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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.

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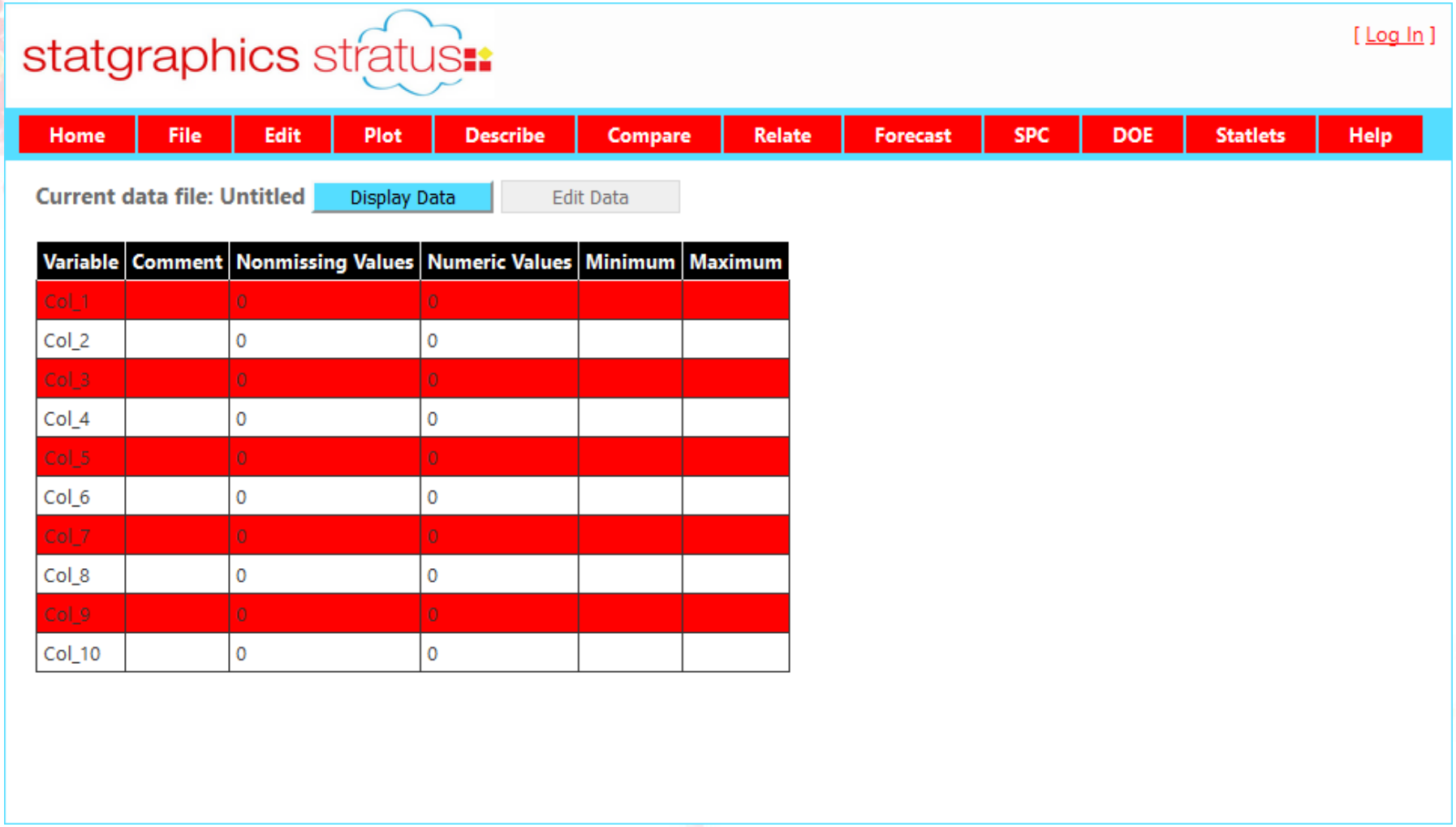
Stratus

- 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



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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.

Usernames

- 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.

