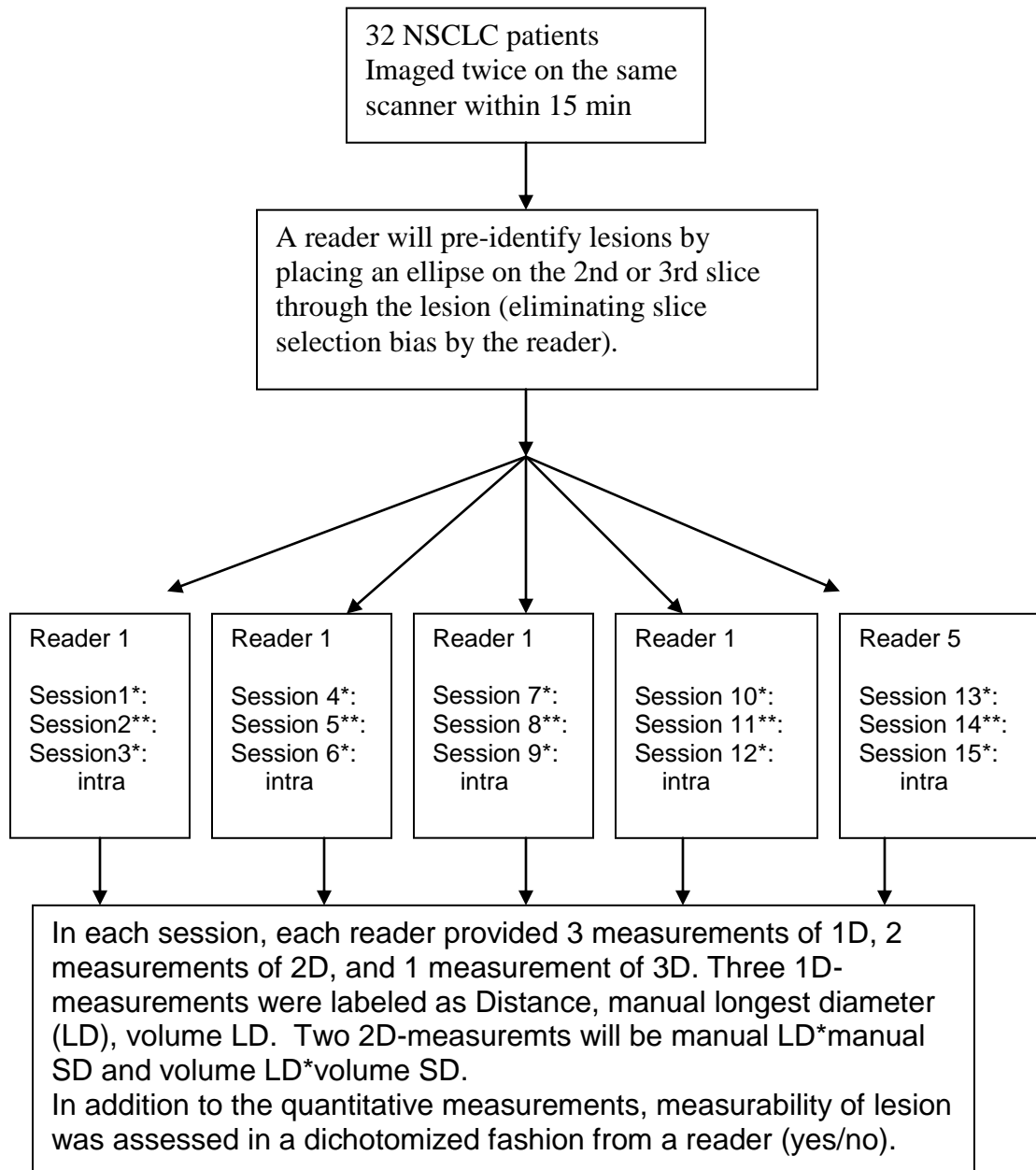


QIBA 1B: MSK Coffee Break Experiment



*: Time point 1 (TP1) was read in the first reading for cases of ID=4, 5,9,13,15,16,17,18,19,20, 24, 25, 26, 29, 31, and 32. For the rest of IDs, TP2 were read in the first reading. In the 2nd read, TP2 were used for the cases where TP1 were used in the 1st reading and vice versa. For the 3rd read, the same TP scans were used as the first reading.

QIBA 1B: MSK Coffee Break Experiment

Descriptive Statistics

1D : Longest Diameter (N=32)

Reader	Repeated Scan				Repeated Reading		
	First reading <i>Mean</i> <i>±SD</i>	Second reading <i>Mean</i> <i>±SD</i>	Diff (2 nd - 1 st) <i>Mean</i> <i>±SD</i>	%Diff (2 nd - 1 st) <i>Mean</i> <i>±SD</i>	Third reading <i>Mean</i> <i>±SD</i>	Diff (3 rd - 1 st) <i>Mean</i> <i>±SD</i>	% Diff (3 rd - 1 st) <i>Mean</i> <i>±SD</i>
1 (N=32)	31.56	34.31	2.75	17.02	32.00	2.41	15.64
	21.05	20.25	5.86	37.33	33.97	5.87	37.18
2 (N=32)	33.34	34.53	1.19	8.39	32.00	0.94	6.61
	20.16	19.76	6.40	28.13	34.28	5.78	27.15
3 (N=32)	33.94	33.75	-0.19	0.19	32.00	-1.06	-3.38
	19.10	19.17	3.67	12.77	32.88	2.46	8.10
4 (N=32)	34.03	34.56	0.53	2.46	32.00	-1.28	-3.43
	19.17	20.00	5.05	14.60	32.75	5.09	13.10
5 (N=32)	32.44	32.41	-0.03	1.13	32.00	-0.72	0.29
	20.54	19.99	3.01	12.15	31.72	7.27	15.88
Total (N=160)	33.06	33.91	0.85	5.84	33.12	0.06	3.14
	19.79	19.60	5.02	23.83	19.56	5.64	23.69

1D : Manual Longest Diameter using orthogonal ruler

Reader	Repeated Scan				Repeated Reading		
	First reading <i>Mean</i> <i>±SD</i>	Second reading <i>Mean</i> <i>±SD</i>	Diff (2 nd - 1 st) <i>Mean</i> <i>±SD</i>	%Diff (2 nd - 1 st) <i>Mean</i> <i>±SD</i>	Third reading <i>Mean</i> <i>±SD</i>	Diff (3 rd - 1 st) <i>Mean</i> <i>±SD</i>	% Diff (3 rd - 1 st) <i>Mean</i> <i>±SD</i>
1 (N=32)	32.03	34.00	1.97	11.97	34.03	2.00	12.32
	20.83	19.97	5.03	31.67	19.75	4.52	30.78
2 (N=32)	32.69	34.75	2.06	10.09	35.06	2.38	11.12
	20.54	20.10	4.40	23.63	19.97	4.49	25.93
3 (N=32)	34.28	34.09	-0.19	1.30	33.06	-1.22	-2.16
	19.40	19.11	3.39	14.32	18.34	3.51	8.95
4 (N=32)	33.41	33.59	0.19	0.40	32.47	-0.94	-2.35
	19.17	20.43	5.31	16.97	18.83	2.61	7.82
5 (N=32)	31.72	32.44	0.72	3.38	30.84	-0.88	1.46
	20.91	20.71	2.75	11.39	18.80	8.25	16.67
Total (N=160)	32.83	33.77	0.95	5.42	33.09	0.27	4.08
	19.95	19.83	4.33	21.17	18.96	5.24	20.94

