



Statgraphics
Stratus:
Data Analysis in the
Cloud

Presented by Dr. Neil W. Polhemus

Statgraphics Product Line

- Statgraphics *Centurion* – flagship product for Windows with over 250 procedures.
- Statgraphics *Sigma Express* – add-on for Microsoft Excel with emphasis on Six Sigma techniques.
- Statgraphics *Stratus* – streamlined version of Centurion for use within web browsers.

Stratus

- Runs on PCs, MACs, iPads and other tablets.
- Available over the Internet at www.statpoint.net.
- May also be placed on an enterprise server.
Requires a Windows server running ASP.Net.
- Unlike Statgraphics *Centurion*, all computation is done on the server.

Main Page

Current data file: Untitled

Variable	Comment	Nonmissing Values	Numeric Values	Minimum	Maximum
Col_1		0	0		
Col_2		0	0		
Col_3		0	0		
Col_4		0	0		
Col_5		0	0		
Col_6		0	0		
Col_7		0	0		
Col_8		0	0		
Col_9		0	0		
Col_10		0	0		

Accessing Statgraphics *Stratus*

1. Go to: **www.statpoint.net**.
2. Create username and password.
3. Click on link in automated email to approve account.
4. Login using your username.

Username

- Used to identify your datasets.
- Types of users:
 - **Guests:** can only analyze sample datasets.
 - **Registered users:** free access for small datasets (100 rows by 10 columns).
 - **Subscriber:** monthly access fee to analyze larger datasets.
 - **Academic site license users:** access for all individuals at an institution.

Ways to Access Data

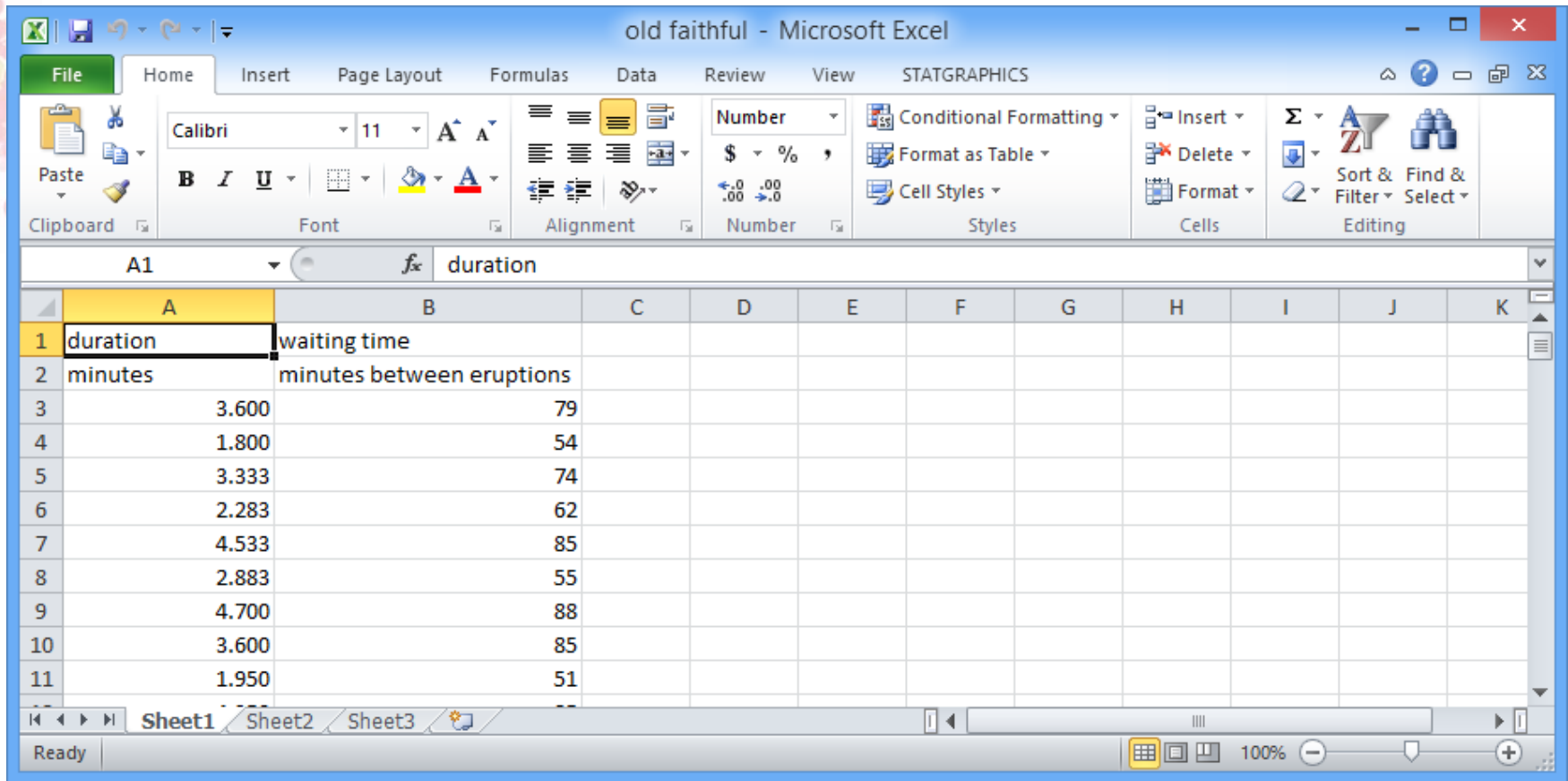
1. Type data into the data editor.
2. Open a sample dataset.
3. Open a dataset from your computer.
4. Open a dataset you have saved on the server.
5. Paste data from the clipboard.
6. Query stock prices using Yahoo Finance.

Example: Old Faithful Geyser



Yellowstone National Park

Excel File



The screenshot shows a Microsoft Excel spreadsheet titled "old faithful - Microsoft Excel". The spreadsheet has two columns: "duration" and "waiting time". The data is as follows:

	A	B	C	D	E	F	G	H	I	J	K
1	duration	waiting time									
2	minutes	minutes between eruptions									
3	3.600	79									
4	1.800	54									
5	3.333	74									
6	2.283	62									
7	4.533	85									
8	2.883	55									
9	4.700	88									
10	3.600	85									
11	1.950	51									

From Azzalini, A. and Bowman, A. W. (1990). A look at some data on the Old Faithful geyser. Applied Statistics 39, 357-365.

Example: Opening an Excel File

OPEN USER DATASET FROM CLIENT

Step 1: Select the file to open: old faithful.xlsx

Step 2: Select the file attributes (except for SGD files):

Header	<input type="radio"/> Column names <input checked="" type="radio"/> Column names and comments <input type="radio"/> None
Delimiter (text files only)	<input checked="" type="radio"/> Tab <input type="radio"/> Comma (,) <input type="radio"/> Space <input type="radio"/> Semicolon (;)
Decimal symbol	<input checked="" type="radio"/> period (.) <input type="radio"/> comma (,)
Date separator	<input checked="" type="radio"/> slash (/) <input type="radio"/> period (.) <input type="radio"/> dash (-)
Date format	<input checked="" type="radio"/> M D Y <input type="radio"/> D M Y <input type="radio"/> Y M D

Step 3: Press the Open File button to read the file:

Open in readonly mode

File Summary


Current data file: old faithful.xlsx

Display Data

Edit Data

Variable	Comment	Nonmissing Values	Numeric Values	Minimum	Maximum
duration	minutes	272	272	1.6	5.1
waiting time	minutes between eruptions	272	272	43	96

Display Data

statgraphics stratus  Welcome **stratussupport!** [[Log Out](#)]


Home File Edit Plot Describe Compare Relate Forecast SPC DOE Statlets Help

Current data file: old faithful.xlsx [Display Summary](#) [Edit Data](#)

	duration	waiting time
Row	minutes	minutes between eruptions
1	3.600	79
2	1.800	54
3	3.333	74
4	2.283	62
5	4.533	85
6	2.883	55
7	4.700	88
8	3.600	85
9	1.950	51
10	4.350	85
11	1.833	54
12	3.917	84
13	4.200	78
14	1.750	47
15	4.700	83
16	2.167	52
17	1.750	62
18	4.800	84
19	1.600	52
20	4.250	79
21	1.800	51
22	1.750	47
23	3.450	78
24	3.067	69
25	4.533	74

1 2 3 4 5 6 7 8 9 10 ...