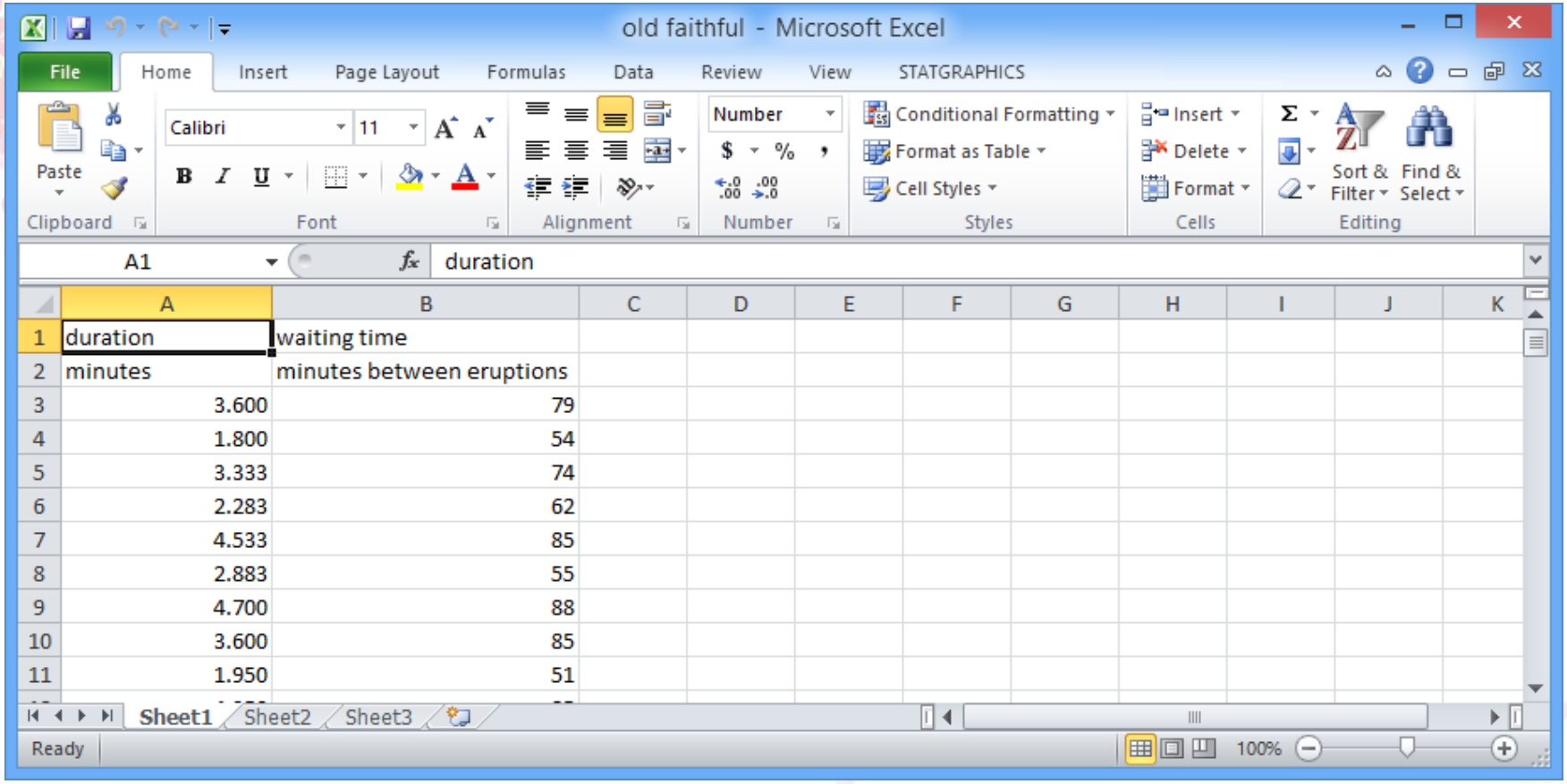
Ways to Access Data

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



	A	B
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.

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Example: Opening an Excel File

File Summary

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Welcome **stratussupport**! [Log Out]