1D : Longest Diameter calculated from contour

Reader	Repeated Scan				Repeated Reading		
	First reading <i>Mean, mm</i> <i>±SD</i>	Second reading <i>Mean, mm</i> <i>±SD</i>	Diff (2 nd - 1 st) <i>Mean, mm</i> <i>±SD</i>	%Diff (2 nd - 1 st) <i>Mean, %</i> <i>±SD</i>	Third reading <i>Mean, mm</i> <i>±SD</i>	Diff (3 rd - 1 st) <i>Mean, mm</i> <i>±SD</i>	% Diff (3 rd - 1 st) <i>Mean, %</i> <i>±SD</i>
1 (N=32)	33.03	34.66	1.63	12.87	36.06	3.03	15.83
	21.40	19.82	6.24	34.19	21.28	6.65	36.75
2 (N=32)	35.00	35.75	0.75	6.14	35.31	0.31	1.70
	20.81	20.06	6.05	26.56	21.64	5.56	17.65
3 (N=32)	35.56	33.38	-2.19	-4.80	34.53	-1.03	-3.11
	19.47	18.60	3.88	13.27	19.77	3.51	11.67
4 (N=32)	34.75	34.81	0.06	0.78	34.06	-0.69	-2.11
	20.10	19.57	2.91	9.28	19.81	2.92	9.56
5 (N=32)	32.47	31.56	-0.91	-1.26	32.19	-0.28	-0.37
	19.78	18.53	5.71	13.79	20.20	3.95	16.24
Total (N=160)	34.16	34.03	-0.13	2.75	34.43	0.27	2.38
	20.10	19.14	5.24	22.18	20.34	4.89	21.63

QIBA 1B: MSK Coffee Break Experiment

2D: Product Longest Diameter and perpendicular diameter using manual orthogonal ruler (N=32)

Reader	Repeated Scan				Repeated Reading		
	First reading Mean, mm ² ±SD	Second reading Mean, mm ² ±SD	Diff (2 nd - 1 st) Mean, mm ² ±SD	%Diff (2 nd - 1 st) Mean, % ±SD	Third reading Mean, mm ² ±SD	Diff (3 rd - 1 st) Mean, mm ² ±SD	% Diff (3 rd - 1 st) Mean, % ±SD
1 (N=32)	983.41 1240.67	1051.91 1178.99	68.50 266.71	37.71 115.56	1058.97 1219.50	75.56 211.06	38.54 116.01
2 (N=32)	972.94 1189.21	1044.69 1202.87	71.75 233.02	25.98 88.18	1113.63 1386.45	140.69 365.20	28.52 96.54
3 (N=32)	1102.75 1273.11	1117.47 1267.21	14.72 153.09	5.77 26.36	1044.94 1221.46	- 57.81 200.36	-4.44 14.51
4 (N=32)	1023.13 1179.63	1065.31 1253.83	42.19 219.03	2.23 27.55	980.94 1143.73	-42.19 83.70	-4.51 10.01
5 (N=32)	966.63 1207.41	1020.00 1259.15	53.38 176.59	4.40 20.48	911.59 1170.23	-55.03 404.02	-1.80 23.66
Total (N=160)	1009.77 1204.14	1059.88 1217.73	50.11 211.87	15.22 68.45	1022.01 1217.59	12.24 286.93	11.26 70.39

2D: Product Longest Diameter and perpendicular diameter calculated from contour (N=32)

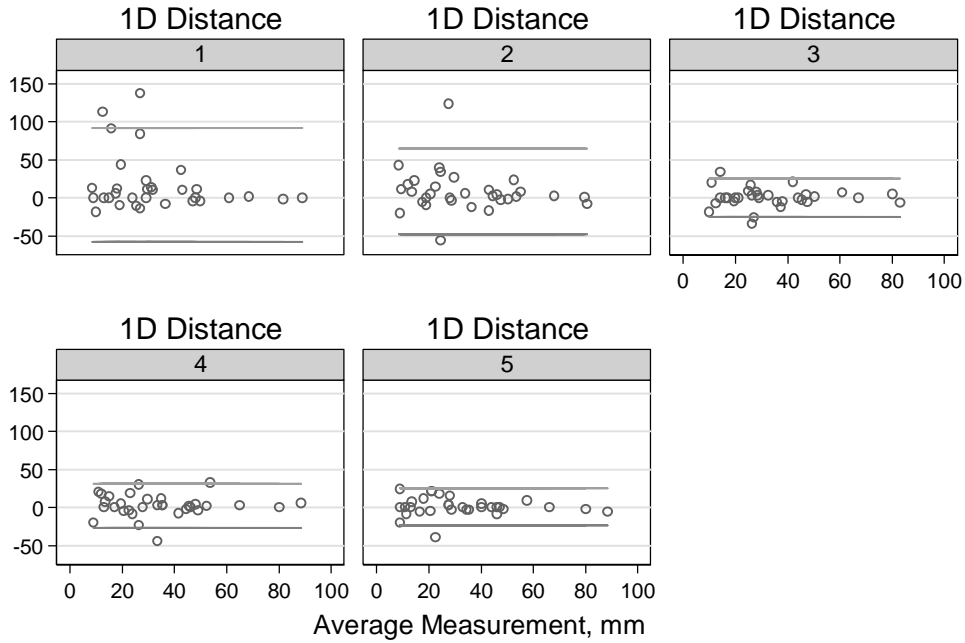
Reader	Repeated Scan				Repeated Reading		
	First reading Mean, mm ² ±SD	Second reading Mean, mm ² ±SD	Diff (2 nd - 1 st) Mean, mm ² ±SD	%Diff (2 nd - 1 st) Mean, % ±SD	Third reading Mean, mm ² ±SD	Diff (3 rd - 1 st) Mean, mm ² ±SD	% Diff (3 rd - 1 st) Mean, % ±SD
1 (N=32)	1052.16 1342.27	1096.81 1276.84	44.66 372.07	39.52 114.73	1161.53 1442.12	109.38 333.03	37.62 119.76
2 (N=32)	1163.63 1507.99	1139.00 1279.66	-24.63 431.45	22.46 80.82	1209.84 1543.01	46.22 321.16	6.80 28.16
3 (N=32)	1125.41 1396.33	992.88 1179.49	-132.53 326.81	- 7.33 26.59	1033.19 1204.21	- 92.22 326.63	- 4.16 21.91
4 (N=32)	1147.09 1514.74	1154.16 1465.02	7.06 187.76	7.36 42.65	1078.22 1269.93	-68.88 403.62	0.46 33.22
5 (N=32)	1000.75 1268.35	952.22 1209.82	-48.53 411.83	1.57 28.32	1036.41 1290.07	35.66 197.93	6.51 32.82
Total (N=160)	1097.81 1392.69	1067.01 1272.28	-30.79 357.26	12.71 69.02	1103.84 1340.26	6.03 328.11	9.45 60.72

3D: Volume calculated from contour (N=32)