Edit Data

statgraphics stratus 

Welcome **stratussupport!** [[Log Out](#)]

Current data file: old faithful.xlsx

File **Rows** **Columns** **Cells** **Cancel**

	A	B
Name	duration	waiting time
Comment	minutes	minutes between eruptions
1	3.6	79
2	1.8	54
3	3.333	74
4	2.283	62
5	4.533	85
6	2.883	55
7	4.7	88
8	3.6	85
9	1.95	51
10	4.35	85
11	1.833	54
12	3.917	84
13	4.2	78
14	1.75	47
15	4.7	83
16	2.167	52
17	1.75	62
18	4.8	84
19	1.6	52
20	4.25	79

Input Results ✓ ↶ ✂ 📄 🖨

⏪ ⏩ 1 2 3 4 5 6 7 8 9 10 ... ⏪ ⏩

Save File on Server

Home

File

Edit

Plot

Describe

Compare

Relate

Forecast

SPC

DOE

Statlets

Help

SAVE DATA FILE

User files on server:

Save data file as:

Replace existing file if present

- STATGRAPHICS file (.sgd)
- Excel file (.xls)
- XML file without comments (.xml)
- Tab delimited text file
- Comma delimited text file
- Blank delimited text file
- Semicolon delimited text file

Save File

Cancel

One Variable Analysis – Data Input

Home

Preferences

Add to Session Logfile

Save Script

ONE VARIABLE ANALYSIS

This procedure calculates statistics for a single column of numeric data. [Documentation](#)

Data Input

Analysis Options

Tables and Graphs

Results to Save

Output

Data variable (Y):

(Select:)

One Variable Analysis – Analysis Options

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Save Script

ONE VARIABLE ANALYSIS

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Data Input

Analysis Options

Tables and Graphs

Results to Save

Output

Tabulation Intervals


(Leave fields blank to use system defaults.)

Number of classes:

Lower limit:

Upper limit:

One Variable Analysis – Tables and Graphs



Home
Preferences
Add to Session Logfile
Save Script

ONE VARIABLE ANALYSIS

This procedure calculates statistics for a single column of numeric data. [Documentation](#)

Data Input
Analysis Options
Tables and Graphs
Results to Save
Output

Tables/Graphs	Options																														
<input checked="" type="checkbox"/> Analysis Summary																															
<input type="checkbox"/> Scatterplot Titles and Scaling																															
<input checked="" type="checkbox"/> Summary Statistics	<div style="display: flex; justify-content: space-between; margin-bottom: 5px;"> Select All Unselect All </div> <table style="width: 100%; border-collapse: collapse;"> <tr> <td><input checked="" type="checkbox"/> Average</td> <td><input type="checkbox"/> Winsorized sigma</td> <td><input type="checkbox"/> 1/6 sextile</td> </tr> <tr> <td><input type="checkbox"/> Median</td> <td><input type="checkbox"/> MAD</td> <td><input type="checkbox"/> 5/6 sextile</td> </tr> <tr> <td><input type="checkbox"/> Mode</td> <td><input type="checkbox"/> Sbi</td> <td><input type="checkbox"/> Intersextile range</td> </tr> <tr> <td><input type="checkbox"/> Geometric mean</td> <td><input checked="" type="checkbox"/> Minimum</td> <td><input type="checkbox"/> Skewness</td> </tr> <tr> <td><input type="checkbox"/> Trimmed mean</td> <td><input checked="" type="checkbox"/> Maximum</td> <td><input checked="" type="checkbox"/> Std. skewness</td> </tr> <tr> <td><input type="checkbox"/> Winsorized mean</td> <td><input checked="" type="checkbox"/> Range</td> <td><input type="checkbox"/> Kurtosis</td> </tr> <tr> <td><input type="checkbox"/> Variance</td> <td><input type="checkbox"/> Lower quartile</td> <td><input checked="" type="checkbox"/> Std. kurtosis</td> </tr> <tr> <td><input checked="" type="checkbox"/> Standard deviation</td> <td><input type="checkbox"/> Upper quartile</td> <td><input type="checkbox"/> Sum</td> </tr> <tr> <td><input checked="" type="checkbox"/> Coeff. of variation</td> <td><input type="checkbox"/> Interquartile range</td> <td><input type="checkbox"/> Sum of squares</td> </tr> <tr> <td><input type="checkbox"/> Standard error</td> <td></td> <td></td> </tr> </table> Trimming: <input type="text" value="5"/> %	<input checked="" type="checkbox"/> Average	<input type="checkbox"/> Winsorized sigma	<input type="checkbox"/> 1/6 sextile	<input type="checkbox"/> Median	<input type="checkbox"/> MAD	<input type="checkbox"/> 5/6 sextile	<input type="checkbox"/> Mode	<input type="checkbox"/> Sbi	<input type="checkbox"/> Intersextile range	<input type="checkbox"/> Geometric mean	<input checked="" type="checkbox"/> Minimum	<input type="checkbox"/> Skewness	<input type="checkbox"/> Trimmed mean	<input checked="" type="checkbox"/> Maximum	<input checked="" type="checkbox"/> Std. skewness	<input type="checkbox"/> Winsorized mean	<input checked="" type="checkbox"/> Range	<input type="checkbox"/> Kurtosis	<input type="checkbox"/> Variance	<input type="checkbox"/> Lower quartile	<input checked="" type="checkbox"/> Std. kurtosis	<input checked="" type="checkbox"/> Standard deviation	<input type="checkbox"/> Upper quartile	<input type="checkbox"/> Sum	<input checked="" type="checkbox"/> Coeff. of variation	<input type="checkbox"/> Interquartile range	<input type="checkbox"/> Sum of squares	<input type="checkbox"/> Standard error		
<input checked="" type="checkbox"/> Average	<input type="checkbox"/> Winsorized sigma	<input type="checkbox"/> 1/6 sextile																													
<input type="checkbox"/> Median	<input type="checkbox"/> MAD	<input type="checkbox"/> 5/6 sextile																													
<input type="checkbox"/> Mode	<input type="checkbox"/> Sbi	<input type="checkbox"/> Intersextile range																													
<input type="checkbox"/> Geometric mean	<input checked="" type="checkbox"/> Minimum	<input type="checkbox"/> Skewness																													
<input type="checkbox"/> Trimmed mean	<input checked="" type="checkbox"/> Maximum	<input checked="" type="checkbox"/> Std. skewness																													
<input type="checkbox"/> Winsorized mean	<input checked="" type="checkbox"/> Range	<input type="checkbox"/> Kurtosis																													
<input type="checkbox"/> Variance	<input type="checkbox"/> Lower quartile	<input checked="" type="checkbox"/> Std. kurtosis																													
<input checked="" type="checkbox"/> Standard deviation	<input type="checkbox"/> Upper quartile	<input type="checkbox"/> Sum																													
<input checked="" type="checkbox"/> Coeff. of variation	<input type="checkbox"/> Interquartile range	<input type="checkbox"/> Sum of squares																													
<input type="checkbox"/> Standard error																															
<input checked="" type="checkbox"/> Box-and-Whisker Plot Titles and Scaling	<input checked="" type="radio"/> Horizontal <input type="radio"/> Vertical <input type="checkbox"/> Median notch <input checked="" type="checkbox"/> Outlier symbols <input checked="" type="checkbox"/> Mean marker																														
<input type="checkbox"/> Frequency Tabulation																															
<input checked="" type="checkbox"/> Frequency Histogram Titles and Scaling	<input type="checkbox"/> Relative <input type="checkbox"/> Cumulative <input type="checkbox"/> Display as polygon																														

One Variable Analysis – Results to Save

Home

Preferences

Add to Session Logfile

Save Script

ONE VARIABLE ANALYSIS

This procedure calculates statistics for a single column of numeric data. [Documentation](#)

Data Input

Analysis Options

Tables and Graphs

Results to Save

Output

Result to Save	Column name
<input type="checkbox"/> Summary Statistics	STATS
<input type="checkbox"/> Statistics Labels	STATLABELS
<input type="checkbox"/> Percentiles	PERCENTILES
<input type="checkbox"/> Percentages	PERCENTAGES
<input type="checkbox"/> Frequencies	FREQS
<input type="checkbox"/> Cumulative frequencies	CUMFREQS
<input type="checkbox"/> Relative frequencies	RELFREQS
<input type="checkbox"/> Cum. relative frequencies	CUMRELFREQS

