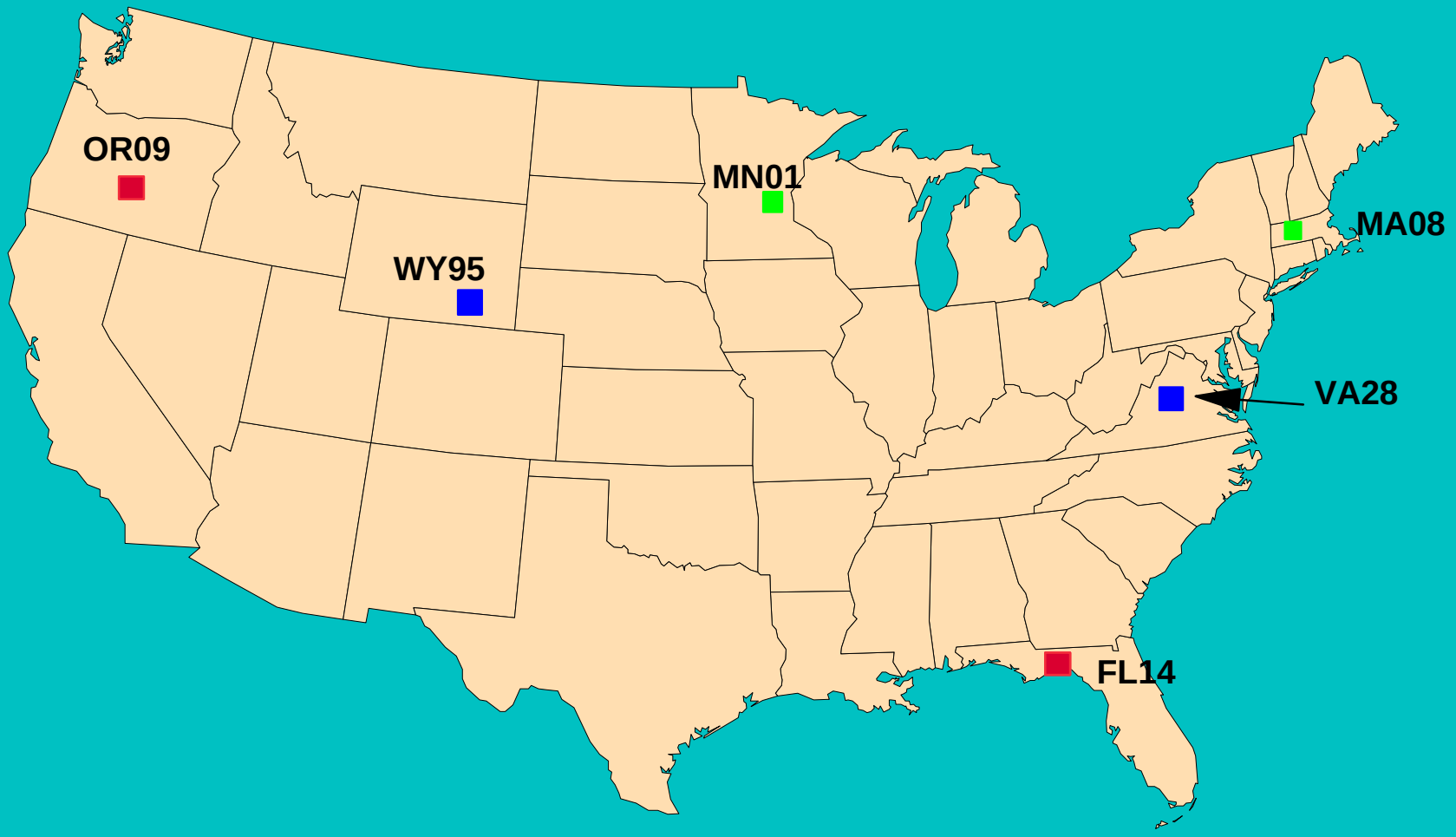
Collocated Sites 1997-99



- October 1996- September 1997
- October 1997- September 1998
- October 1998- September 1999

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Collocated sampler program

Objectives

- Estimate overall variability of NADP/NTN precipitation measurements -- chemistry and physical properties
- Detect changes in variability due to equipment and protocol changes
- Compare overall system variability to components of system variability measured by other external QA programs

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Precision Estimates for Collocated Sites:

Difference Between Collectors = $(C_1 - C_2)$

Relative Percent Difference = $\frac{C_1 - C_2}{(C_1 + C_2)/2} * 100$

Absolute Difference Between Collectors = $| C_1 - C_2 |$

Absolute Percent Difference = $\left| \frac{C_1 - C_2}{(C_1 + C_2)/2} \right| * 100$

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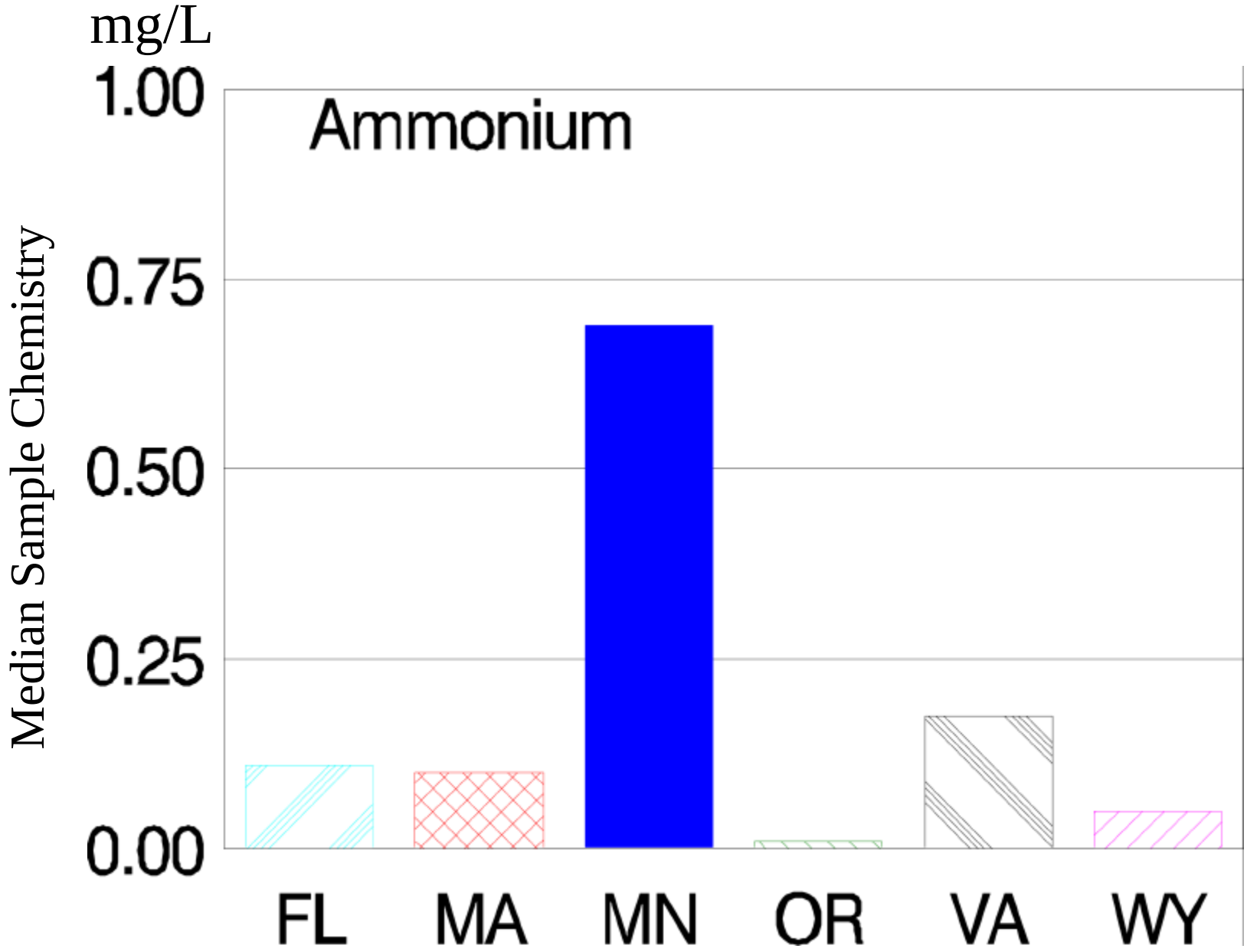
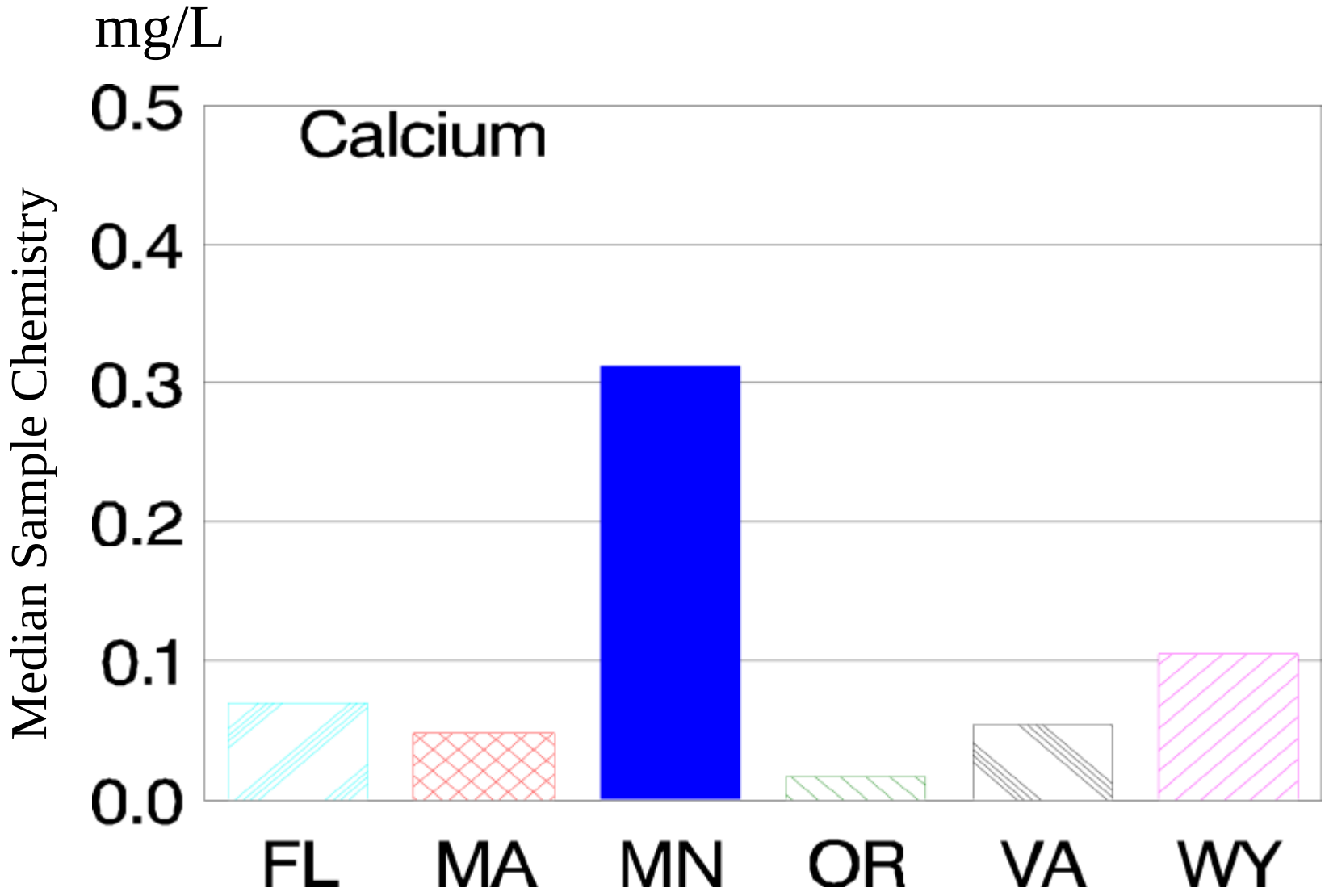
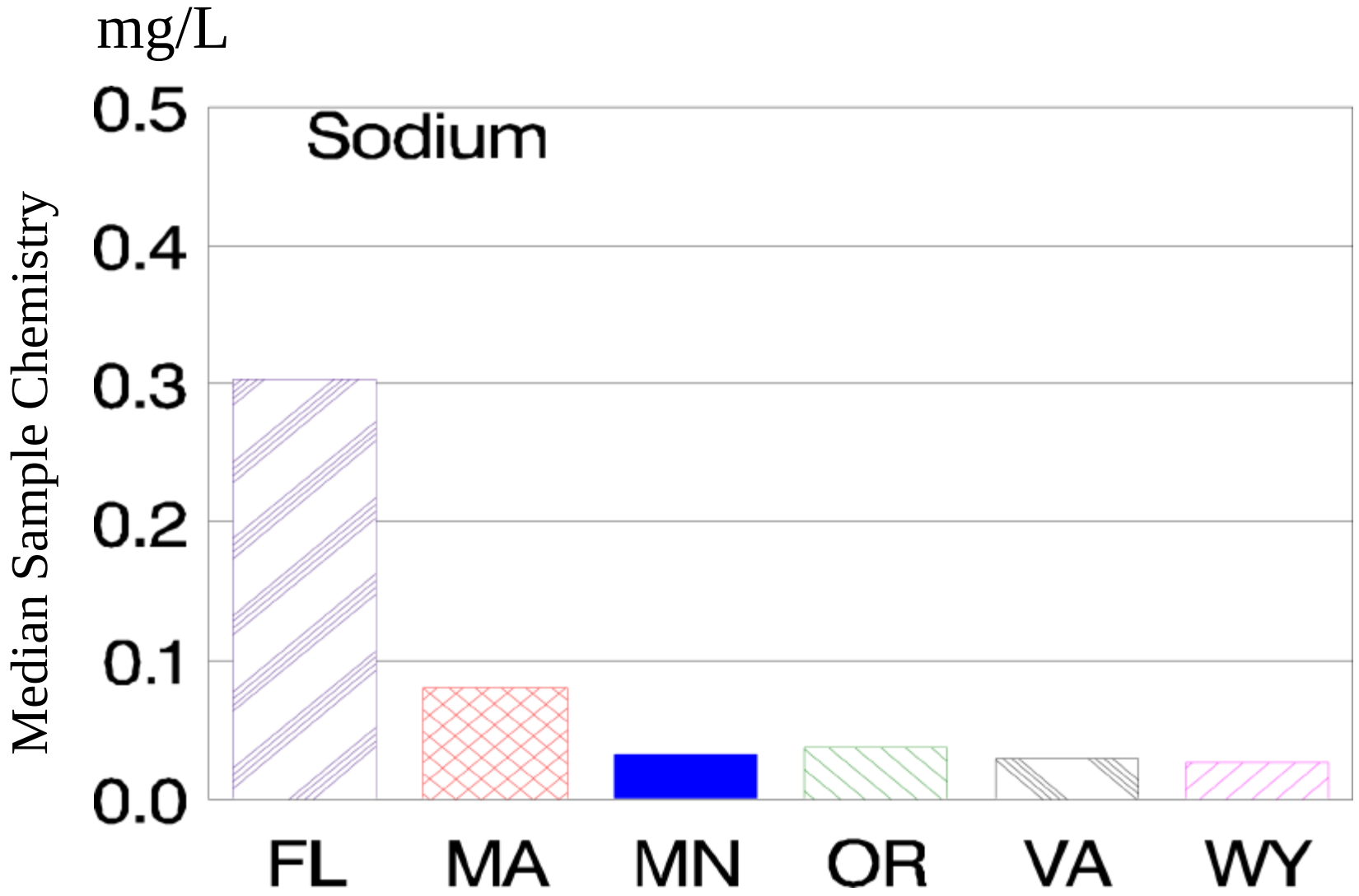