Reader	Repeated Scan				Repeated Reading		
	First reading Mean, mm ³ ±SD	Second reading Mean, mm ³ ±SD	Diff (2 nd - 1 st) Mean, mm ³ ±SD	%Diff (2 nd - 1 st) Mean, % ±SD	Third reading Mean, mm ³ ±SD	Diff (3 rd - 1 st) Mean, mm ³ ±SD	% Diff (3 rd - 1 st) Mean, % ±SD
1 (N=32)	21472.16 35826.55	23206.53 37218.39	1734.38 5165.96	77.78 213.81	23216.00 36482.58	1743.84 4559.70	67.71 214.35
2 (N=32)	23377.19 38056.17	24188.34 35698.89	811.16 13041.52	38.71 135.82	24704.06 39733.02	1326.88 6349.80	5.90 30.29
3 (N=32)	22186.28 36348.11	20610.91 33619.46	-1575.38 4709.91	-4.94 20.74	21591.66 35023.53	-594.63 3676.38	-1.84 27.96
4 (N=32)	22647.75 37618.22	23286.09 37517.05	638.34 3368.44	10.49 26.85	21818.53 34437.57	-829.22 5536.56	8.11 45.55
5 (N=32)	21003.22 35445.50	19241.44 32627.88	-1761.78 7990.48	2.91 35.34	20959.56 35381.93	- 43.66 3748.57	5.90 48.78
Total (N=160)	22137.32 36218.49	22106.66 34991.29	- 30.66 7700.14	24.99 117.88	22457.96 35826.97	320.64 4933.44	17.16 103.98

QIBA 1B: MSK Coffee Break Experiment

2. Repeated Scan by Reader 1 to 5

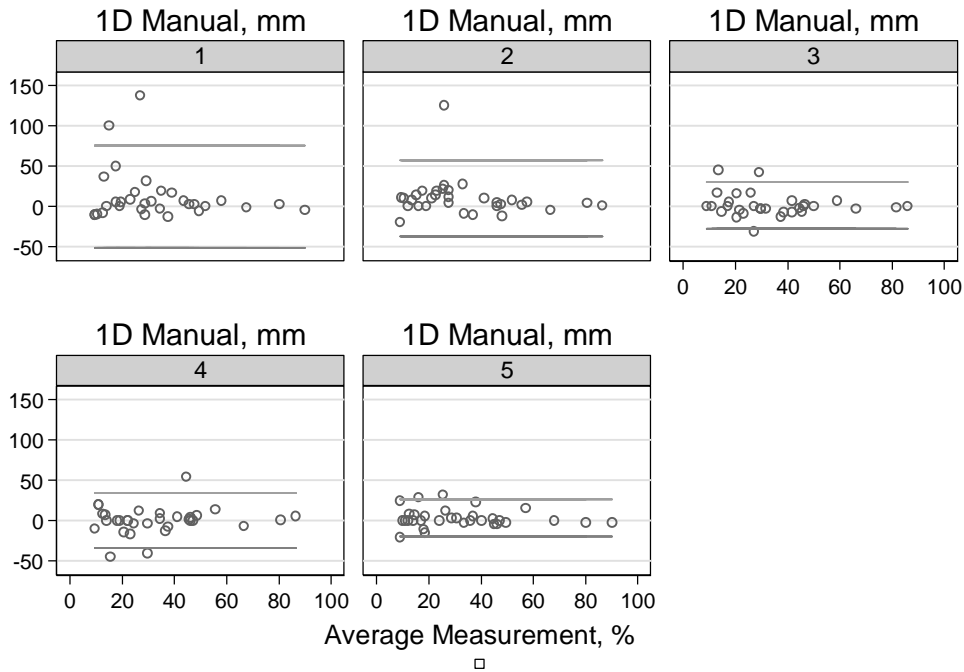


Graphs by Reader

```
. list subject reader distance1 distance2 pcdistance21 mdistance21 if
pcdistance21~=. & (pcdistance21> BAu_pcdistance21 |
pcdistance21<BA1_pcdistance21)
```

subject	reader	distance1	distance2	pcdistance21	mdistance21
18	1	16	38	137.50	27
21	1	8	17	112.50	12.5
18	2	17	38	123.53	27.5
25	2	34	15	-55.88	24.5
2	3	32	21	-34.38	26.5
15	3	12	16	33.33	14
30	3	31	23	-25.81	27
19	4	46	61	32.61	53.5
25	4	43	24	-44.19	33.5
32	5	28	17	-39.29	22.5

QIBA 1B: MSK Coffee Break Experiment

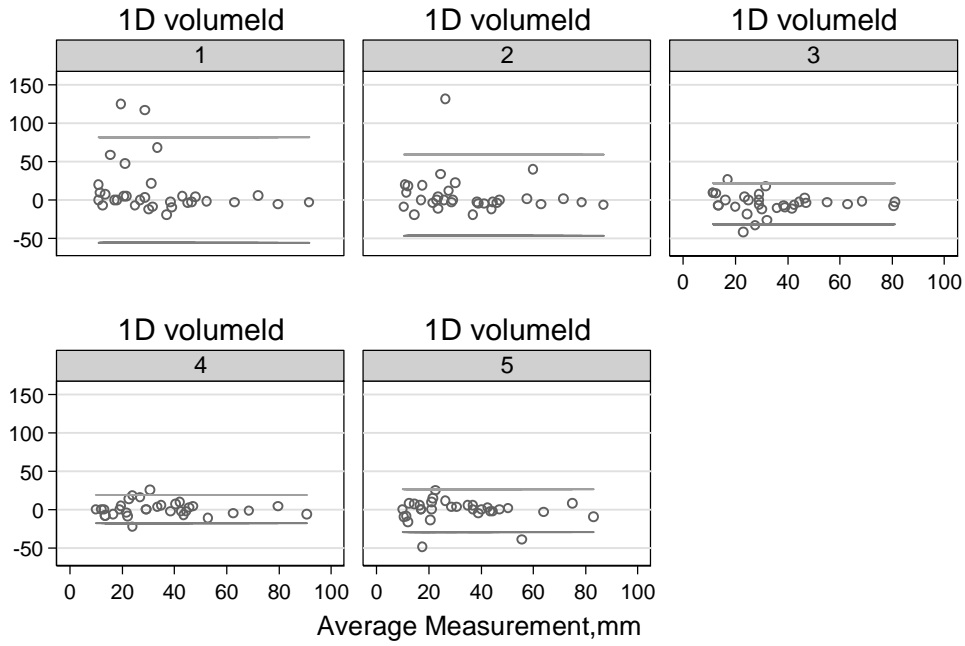


Graphs by Reader

```
ist subject reader manualld1 manualld2 pcmanualld21
mmanualld21 if pcmanualld21~=. & (pcmanualld21> BAu_pcmanu
> allld21 | pcmanualld21<BA1_pcmanualld21)
```

	subject	reader	manu~ld1	manu~ld2	pcman~21	mmanu~21
12.	12	1	10	20	100.00	15
18.	18	1	16	38	137.50	27
50.	18	2	16	36	125.00	26
66.	2	3	32	22	-31.25	27
77.	13	3	24	34	41.67	29
79.	15	3	11	16	45.45	13.5
108.	12	4	20	11	-45.00	15.5
115.	19	4	35	54	54.29	44.5
121.	25	4	37	22	-40.54	29.5
142.	14	5	22	29	31.82	25.5
145.	17	5	10	8	-20.00	9
160.	32	5	14	18	28.57	16