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

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

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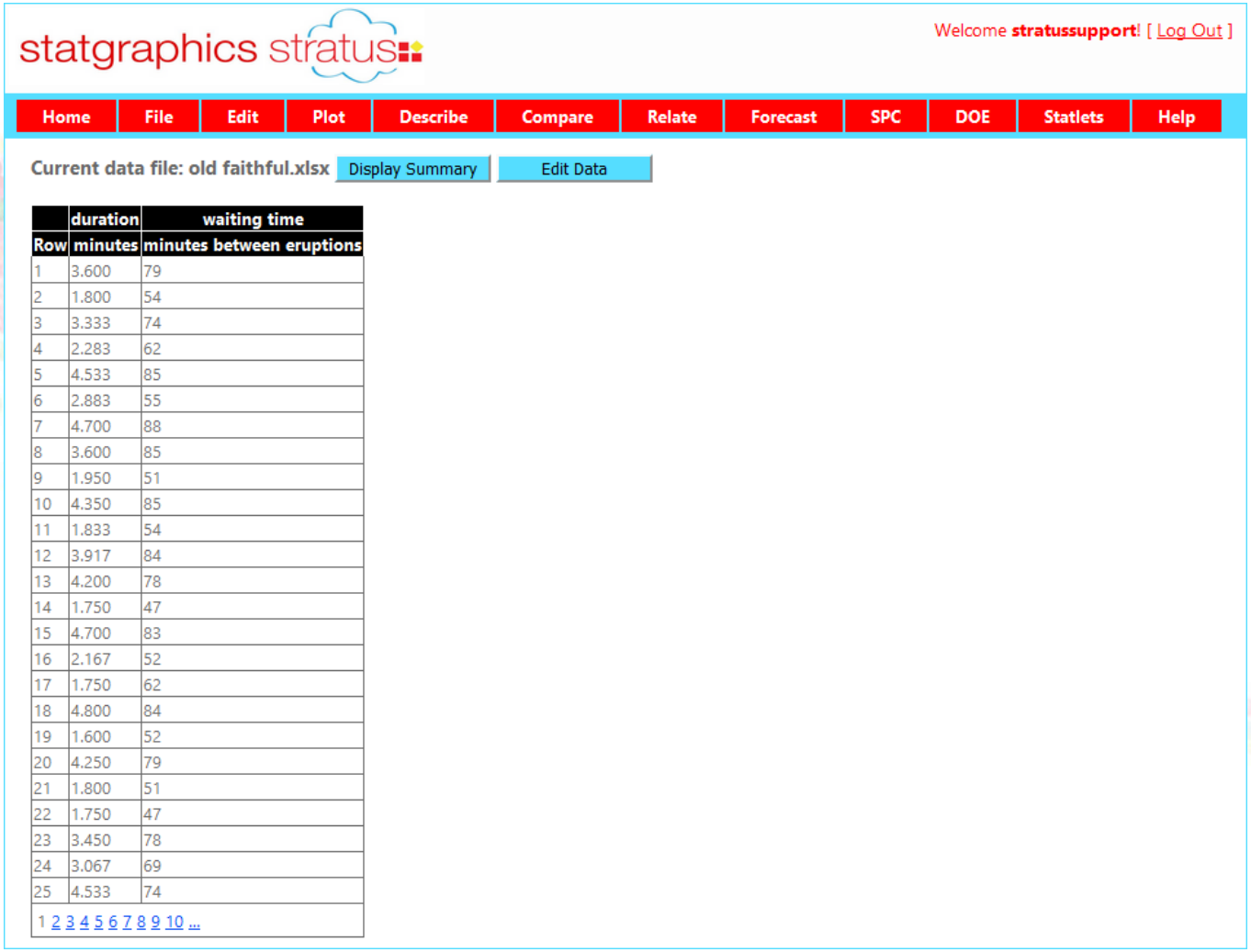
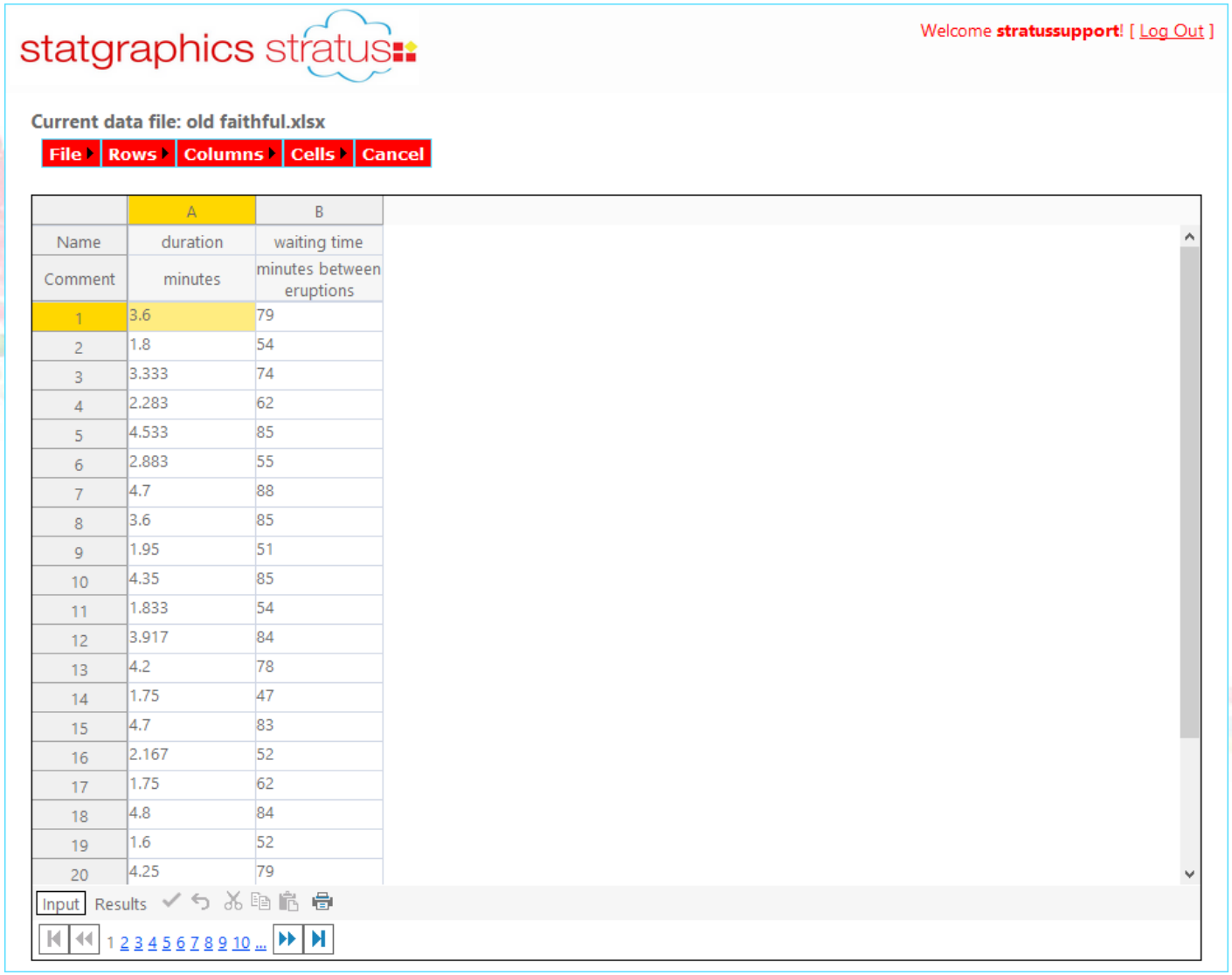
Display Data