mg/L
Ammonium
Median Sample Chemistry
1.00
0.75
0.50
0.25
0.00
FL
MA
MN
OR
VA
WY


mg/L
Calcium
Median Sample Chemistry
0.5
0.4
0.3
0.2
0.1
0.0
FL
MA
MN
OR
VA
WY



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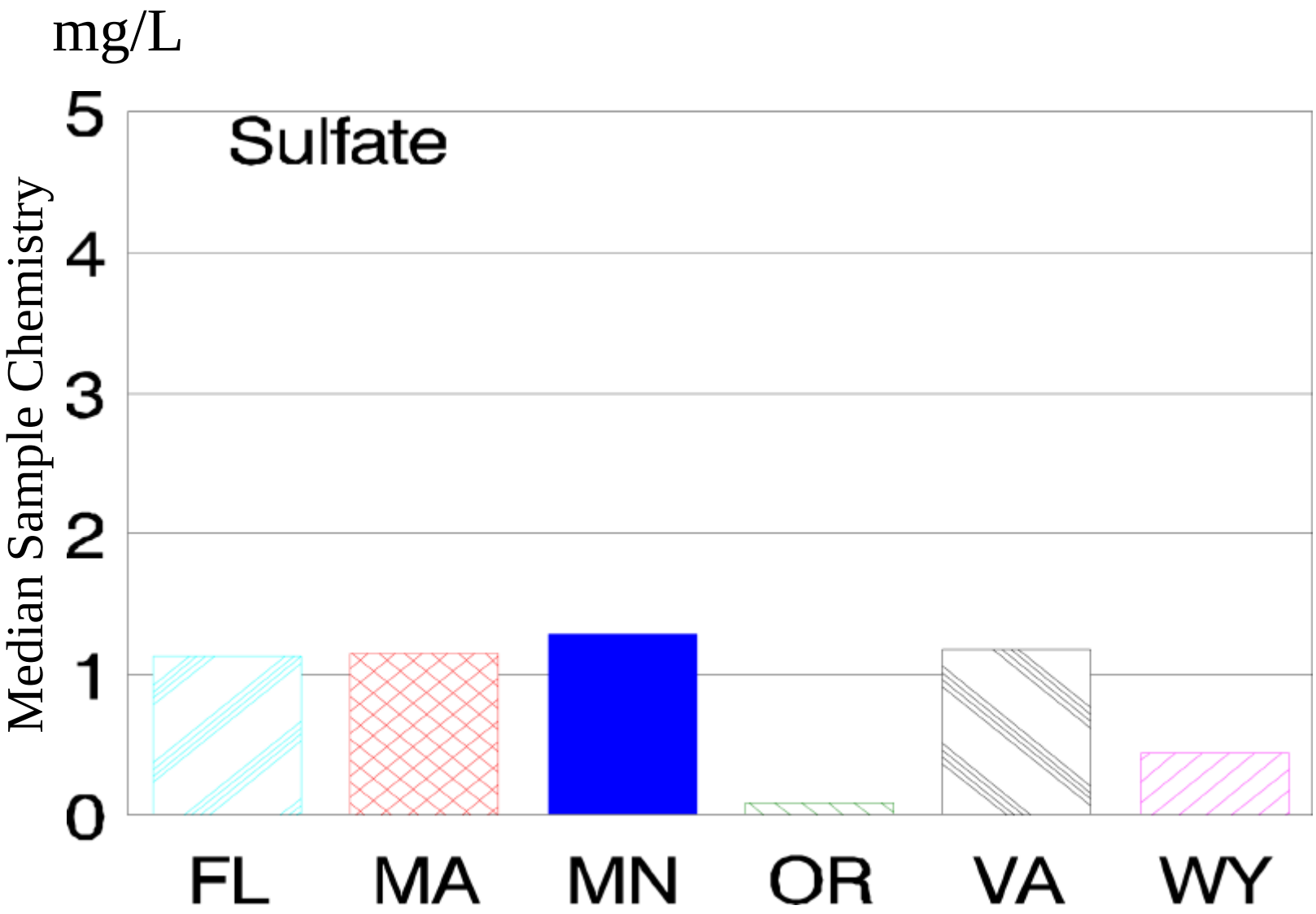
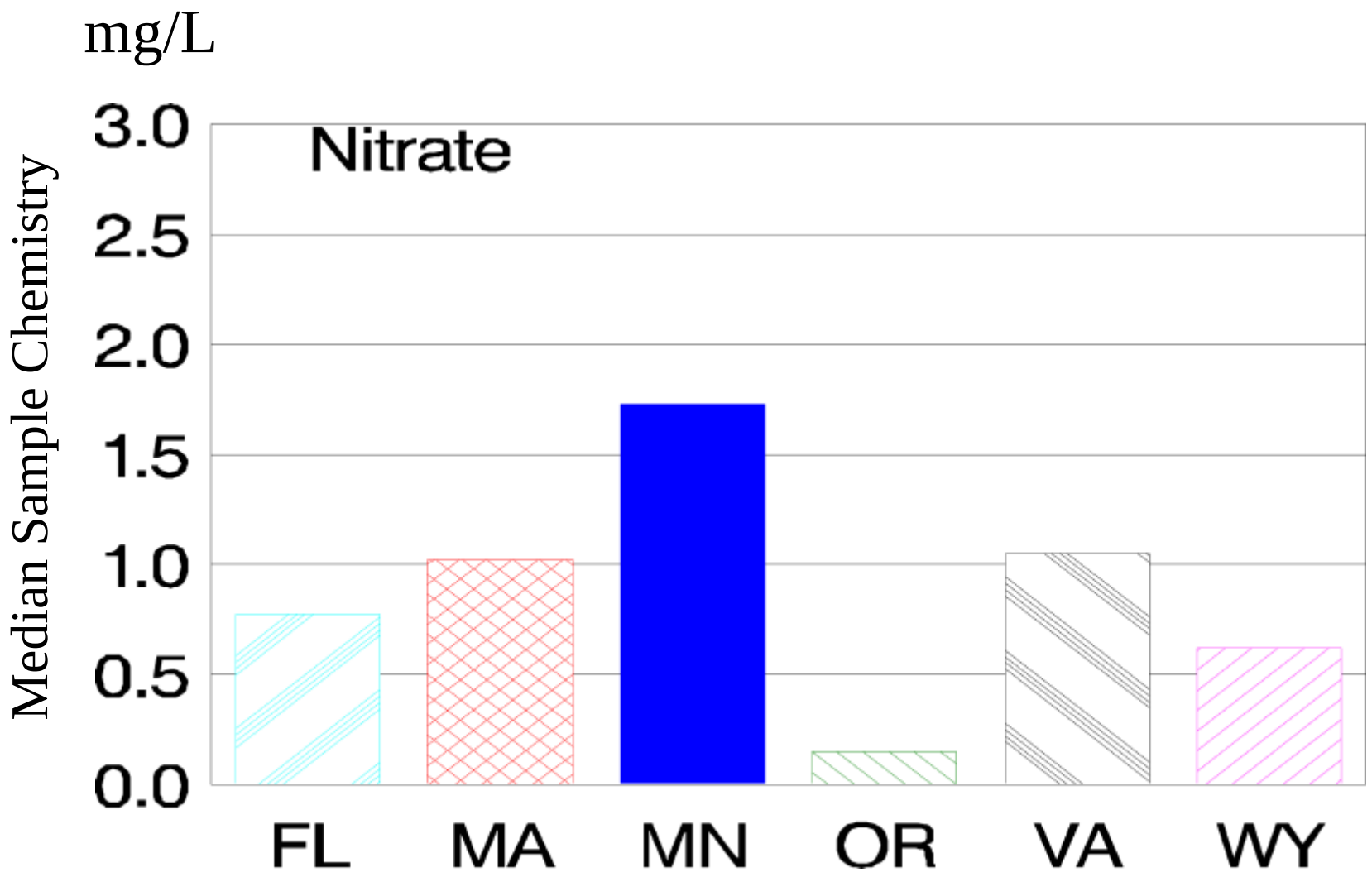
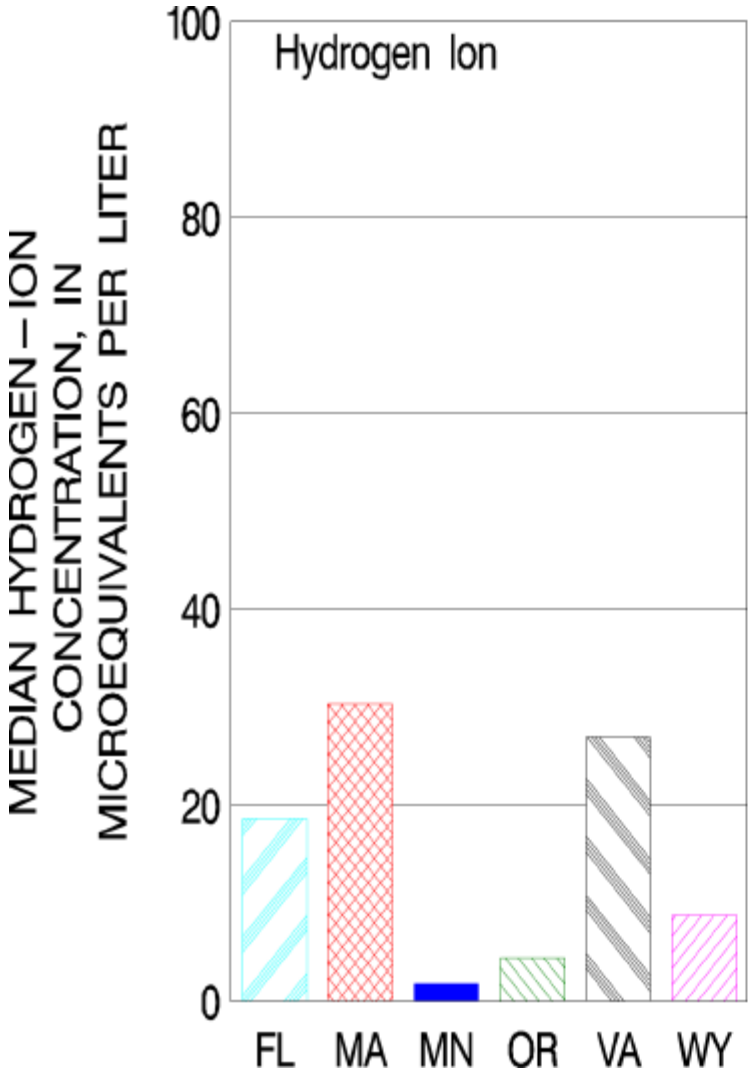
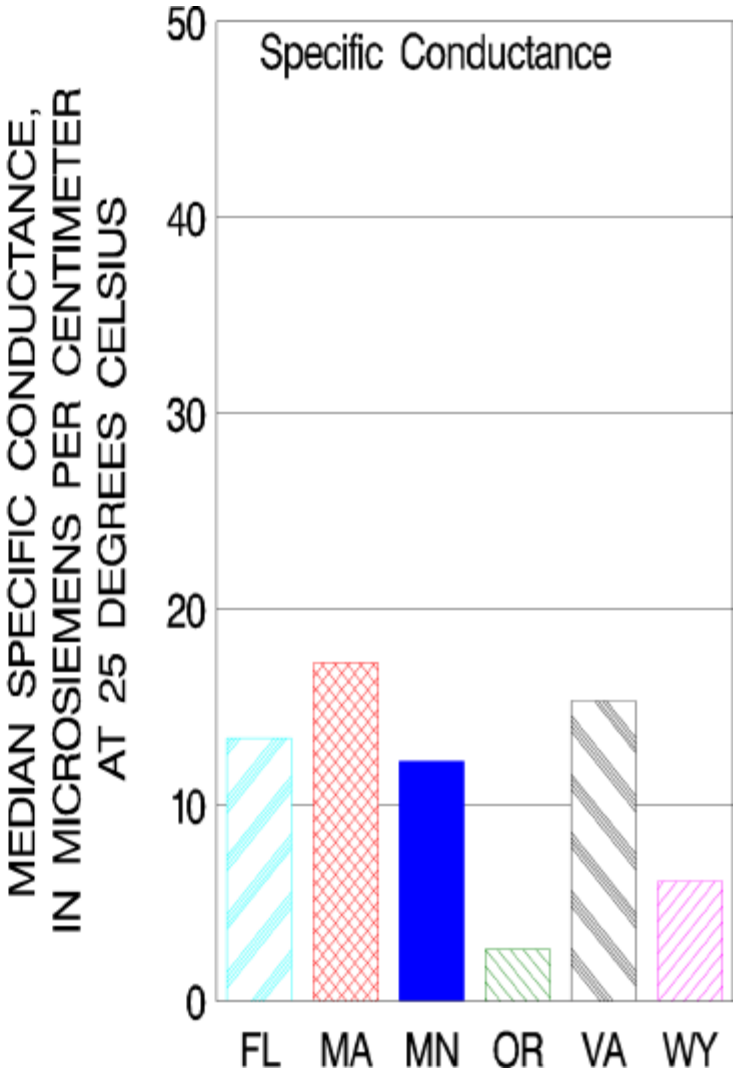

mg/L
Sulfate
Median Sample Chemistry
5
4
3
2
1
0
FL
MA
MN
OR
VA
WY


mg/L
Median Sample Chemistry
Nitrate
3.0
2.5
2.0
1.5
1.0
0.5
0.0
FL
MA
MN
OR
VA
WY





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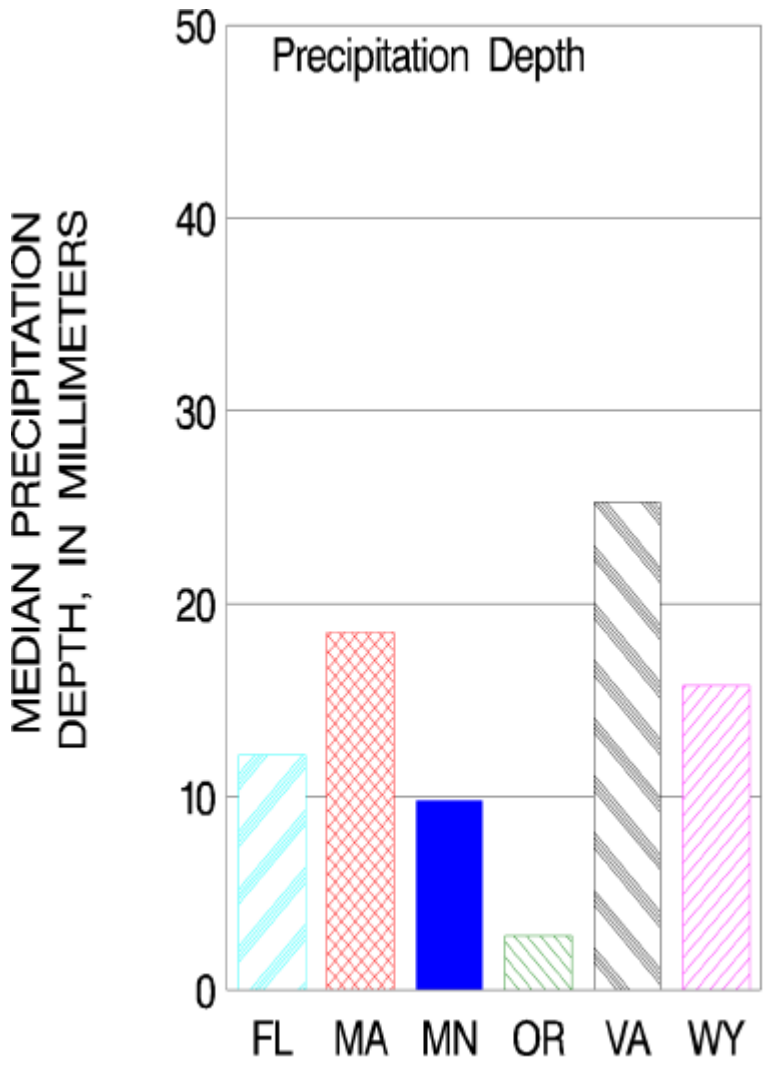