QIBA 1B: MSK Coffee Break Experiment

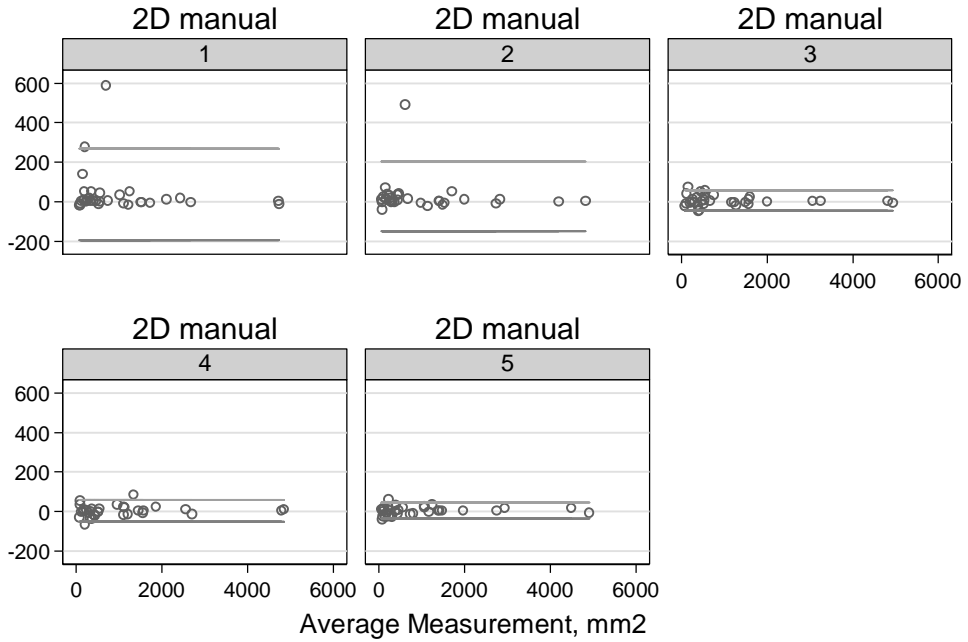


Graphs by Reader

```
. list subject reader volumeld1 volumeld2          pcvolumeld21 mvolumeld21 if
pcvolumeld21~= . & ( pcvolumeld21> BAu_pcvol
> umeld21 |      pcvolumeld21<BA1_pcvolumeld21)
```

	subject	reader	volu~ld1	volu~ld2	pcvo~d21	mvol~d21
18.	18	1	18	39	116.67	28.5
32.	32	1	12	27	125.00	19.5
50.	18	2	16	37	131.25	26.5
66.	2	3	33	22	-33.33	27.5
75.	11	3	15	19	26.67	17
89.	25	3	29	17	-41.38	23
104.	8	4	27	34	25.93	30.5
128.	32	4	27	21	-22.22	24
137.	9	5	69	42	-39.13	55.5
140.	12	5	23	12	-47.83	17.5

QIBA 1B: MSK Coffee Break Experiment

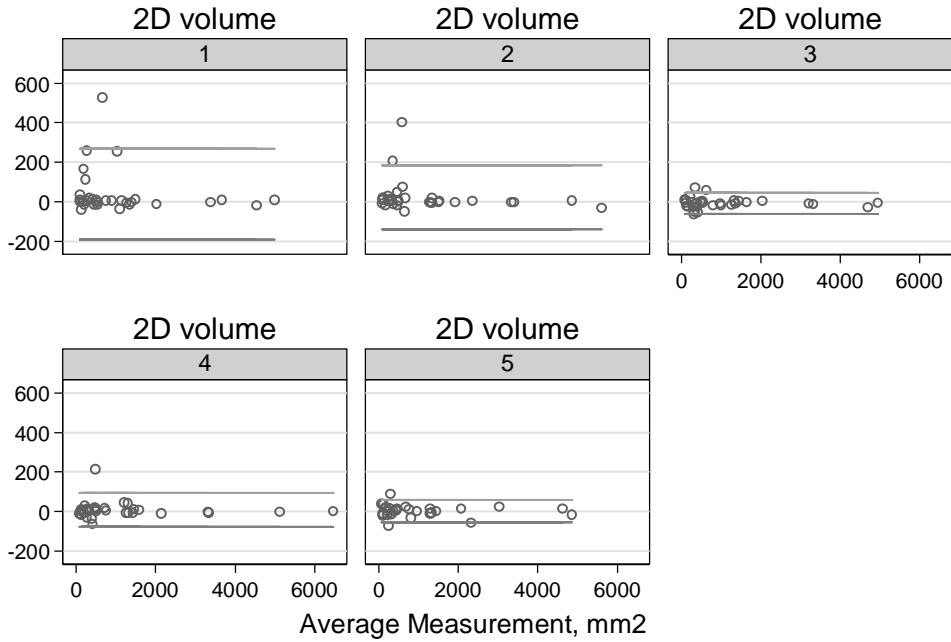


Graphs by Reader

```
. list subject reader bimanual1 bimanual2 pcbimanual21
mbimanual21 if pcbimanual21~= . & ( pcbimanual21> BAu_pcbim
> anual21 | pcbimanual21<BA1_pcbimanual21)
```

	subject	reader	biman~11	bimanu~2	pcbim~21	mbima~21
12.	12	1	90	340	277.78	215
18.	18	1	176	1216	590.91	696
50.	18	2	176	1044	493.18	610
79.	15	3	110	192	74.55	151
108.	12	4	320	99	-69.06	209.5
115.	19	4	945	1728	82.86	1336.5
145.	17	5	90	56	-37.78	73
160.	32	5	168	270	60.71	219

QIBA 1B: MSK Coffee Break Experiment

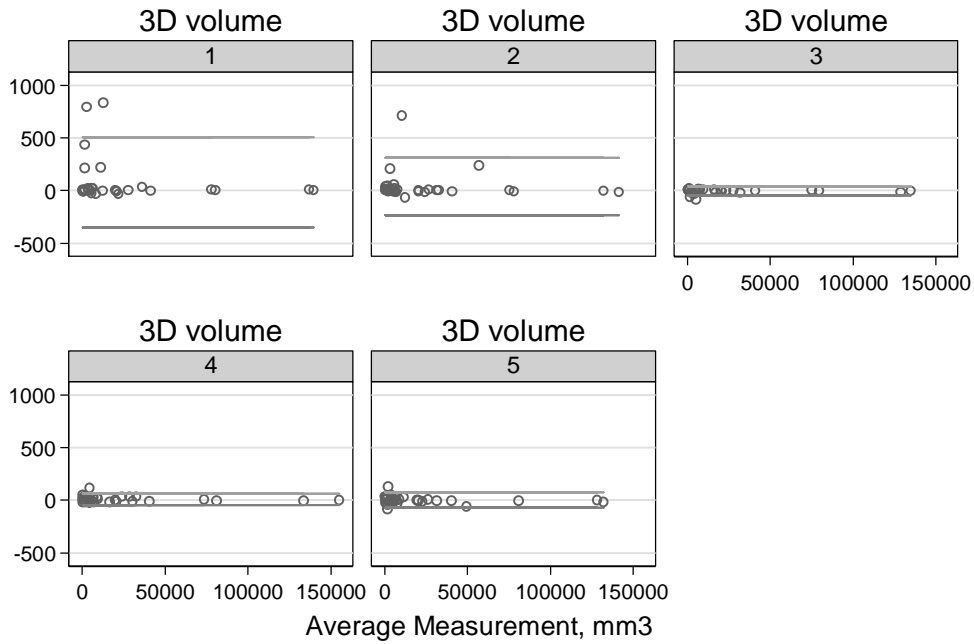


Graphs by Reader

```
.
. list subject reader bivol~e1 bivol~e2 pcbivolume21
mbivolume21 if pcbivolume21~=. & (pcbivolume21> BAu_pcbiv
> olume21 | pcbivolume21<BA1_pcbivolume21)
```

	subject	reader	bivol~e1	bivol~e2	pcbiv~21	mbivo~21
18.	18	1	180	1131	528.33	655.5
45.	13	2	174	532	205.75	353
50.	18	2	192	962	401.04	577
66.	2	3	462	176	-61.90	319
72.	8	3	493	782	58.62	637.5
76.	12	3	253	432	70.75	342.5
109.	13	4	232	725	212.50	478.5
137.	9	5	3243	1386	-57.26	2314.5
140.	12	5	391	96	-75.45	243.5
141.	13	5	200	375	87.50	287.5