One Variable Analysis – Output

ONE VARIABLE ANALYSIS

This procedure calculates statistics for a single column of numeric data. [Documentation](#)

Statgraphics stratus

Generated: 9/28/2015 11:27:58 AM

Data file: stratussupport_old faithful.sgd

One Variable Analysis - duration

Data variable: duration (minutes)

272 values ranging from 1.6 to 5.1

The StatAdvisor

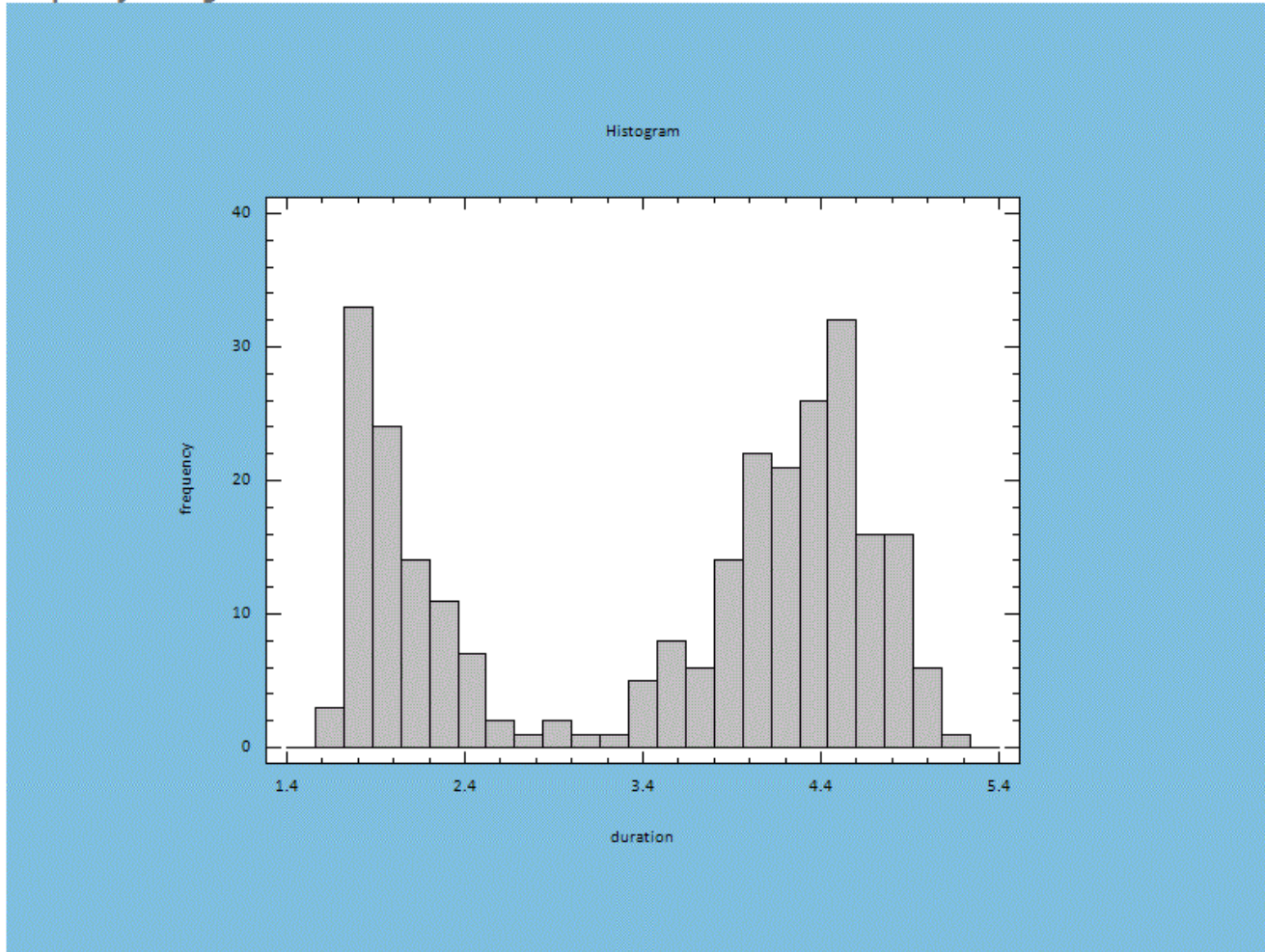
This procedure is designed to summarize a single sample of data. It will calculate various statistics and graphs. Also included in the procedure are confidence intervals and hypothesis tests.

Summary Statistics for duration

Count	272
Average	3.48778
Standard deviation	1.14137
Coeff. of variation	32.7248%
Minimum	1.6
Maximum	5.1
Range	3.5
Std. skewness	-2.81541
Std. kurtosis	-5.07051

Frequency Histogram

Frequency Histogram



Changing Analysis Options

Home

Preferences

Add to Session Logfile

Save Script

ONE VARIABLE ANALYSIS

This procedure calculates statistics for a single column of numeric data. [Documentation](#)

Data Input

Analysis Options

Tables and Graphs

Results to Save

Output

Tabulation Intervals

(Leave fields blank to use system defaults.)

Number of classes:

Lower limit:

Upper limit:

Changing Titles and Scaling

Item	Text	Scale From	Scale To	Scale By	Skip Increment	Options
Title	Old Faithful Geyser					
Subtitle	272 eruptions					
X-axis	duration in minutes	1.5	5.5	0.5	0	<input type="checkbox"/> Log scale <input type="checkbox"/> Powers of 10 <input type="checkbox"/> No power <input type="checkbox"/> Skip repeats <input type="checkbox"/> Rotate tickmarks
Y-axis					0	<input type="checkbox"/> Log scale <input type="checkbox"/> Powers of 10 <input type="checkbox"/> No power <input type="checkbox"/> Skip repeats
Z-axis					0	<input type="checkbox"/> Log scale <input type="checkbox"/> Powers of 10 <input type="checkbox"/> No power <input type="checkbox"/> Skip repeats