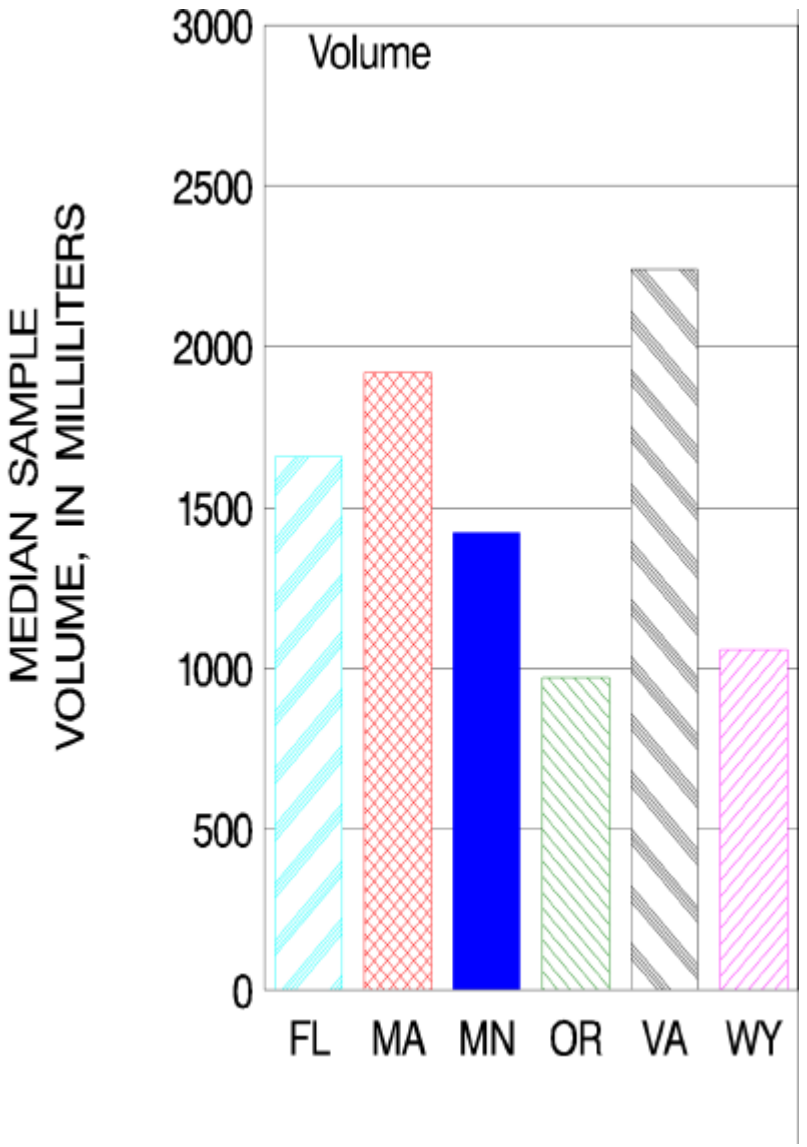

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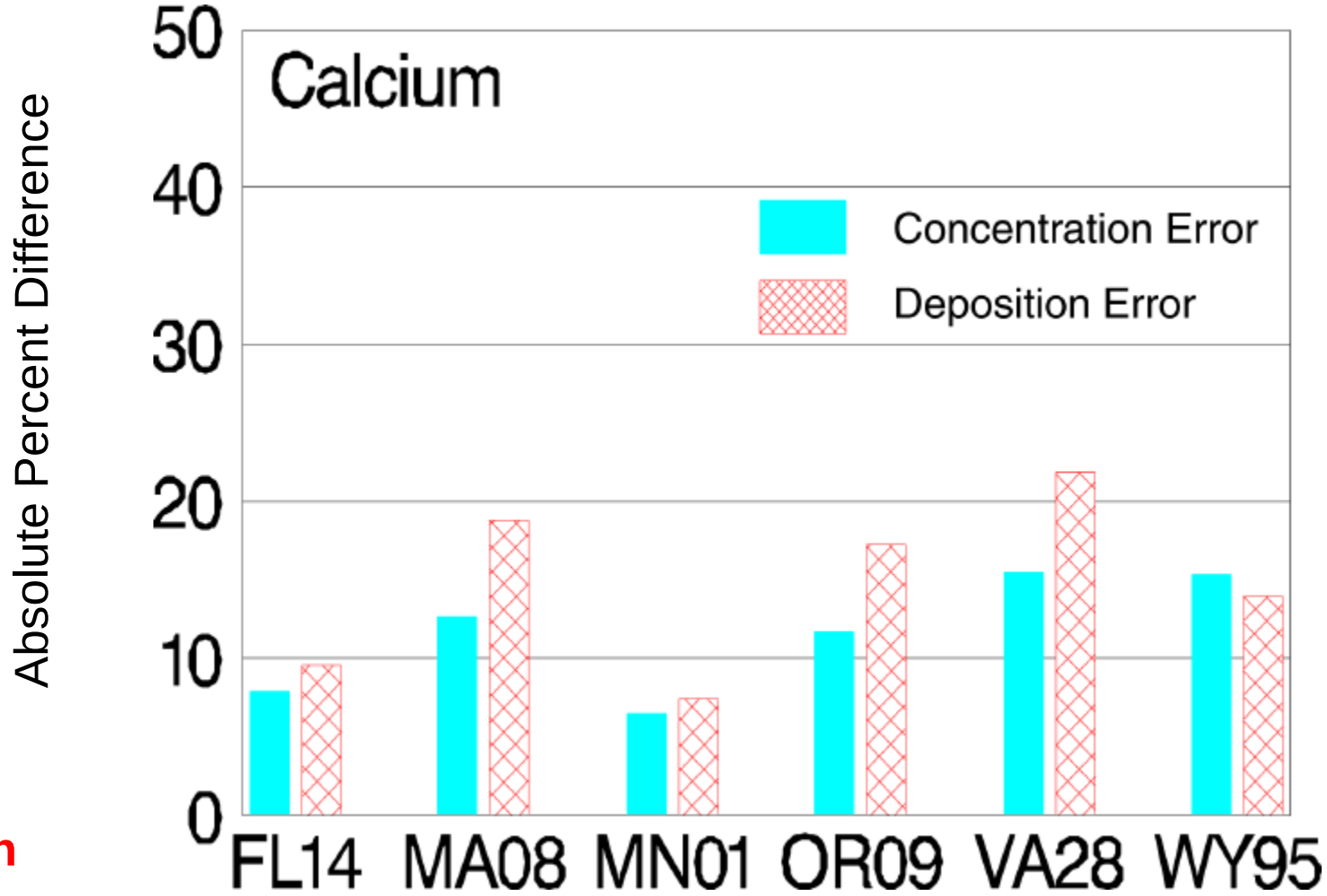
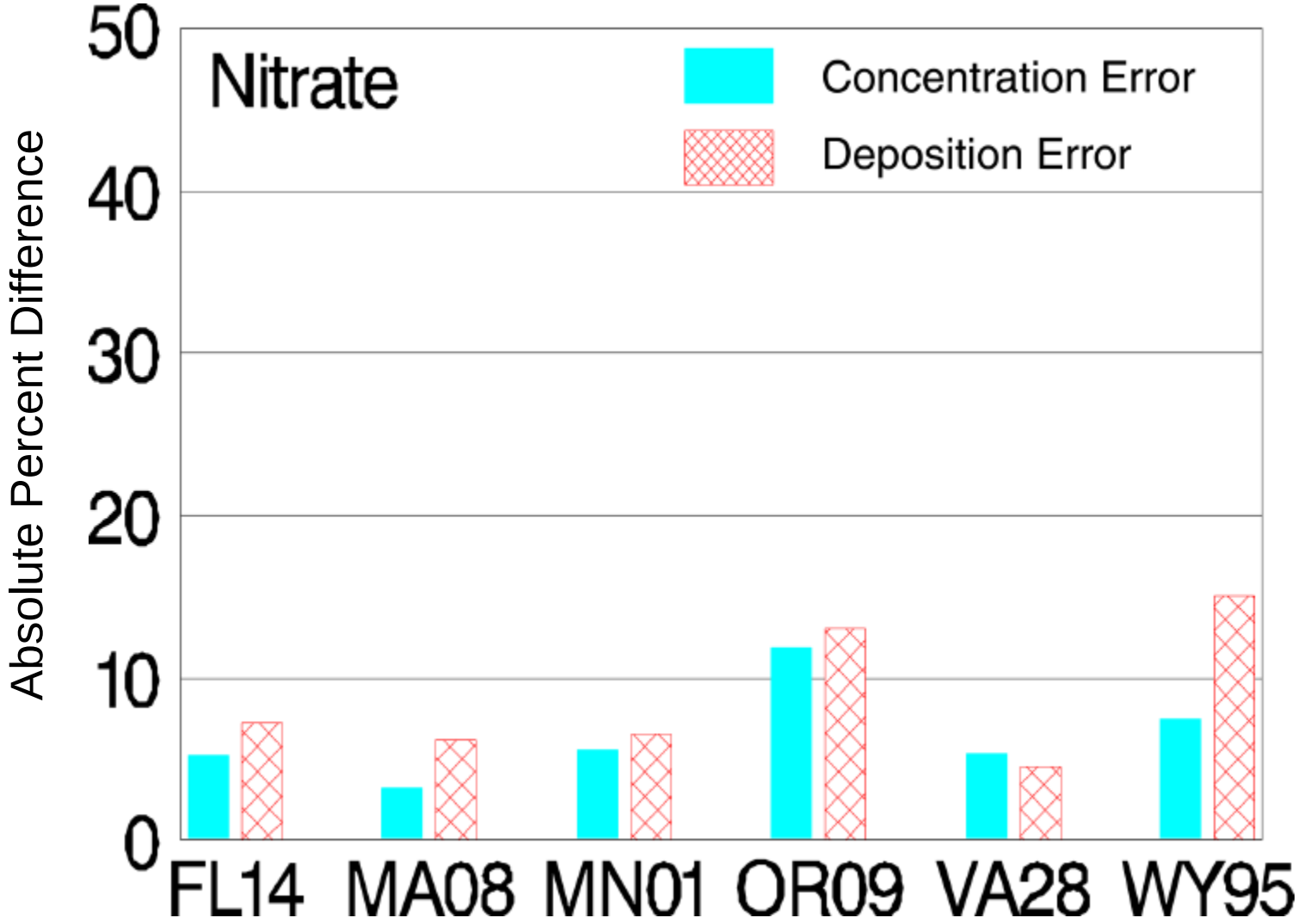
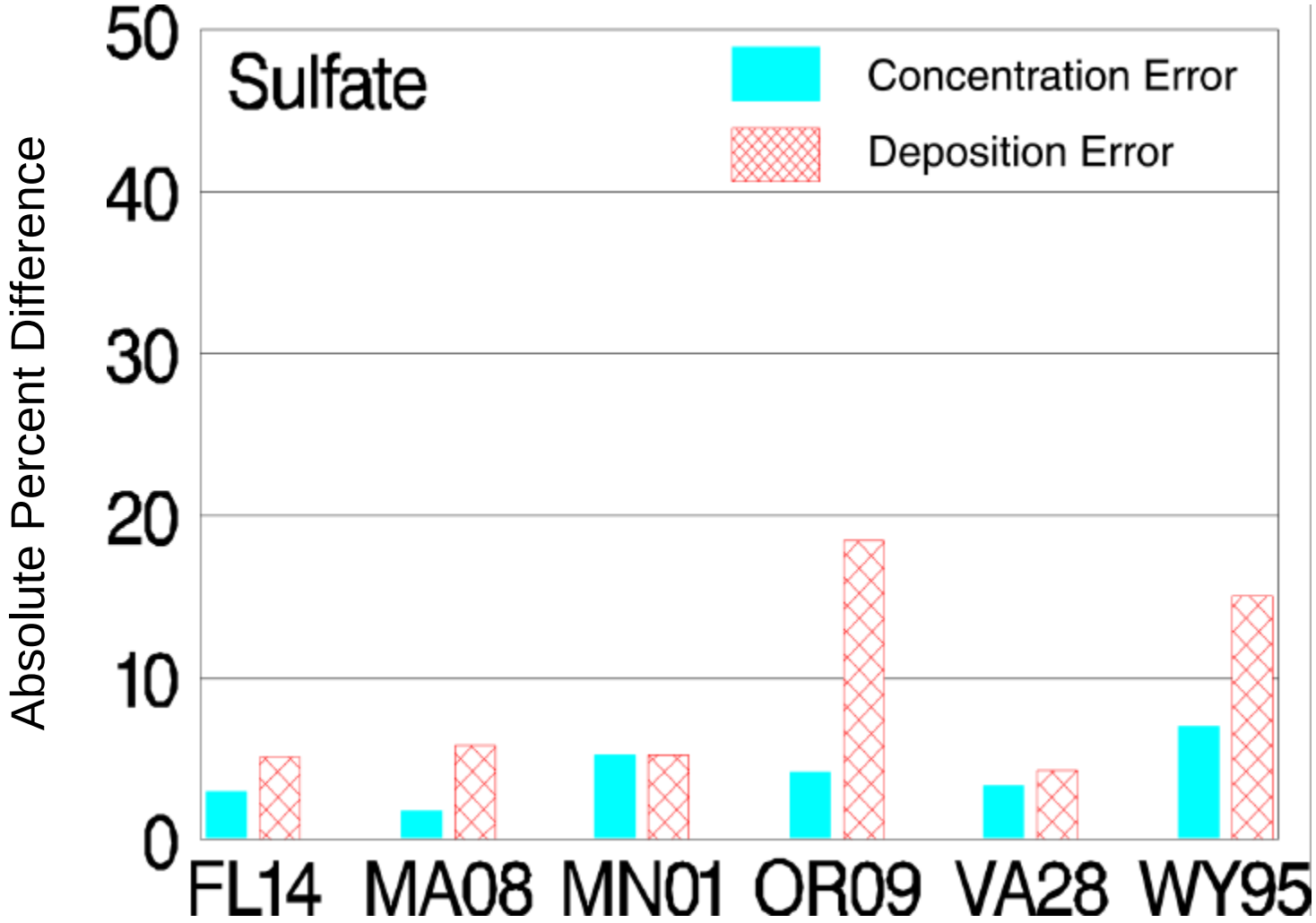


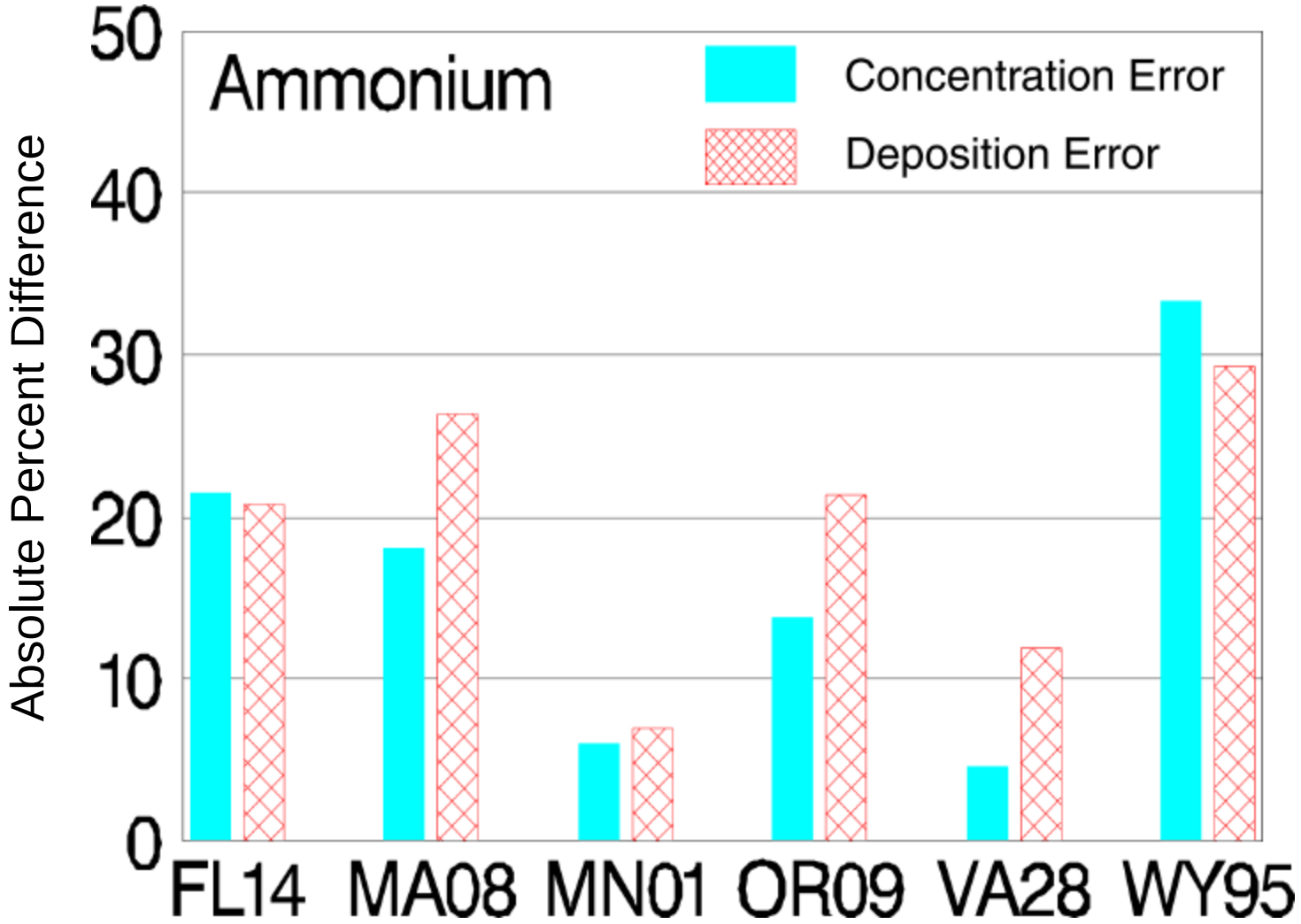
Median Sample Chemistry, mg/L .07 .05 .31 .02 .05 .11



Median Sample Chemistry, mg/L .77 1.02 1.73 .15 1.05 .62



	FL14	MA08	MN01	OR09	VA28	WY95
Median Sample Chemistry, mg/L	1.14	1.15	1.29	.09	1.18	.44



	FL14	MA08	MN01	OR09	VA28	WY95
Median Sample Chemistry, mg/L	.11	.10	.69	.01	.18	.05

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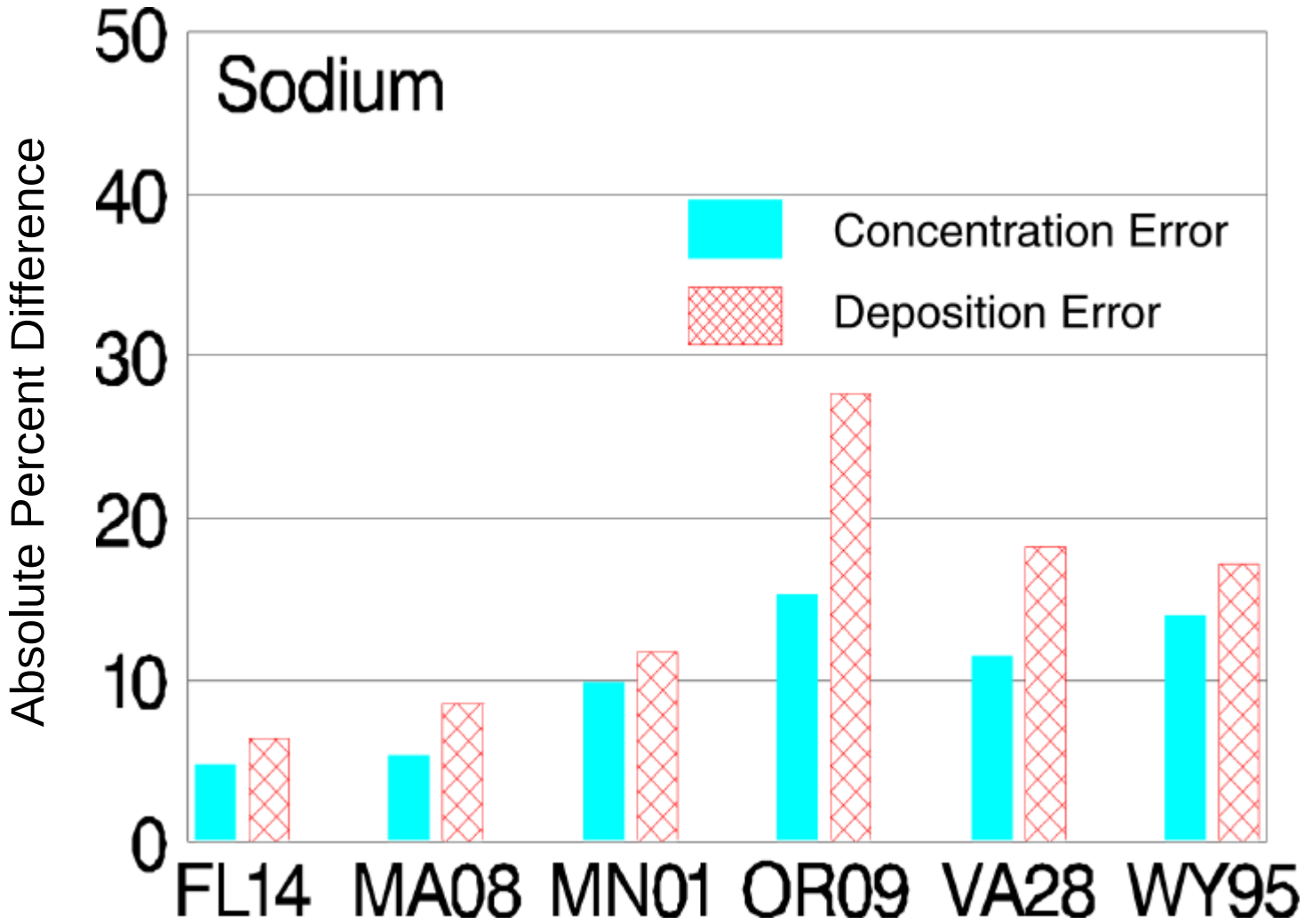

	FL14	MA08	MN01	OR09	VA28	WY95
Median Sample Chemistry, mg/L	.30	.08	.03	.04	.03	.03

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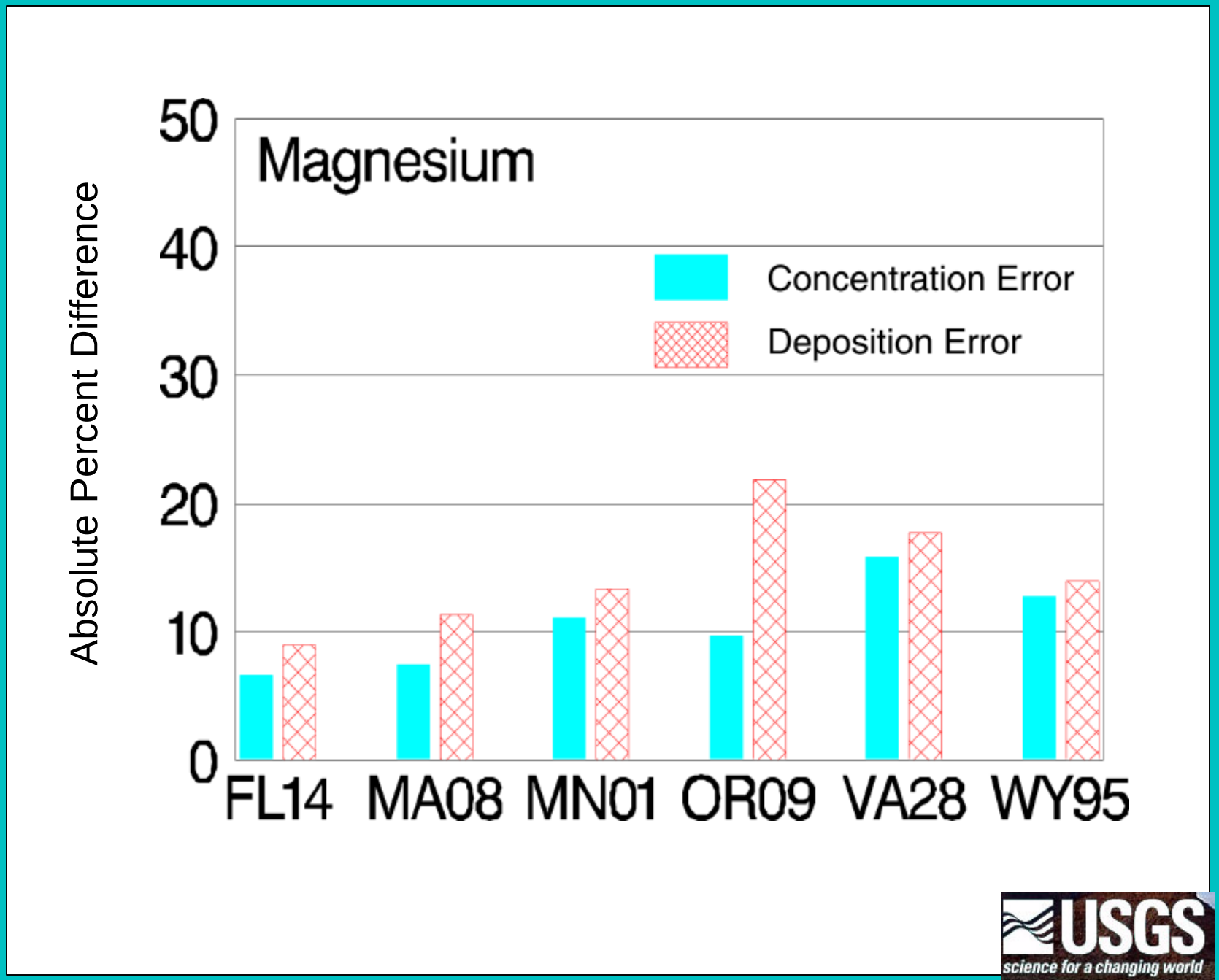
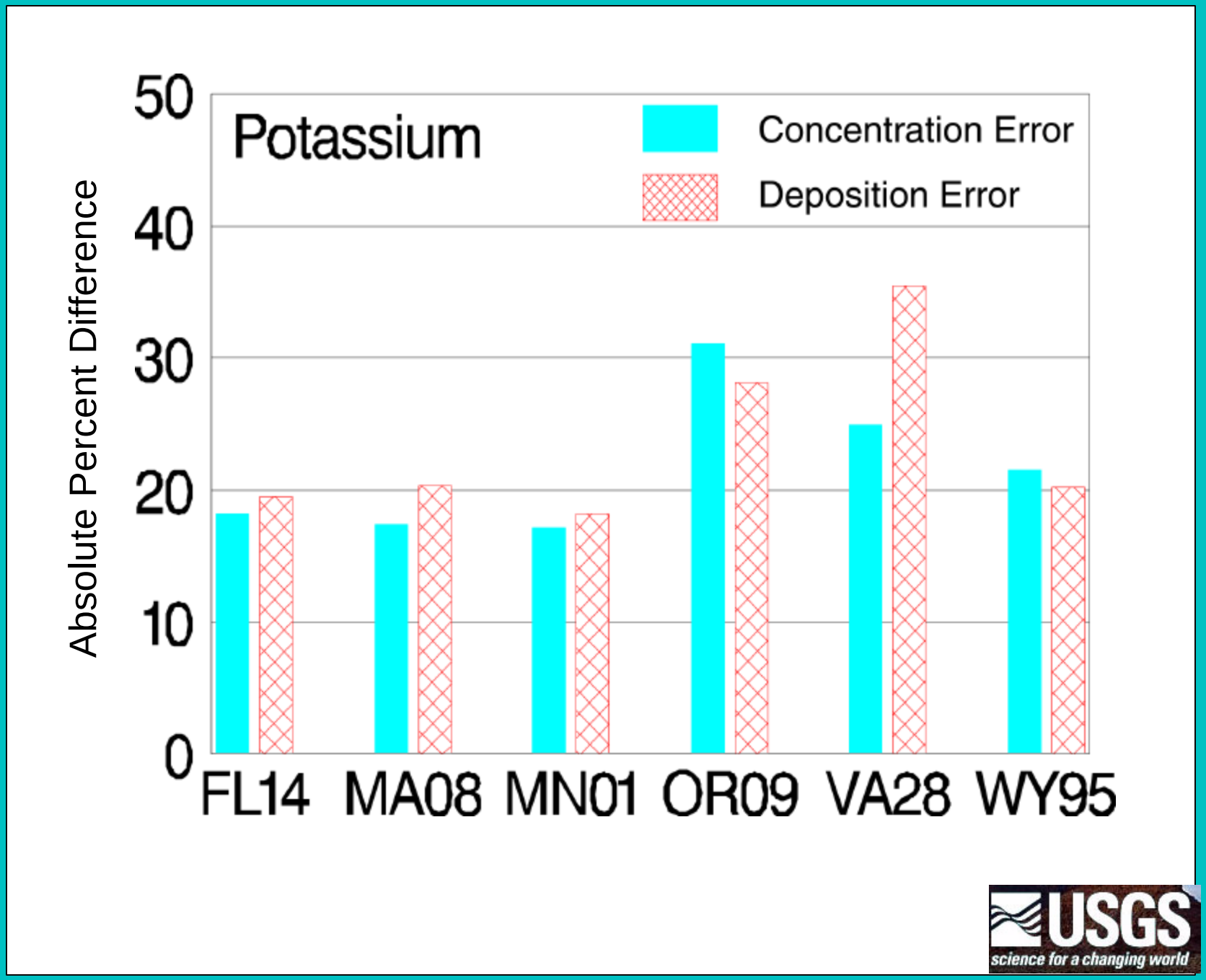