QIBA 1B: MSK Coffee Break Experiment



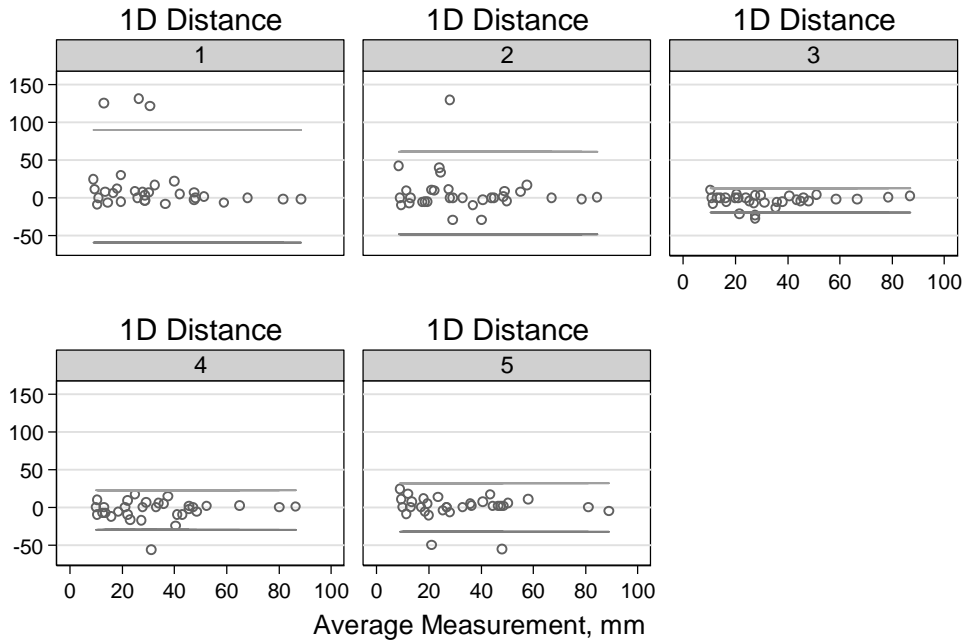
Graphs by Reader

```
. list subject reader volume1 volume2 pcvolume21 mvolume21 if
pcvolume21~=. & ( pcvolume21> BAu_pcvolume21 |
> pcvolume21<BA1_pcvolume21)
```

	subject	reader	volume1	volume2	pcvo~e21	mvol~e21
18.	18	1	2428	22746	836.82	12587
32.	32	1	577	5137	790.29	2857
50.	18	2	2268	18400	711.29	10334
66.	2	3	8531	1682	-80.28	5106.5
89.	25	3	2431	1080	-55.57	1755.5
109.	13	4	3007	6483	115.60	4745
140.	12	5	3030	428	-85.87	1729
141.	13	5	1217	2839	133.28	2028

QIBA 1B: MSK Coffee Break Experiment

3. Repeated reading of same patient's scan by reader

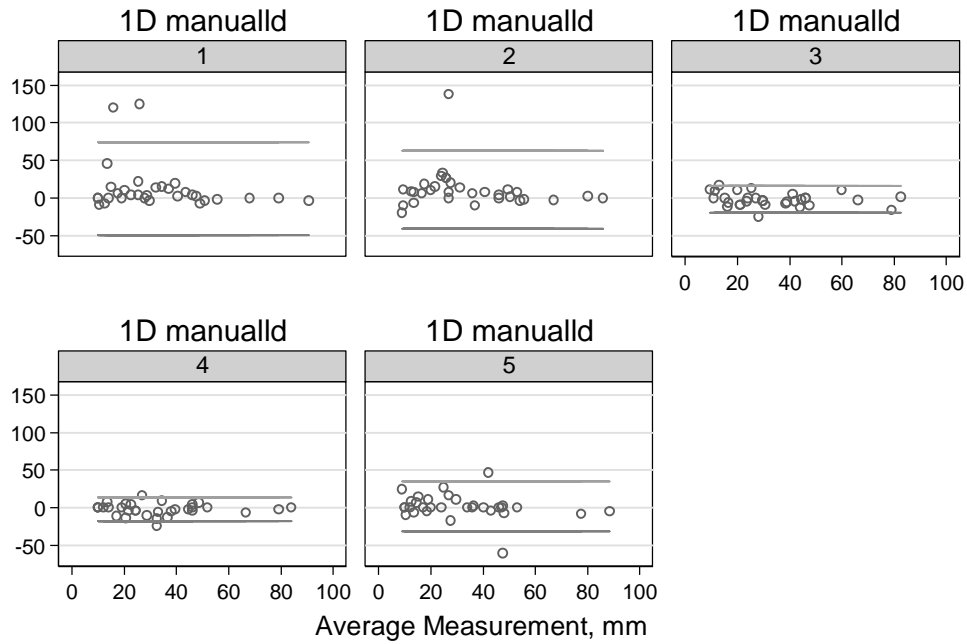


Graphs by Reader

```
. list subject reader distance1 distance3 pcdistance31 mdistance31 unmx1d1
unmx1d3 if pcdistance31~= . & (pcdista
> nce31> BAu_pcdistance31 | pcdistance31<BA1_pcdistance31)
```

subject	reader	distance1	distance3	pcdistance31	mdistance31	unmx1d1	unmx1d3
18	1	16	37	131.25	26.5	N	N
21	1	8	18	125.00	13	N	N
22	1	19	42	121.05	30.5	Y	N
18	2	17	39	129.41	28	N	N
2	3	32	23	-28.13	27.5	N	N
30	3	31	24	-22.58	27.5	N	N
32	3	24	19	-20.83	21.5	Y	N
25	4	43	19	-55.81	31	Y	Y
9	5	66	30	-54.55	48	N	N
32	5	28	14	-50.00	21	N	N

QIBA 1B: MSK Coffee Break Experiment

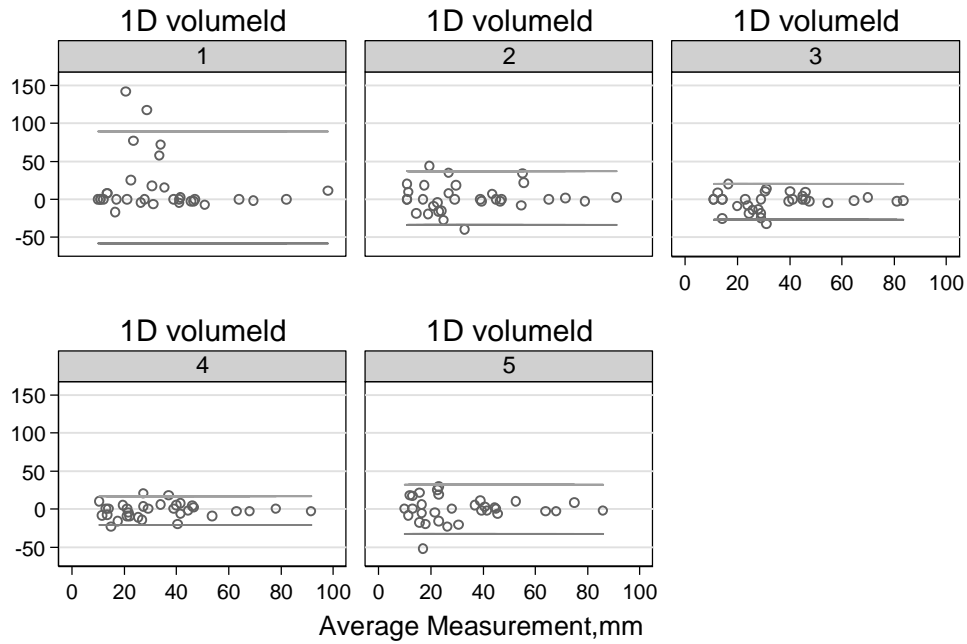


Graphs by Reader

```
. list subject reader manualld1 manualld3      pcmanualld31 mmanualld31 unmx2d1
unmx2d3 if pcmanualld31~= . & ( pcm
> anualld31> BAu_pcmanualld31 |      pcmanualld31<BA1_pcmanualld31)
```