Changing Fills and Fonts

SET PREFERENCES

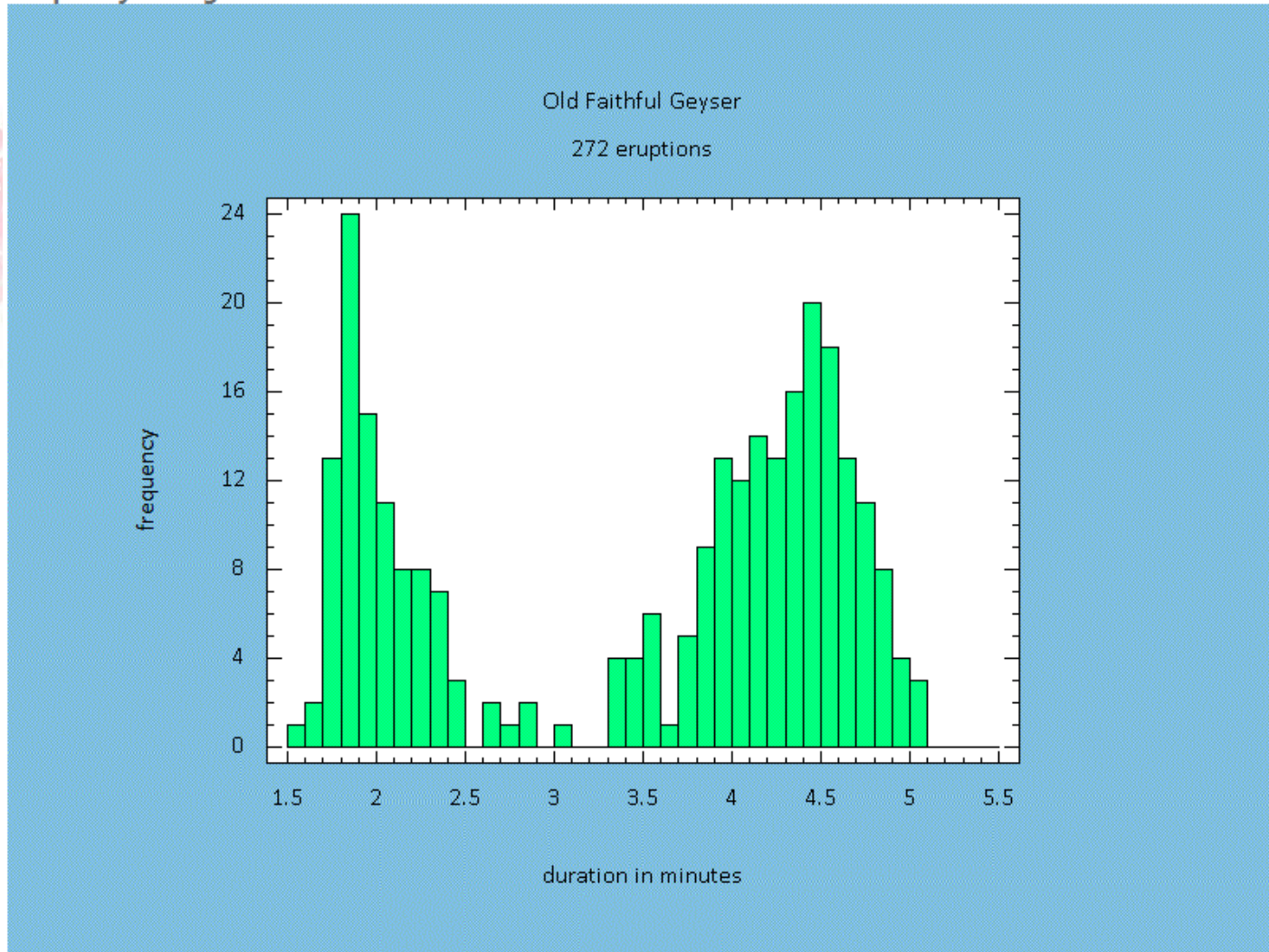
	Select new color:	Select new type:
	SpringGreen	Solid
<input checked="" type="radio"/> Fill set #1	SpringGreen	Solid
<input type="radio"/> Fill set #2	CornflowerBlue	Solid
<input type="radio"/> Fill set #3	Violet	Solid
<input type="radio"/> Fill set #4	LightGreen	Solid
<input type="radio"/> Fill set #5	DarkOrange	Solid
<input type="radio"/> Fill set #6	PaleTurquoise	Solid
<input type="radio"/> Fill set #7	Tea	Solid
<input type="radio"/> Fill set #8	Olive	Solid
<input type="radio"/> Fill set #9	Khaki	Solid
<input type="radio"/> Fill set #10	SteelBlue	Solid
<input type="radio"/> Fill set #11	Tomato	Solid
<input type="radio"/> Fill set #12	DarkOrchid	Solid
<input type="radio"/> Fill set #13	SlateGray	Solid
<input type="radio"/> Fill set #14	Goldenrod	Solid
<input type="radio"/> Fill set #15	Purple	Solid
<input type="radio"/> Fill set #16	Chocolate	Solid
<input type="radio"/> Fill set #17	SpringGreen	Solid
<input type="radio"/> Fill set #18	Coral	Solid
<input type="radio"/> Fill set #19	Yellow	Solid
<input type="radio"/> Fill set #20	LawnGreen	Solid
	Defaults	Defaults

General Settings
Internationalization
Fonts
Graphics
Fills
Lines
Points

Save Cancel Color Table: Foreground Background

Final Graph

Frequency Histogram



Save Script

```
<statgraphics>
- <globals>
  <DataEditorType Value="0"/>
  <FunctionResolution Value="101"/>
  <ContourResolution Value="51"/>
  <BorderColor Value="SkyBlue"/>
  <InputDateFormat Value="M/D/YYYY"/>
  <OutputDateFormat Value="M/D/YY"/>
  <GraphTextSize Value="12"/>
  <FillColor1 Value="SpringGreen"/>
  <FillColor10 Value="SteelBlue"/>
  <PointType1 Value="Filled Square"/>
  <PointType17 Value="Square"/>
  <PointType18 Value="X"/>
  <PointType19 Value="Circle"/>
  <PointType20 Value="Plus"/>
</globals>
- <data Alias="stratussupport_old faithful.sgd" Source="datafiles/stratussupport_old faithful.sgd">
  <DecimalSeparator Value="."/>
  <DateFormat Value="M/D/YYYY"/>
  <MissingValue Value="">
</data>
- <proc name="ONEVAR">
  - <input>
    <Y Value="duration"/>
  </input>
  - <options>
    <Classes Value="40"/>
    <From Value="1.5"/>
    <To Value="5.5"/>
  </options>
  - <output>
    - <graph Name="Histogram">
      <Toptitle Value="Old Faithful Geyser"/>
      <Subtitle Value="272 eruptions"/>
      <XaxisTitle Value="duration in minutes"/>
      <XaxisFrom Value="1.5"/>
      <XaxisTo Value="5.5"/>
```

Rerun Script

EXECUTE SCRIPT

Scripts on server: [Display](#)

[Execute](#) [Return](#)

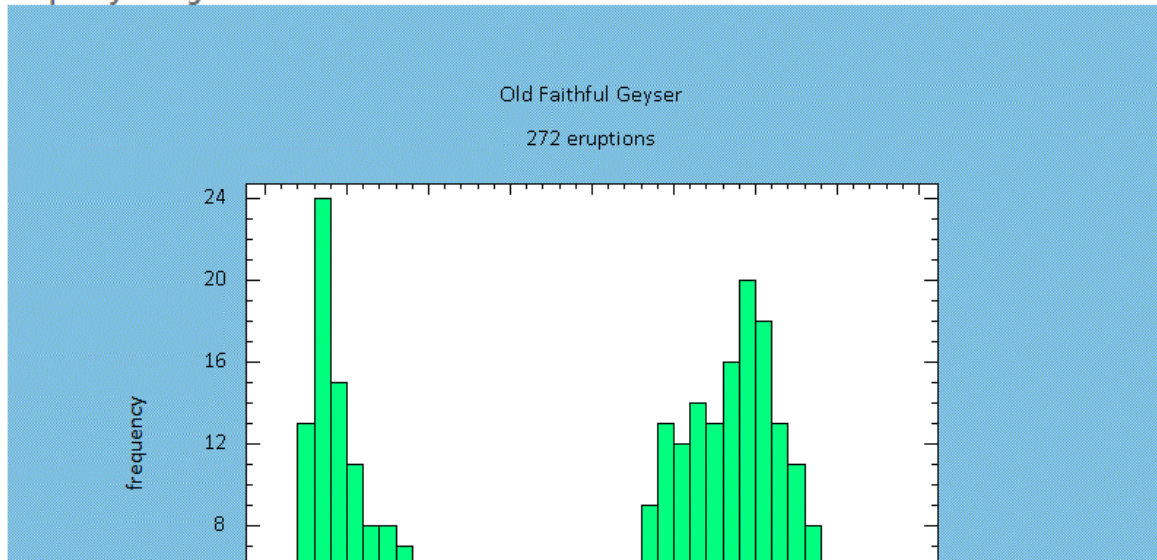
Statgraphics stratus

Generated: 9/28/2015 11:45:10 AM

Data file: stratussupport_old faithful.sgd

[One Variable Analysis - duration](#)

Frequency Histogram



Statlets

- *Stratus* also contains implementations of the interactive Statlets introduced in Centurion XVII.
- Statlets use HTML5 canvases and Javascript to let users interact with the graphs.
- Very useful for rotating 3D graphs and visualizing the effect of changing procedure options.

