

Using Box Plots

What to Box Plots Tell Us

- Often called “Box and Whiskers” plots
- Visual way to present repeating data
 - Press sheets
 - Proofs
 - Shift-to-shift production
- Allows analysis of similar data sets
- Graphic visual summary of the data
- Tells us about the characteristics of the data without displaying individual values

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What Box Plots Do To Data

- Graphs the data’s central tendency
- Identifies and displays the middle 50% of the data set
- Displays the median of the data instead of the mean or average
 - Reduces the tendency of outlier data points to skew the data
- Requires that data be placed in rank order

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Box Plot Definitions

- The box encloses the middle 50% of the data
- The line in the box is the median (mid-point) of the data
- Inter-quartile ranges describe 25% of the data above and 25% below the median
- The bottom edge of the box is the 25th percentile of the data and the top edge of the box is the 75th percentile of the data

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Box Plot Definitions

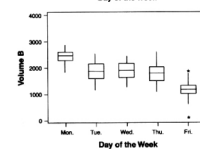
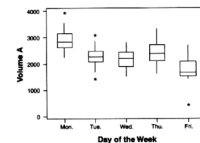
- Data in box plots is organized in rank order from the lowest value to the highest
- The whiskers describe the upper and lower 25% portions of the data. Their length is $\pm 1.5 \times$ the length of the box and they represent the upper and lower limits of the data
- Outlier values larger than $3x$ the box length are sometimes described by a * symbol, which represents that the value lies beyond the limits of the box plot

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Box Plot Characteristics

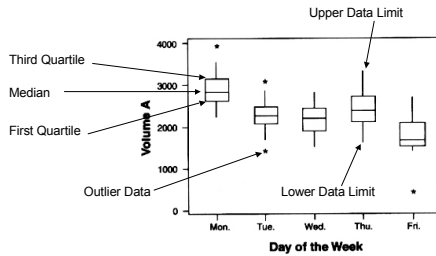
- Good for graphically representing data distribution from similar circumstances, such as proofing or measuring print quality dynamics



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Box Plot Characteristics



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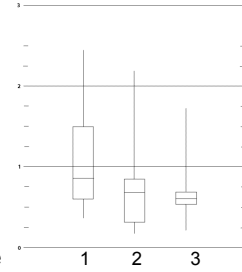
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Box Plot Quartile Ranges

Plot 1: 2 Delta E range and large inter-quartile range

Plot 2: 2 Delta E range and smaller inter-quartile range

Plot 3: Shorter range, small inter-quartile range

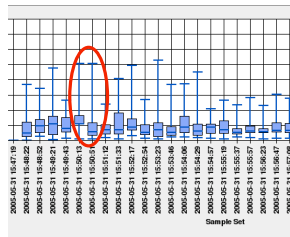


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GCX Box Plots

- 2 graphs, both with Delta Es around 2
- Small inter-quartile ranges on each box
- What do the whiskers above the inter-quartile range mean to you???
- Does this plot seem like a candidate for excess variance in plot points???



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Data

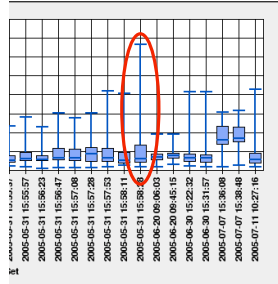
3	3C Gray	75	0.23
4	Magenta	50	0.17
5	Black	75	0.28
6	Yellow	50	0.19
7	Green	100	0.99
8	Magenta	25	0.47
9	Blue	100	0.46
10	Cyan	75	0.61
11	Magenta	75	0.06
12	Black	25	0.08
13	Yellow	100	0.17
14	Cyan	50	0.10
15	Magenta	100	0.27
16	3C Gray	25	1.30
17	Cyan	100	0.31
18	Yellow	75	0.05
19	Black	50	0.28
20	Cyan	25	0.06

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GCX Box Plots

- 1 graph with a Delta E of over 3
- Small inter-quartile range
- What do the whiskers above the inter-quartile range mean to you???
- Does this plot seem like a candidate for excess variance in plot points???