Magnesium
Absolute Percent Difference
50
40
30
20
10
0
Concentration Error
Deposition Error
FL14
MA08
MN01
OR09
VA28
WY95


Potassium
Concentration Error
Deposition Error
Absolute Percent Difference
50
40
30
20
10
0
FL14
MA08
MN01
OR09
VA28
WY95
USGS
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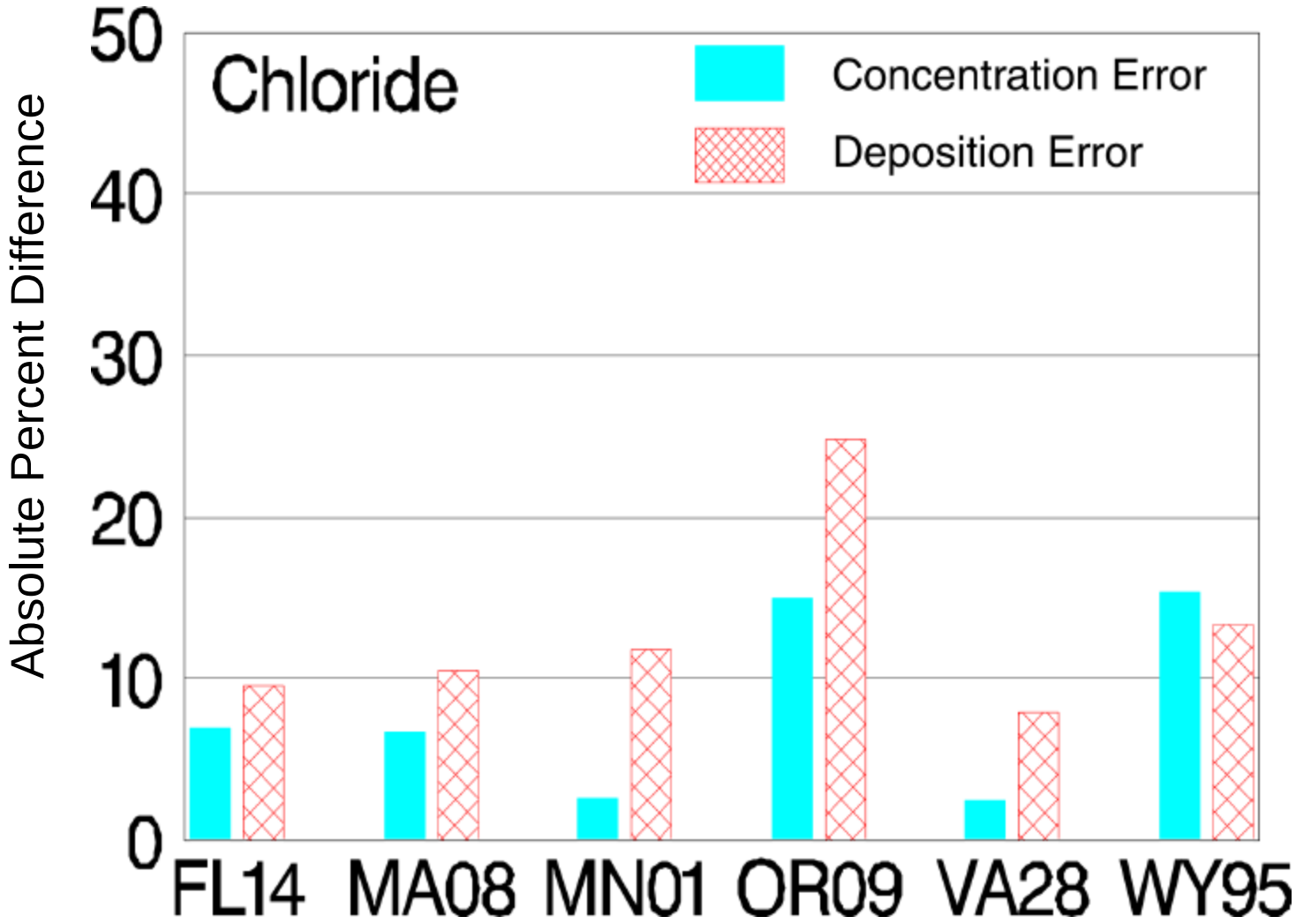
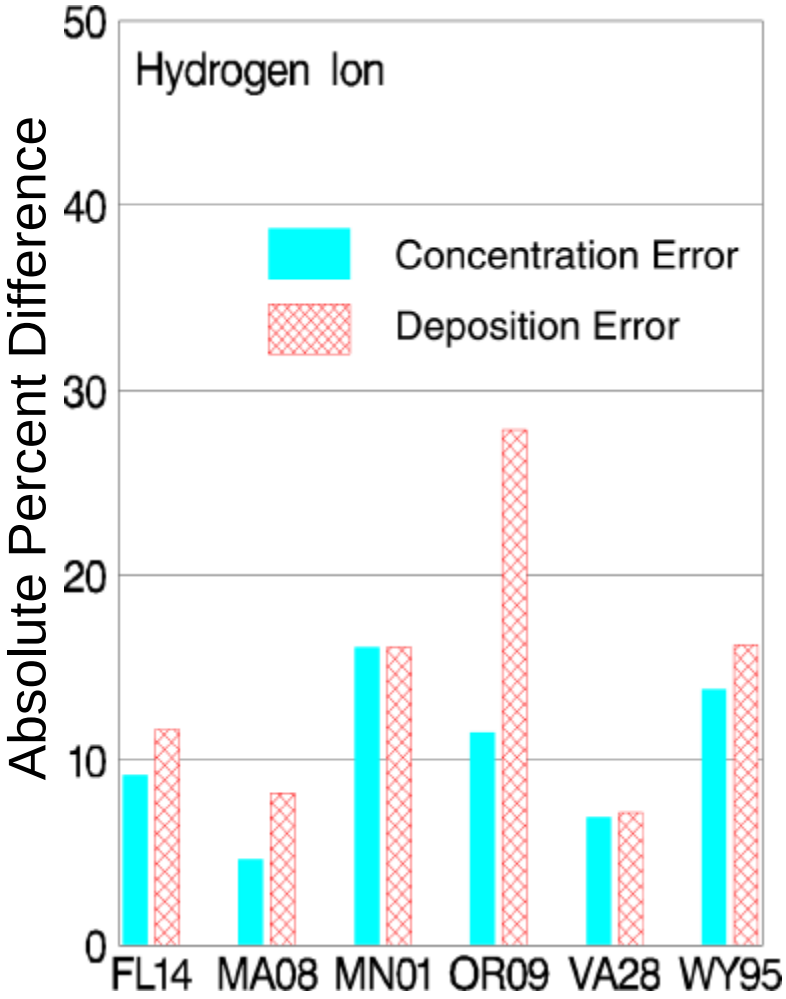
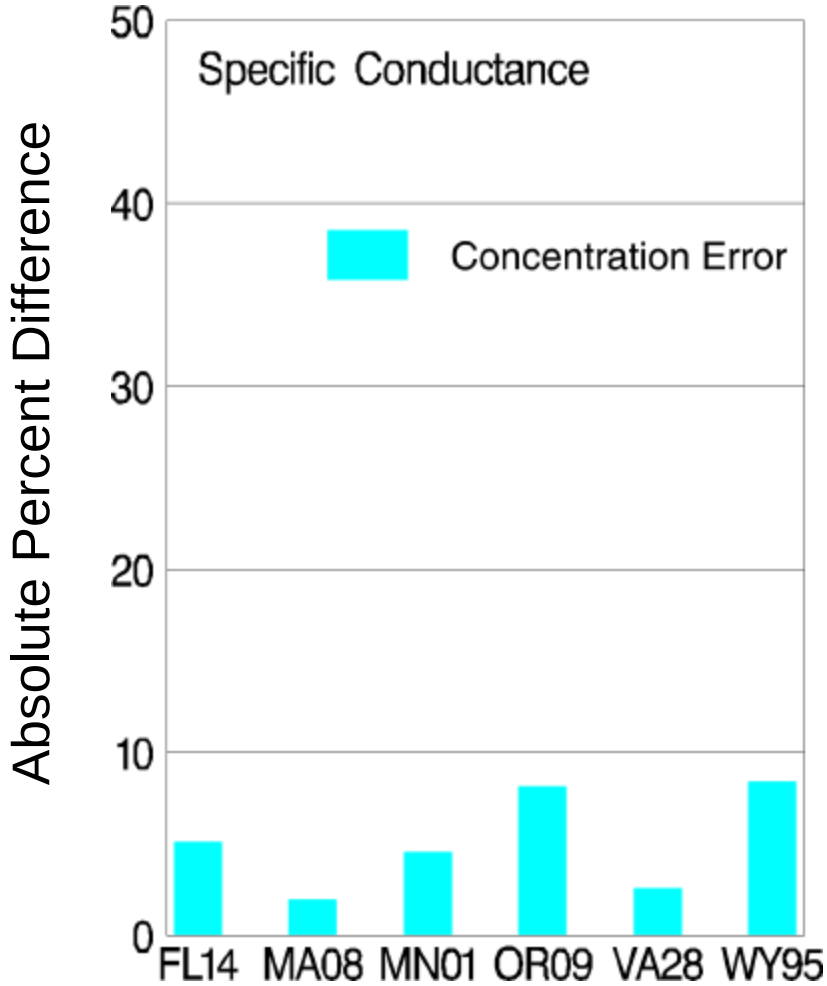

Chloride
Concentration Error
Deposition Error
Absolute Percent Difference
50
40
30
20
10
0
FL14
MA08
MN01
OR09
VA28
WY95





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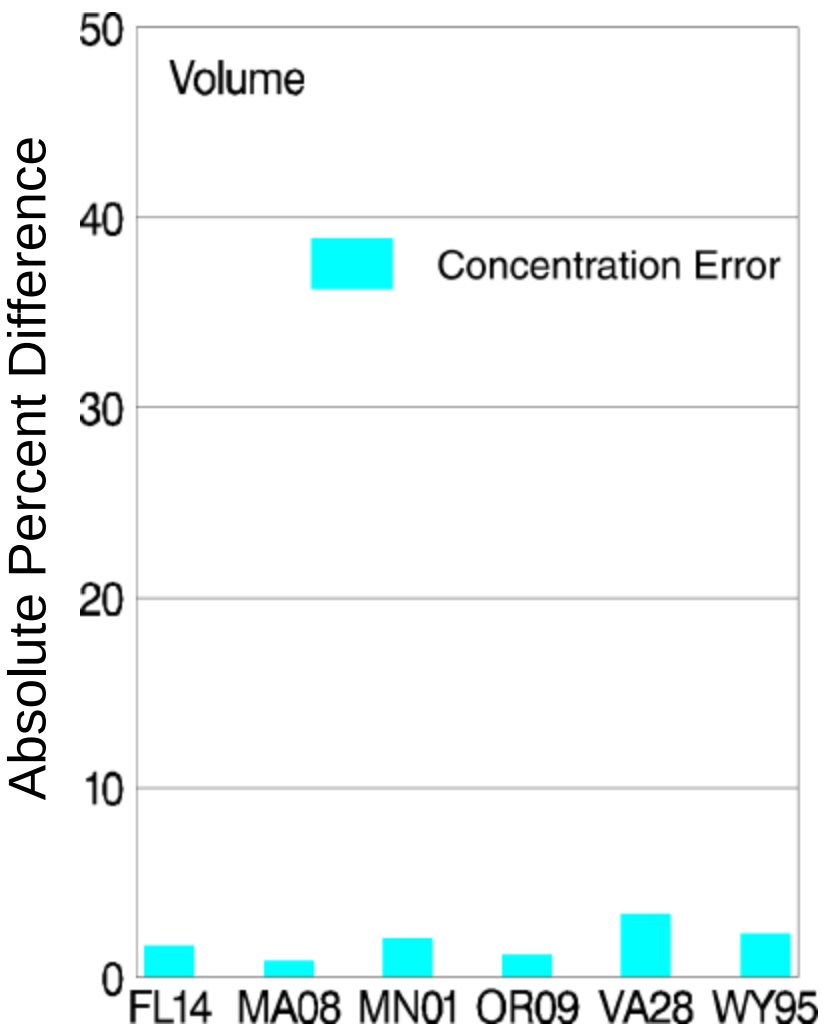

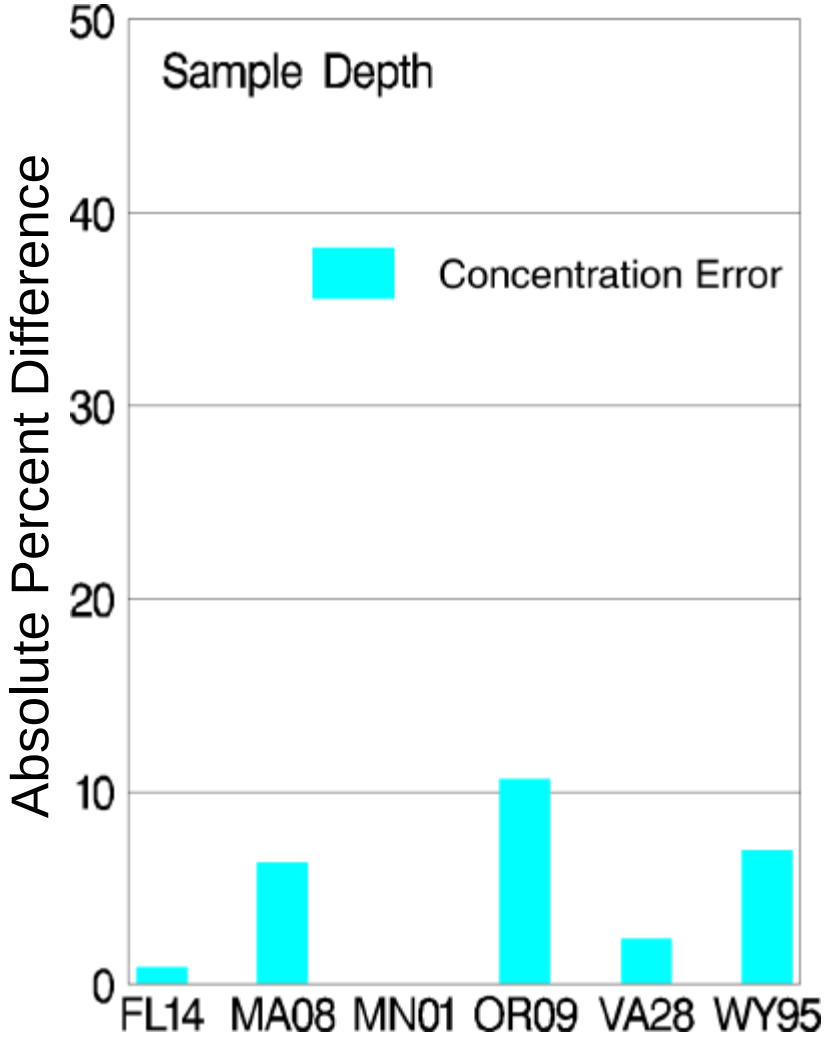

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Nitrate
Concentration and Deposition Differences

SITE ID	RELATIVE CONCENTRATION DIFFERENCE BETWEEN COLLCETORS mg/L	ABSOLUTE CONCENTRATION DIFFERENCE BETWEEN COLLECTORS mg/L	RELATIVE DEPOSITION DIFFERENCE BETWEEN COLLECTORS Kg/Hectare	ABSOLUTE DEPOSITION DIFFERENCE BETWEEN COLLECTORS Kg/Hectare
FL14	-0.010	0.040	-0.002	0.036
MA08	0.000	0.035	0.018	0.061
MN01	-0.090	0.090	-0.048	0.057
OR09	-0.020	0.025	-0.020	0.007
VA28	0.005	0.045	-0.013	0.044
WY95	-0.040	0.040	-0.013	0.067

Median Relative Percent Differences

Analyte	FL14	MA08	MN01	OR09	VA28	WY95
Ammonium	0.00	-1.18	-4.08	0.00	0.00	-10.00
Calcium	0.00	1.41	-5.16	-3.03	-3.32	-3.81
Sulfate	-0.65	0.00	-4.80	0.00	0.00	-4.31
Nitrate	-1.26	0.00	-5.07	-9.68	0.92	-4.96
Sample Depth	0.00	3.56	0.00	10.64	-1.86	3.47
Sample Volume	-1.53	-0.26	-1.02	-0.44	1.43	-0.34

Differences between lab and field pH measurements for National Trends Network precipitation samples collected between 1987 and 1999.

Onsite pH measurements are considered more accurate than lab measurements due to chemical changes that occur between the time the sample is analyzed in the field and in the laboratory and may be attributed to: microbial metabolism of organic acids which reduce hydrogen ion concentration in solution between field and laboratory measurements; break-down of particulate matter resulting in delayed neutralization of acid-contributing species; and other chemical changes introduced through sample shipping and handling. Many factors influence these differences including: site locality (including: terrain lithology, wind patterns, availability of basic species derived from soils, vegetation, ground cover, etc.), season, annual precipitation, median pH of precipitation and concentrations of chemical constituents.

Field measurements of hydrogen ion concentration are greater than lab measurements for most samples. Before the protocol change of 1994 field hydrogen ion concentrations exceeded laboratory measurements in 80% of the samples. After the protocol change the percentage declined to 67. After the protocol change, more samples have larger laboratory hydrogen ion concentrations. Samples that experience no change in hydrogen ion concentration between field and lab measurements have the lowest median pH values.

Hydrogen ion differences are greatest for smaller precipitation samples. PH values are influenced by sample size. Smaller samples tend to experience more acidity, due to the high concentrations of ionic species that are washed out during the brief events.

The largest hydrogen ion losses occur for samples with lower pH values. Since the protocol change, hydrogen ion loss between field and laboratory measurements has decreased significantly. Additional hydrogen ion is introduced after field, but before lab measurements in samples with pH values exceeding 5.8. Even though solutions with lower pH values lose more hydrogen ion between field and lab measurements, samples with higher pH values experience larger differences on a percentage basis. A change of several ?eq/L for higher pH samples affects the sample pH more greatly than samples of lower pH, due to the logarithmic nature of the pH scale. Western sites generally measure higher median pH values. Overall, pH differences between field and laboratory measurements have decreased after the protocol change for the entire Network. Before the protocol change the median difference was 0.13 pH units, after the protocol change the median difference decreased to 0.04 pH units.