	subject	reader	manu~ld1	manu~ld3	pcman~31	mmanu~31	unmx2d1	unmx2d3
12.	12	1	10	22	120.00	16	N	N
18.	18	1	16	36	125.00	26	N	N
50.	18	2	16	38	137.50	27	N	N
66.	2	3	32	24	-25.00	28	N	N
67.	3	3	12	14	16.67	13	N	N
97.	1	4	25	29	16.00	27	N	N
121.	25	4	37	28	-24.32	32.5	Y	Y
137.	9	5	68	27	-60.29	47.5	N	N
150.	22	5	34	50	47.06	42	N	N

QIBA 1B: MSK Coffee Break Experiment

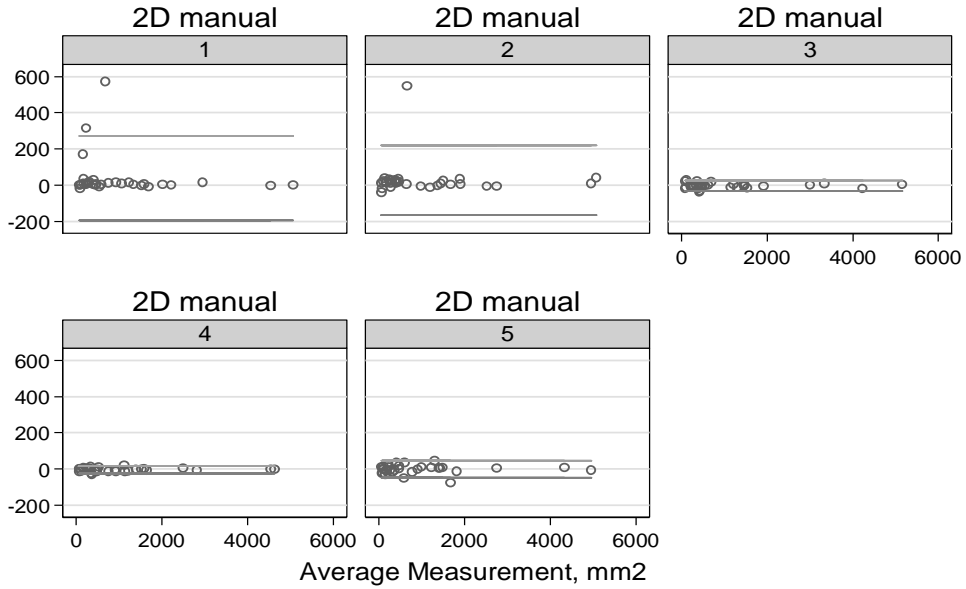


Graphs by Reader

```
. list subject reader volumeld1 volumeld3 pcvolumeld31 mvolumeld31 unmx3d1
unmx3d3 if pcvolumeld31~= . & ( pcvo
> lumeld31> BAu_pcvolumeld31 | pcvolumeld31<BA1_pcvolumeld31)
```

	subject	reader	volu~ld1	volu~ld3	pcvo~d31	mvol~d31	unmx3d1	unmx3d3
18.	18	1	18	39	116.67	28.5	Y	N
32.	32	1	12	29	141.67	20.5	Y	Y
34.	2	2	41	25	-39.02	33	Y	Y
50.	18	2	16	23	43.75	19.5	N	Y
77.	13	3	37	25	-32.43	31	N	N
97.	1	4	25	30	20.00	27.5	N	N
114.	18	4	34	40	17.65	37	Y	N
125.	29	4	17	13	-23.53	15	Y	Y
140.	12	5	23	11	-52.17	17	N	N

QIBA 1B: MSK Coffee Break Experiment

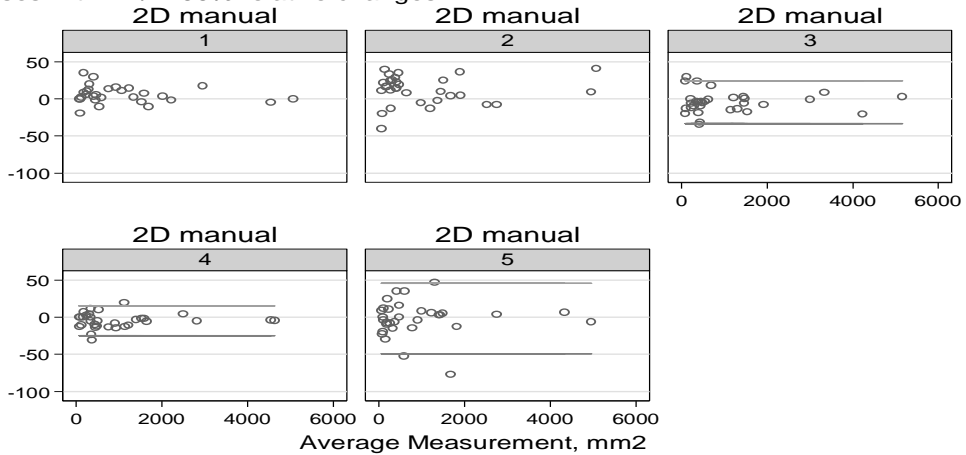


Graphs by Reader

```
list subject reader bimanual1 bimanual3 pcbimanual31 mbimanual31 unmx2d1
unmx2d3 if pcbimanual31~=. & ( pcb
> imanual31) BAu_pcbimanual31 | pcbimanual31<BA1_pcbimanual31)
```