	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



	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

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Save File on Server

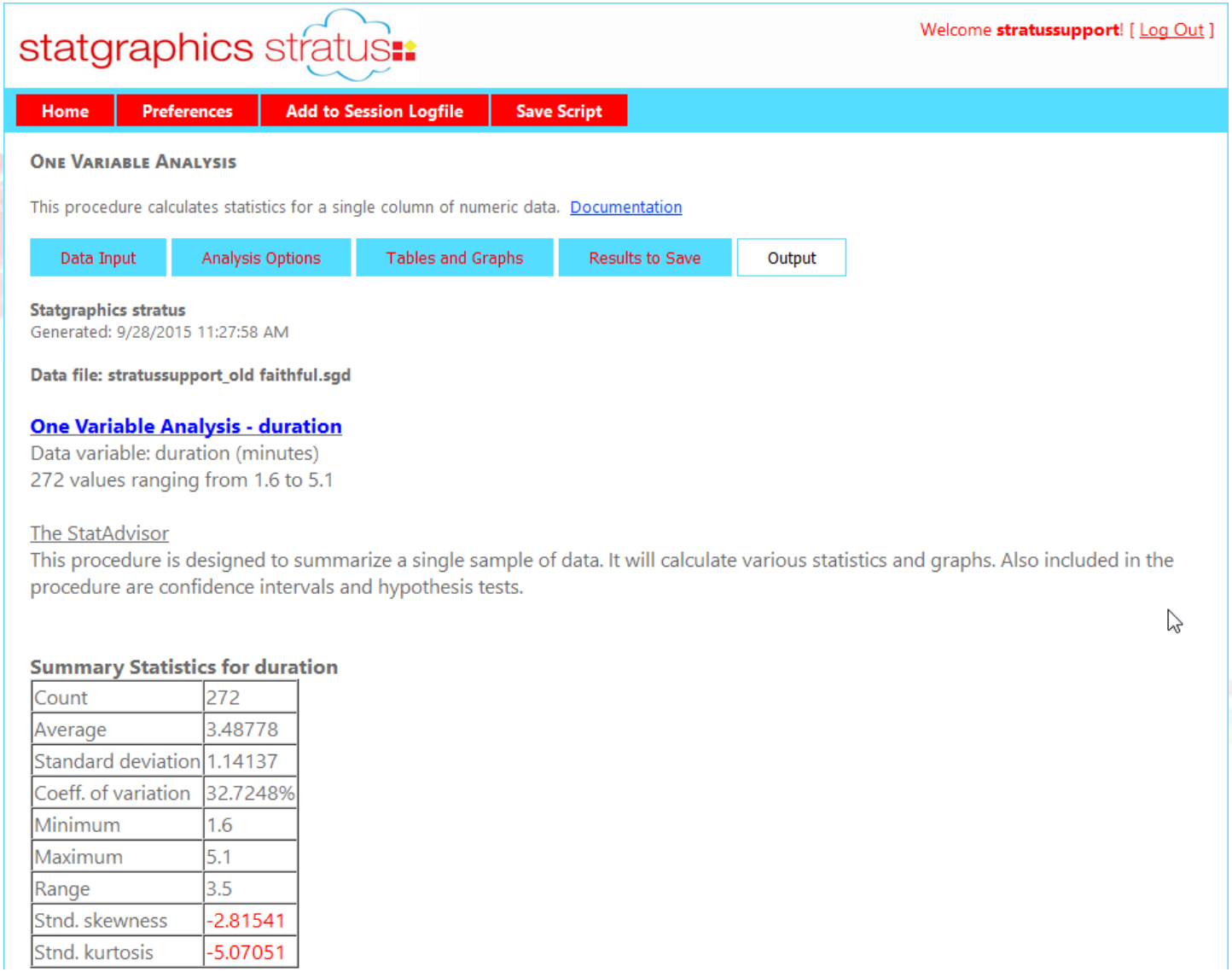
One Variable Analysis – Data Input

One Variable Analysis – Analysis Options

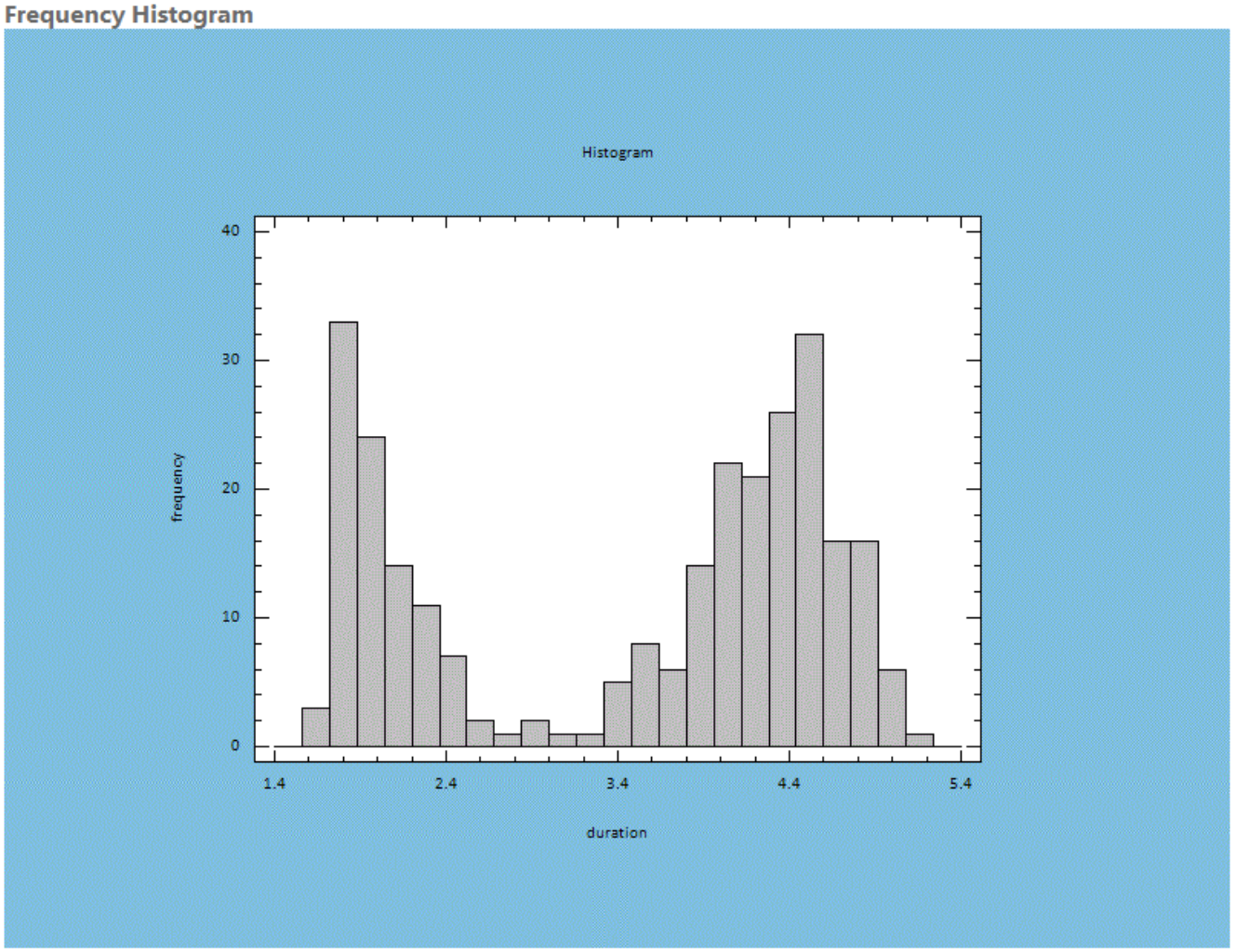
One Variable Analysis – Tables and Graphs