Differences in hydrogen ion concentration between field and laboratory measurements are dependent upon the initial precipitation pH, which is dependent on concentration and ratios of neutralizing to acidic species. Physical parameters such snow, vegetation cover, wind conditions and source location control the amount of ions emitted into the atmosphere from natural sources. Time between collection and the precipitation event (and, time between field and lab analysis) influences the degree of change the sample may experience. Chemical changes occur as the precipitation sample equilibrates with the bucket. Delayed neutralization and microbial digestion of organic acids will change hydrogen ion concentration between field and laboratory measurements. Microbial population in the precipitation sample is temperature, hence season, dependent. Oxidation of SO_3 will contribute hydrogen ion to the solution, resulting in a lower laboratory pH value. However, concentration of SO_3 is low in the atmosphere. Delayed neutralization of particulates such as $CaCO_3$ and $MgCO_3$ will result in decreased hydrogen ion concentration. Seasonality will also contribute to hydrogen differences. Biological activity is especially high in the summer months, contributing high sulfate concentrations to the atmosphere during that time, resulting in lower precipitation pH. Differences in removal of acidic species by different precipitation regimes (snow versus rain) will also affect the sulfuric and nitric ratios.

Conclusion: Field pH measurements are useful in determining the initial sample chemistry since laboratory measurements overestimate the pH in 67% of the precipitation samples due to chemical changes that occur between the two measurements. Increasing precipitation pH, due to reduced emissions of acidic species, will result in increasing discrepancies between field and laboratory pH measurements.

EPA External Audit Site Sketches

Program Office Use

Progress

- completed 160 total to date
- about 40 completed per month
- all sketches for the 98/99 and 00/01 visits can be complete in about 8 months if work continues at the current pace
- we are spending about 10-20 hours per week on this task
- CSU history files regarding remedial action are being evaluated

Methods

- time-consuming job
- involves correcting and integrating information from the hand-drawn ATS sketches, the table listing objects within 30 meters of the collector, and evaluating the photo suite
- a template is filled in with each sites unique characteristics in Adobe Illustrator 8
- sketches are then reviewed for accuracy

Suggestions for future work

(1) Send the draft sketches to site supervisors and operators for their confirmation of the information.

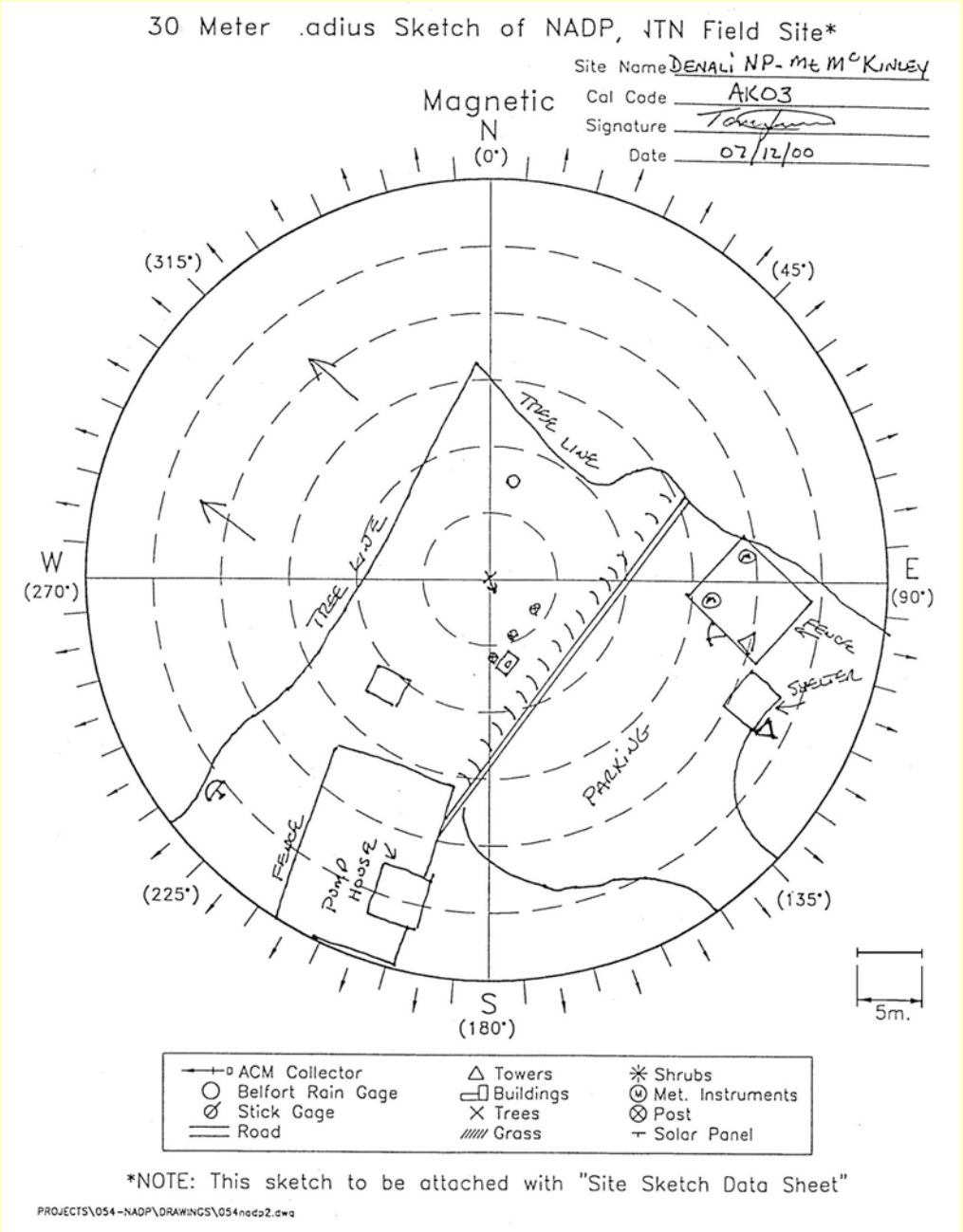
(2) Once the information is confirmed, add the sketches to the NADP Web page, accompanying the GIS and photograph library. A text page listing descriptions of the obstructions would accompany the sketches. We are considering links to pictures of the obstructions in violation.

Suggestions for future work (cont.)

3) We'd like the contractor to have the instruments needed to measure accurately the azimuth, slope, and distance.

(4) For the next round of site visits, we would provide these sketches to the contractor and we'd like the contractor to make updates, as needed.

MATERIALS THE PROGRAM OFFICE CURRENTLY RECEIVES FROM THE SITE AUDIT TEAM


30 Meter .adius Sketch of NADP, ITN Field Site*
Site Name DENALI NP- Mt McKINLEY
Cal Code AK03
Signature
Date 07/12/00
Magnetic
N
(0°)
(45°)
E
(90°)
(135°)
S
(180°)
(225°)
W
(270°)
(315°)
TREE LINE
TREE LINE
FENCE
PUMP HOUSE
PARKING
FENCE
SHELTER
5m.
ACM Collector
Belfort Rain Gage
Stick Gage
Road
Towers
Buildings
Trees
Grass
Shrubs
Met. Instruments
Post
Solar Panel
*NOTE: This sketch to be attached with "Site Sketch Data Sheet"
PROJECTS\054-NADP\DRAWINGS\054nadp2.dwg

NADP / NTN SITE SKETCH DATA SHEET

STATION ID: **AK03** **DATE** 07/12/ 00 BY: T. JONES

	DISTANCE(m)	AZIMUTH(deg)	DESCRIPTION
1	16.0	4	CORNER TREE LINE
2	7.2	19	BELFORT
3	10.5	57	CORNER TREE LINE AT TOP EDGE OF HILL
4	20.0	88	CORNER FENCE
5	19.0	93	MET. INSTRUMENT
6	14.7	104	CORNER FENCE
7	16.5	10	MET. INSTRUMENT
8	19.9	113	MET. TOWER
9	20.7	117	CORNER FENCE AND SHED
10	19.0	127	CORNER OF SHED
11	23.5	128	MET. TOWER
12	9.9	98	WATER LINE BOTTOM HILL
13	3.9	128	VENT POST
14	8.7	152	WATER LINE BOTTOM HILL
15	4.6	171	VENT POST
16	7.2	180	MAN HOLE COVER
17	6.1	188	VENT POST
18	15.8	198	CORNER FENCE
19	22.8	200	CORNER PUMP HOUSE SHED
20	17.0	232	CORNER FENCE
21	9.8	227	CORNER SHED
22	10.1	241	CORNER SHED
23	25.7	243	SATELLITE DISH
24	10.1	274	TREE LINE
25			
26			
27			
28			
29			
30			

SITE DATA.WK4 REV 0 DATA 3/16/98

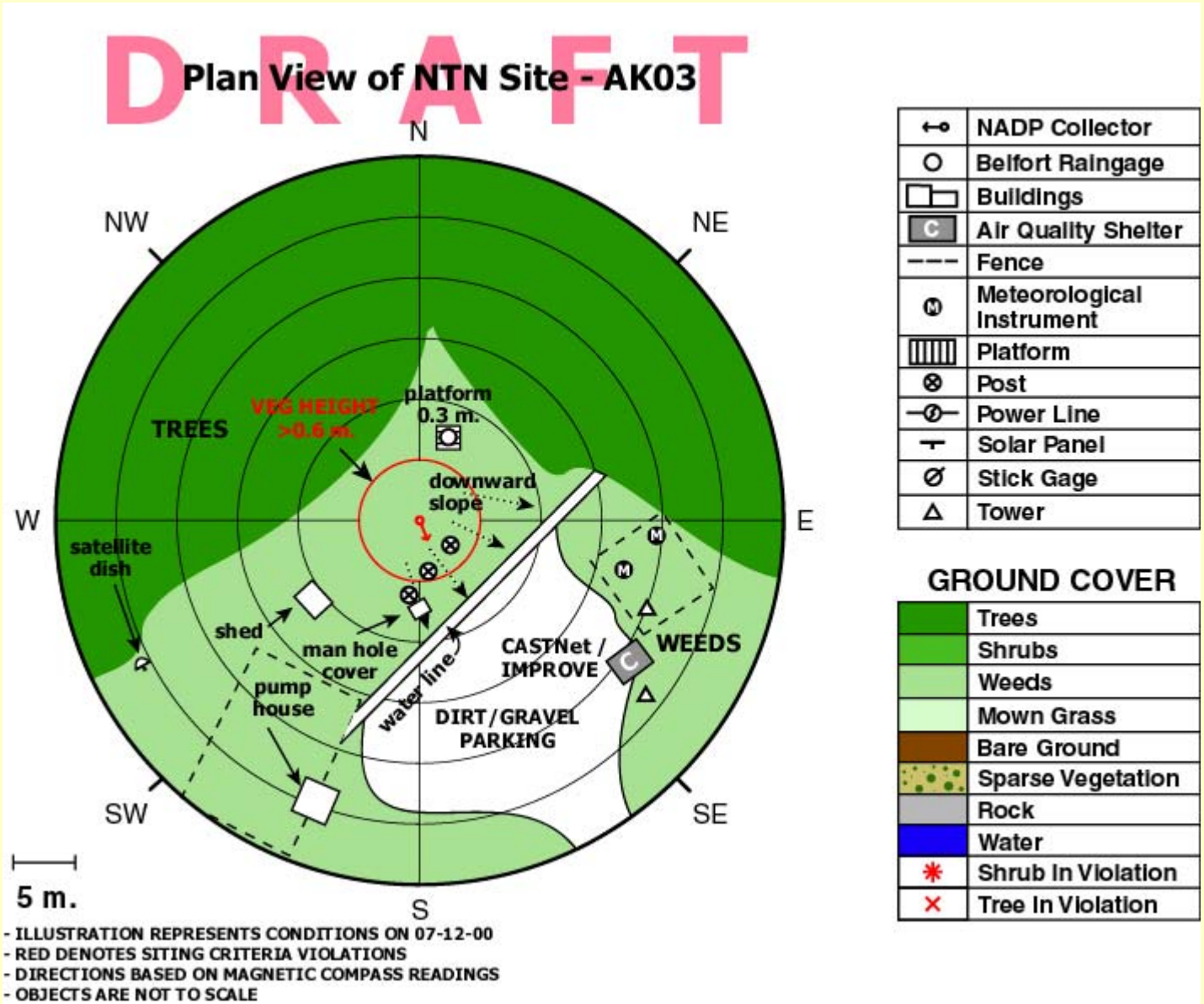
FILE NAME AK03 DWG

EXAMPLES

DRAFT SKETCHES

ANNOTATED OBJECT LISTS

HISTORIC REMEDIAL ACTION FILES


DRAFT
Plan View of NTN Site - AK03
N
NW
NE
W
E
SW
SE
S
TREES
VEG HEIGHT >0.6 m.
platform 0.3 m.
downward slope
satellite dish
shed
man hole cover
pump house
water line
CASTNet / IMPROVE
C
WEEDS
DIRT/GRAVEL PARKING
5 m.
- ILLUSTRATION REPRESENTS CONDITIONS ON 07-12-00
- RED DENOTES SITING CRITERIA VIOLATIONS
- DIRECTIONS BASED ON MAGNETIC COMPASS READINGS
- OBJECTS ARE NOT TO SCALE
NADP Collector
Belfort Raingage
Buildings
Air Quality Shelter
Fence
Meteorological Instrument
Platform
Post
Power Line
Solar Panel
Stick Gage
Tower
GROUND COVER
Trees
Shrubs
Weeds
Mown Grass
Bare Ground
Sparse Vegetation
Rock
Water
Shrub In Violation
Tree In Violation

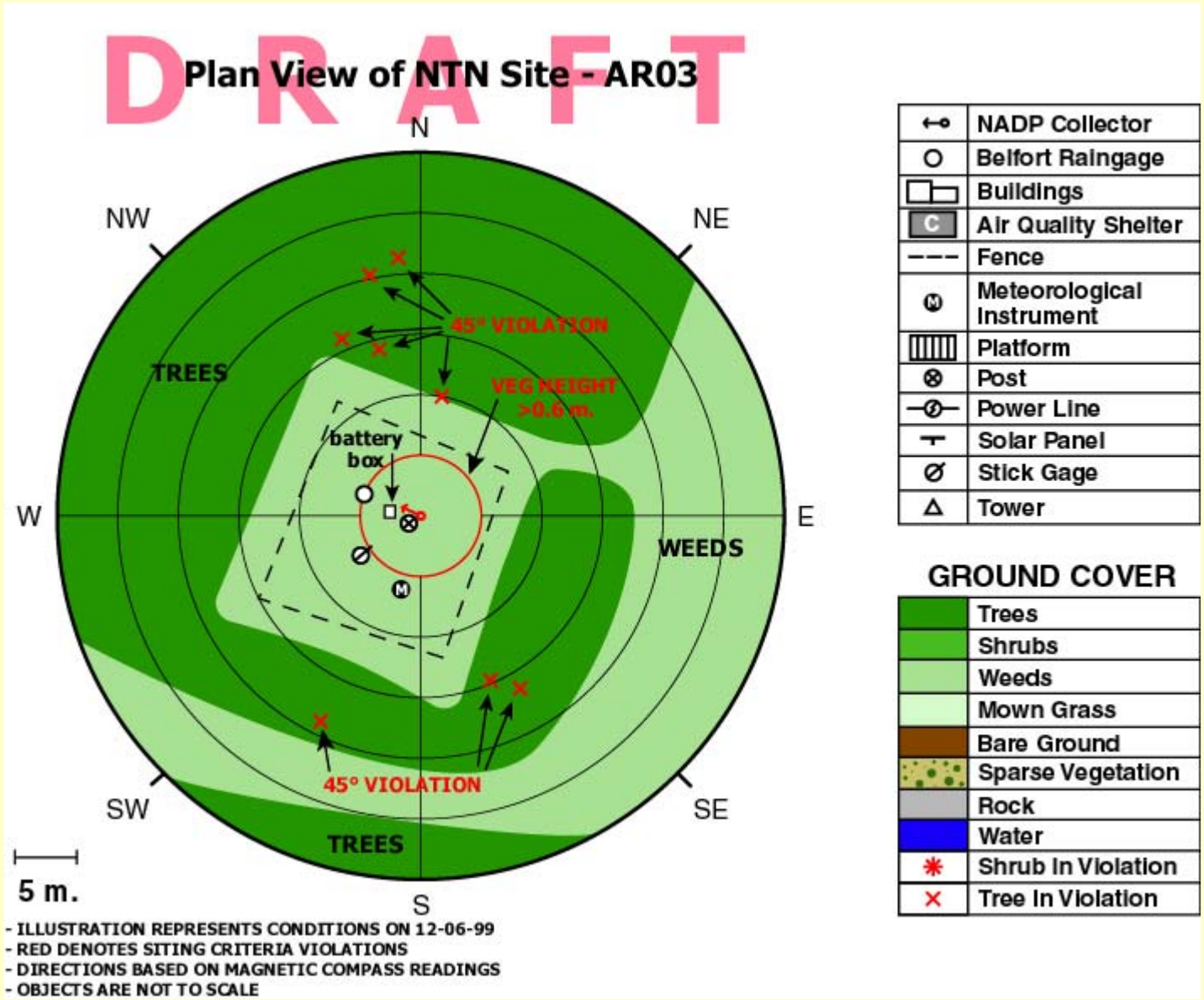
NADP / NTN SITE SKETCH DATA SHEET

STATION ID: **AK03** **DATE** 07/12/00

	DISTANCE (m)	AZIMUTH (deg)	DESCRIPTION
1	16.0	4	CORNER TREE LINE
2	7.2	19	BELFORT
3	10.5	57	CORNER TREE LINE AT TOP EDGE OF HILL
4	20.0	88	CORNER FENCE
5	19.0	93	MET. INSTRUMENT
6	14.7	104	CORNER FENCE
7	16.5	10	MET. INSTRUMENT
8	19.9	113	MET. TOWER
9	20.7	117	CORNER FENCE AND SHED
10	19.0	127	CORNER OF SHED
11	23.5	128	MET. TOWER
12	9.9	98	WATER LINE BOTTOM HILL
13	3.9	128	VENT POST
14	8.7	152	WATER LINE BOTTOM HILL
15	4.6	171	VENT POST
16	7.2	180	MAN HOLE COVER
17	6.1	188	VENT POST
18	15.8	198	CORNER FENCE
19	22.8	200	CORNER PUMP HOUSE SHED
20	17.0	232	CORNER FENCE
21	9.8	227	CORNER SHED
22	10.1	241	CORNER SHED
23	25.7	243	SATELLITE DISH
24	10.1	274	TREE LINE
25			
26			
27			
28			
29			
30			

VIOLATION		ACTIONS	
Date	Description	Date	Correction
9 Sep 86	slope >15%	9 Sep 86	no action/**no exemption**
9 Sep 86	>1m objects w/in 5m	9 Sep 86	no action/**no exemption**
9 Sep 86	veg > 0.6m	9 Sep 86	no action/**no exemption**
21 Jul 88	wb to S	17 Feb 92	**exemption:** prevailing weather from S
21 Jul 88	veg > 0.6m	19 Jun 89	informed site
15 Jul 91	trees and shrubs w/in 5m	12 Mar 92	veg removed summers of 1992 & 1993
15 Jul 91	fireweed > 0.6m (from photos)	12 Mar 92	requested trimming on regular basis
19 Jul 94	slope > 15% in several directions		
19 Jul 94	building (2.5m wide x 2.5m tall)10m to 213deg		
19 Jul 94	building (5m wide x 3.5m tall)23m to 180deg		
		19 Jul 94	no action/**no exemption**
		19 Jul 94	no action/**no exemption**
		19 Jul 94	no action/**no exemption**

AK03


DRAFT
Plan View of NTN Site - AR03
N
NW
NE
W
E
SW
SE
S
TREES
TREES
WEEDS
45° VIOLATION
45° VIOLATION
VEG HEIGHT >0.6 m.
battery box
5 m.
- ILLUSTRATION REPRESENTS CONDITIONS ON 12-06-99
- RED DENOTES SITING CRITERIA VIOLATIONS
- DIRECTIONS BASED ON MAGNETIC COMPASS READINGS
- OBJECTS ARE NOT TO SCALE
NADP Collector
Belfort Raingage
Buildings
Air Quality Shelter
Fence
Meteorological Instrument
Platform
Post
Power Line
Solar Panel
Stick Gage
Tower
GROUND COVER
Trees
Shrubs
Weeds
Mown Grass
Bare Ground
Sparse Vegetation
Rock
Water
Shrub In Violation
Tree In Violation