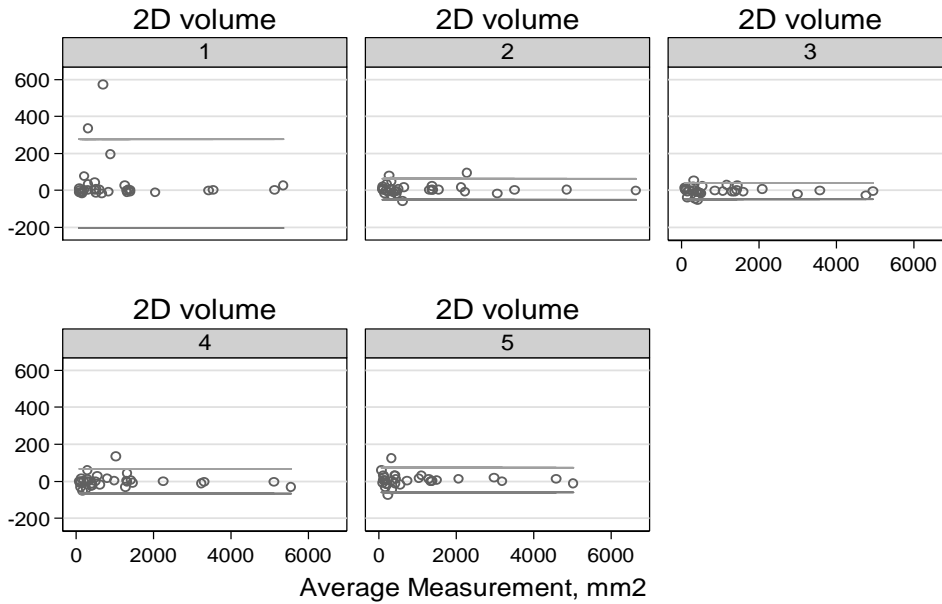
subject	reader	biman~11	bimanu~3	pcbim~31	mbima~31	unmx2d1	unmx2d3
12.	12	1	90	374	315.56	232	N
18.	18	1	176	1188	575.00	682	N
50.	18	2	176	1140	547.73	658	N
66.	2	3	512	336	-34.38	424	N
67.	3	3	108	140	29.63	124	N
114.	18	4	1023	1224	19.65	1123.5	N
121.	25	4	444	308	-30.63	376	Y
136.	8	5	780	375	-51.92	577.5	N
137.	9	5	2720	621	-77.17	1670.5	N
150.	22	5	1054	1550	47.06	1302	N

Cases within +/- 100% relative changes



Graphs by Reader

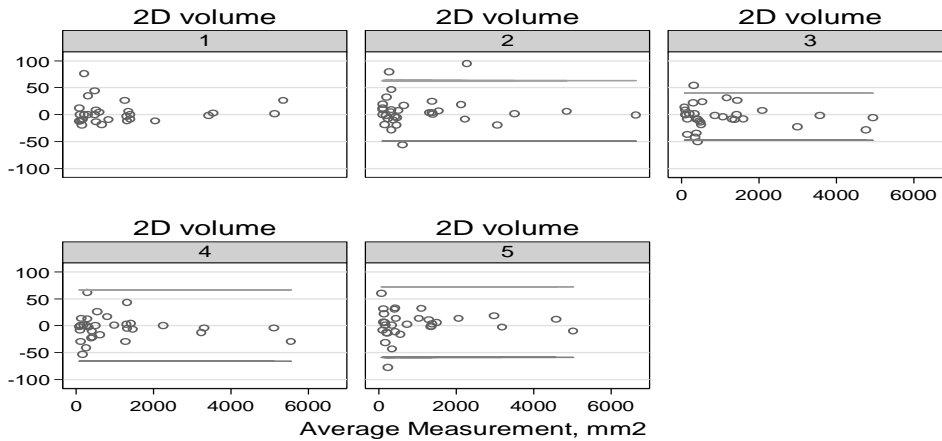
QIBA 1B: MSK Coffee Break Experiment



Graphs by Reader

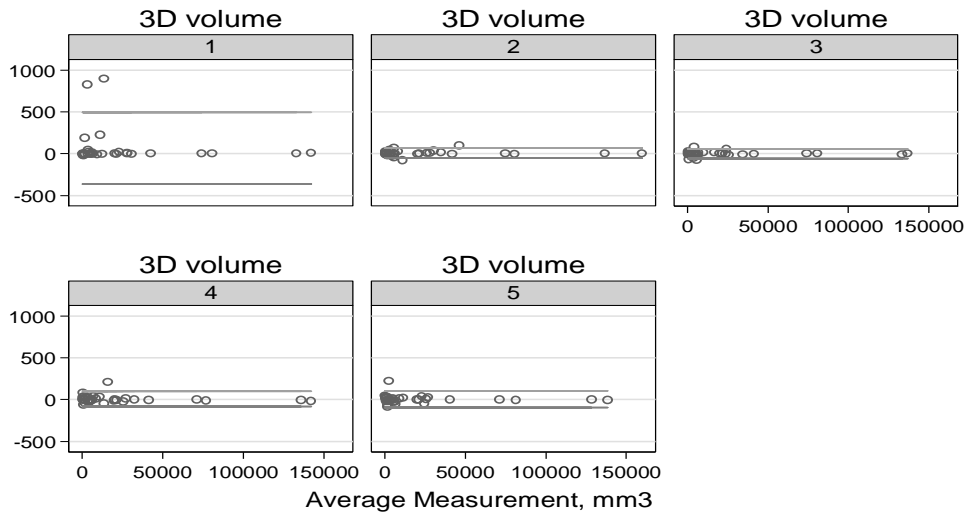
```
list subject reader bivolume1 bivolume3 pcbivolume31 mbivolume31 unmx3d1 unmx3d3
if pcbivolume31~=. & (pcbi
> volume31> BAu_pcbivolume31 | pcbivolume31<BA1_pcbivolume31)
```

subject	reader	bivol~e1	bivolu~3	pcbiv~31	mbivo~31	unmx3d1	unmx3d3	
18.	18	1	180	1209	571.67	694.5	Y	N
32.	32	1	120	522	335.00	321	Y	Y
34.	2	2	861	375	-56.45	618	Y	Y
50.	18	2	192	345	79.69	268.5	N	Y
55.	23	2	1551	3024	94.97	2287.5	Y	Y
76.	12	3	253	391	54.55	322	N	N
77.	13	3	555	275	-50.45	415	N	N
114.	18	4	612	1440	135.29	1026	Y	N
140.	12	5	391	88	-77.49	239.5	N	N
141.	13	5	200	450	125.00	325	N	N



Graphs by Reader

QIBA 1B: MSK Coffee Break Experiment

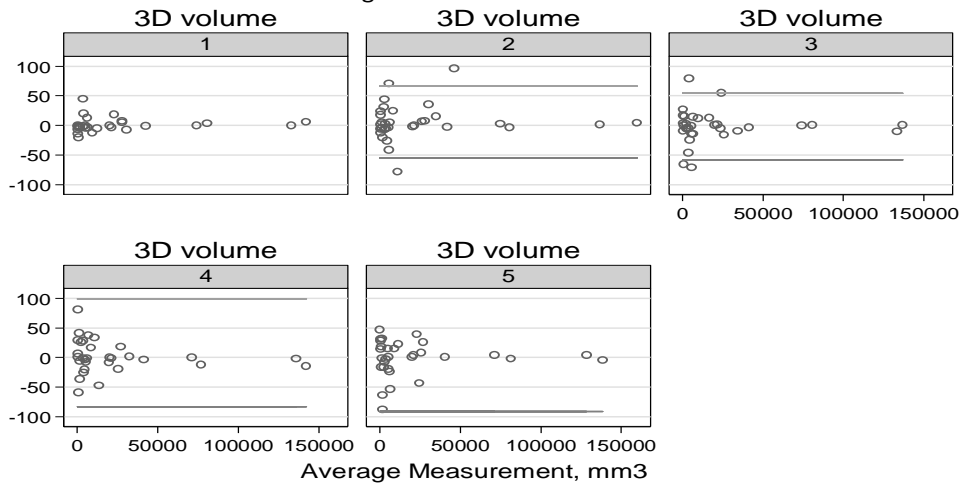


Graphs by Reader

```
. list subject reader volume1 volume3 pcvolume31 mvolume31 unmx3d1 unmx3d3 if
pcvolume31~=. & (pcvolume31> B
> Au_pcvolume31 | pcvolume31<BA1_pcvolume31)
```

subject	reader	volume1	volume3	pcvo~e31	mvol~e31	unmx3d1	unmx3d3
18.	18	1	2428	24122	893.49	13275	Y N
32.	32	1	577	5340	825.48	2958.5	Y Y
34.	2	2	18044	3953	-78.09	10998.5	Y Y
40.	8	2	4081	6959	70.52	5520	N N
55.	23	2	31207	61325	96.51	46266	Y Y
66.	2	3	8531	2471	-71.04	5501	N N
82.	18	3	2868	5158	79.85	4013	N N
87.	23	3	19003	29460	55.03	24231.5	N N
93.	29	3	1303	455	-65.08	879	N N
114.	18	4	7734	23880	208.77	15807	Y N
141.	13	5	1217	3877	218.57	2547	N N