Statlets - Input

Home

Preferences

Add to Session Logfile

Save Script

INTERACTIVE HISTOGRAM STATLET

This applet displays a frequency histogram for a column of numeric data. You may change the definition of the intervals into which the data are tabulated. You may also display a fitted normal curve or a nonparametric density trace. [Documentation](#)

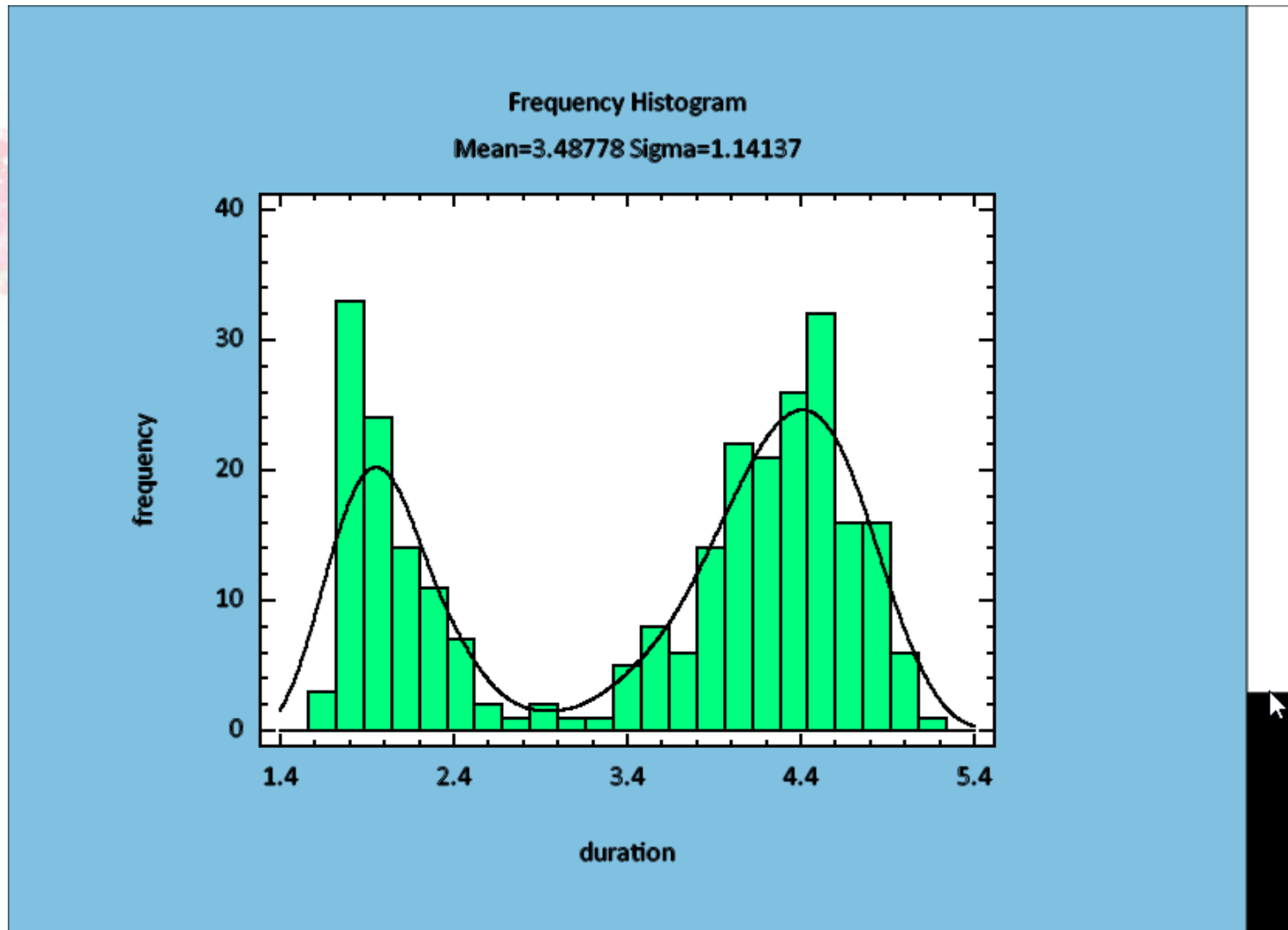
Data:

(Select:)

Show histogram From: To: Classes: Use default scaling

Add normal curve Add density trace with width:

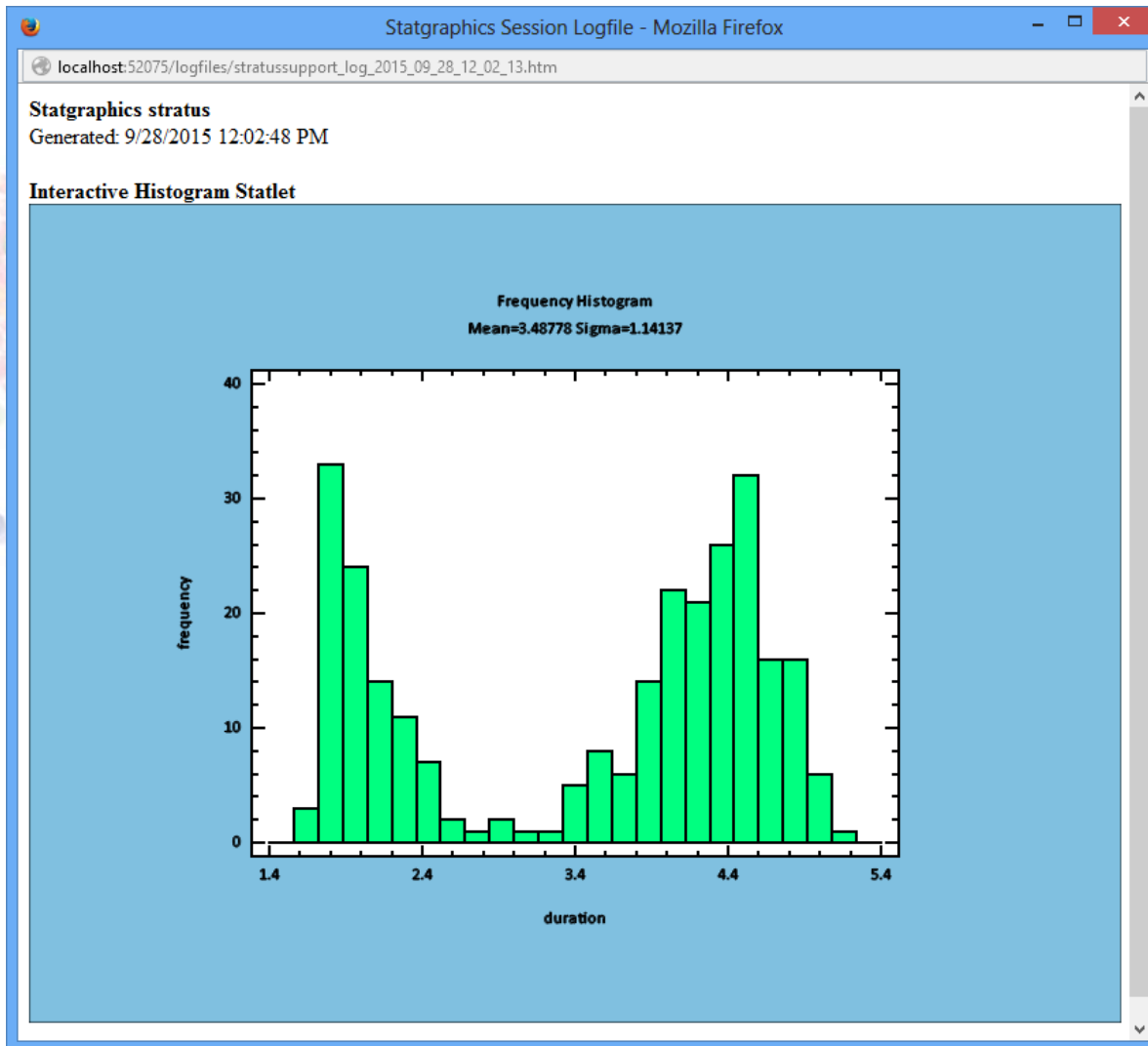
Statlets - Output



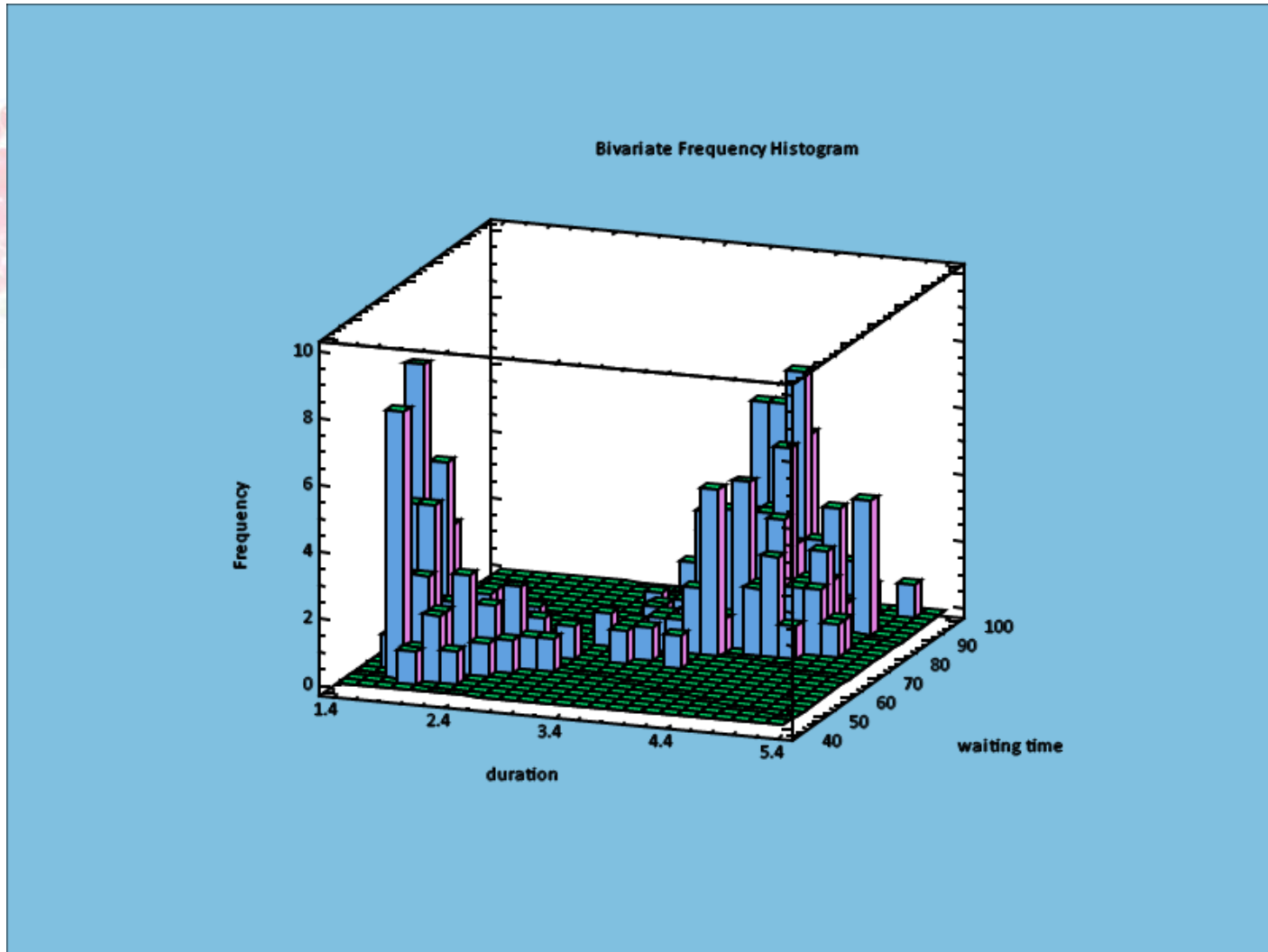
Add to Session Logfile

- Push button to add contents of output button to the session logfile.
- View by selecting *File – Manage Files – Manage Session Logfiles*.

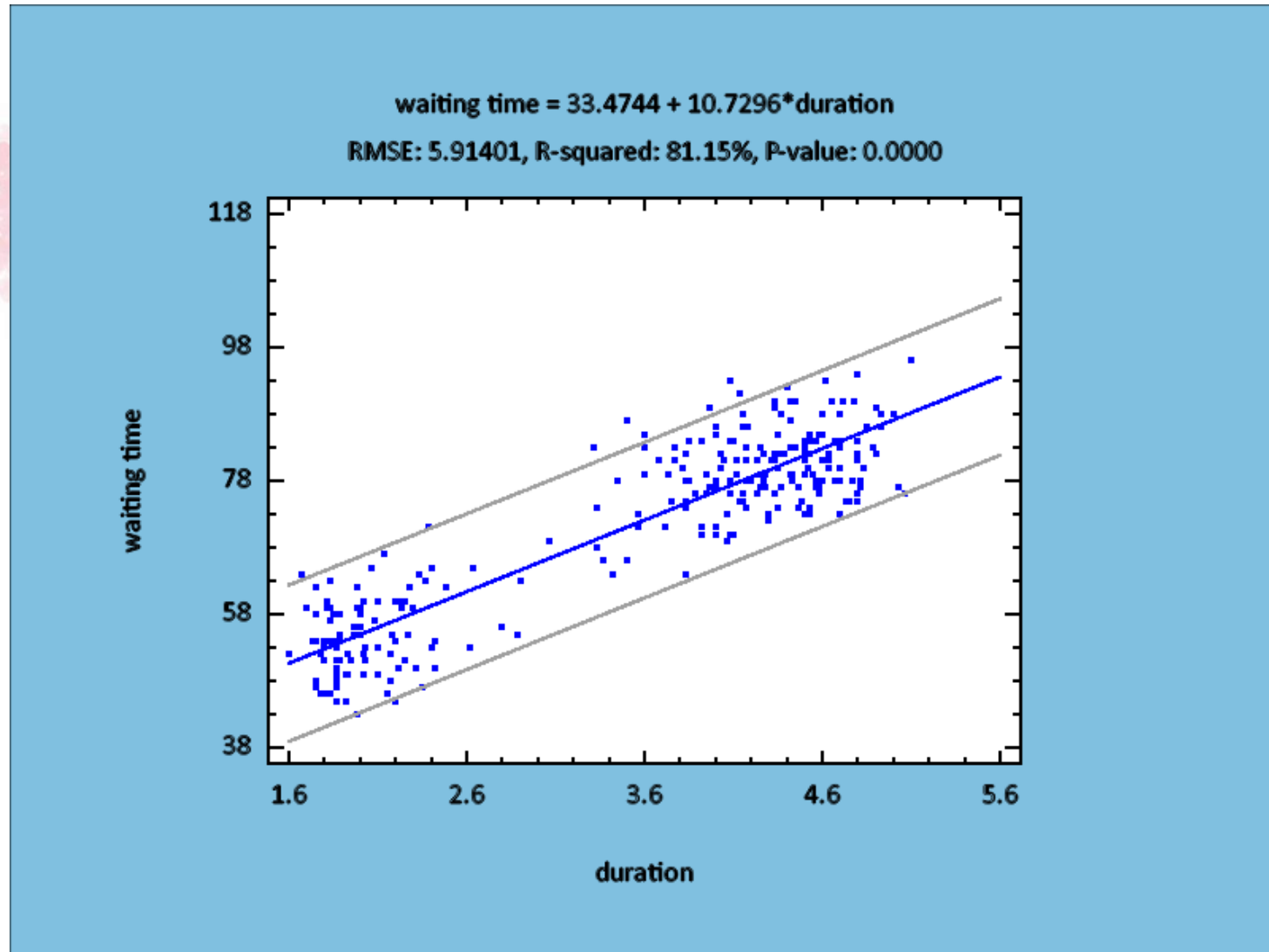
Session Logfile



Bivariate Histogram



Linear Regression



Entering Expressions

Home

Preferences

Add to Session Logfile

Save Script

X-Y SCATTERPLOT

This procedure plots data contained in two data columns. [Documentation](#)

Data Input

Tables and Graphs

Output

Y:

X:

(Point Codes:)