One Variable Analysis – Results to Save

One Variable Analysis – Output



Frequency Histogram

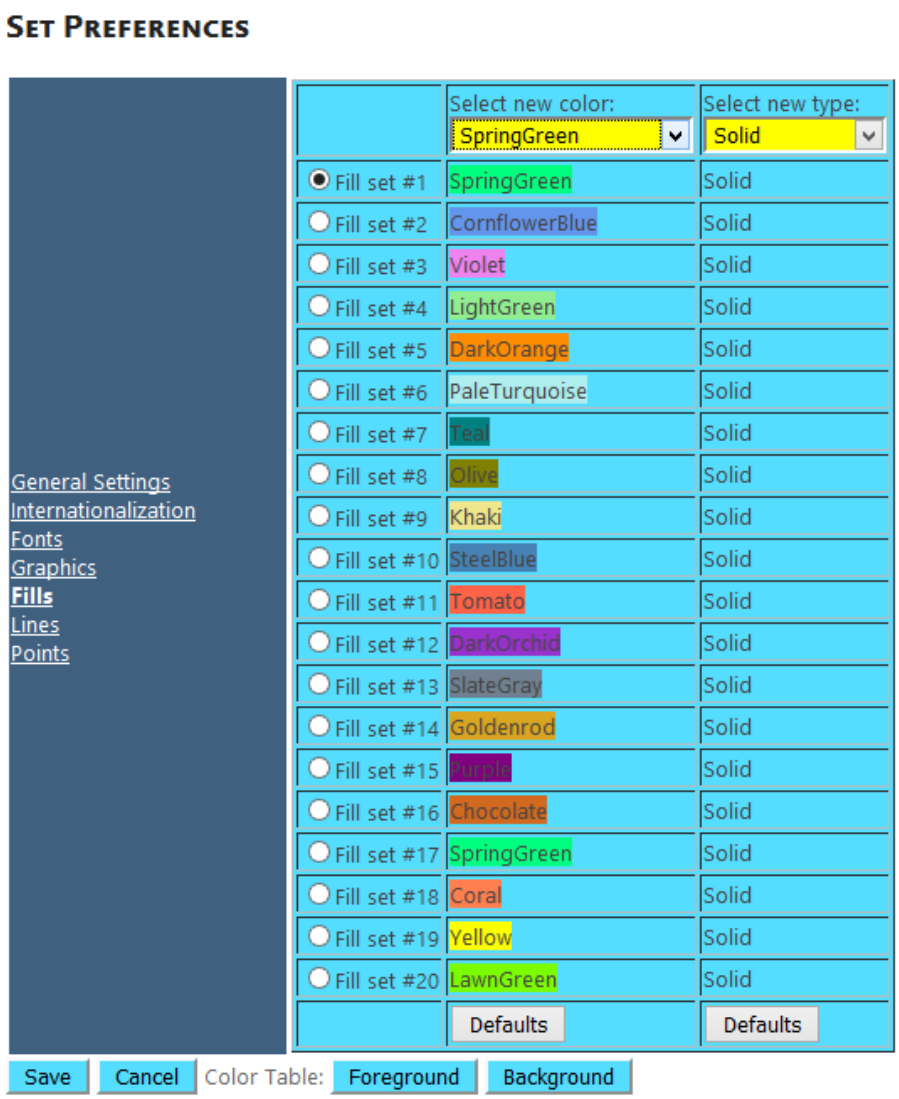


Changing Analysis Options

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	☐ Log scale ☐ Powers of 10 ☐ No power ☐ Skip repeats ☐ Rotate tickmarks
Y-axis					0	☐ Log scale ☐ Powers of 10 ☐ No power ☐ Skip repeats
Z-axis					0	☐ Log scale ☐ Powers of 10 ☐ No power ☐ Skip repeats

Changing Fills and Fonts



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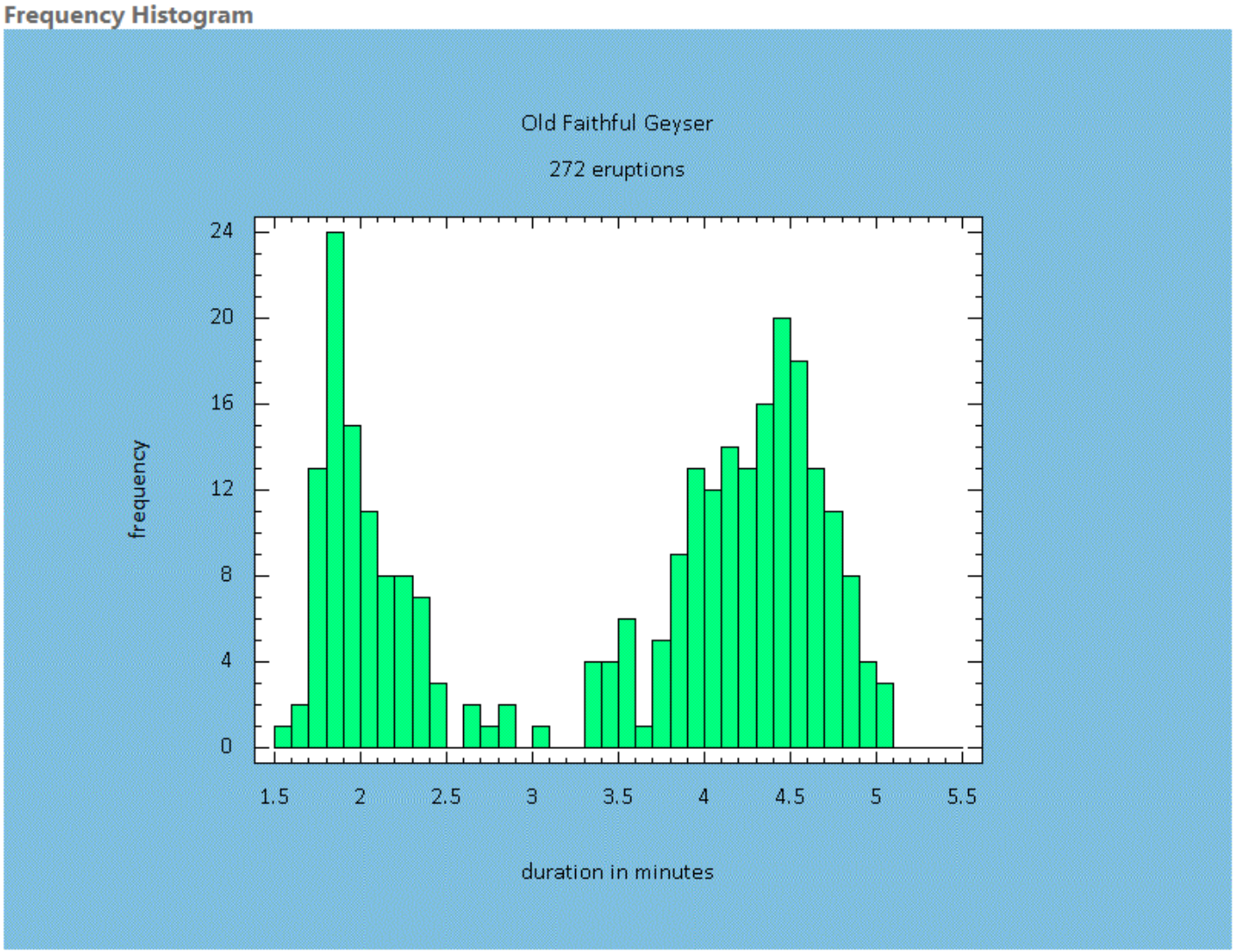
Final Graph



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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

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Welcome **stratussupport**! [Log Out]