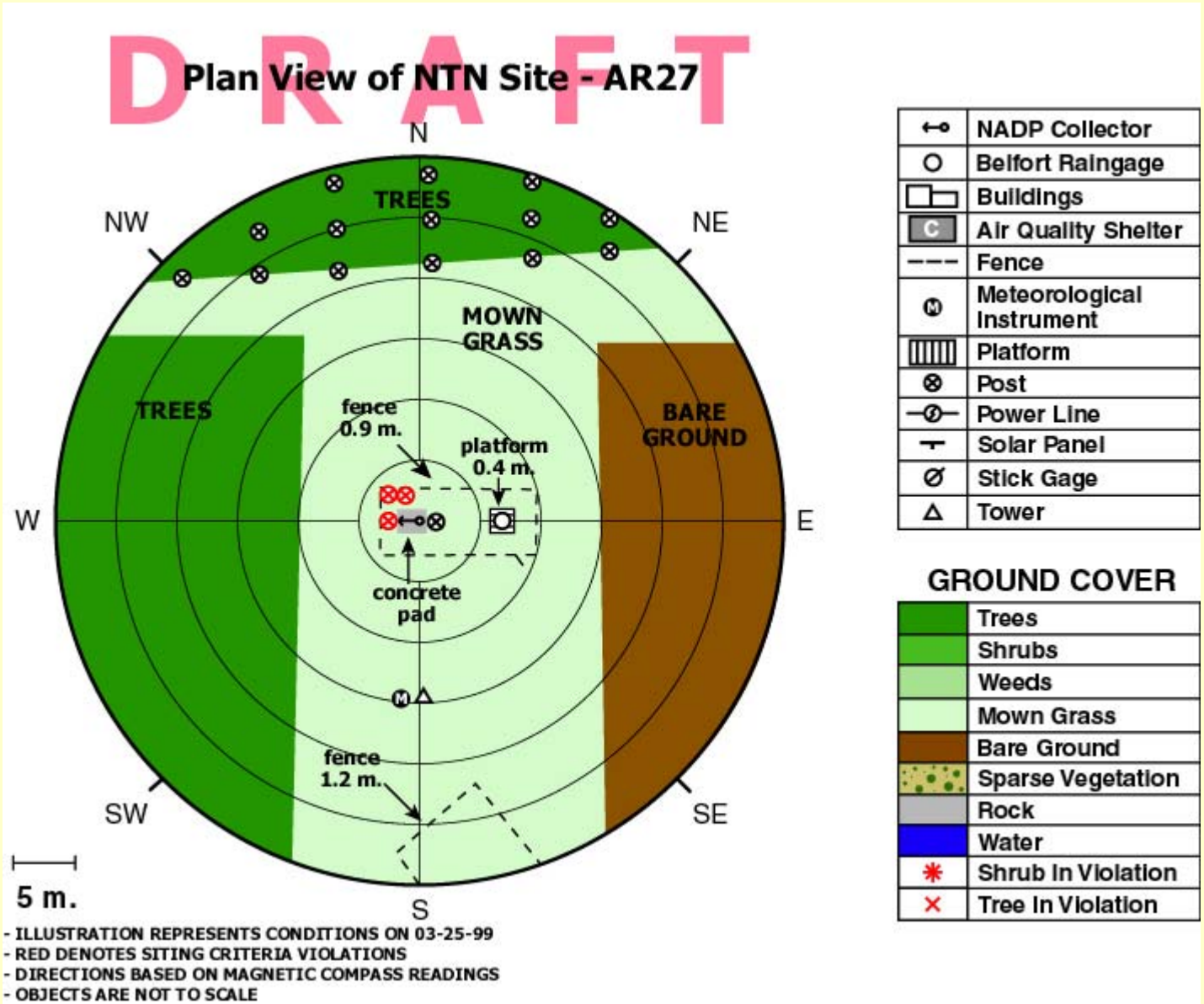
NADP / NTN SITE SKETCH DATA SHEET

STATION ID AR03 DATE 12/06/99

	DISTANCE (m)	AZIMUTH (deg)	DESCRIPTION
1	10.0	10	TREE (45 DEGREE VIOLATION)
	2	11.4	51 TREE LINE
3	8.6	63	FENCE CORNER
4	11.4	70	TREE LINE
5	8.2	113	TREE LINE
6	16.2	150	TREE (45 DEGREE VIOLATION)
7	14.8	157	TREE (45 DEGREE VIOLATION)
8	15.6	166	TREE LINE
9	12.3	171	FENCE CORNER
10	6.4	195	MET. INSTRUMENT
11	18.0	206	TREE (45 DEGREE VIOLATION)
12	12.9	230	TREE LINE
13	15.4	243	FENCE CORNER
14	19.5	245	TREE LINE
15	14.5	267	TREE LINE
16	5.1	291	BELFORT RAIN GAUGE
17	15.3	316	TREE LINE
18	12.6	324	FENCE CORNER
19	16.1	336	TREE (45 DEGREE VIOLATION)
20	14.1	346	TREE (45 DEGREE VIOLATION)
21	20.5	348	TREE (45 DEGREE VIOLATION)
22	21.0	355	TREE (45 DEGREE VIOLATION)
23			
24			
25			
26			
27			
28			
29			
30			

	VIOLATION		ACTIONS
Date	Description	Date	Correction
29 Aug 94	Arkadelphia (10,000) ~4km to SE	29 Aug 94	no action/**no exemption**
29 Aug 94	wet bucket to WNW, (295deg)	29 Aug 94	no action/**no exemption**

AR03


DRAFT
Plan View of NTN Site - AR27
N
NW
NE
W
E
SW
SE
S
TREES
MOWN GRASS
TREES
BARE GROUND
fence 0.9 m.
platform 0.4 m.
concrete pad
fence 1.2 m.
5 m.
- ILLUSTRATION REPRESENTS CONDITIONS ON 03-25-99
- RED DENOTES SITING CRITERIA VIOLATIONS
- DIRECTIONS BASED ON MAGNETIC COMPASS READINGS
- OBJECTS ARE NOT TO SCALE
NADP Collector
Belfort Raingage
Buildings
Air Quality Shelter
Fence
Meteorological Instrument
Platform
Post
Power Line
Solar Panel
Stick Gage
Tower
GROUND COVER
Trees
Shrubs
Weeds
Mown Grass
Bare Ground
Sparse Vegetation
Rock
Water
Shrub In Violation
Tree In Violation

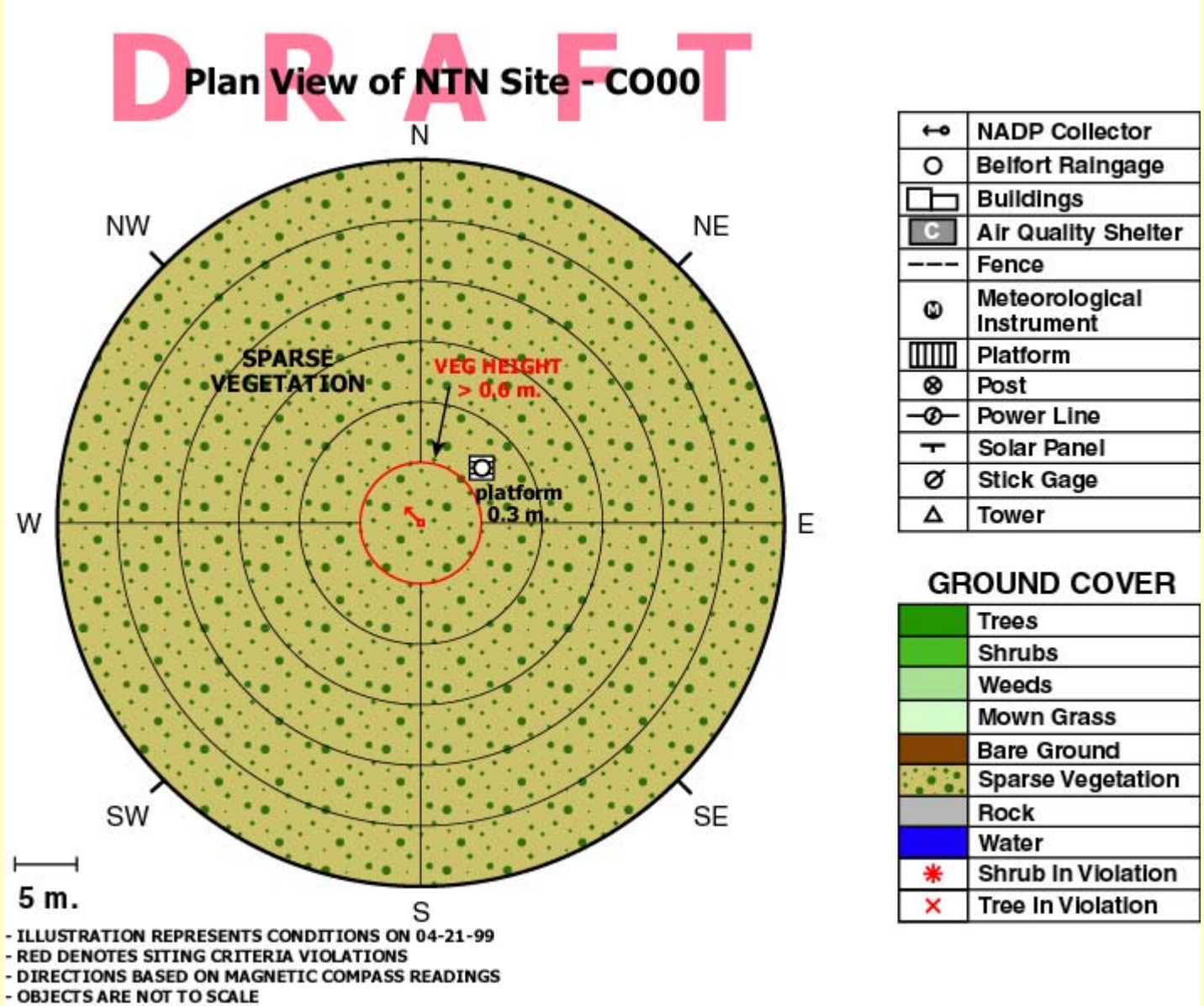
NADP / NTN SITE SKETCH DATA SHEET

STATION ID **AR27** **DATE** 03/25/99

	DISTANCE (m)	AZIMUTH (deg)	DESCRIPTION
1	23.3	28	POST
2	21.0	45	CORNER PLOWED FIELD
3	10.1	75	CORNER 3 FOOT CYCLONE FENCE
4	6.8	90	BELFORT
5	10.2	108	CORNER 3 FOOT CYCLONE FENCE
6	23.2	139	EDGE PLOWED FIELD
7	22.0	168	CORNER 4 FOOT CYCLONE FENCE
8	14.4	179	TOWER
9	14.8	186	MET INSTRUMENT
10	27.5	184	CORNER 4 FOOT CYCLONE FENCE
11	28.0	202	TREE LINE
12	3.7	221	CORNER 3 FOOT CYCLONE FENCE
13	11.6	228	TREE LINE
14	3.8	318	CORNER 3 FOOT CYCLONE FENCE
15	17.1	328	CORNER TREE LINE
16	21.9	342	POST
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

	VIOLATION		ACTIONS
Date	Description	Date	Correction
26 Aug 94	Fayetteville, AR (42,000) ~1km to S	26 Aug 94	no action/**no exemption**
26 Aug 94	Springdale, AR (30,000) ~6km to NE	26 Aug 94	no action/**no exemption**

AR27


DRAFT
Plan View of NTN Site - CO00
N
NW
NE
W
E
SW
SE
S
SPARSE VEGETATION
VEG HEIGHT > 0.0 m.
platform 0.3 m.
5 m.
- ILLUSTRATION REPRESENTS CONDITIONS ON 04-21-99
- RED DENOTES SITING CRITERIA VIOLATIONS
- DIRECTIONS BASED ON MAGNETIC COMPASS READINGS
- OBJECTS ARE NOT TO SCALE
NADP Collector
Belfort Raingage
Buildings
Air Quality Shelter
Fence
Meteorological Instrument
Platform
Post
Power Line
Solar Panel
Stick Gage
Tower
GROUND COVER
Trees
Shrubs
Weeds
Mown Grass
Bare Ground
Sparse Vegetation
Rock
Water
Shrub In Violation
Tree In Violation

NADP / NTN SITE SKETCH DATA SHEET

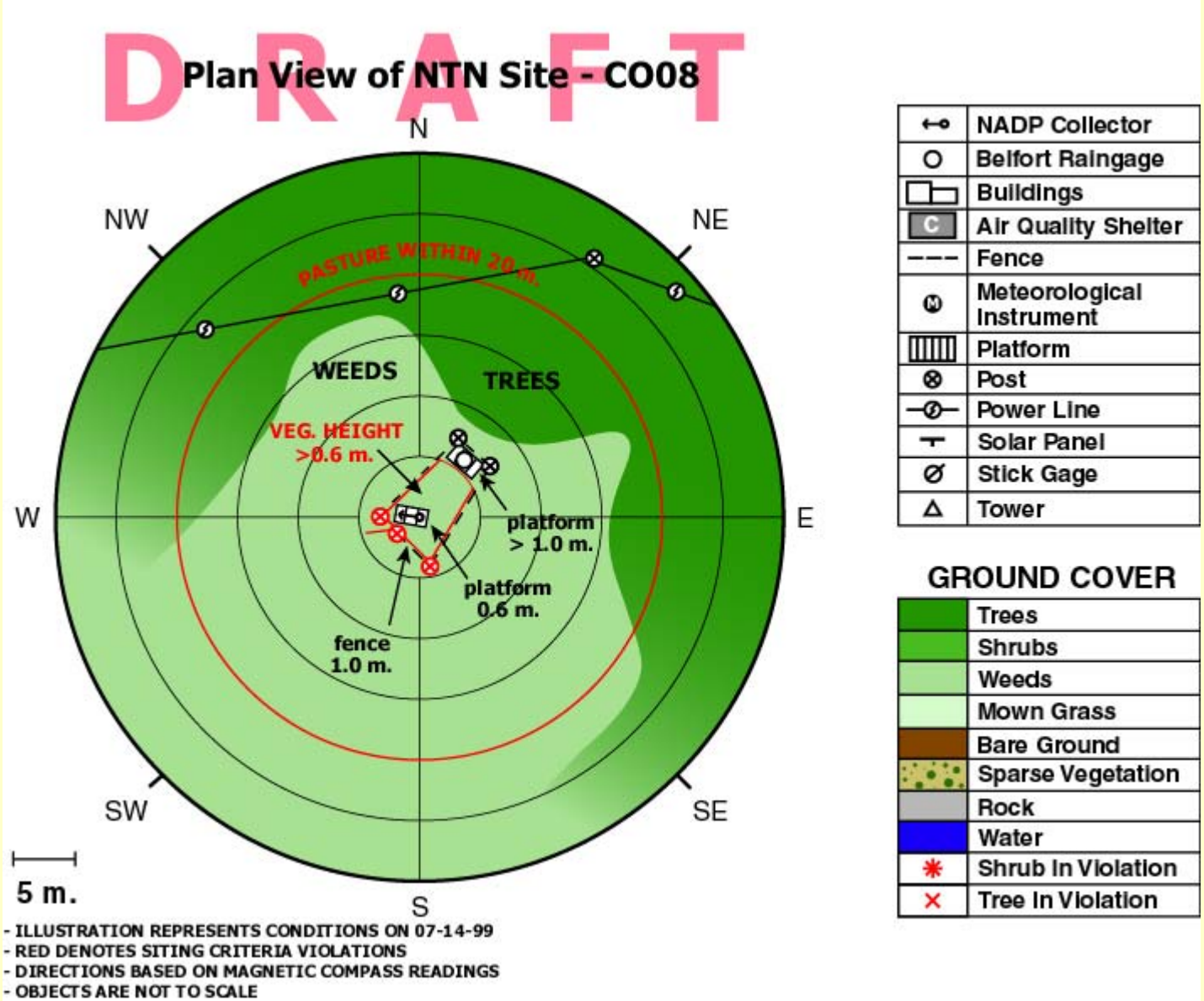
STATION ID **CO00** **DATE** 4/21/99

	DISTANCE (m)	AZIMUTH (deg)	DESCRIPTION
1	7.1	48	BELFORT RAIN GAUGE
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

	VIOLATION
Date	Description
16 Sep 86	Alamosa (~10,000) ~ 2km to N
21 Jun 89	wet bucket to NW (304 deg)
22 Jun 94	parking lot ~100m to E, for airport employees
22 Jun 94	airplanes taxi ~100m to SE,E,NE

	ACTIONS
Date	Correction
16 Sep 86	no action/**no exemption**
3 Jul 90	**Exemption:** minor deviation/toward predominant weather direction
22 Jun 94	no action/**no exemption**
22 Jun 94	no action/**no exemption**

CO00


DRAFT
Plan View of NTN Site - CO08
N
NW
NE
W
E
SW
SE
S
PASTURE WITHIN 20 m.
WEEDS
TREES
VEG. HEIGHT
>0.6 m.
platform
> 1.0 m.
platform
0.6 m.
fence
1.0 m.
5 m.
- ILLUSTRATION REPRESENTS CONDITIONS ON 07-14-99
- RED DENOTES SITING CRITERIA VIOLATIONS
- DIRECTIONS BASED ON MAGNETIC COMPASS READINGS
- OBJECTS ARE NOT TO SCALE
NADP Collector
Belfort Raingage
Buildings
Air Quality Shelter
Fence
Meteorological Instrument
Platform
Post
Power Line
Solar Panel
Stick Gage
Tower
GROUND COVER
Trees
Shrubs
Weeds
Mown Grass
Bare Ground
Sparse Vegetation
Rock
Water
Shrub In Violation
Tree In Violation