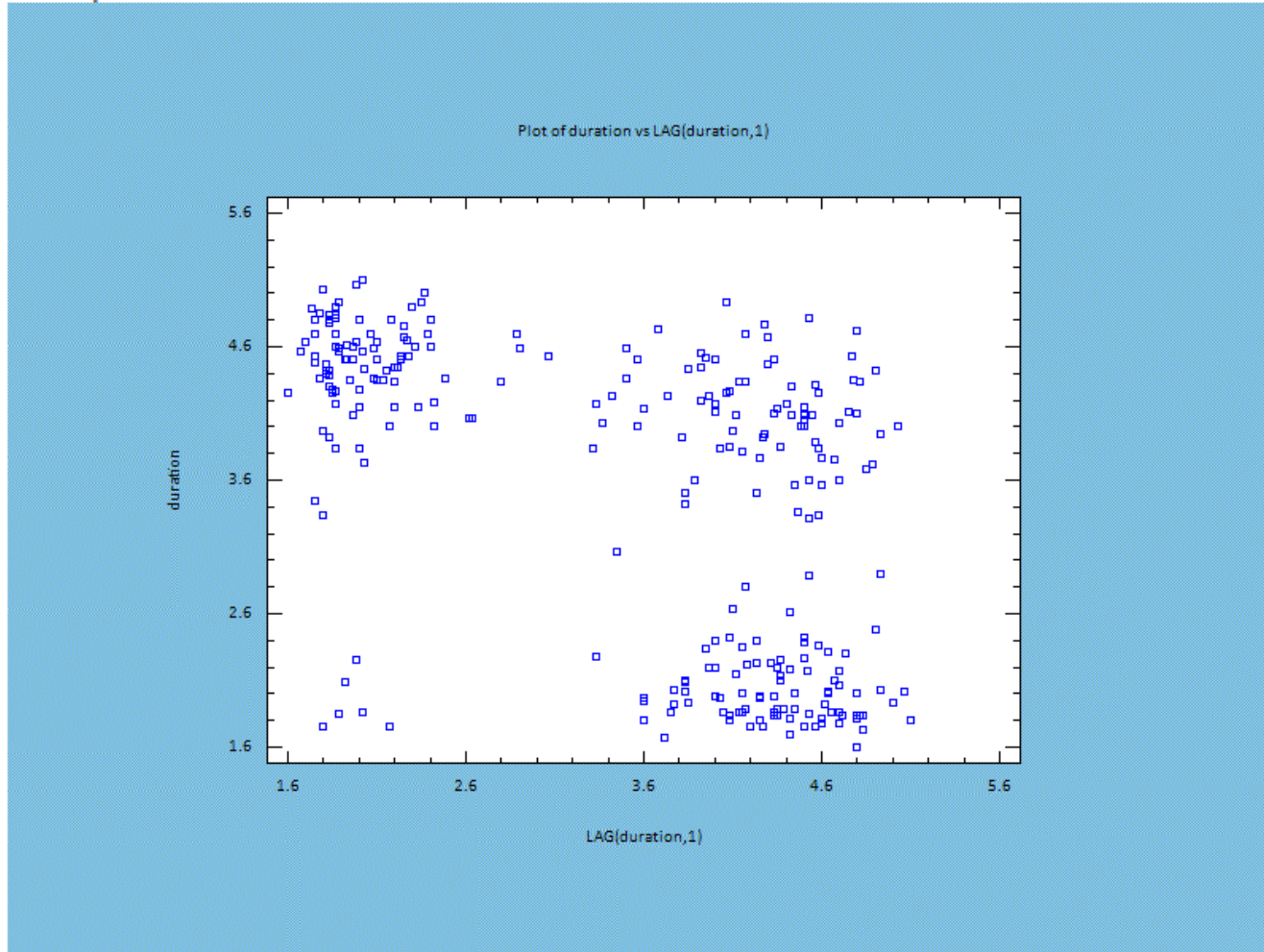
(Standard Errors for X:)

(Standard Errors for Y:)

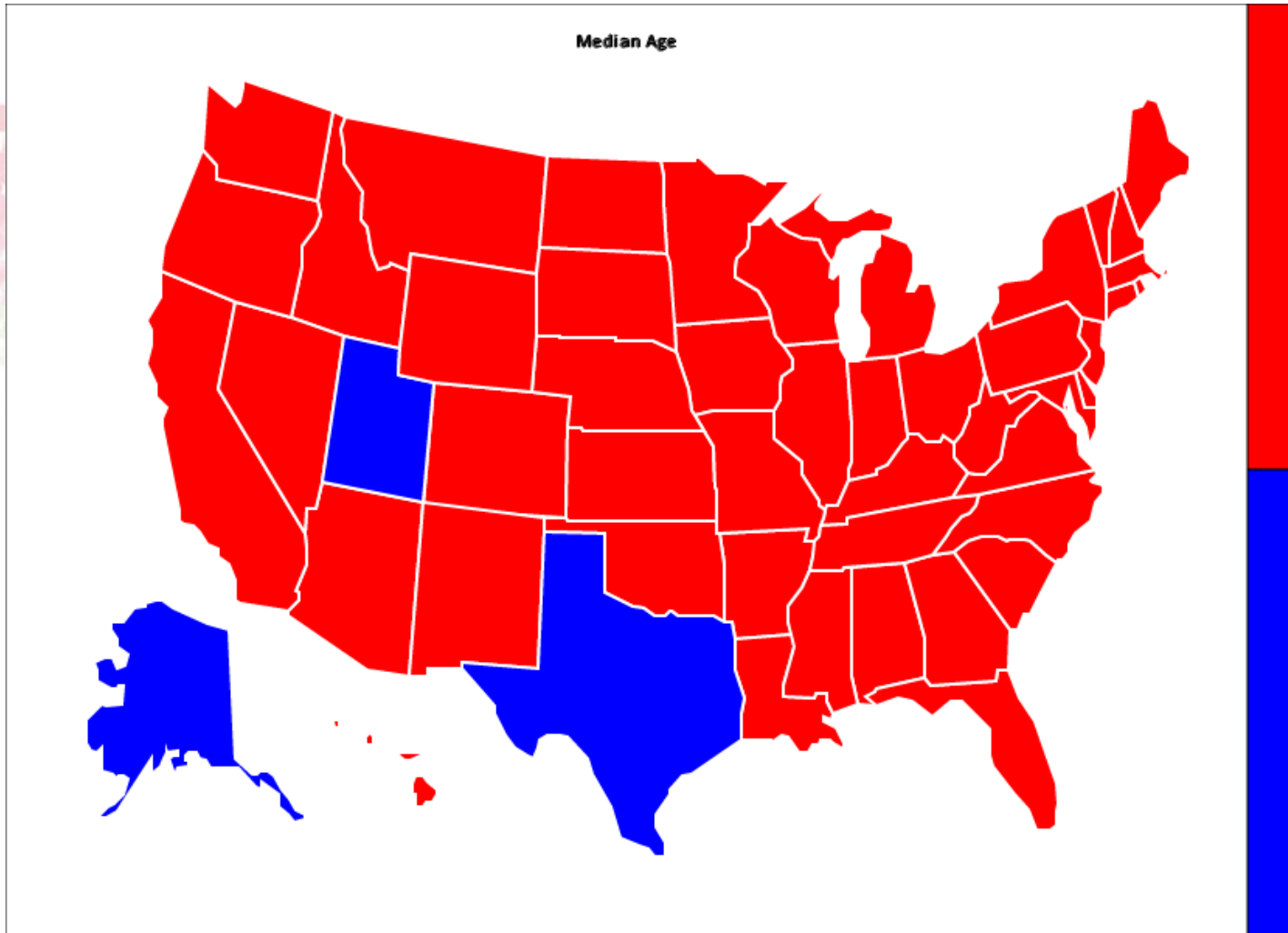
(Select:)

X-Y Scatterplot

Scatterplot



Interactive Map Statlet



Sample Size Determination Statlet

SAMPLE SIZE DETERMINATION STATLET

This Statlet determines the sample size needed to estimate or test values of various parameters. The size may be based on either the width of a confidence interval or the power of a hypothesis test. [Documentation](#)

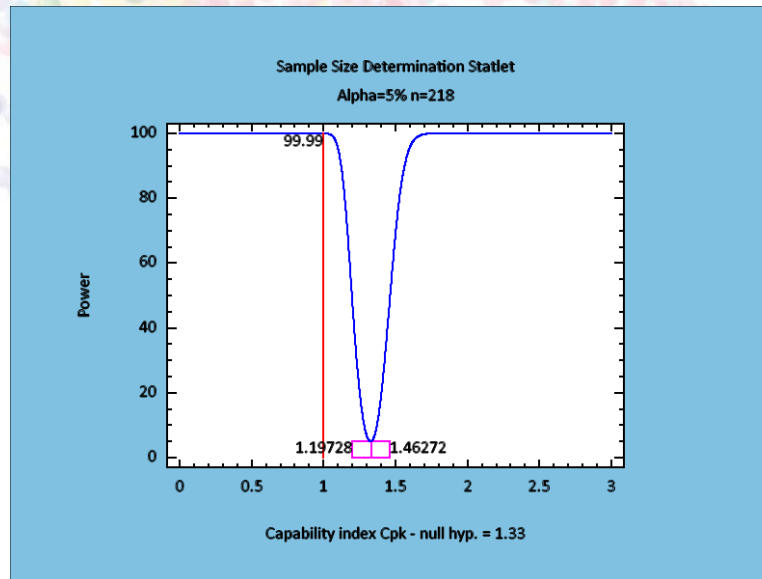
Parameter to be estimated:

Null hypothesis: Alpha risk: %

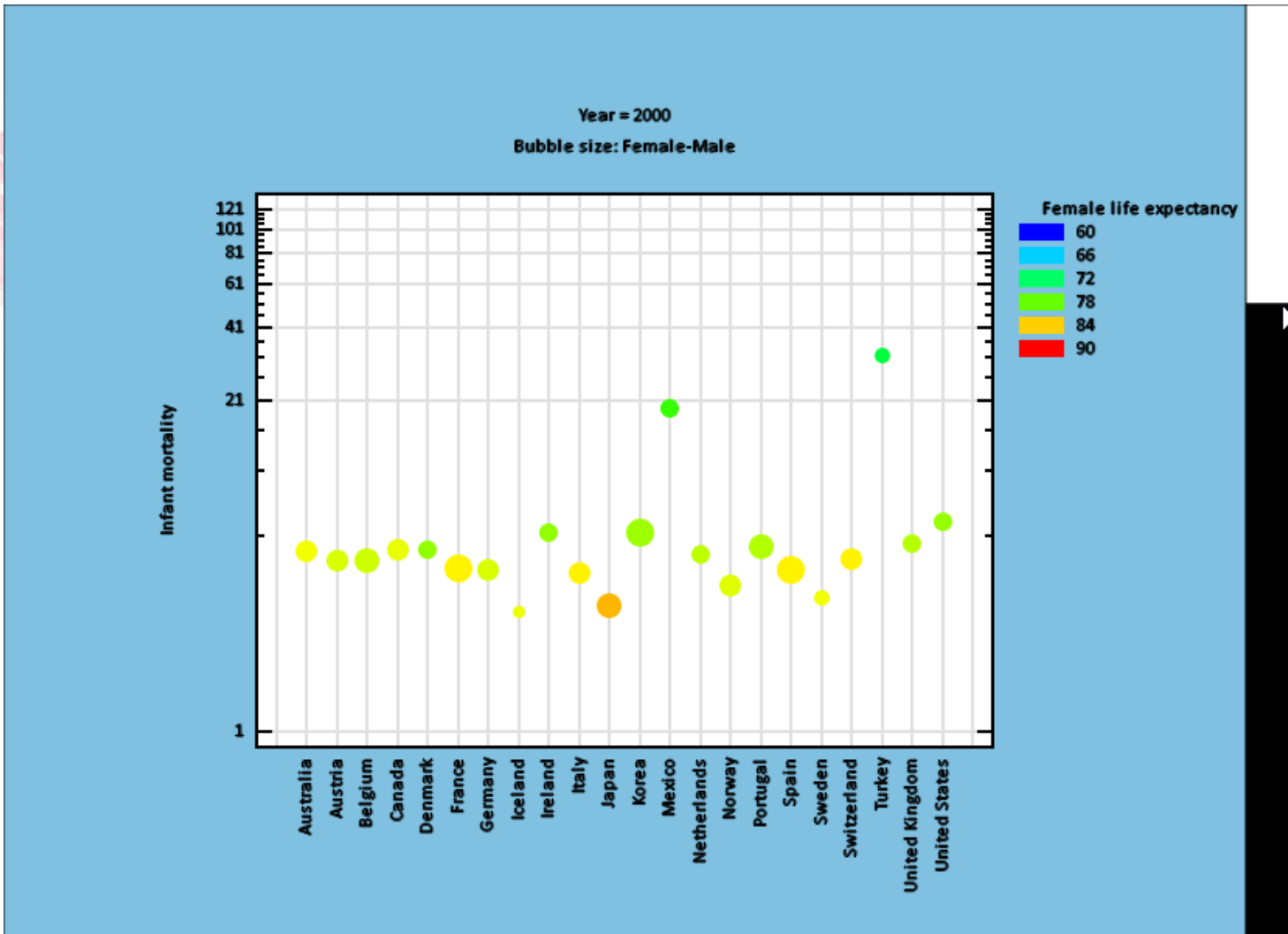
Alt. hypothesis: Type:

Base sample size on: Relative error: %

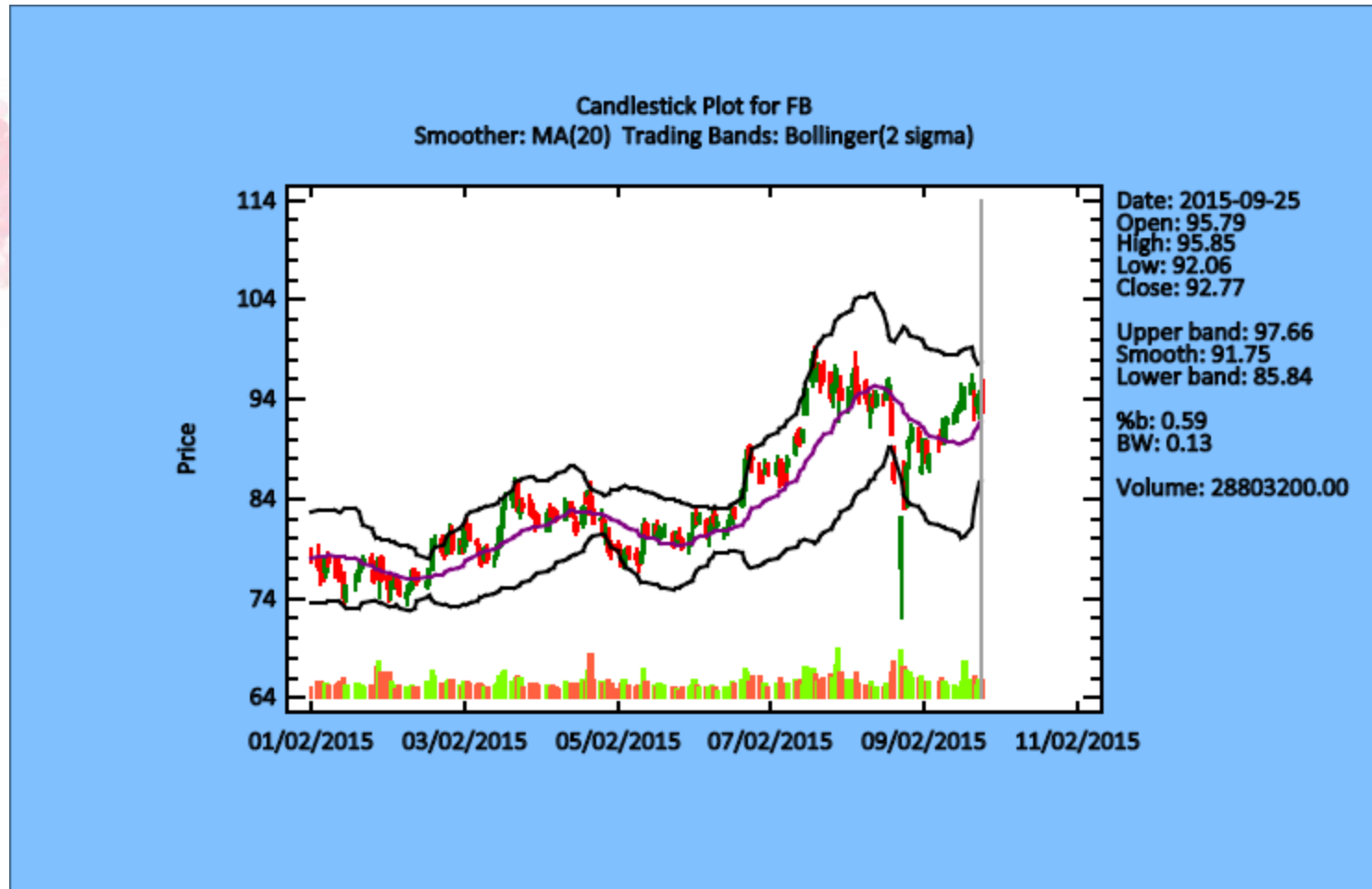
Plot alternative hypothesis Plot confidence limits



Visualizers



Stock Price Plot



Recorded Webinar

- You may find the recorded webinar, PowerPoint slides and sample data at:

www.statgraphics.com

- Look for “Instructional Videos”.
- Try *Stratus* at www.statpoint.net