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

Execute Script

Scripts on server: old faithful histogram.sgs Display

Execute Return

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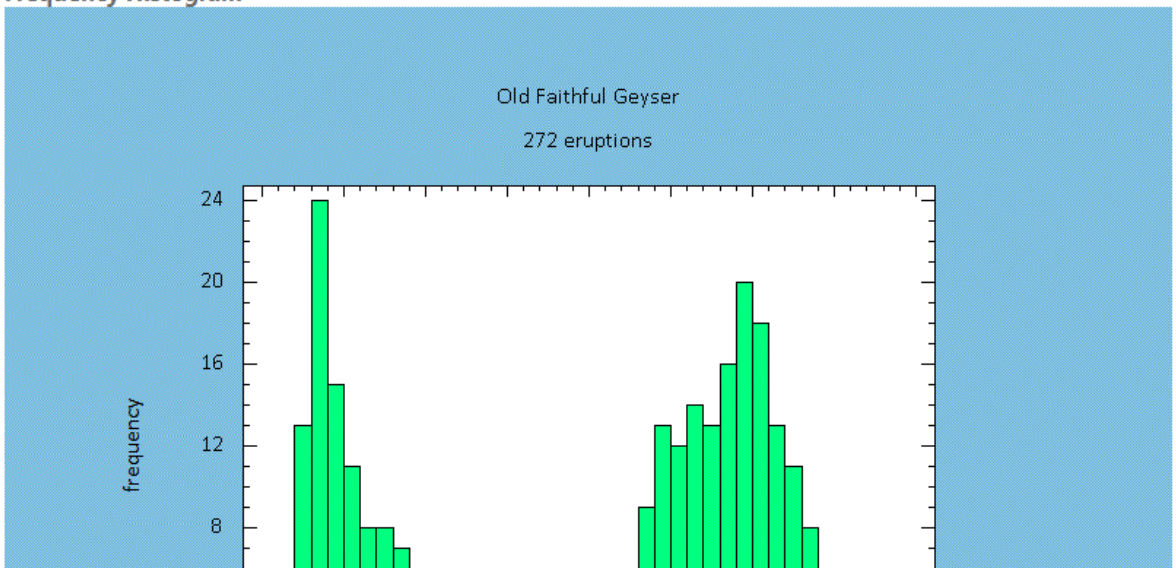
Generated: 9/28/2015 11:45:10 AM

Data file: stratussupport_old faithful.sgd

One Variable Analysis - duration
Frequency Histogram



Statlets

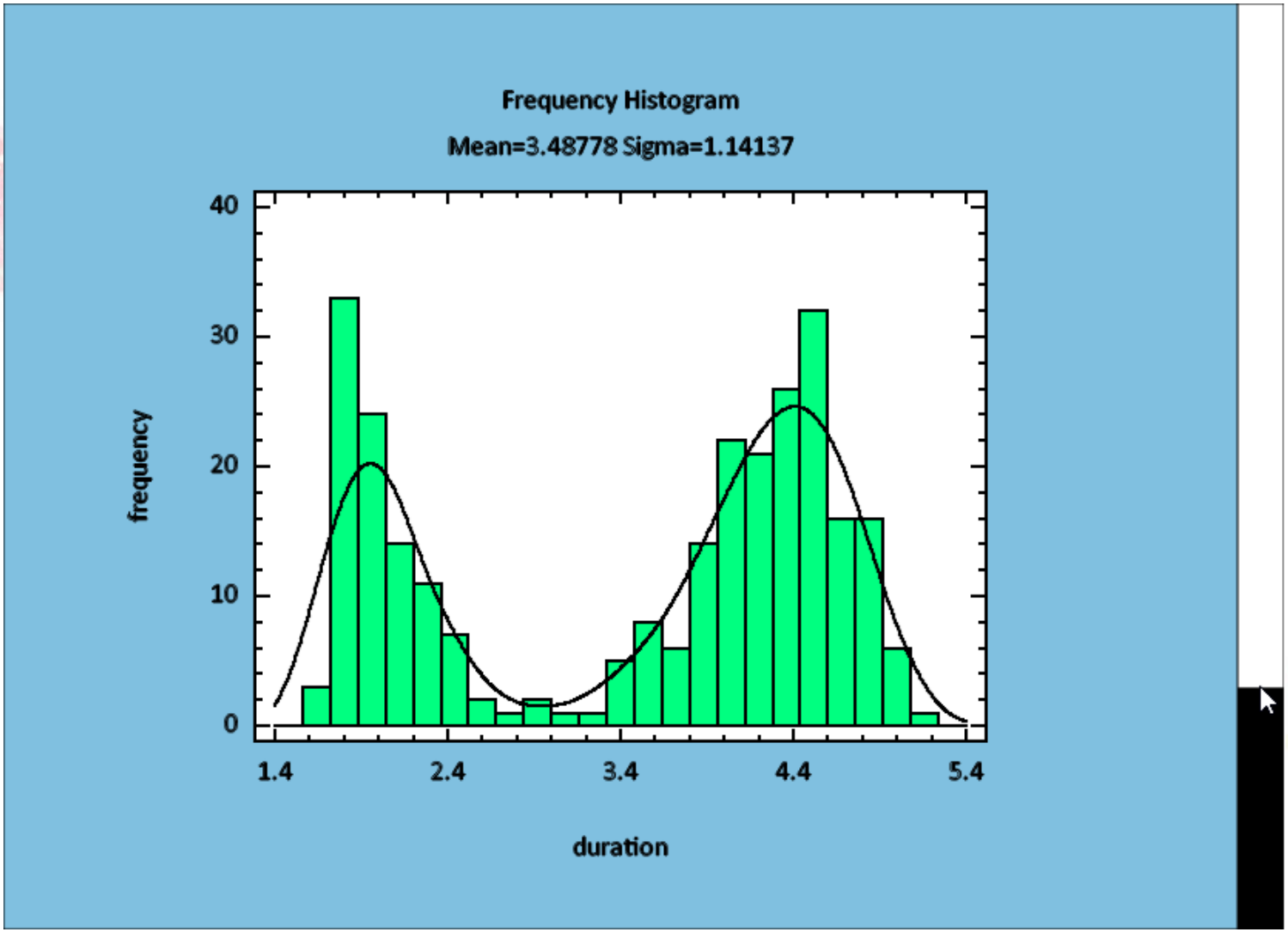
- *Stratus* also contains implementations of the interactive Statlets introduced in Centurion XVII.