NADP / NTN SITE SKETCH DATA SHEET

STATION ID **CO08** **DATE** 07/14/99

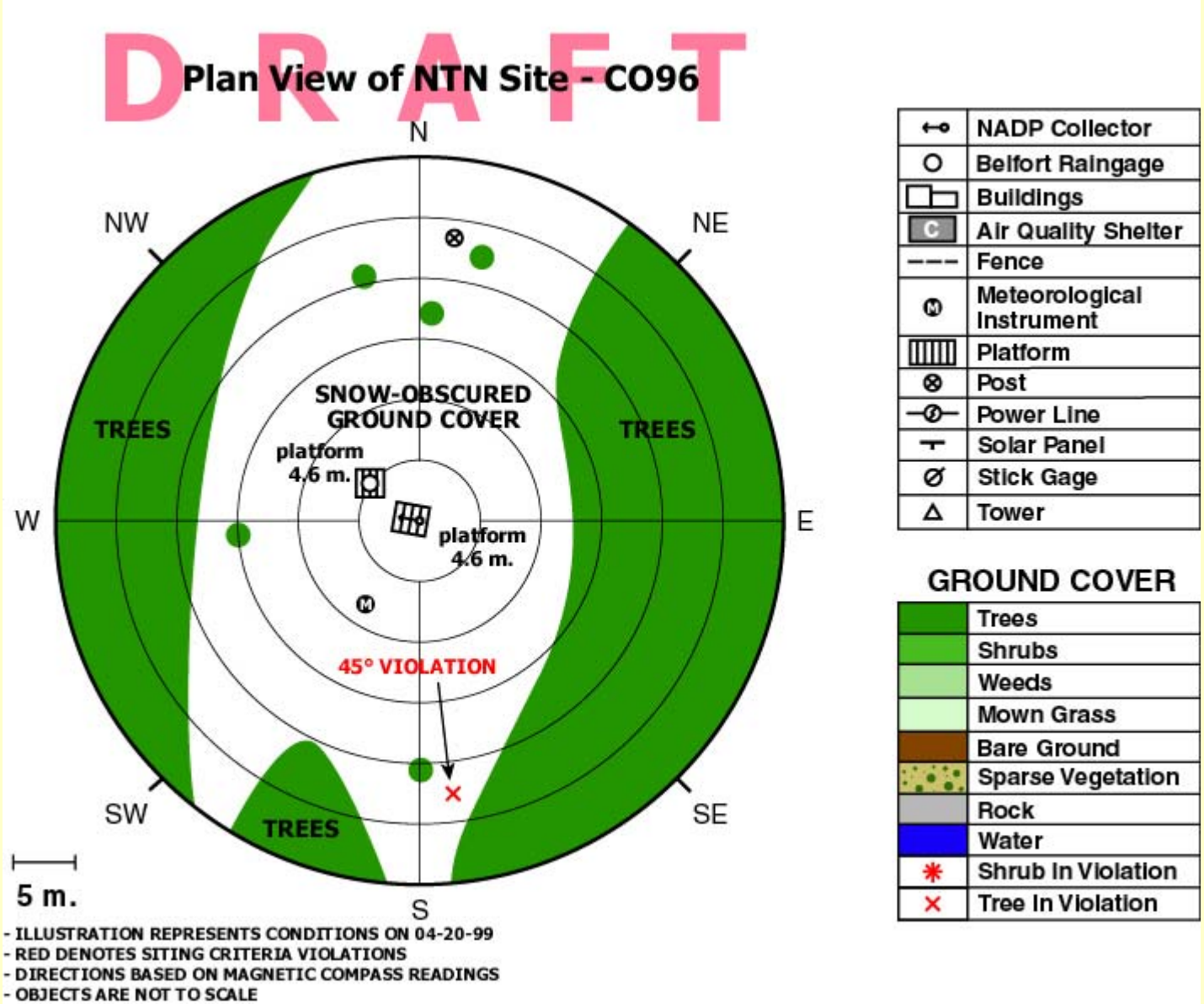
	DISTANCE (m)	AZIMUTH (deg)	DESCRIPTION
1	9.0	20	TREE LINE
2	7.3	26	CORNER FENCE (1 METER BARBED WIRE)
3	26.1	34	POLE
4	6.7	38	BELFORT
5	7.3	54	CORNER FENCE (1 METER BARBED WIRE)
6	18.0	68	TREE LINE
7	16.8	107	TREE LINE
8	4.0	168	CORNER FENCE (1 METER BARBED WIRE)
9	3.2	270	CORNER FENCE (1 METER BARBED WIRE)
10	14.5	298	TREE LINE
11	17.0	344	TREE LINE
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

	VIOLATION
Date	Description
3 Aug 92	grass and flowers > 0.6m
3 Aug 92	trees in 45deg cone (9.1m tall) to N & E
3 Aug 92	grazing (cows) w/in 5m to NSEW

	ACTIONS
Date	Correction
19 May 93	to cut annual veg <2', at least w/in 5m
18 Jun 93	removed 1 spruce & 5-6 aspen
5 May 94	**Exemption:** cows only present 1 mon/every other year; low density

	VIOLATION		ACTIONS
Date	Description	Date	Correction
14 Aug 95	1.10m wire fence 2.1m to SE & 1.9m to NW	14 Aug 95	no action/**no exemption**
14 Aug 95	grasses 1.05m tall .5m in all dir	14 Aug 95	no action/**no exemption**

CO08


DRAFT
Plan View of NTN Site - CO96
N
NW
NE
W
E
SW
SE
S
TREES
TREES
TREES
SNOW-OBSCURED GROUND COVER
platform 4.6 m.
platform 4.6 m.
45° VIOLATION
5 m.
- ILLUSTRATION REPRESENTS CONDITIONS ON 04-20-99
- RED DENOTES SITING CRITERIA VIOLATIONS
- DIRECTIONS BASED ON MAGNETIC COMPASS READINGS
- OBJECTS ARE NOT TO SCALE
NADP Collector
Belfort Raingage
Buildings
Air Quality Shelter
Fence
Meteorological Instrument
Platform
Post
Power Line
Solar Panel
Stick Gage
Tower
GROUND COVER
Trees
Shrubs
Weeds
Mown Grass
Bare Ground
Sparse Vegetation
Rock
Water
Shrub In Violation
Tree In Violation

NADP / NTN SITE SKETCH DATA SHEET

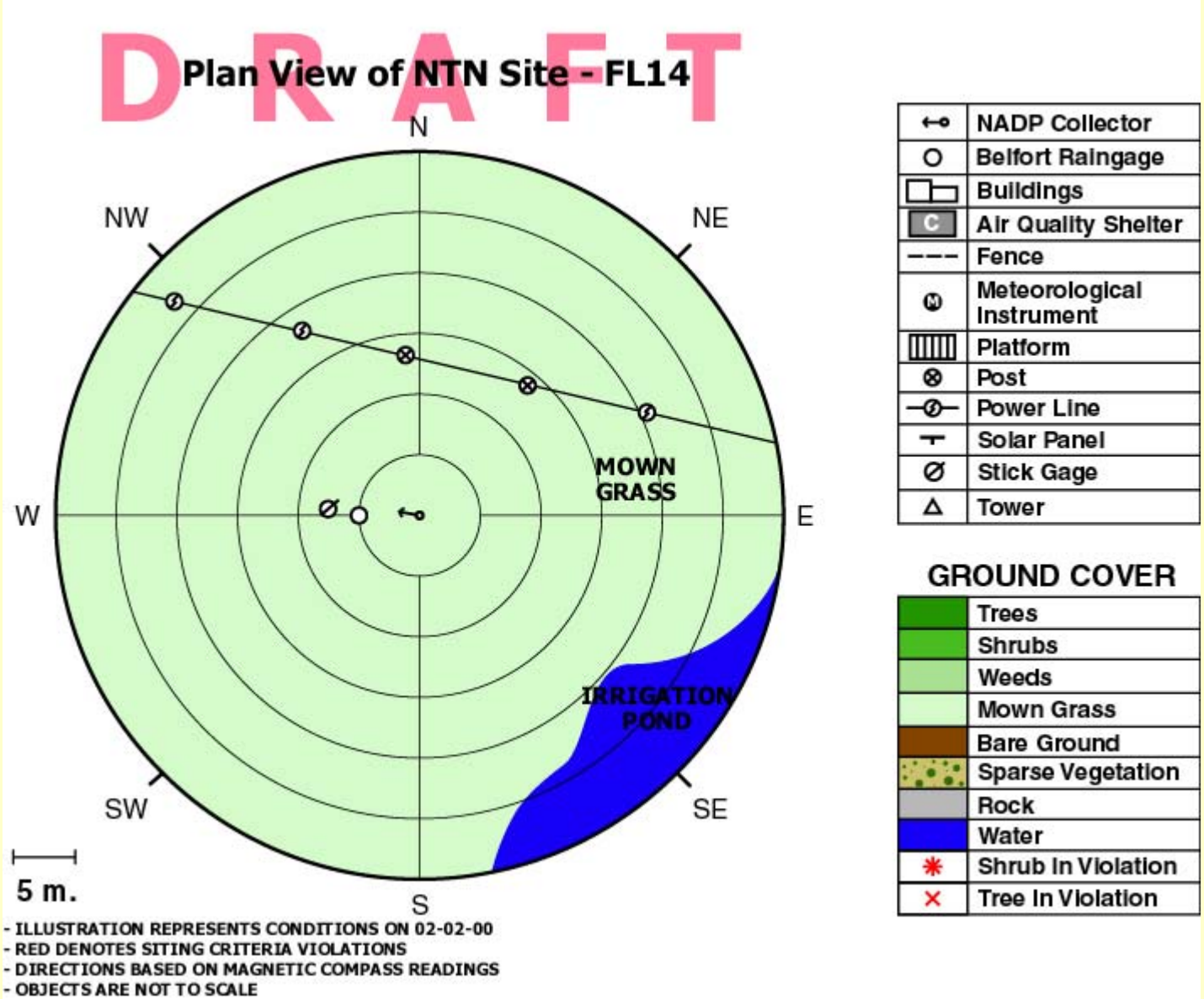
STATION ID **CO96** **DATE** 04/20/99

	DISTANCE (m)	AZIMUTH (deg)	DESCRIPTION
1	17.3	3	TREE
2	23.5	7	ELECTRICAL POLE
3	22.8	13	TREE
4	11.3	42	TREE (NEAR VIOLATION)
5	16.3	42	TREE (LINE)
6	12.3	88	TREE (LINE)
7	15.9	142	TREE (LINE)
8	22.8	173	TREE (45 DEGREE VIOLATION)
9	20.7	180	TREE
10	21.5	204	TREE (LINE)
11	8.5	213	MET. INSTRUMENT
12	21.9	237	TREE
13	19.9	250	TREE (NEAR VIOLATION)
14	15.0	266	TREE
15	19.7	282	TREE (NEAR VIOLATION)
16	5.1	307	BELFORT RAIN GAUGE
17	24.3	321	TREE (NEAR VIOLATION)
18	27.6	336	TREE (LINE)
19	21.0	347	TREE
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

	VIOLATION
Date	Description
7 Aug 91	grazing (sheep) w/in 20m
21 Jun 94	slope >15deg w/in 30m
21 Jun 94	6 trees with 45 deg violation

	ACTIONS
Date	Correction
20 Apr 93	**Exemption:** sheep are seldom in area; low densi
21 Jun 94	no action/**no exemption**
21 Jun 94	no action/**no exemption**

CO96


DRAFT
Plan View of NTN Site - FL14
N
NW
NE
W
E
SW
SE
S
MOWN GRASS
IRRIGATION POND
5 m.
- ILLUSTRATION REPRESENTS CONDITIONS ON 02-02-00
- RED DENOTES SITING CRITERIA VIOLATIONS
- DIRECTIONS BASED ON MAGNETIC COMPASS READINGS
- OBJECTS ARE NOT TO SCALE
NADP Collector
Belfort Raingage
Buildings
Air Quality Shelter
Fence
Meteorological Instrument
Platform
Post
Power Line
Solar Panel
Stick Gage
Tower
GROUND COVER
Trees
Shrubs
Weeds
Mown Grass
Bare Ground
Sparse Vegetation
Rock
Water
Shrub In Violation
Tree In Violation

NADP / NTN SITE SKETCH DATA SHEET

STATION ID **FL14** **DATE** 02/02/00

	DISTANCE (m)	AZIMUTH (deg)	DESCRIPTION
1	14.0	40	POST
2	4.0	90	ROAD
3	8.0	90	ROAD
4	7.0	270	STICK GAGE
5	5.12	70	RAIN GAGE
6	14.0	270	ROAD
7	13	355	POST
8			
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10			
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18			
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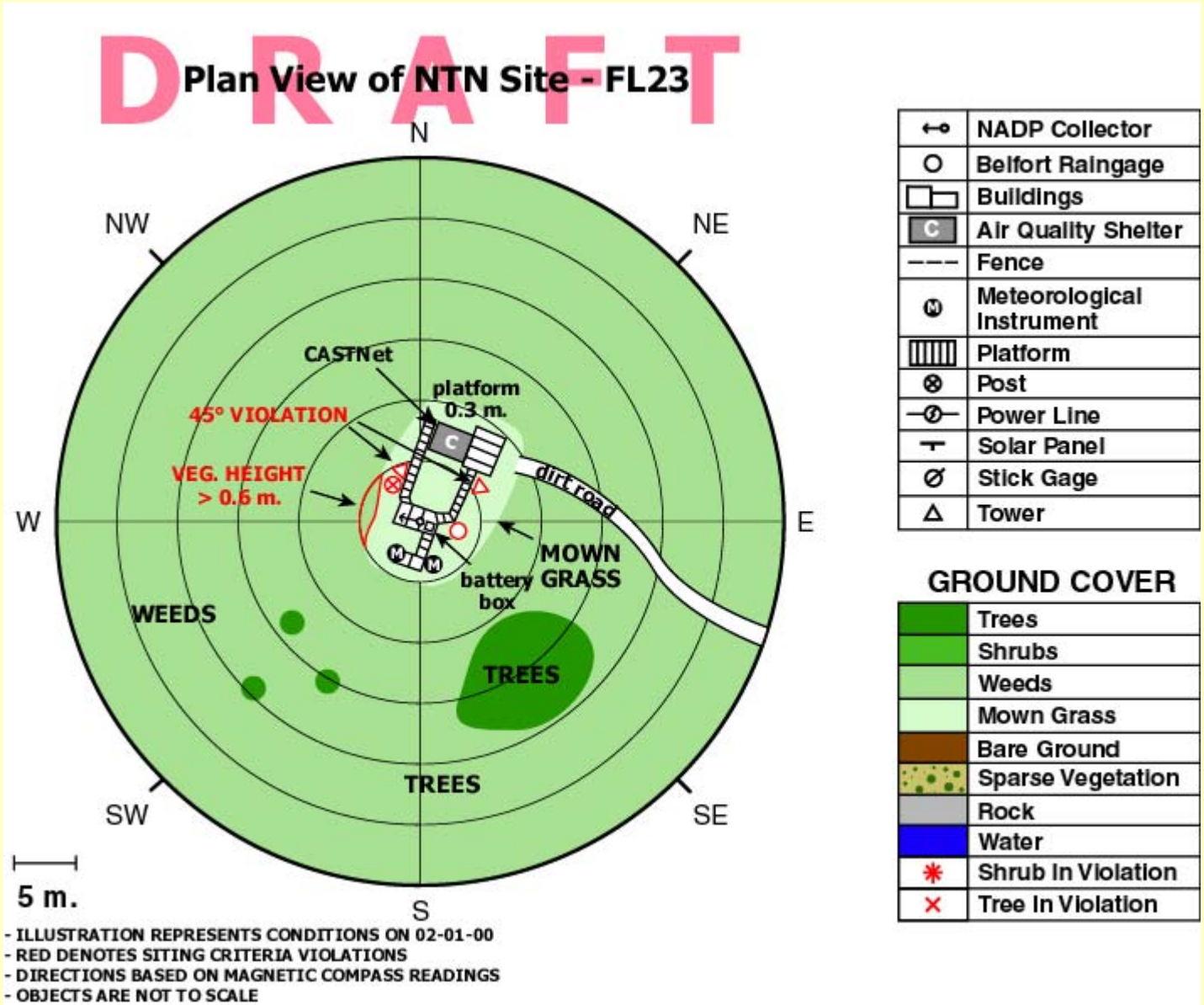
22			
23			
24			
25			
26			
27			
28			
29			
30			

VIOLATION		ACTIONS	
Date	Description	Date	Correction
4 Feb 85	grazing w/in 20m	4 Feb 85	no action/**no exemption**
24 Feb 87	slope >15%, veg > 2'	19 Jul 89	informed site

FL14


DRAFT
Plan View of NTN Site - FL23
N
NW
NE
W
E
SW
SE
S
CASTNet
platform
0.3 m.
45° VIOLATION
VEG. HEIGHT
> 0.6 m.
C
dirt road
MOWN
GRASS
battery
box
WEEDS
TREES
TREES
5 m.
- ILLUSTRATION REPRESENTS CONDITIONS ON 02-01-00
- RED DENOTES SITING CRITERIA VIOLATIONS
- DIRECTIONS BASED ON MAGNETIC COMPASS READINGS
- OBJECTS ARE NOT TO SCALE
NADP Collector
Belfort Raingage
Buildings
Air Quality Shelter
Fence
Meteorological Instrument
Platform
Post
Power Line
Solar Panel
Stick Gage
Tower
GROUND COVER
Trees
Shrubs
Weeds
Mown Grass
Bare Ground
Sparse Vegetation
Rock
Water
Shrub In Violation
Tree In Violation

NADP / NTN SITE SKETCH DATA SHEET

STATION ID **FL23** **DATE** 02/01/00

	DISTANCE (m)	AZIMUTH (deg)	DESCRIPTION
1	6.7	4	CORNER SHELTER
2	6.9	38	CORNER SHELTER
3	6.0	62	MET TOWER (45 DEGREE VIOLATION)
4	2.9	104	BELFORT
5	3.5	163	MET INSTRUMENT
6	3.7	217	MET INSTRUMENT
7	3.3	328	POST
8	4.1	351	MET TOWER (45 DEGREE VIOLATION)
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
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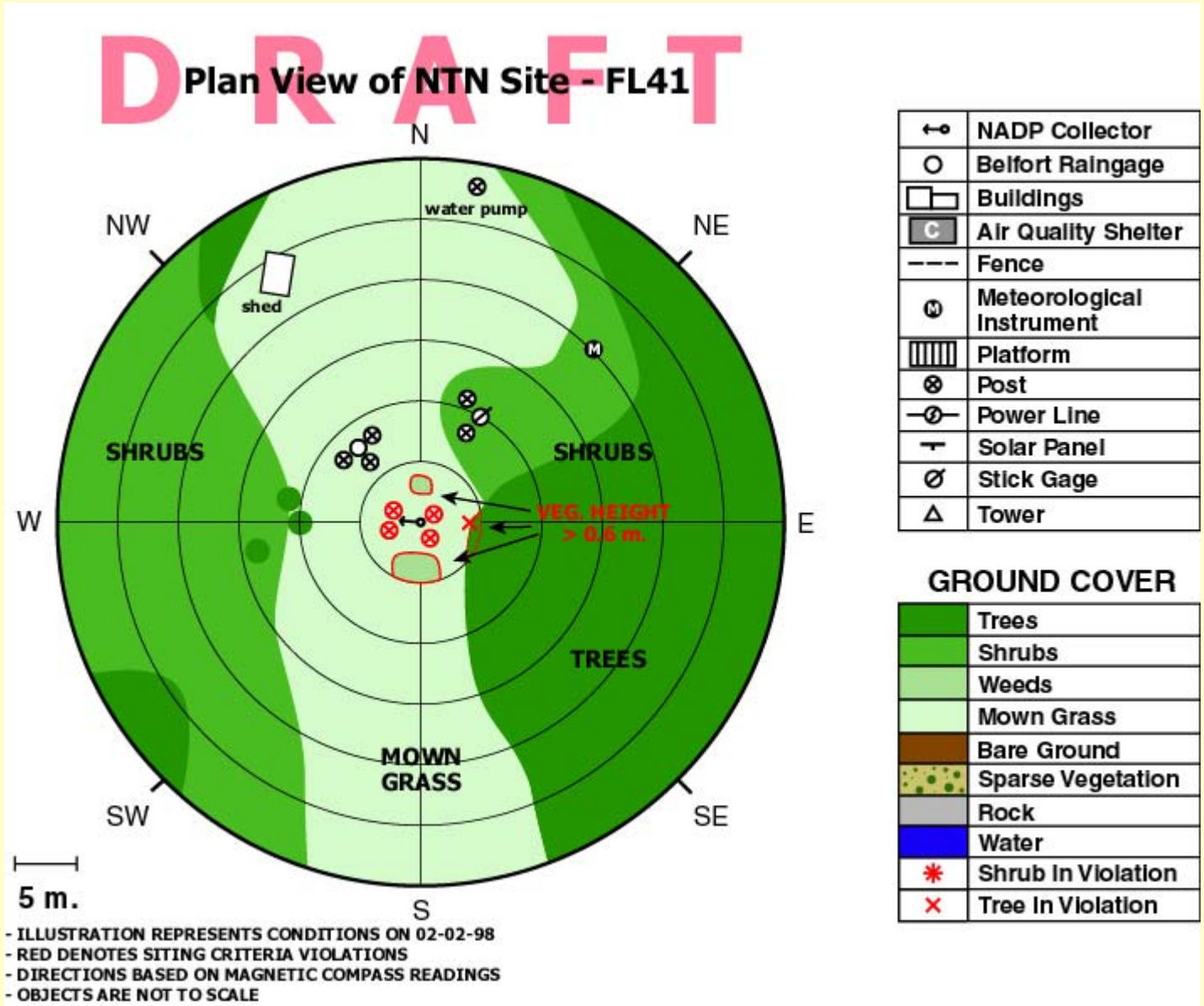
27			
28			
29			
30			