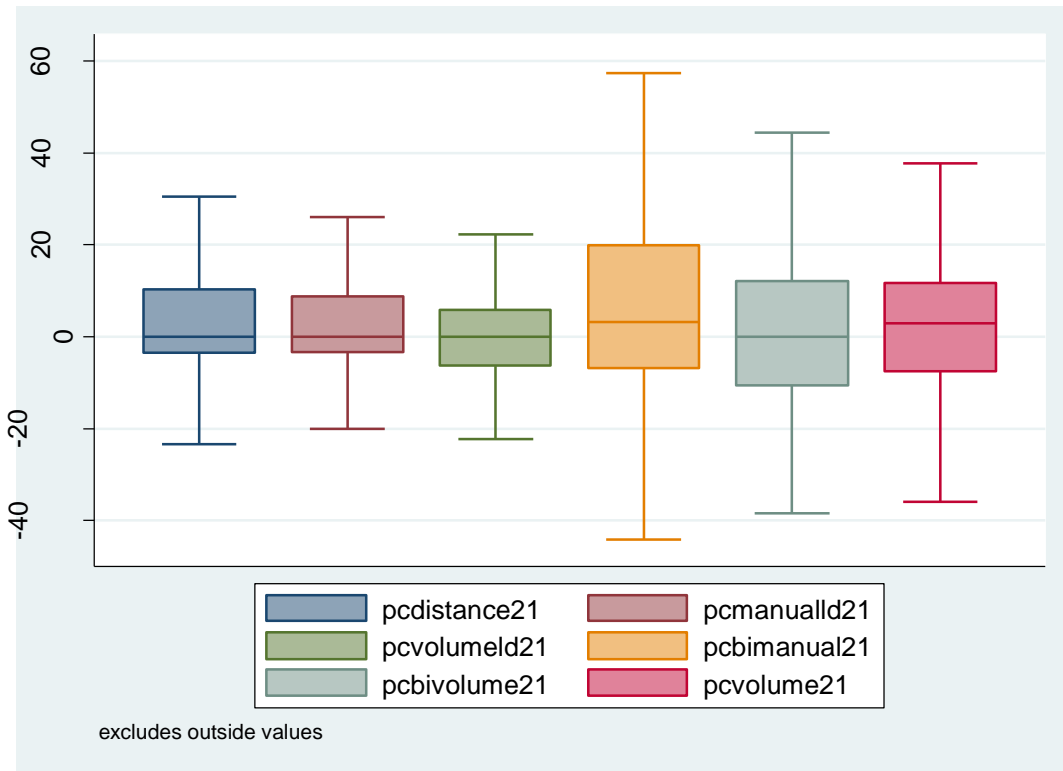
Within +/-100% in Relative Changes



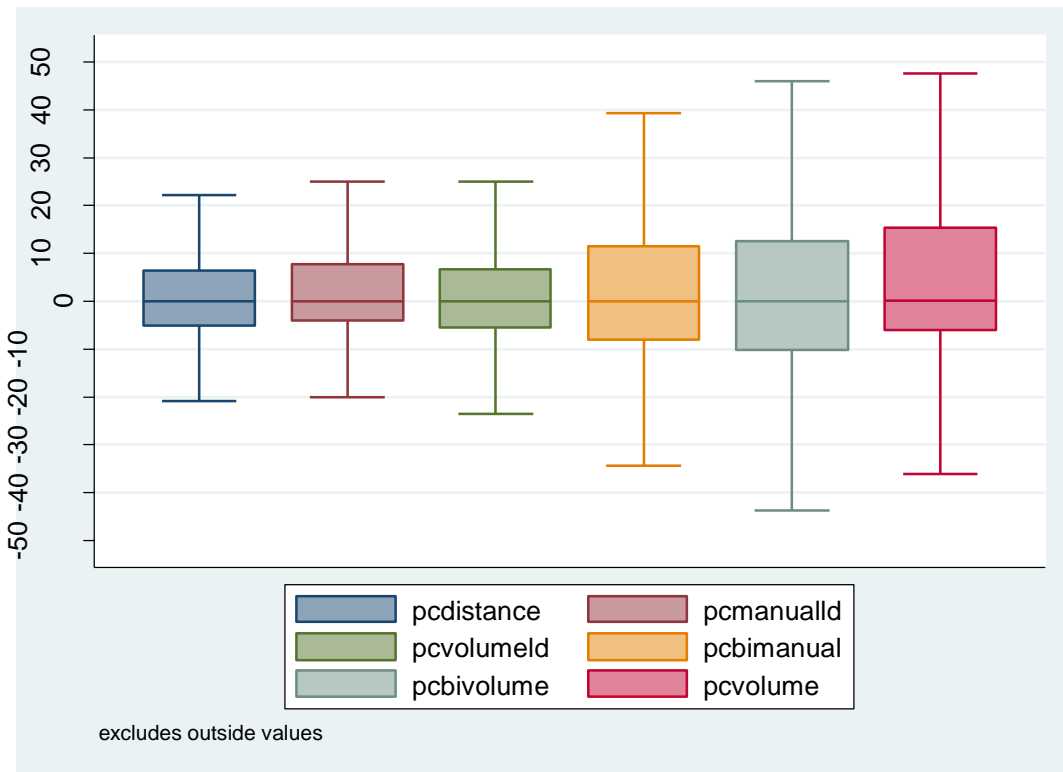
Graphs by Reader

QIBA 1B: MSK Coffee Break Experiment

Repeated scan



Repeated reading



QIBA 1B: MSK Coffee Break Experiment

EXTRA!~

Repeated scan

Reader	1D			2D		3D
	Distance	Manual LD	Volume LD	Manual LD*SD	Volume LD*SD	Volume
1	0.95* (0.92 0.98)	0.97 (0.94 0.99)	0.99 (0.98, 1.00)	0.974 (0.956 0.992)	0.959 (0.931 0.987)	0.989 (0.981 0.996)
2	0.95 (0.92 0.98)	0.97* (0.95, 0.99)	0.94 (0.90, 0.98)	0.979 (0.965 0.994)	0.952 (0.924 0.980)	0.937 (0.895 0.980)
3	0.982 (0.97 1.00)	0.98 (0.97, 1.00)	0.99 (0.98 1.00)	0.993 (0.987 0.998)	0.963 (0.943 0.983)	0.990 (0.984 0.996)
4	0.97 (0.94 0.99)	0.96 (0.94, 0.99)	0.97 (0.993 0.999)	0.98 (0.972 0.994)	0.992 (0.987 0.998)	0.996 (0.993 0.999)
5	0.99 (0.98 1.00)	0.99 (0.98, 1.00)	0.971 (0.952 0.990)	0.989 0.981 0.996	0.944 (0.906 0.983)	0.971 (0.952 0.990)

(95% CI)

*: By Bradley-Blackwood F test of equality of means and variances, P<0.05 indicates discordance.