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Data

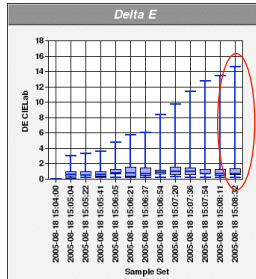
1	Black	100	1.69
2	Paper	0	0.41
3	3C Gray	75	3.34
4	Magenta	50	0.29
5	Black	75	0.26
6	Yellow	50	0.24
7	Green	100	0.70
8	Magenta	25	0.33
9	Blue	100	0.96
10	Cyan	75	0.67
11	Magenta	75	0.12
12	Black	25	0.27
13	Yellow	100	0.08
14	Cyan	50	0.18
15	Magenta	100	0.09
16	3C Gray	25	0.99

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GCX Box Plot - High Delta E

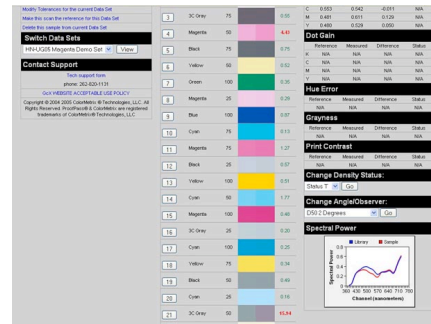
- 1 graph with a Delta E of over 14
- Small inter-quartile range
- What do the whiskers above the inter-quartile range mean to you???
- Does this plot seem like a candidate for excess variance in plot points???



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Data

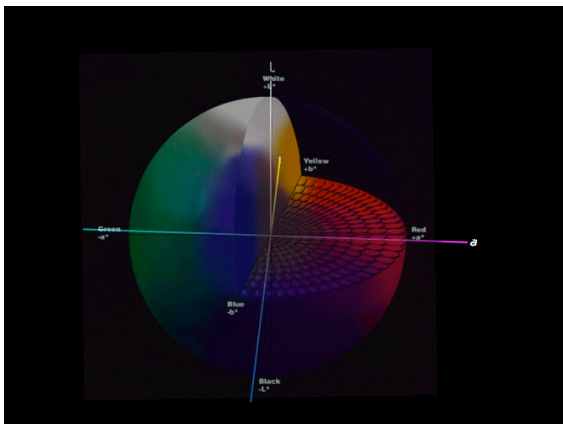
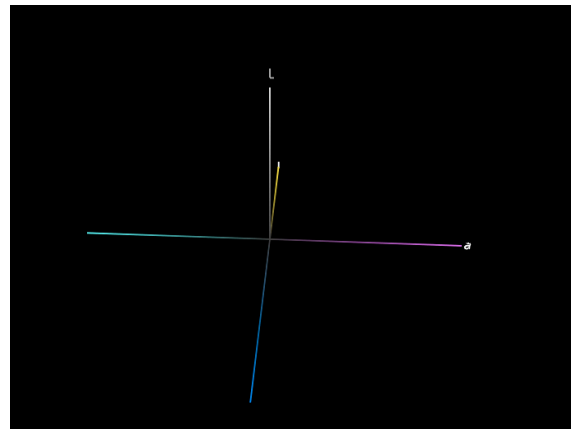
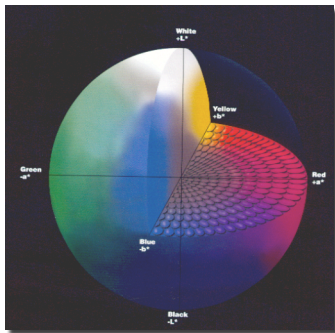


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ColorThink Demo

Imagine that the CIE Lab Model covers the ColorThink 3-D Plot Screen that you will see During the demo that Follows. In the demo, I Will show you what part Of the visible model is Plotted in a particular Dimension of the color Space that a set of inks covers

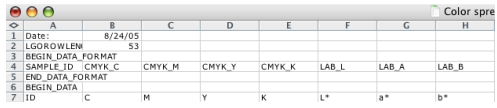


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The Header Makes It Work!

- Notes:
 - LGOROWLENGTH = Number of rows in the sheet
 - End Data should appear in the last row
 - Save as a .txt file



The screenshot shows a spreadsheet application window titled "Color spre". The spreadsheet has 8 columns labeled A through H and 7 rows. The data is as follows:

	A	B	C	D	E	F	G	H
1	Date:	8/24/05						
2	LGOROWLENGTH	53						
3	BEGIN_DATA_FORMAT							
4	SAMPLE_ID	CMYK_C	CMYK_M	CMYK_Y	CMYK_K	LAB_L	LAB_A	LAB_B
5	END_DATA_FORMAT							
6	BEGIN_DATA							
7	ID	C	M	Y	K	L*	a*	b*