New Site - No Previous Site Reviews

FL23


DRAFT
Plan View of NTN Site - FL41
N
NW
NE
W
E
SW
SE
S
water pump
shed
M
SHRUBS
SHRUBS
VEG. HEIGHT
> 0.6 m.
TREES
MOWN
GRASS
5 m.
- ILLUSTRATION REPRESENTS CONDITIONS ON 02-02-98
- RED DENOTES SITING CRITERIA VIOLATIONS
- DIRECTIONS BASED ON MAGNETIC COMPASS READINGS
- OBJECTS ARE NOT TO SCALE
NADP Collector
Belfort Raingage
Buildings
C
Air Quality Shelter
Fence
M
Meteorological Instrument
Platform
Post
Power Line
Solar Panel
Stick Gage
Tower
GROUND COVER
Trees
Shrubs
Weeds
Mown Grass
Bare Ground
Sparse Vegetation
Rock
Water
Shrub In Violation
Tree In Violation

NADP / NTN SITE SKETCH DATA SHEET

STATION ID FL41 **DATE** 02/02/98

	DISTANCE (m)	AZIMUTH (deg)	DESCRIPTION
1	4.0	270	ROAD
2	10.0	270	TREE
3	12.0	280	TREE
4	14.0	260	TREE
5	8.0	320	BELFORT RAIN GAGE
6	22.0	330	SHED
7	4.0	90	TREE
8	28.0	10	WATER PUMP
9	20.0	45	OLD RAIN GAGE
10	10.0	30	STICK GAGE
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

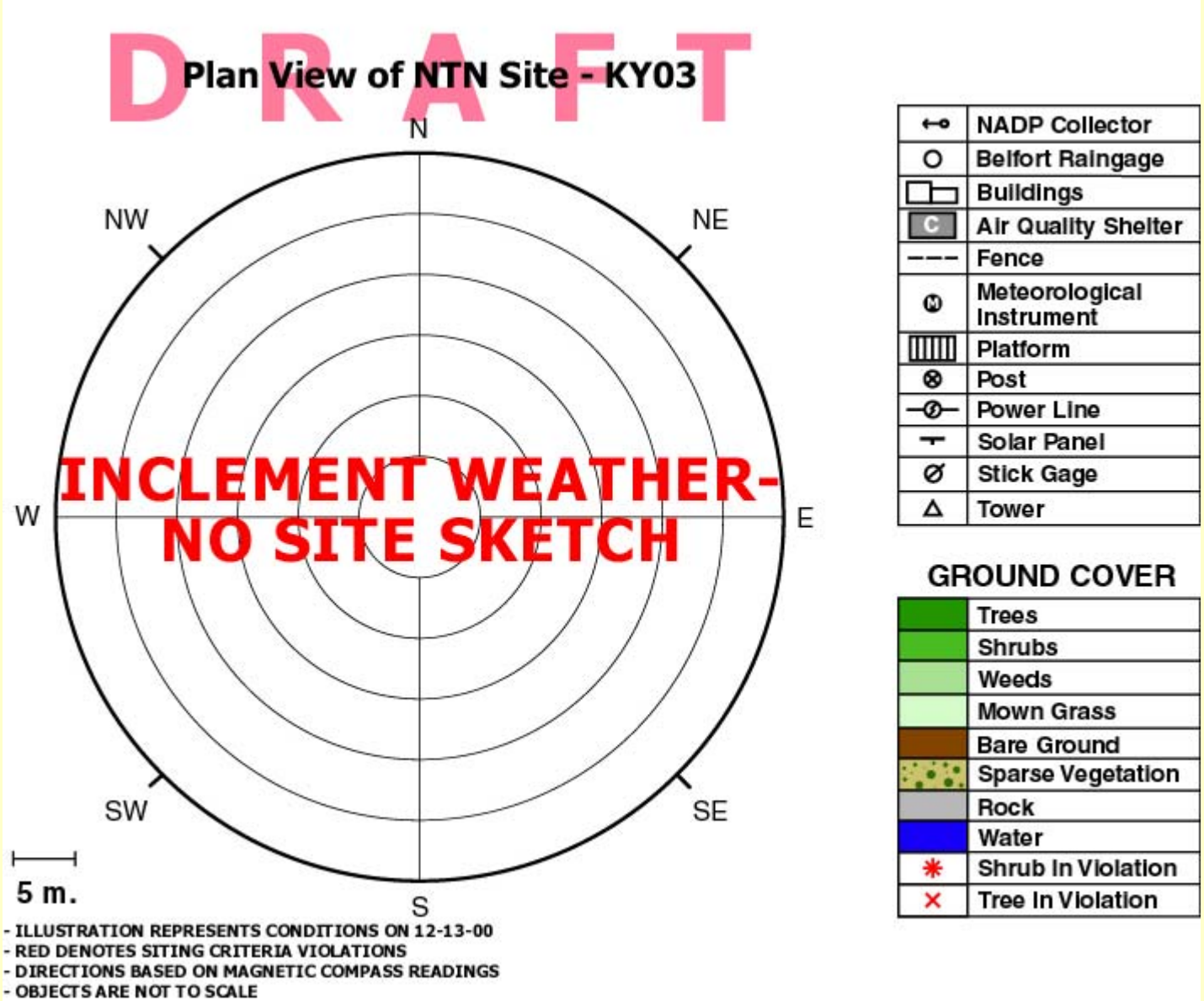
	VIOLATION
Date	Description
27 Feb 87	veg > 0.6m
23 Feb 90	veg > 0.6m to W & E

	ACTIONS
Date	Correction
3 May 89	informed site
4 Jun 90	informed site

	VIOLATION
Date	Description
15 Mar 95	road ~5m to W, minimal traffic
15 Mar 95	shed (3.1m wide x 2.7m tall) 20.6m to NE

	ACTIONS
Date	Correction
15 Mar 95	no action/**no exemption**
15 Mar 95	no action/**no exemption**

FL41

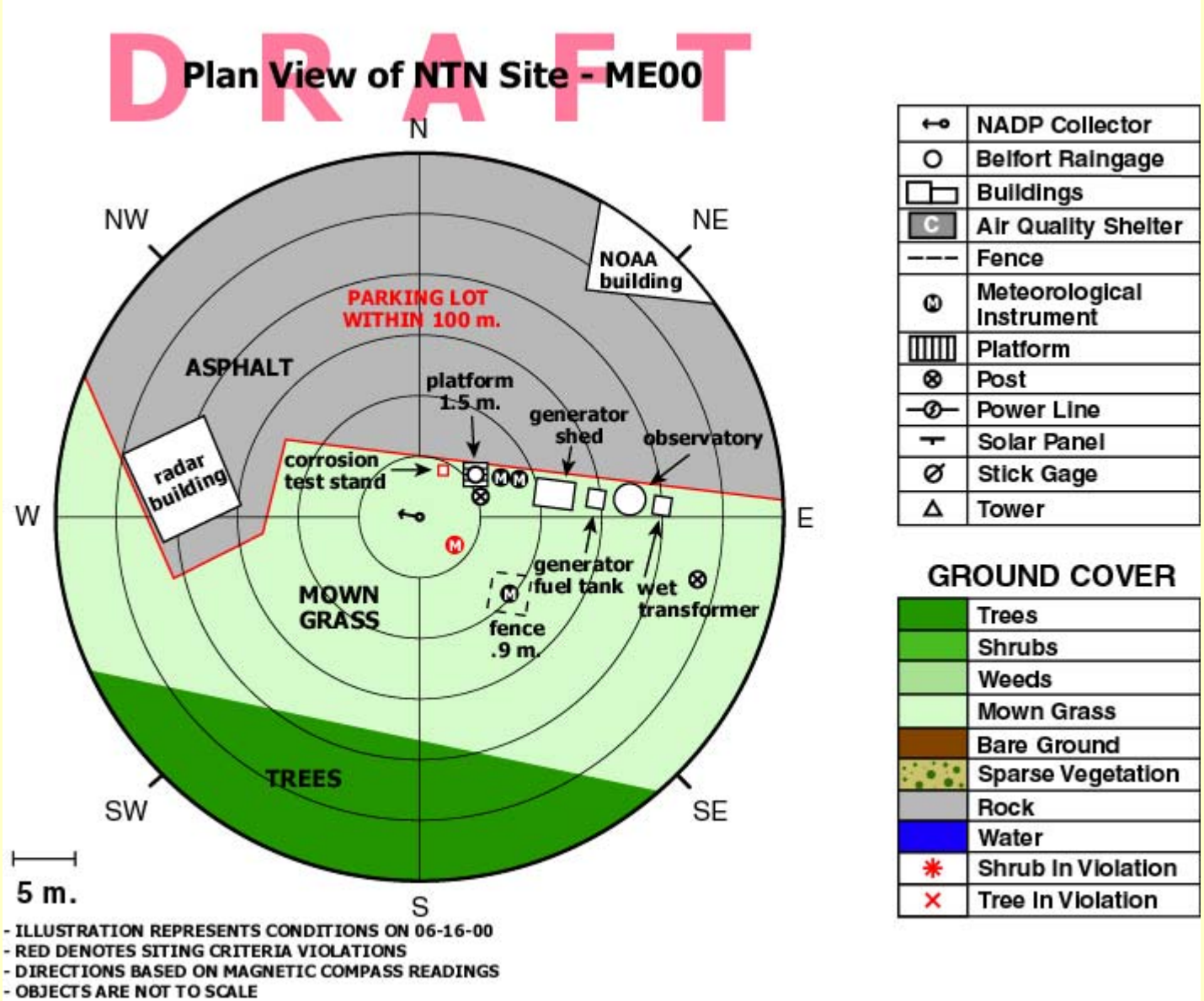

DRAFT
Plan View of NTN Site - KY03
N
NW
NE
W
E
SW
SE
S
INCLEMENT WEATHER-
NO SITE SKETCH
5 m.
- ILLUSTRATION REPRESENTS CONDITIONS ON 12-13-00
- RED DENOTES SITING CRITERIA VIOLATIONS
- DIRECTIONS BASED ON MAGNETIC COMPASS READINGS
- OBJECTS ARE NOT TO SCALE
NADP Collector
Belfort Raingage
Buildings
Air Quality Shelter
Fence
Meteorological Instrument
Platform
Post
Power Line
Solar Panel
Stick Gage
Tower
GROUND COVER
Trees
Shrubs
Weeds
Mown Grass
Bare Ground
Sparse Vegetation
Rock
Water
Shrub In Violation
Tree In Violation

Inclement Weather - No Site Data Sheet Report

KY03

	VIOLATION		ACTIONS
Date	Description	Date	Correction
3 Oct 85	wb to N	3 Oct 85	reoriented sensor and coll
3 Oct 85	slope >15%	3 Oct 85	no action/**no exemption**
10 Aug 88	wb to N	21 Jun 89	site moved
10 Aug 88	pasture 2m away	21 Jun 89	informed site
10 Aug 88	rg/coll sep 3.9m	21 Jun 89	informed site

KY03


DRAFT
Plan View of NTN Site - ME00
N
NW
NE
W
E
SW
SE
S
NOAA building
PARKING LOT WITHIN 100 m.
ASPHALT
platform 1.5 m.
generator shed
observatory
radar building
corrosion test stand
MOWN GRASS
generator fuel tank
wet transformer
fence .9 m.
TREES
5 m.
- ILLUSTRATION REPRESENTS CONDITIONS ON 06-16-00
- RED DENOTES SITING CRITERIA VIOLATIONS
- DIRECTIONS BASED ON MAGNETIC COMPASS READINGS
- OBJECTS ARE NOT TO SCALE
NADP Collector
Belfort Raingage
Buildings
Air Quality Shelter
Fence
Meteorological Instrument
Platform
Post
Power Line
Solar Panel
Stick Gage
Tower
GROUND COVER
Trees
Shrubs
Weeds
Mown Grass
Bare Ground
Sparse Vegetation
Rock
Water
Shrub In Violation
Tree In Violation

NADP / NTN SITE SKETCH DATA SHEET

STATION ID ME00 **DATE** 06/16/00

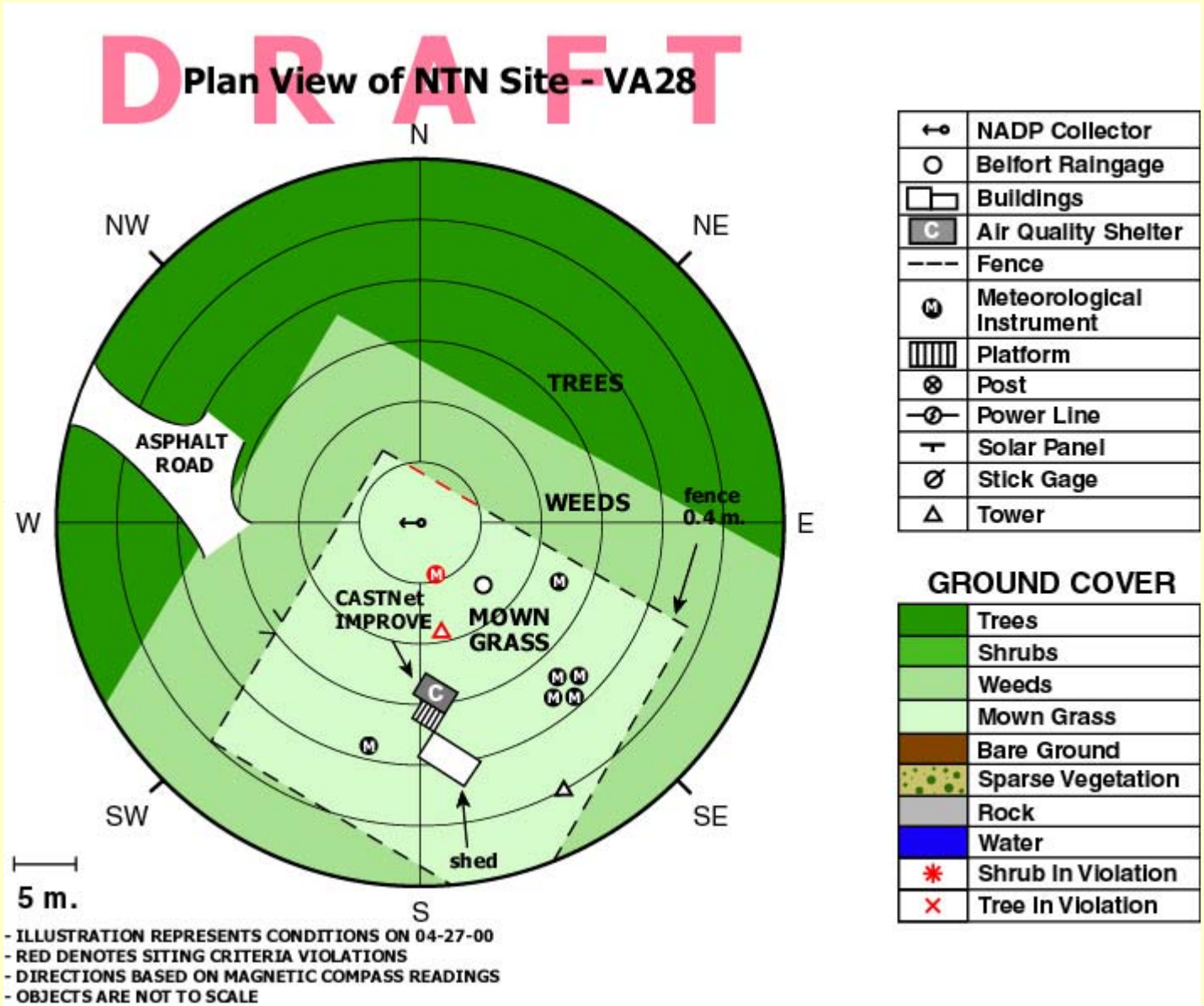
	DISTANCE (m)	AZIMUTH (deg)	DESCRIPTION
1	3.7	24	CORNER OF CORROSION TEST STAND
2	4.2	34	CORNER OF CORROSION TEST STAND
3	24.0	34	CORNER OF NOAA BUILDING
4	6.1	54	BELFORT
5	5.5	65	POST
6	7.3	65	MET. INSTRUMENT
7	8.5	68	MET. INSTRUMENT STAND
8	9.2	87	CORNER OF GENERATOR SHED
9	15.0	84	GENERATOR FUEL TANK
10	18.0	84	OBSERVATORY
11	20.0	86	WET TRANSFORMER
12	23.5	103	SIGN
13	10.6	118	CORNER 3' CYCLONE FENCE
14	7.7	125	CORNER 3' CYCLONE FENCE
15	11.9	133	CORNER 3' CYCLONE FENCE
16	9.4	144	CORNER 3' CYCLONE FENCE
17	18.8	180	MOW LINE
18	21.2	222	MOW LINE
19	20.8	256	CORNER ASPHALT
20	13.4	264	CORNER ASPHALT
21	21.0	260	CORNER RADAR BUILDING
22	15.0	270	CORNER RADAR BUILDING
23	19.7	284	CORNER RADAR BUILDING
24	12.5	300	CORNER ASPHALT
25	5.0	360	ASPHALT EDGE
26			
27			
28			
29			
30			

	VIOLATION
Date	Description
25 Jul 85	Caribou nearby/air traffic @ airport
20 Jul 87	veg > 0.6m
27 Jul 92	fuel & aircraft stored w/in 40m to E
27 Jul 92	aircraft taxi w/in 100m (~1-7 aircraft/week)
27 Jul 92	road 40m to E, ~30 cars/hr, Main Street

	ACTIONS
Date	Correction
20 Jul 87	informed site
26 Jan 90	informed site
5 May 94	**Exemption:** representative of region (see Artz & Rolph, 1987)
5 May 94	**Exemption:** representative of region (see Artz & Rolph, 1987)
5 May 94	**Exemption:** representative of region (see Artz & Rolph, 1987)

ME00


S


DRAFT
Plan View of NTN Site - VA28
N
NW
NE
W
E
SW
SE
S
TREES
ASPHALT ROAD
WEEDS
fence 0.4 m.
CASTNet
IMPROVE
MOWN GRASS
shed
5 m.
- ILLUSTRATION REPRESENTS CONDITIONS ON 04-27-00
- RED DENOTES SITING CRITERIA VIOLATIONS
- DIRECTIONS BASED ON MAGNETIC COMPASS READINGS
- OBJECTS ARE NOT TO SCALE
NADP Collector
Belfort Raingage
Buildings
Air Quality Shelter
Fence
Meteorological Instrument
Platform
Post
Power Line
Solar Panel
Stick Gage
Tower
GROUND COVER
Trees
Shrubs
Weeds
Mown Grass
Bare Ground
Sparse Vegetation
Rock
Water
Shrub In Violation
Tree In Violation

NADP / NTN SITE SKETCH DATA SHEET

STATION ID **VA28** **DATE** 04/27/00

	DISTANCE (m)	AZIMUTH (deg)	DESCRIPTION
1	19.7	102	FENCE CORNER
2	12.8	114	ACM COLLECTOR
3	17.1	134	WATER COLLECTORS
4	24.7	151	TOWER
5	7.2	135	BELFORT
6	4.5	161	OZONE GAGE
7	9.3	170	TOWER
8	14.5	163	CORNER SHED
9	11.8	186	CORNER SHED
10	13.9	189	CORNER SHED
11	19.1	193	TIPPING BUCKET GAGE
12	24.1	223	FENCE CORNER
13	7.3	344	FENCE CORNER
14			
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	VIOLATION
Date	Description
11 Dec 96	met tower in 45deg cone
22 Mar 90	lightning rod in 45deg (10mtall)to SSE 10m
19 Nov 91	lightning rod in 60deg cone (10m tall) to SSE
13 Jul 94	grasses over 0.61m tall

	ACTIONS
Date	Correction
19 Jan 89	informed site
18 Jun 90	**Exemption:** narrow diameter, barely in 45 deg. cone
20 Mar 92	removed
13 Jul 94	ranger cut vegetation during site visit

VA28

Suggestions for future work

(1) Send the draft sketches to site supervisors and operators for their confirmation of the information.

(2) Once the information is confirmed, add the sketches to the NADP Web page, accompanying the GIS and photograph library. A text page listing descriptions of the obstructions would accompany the sketches. We are considering links to pictures of the obstructions in violation.

Suggestions for future work (cont.)

3) We'd like the contractor to have the instruments needed to measure accurately the azimuth, slope, and distance.

(4) For the next round of site visits, we would provide these sketches to the contractor and we'd like the contractor to make updates, as needed.