- 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

Statlets - Output



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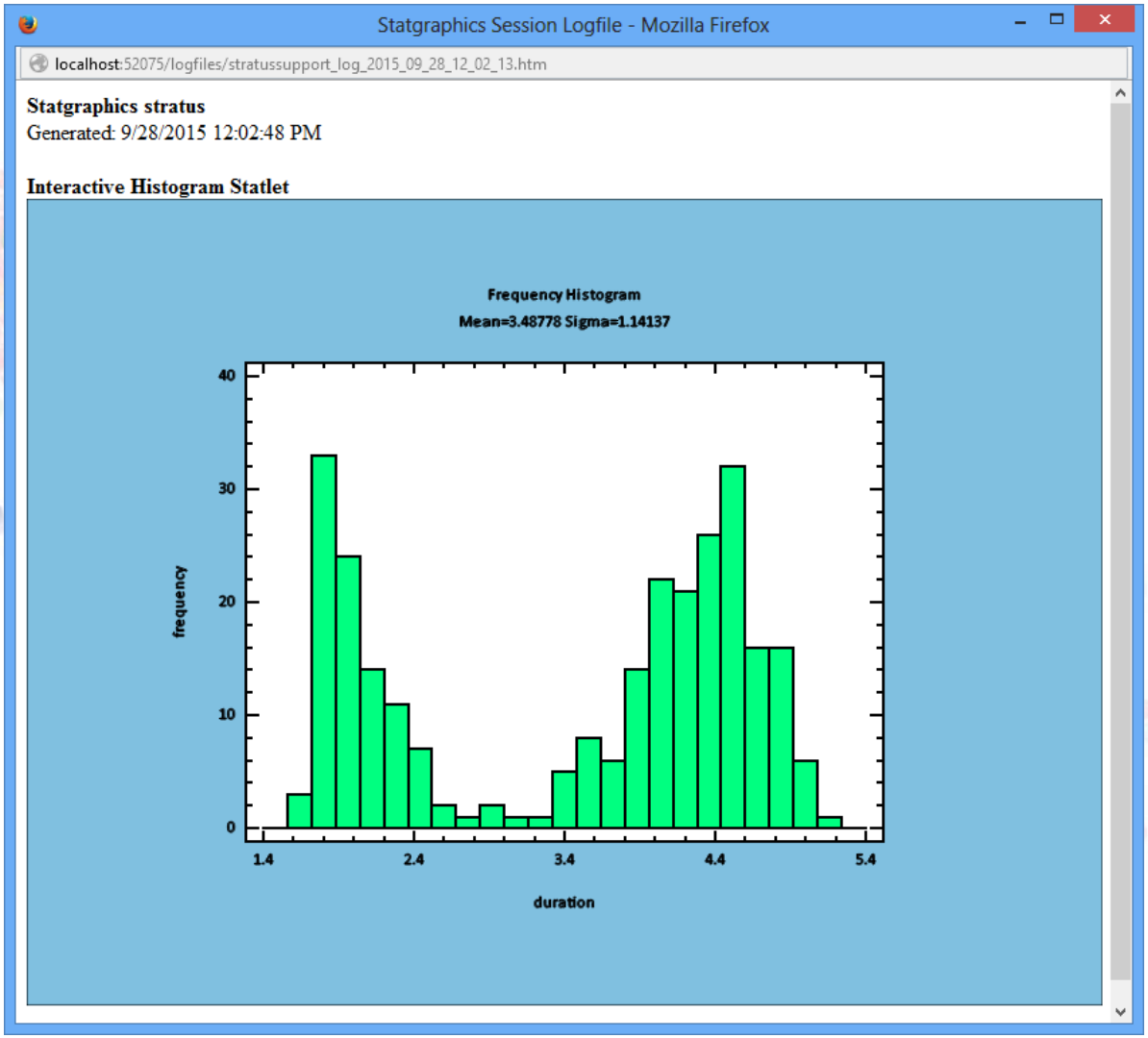
Add to Session Logfile

- Push button to add contents of output button to the session logfile.

- View by selecting *File – Manage Files – Manage Session Logfiles*.

Session Logfile



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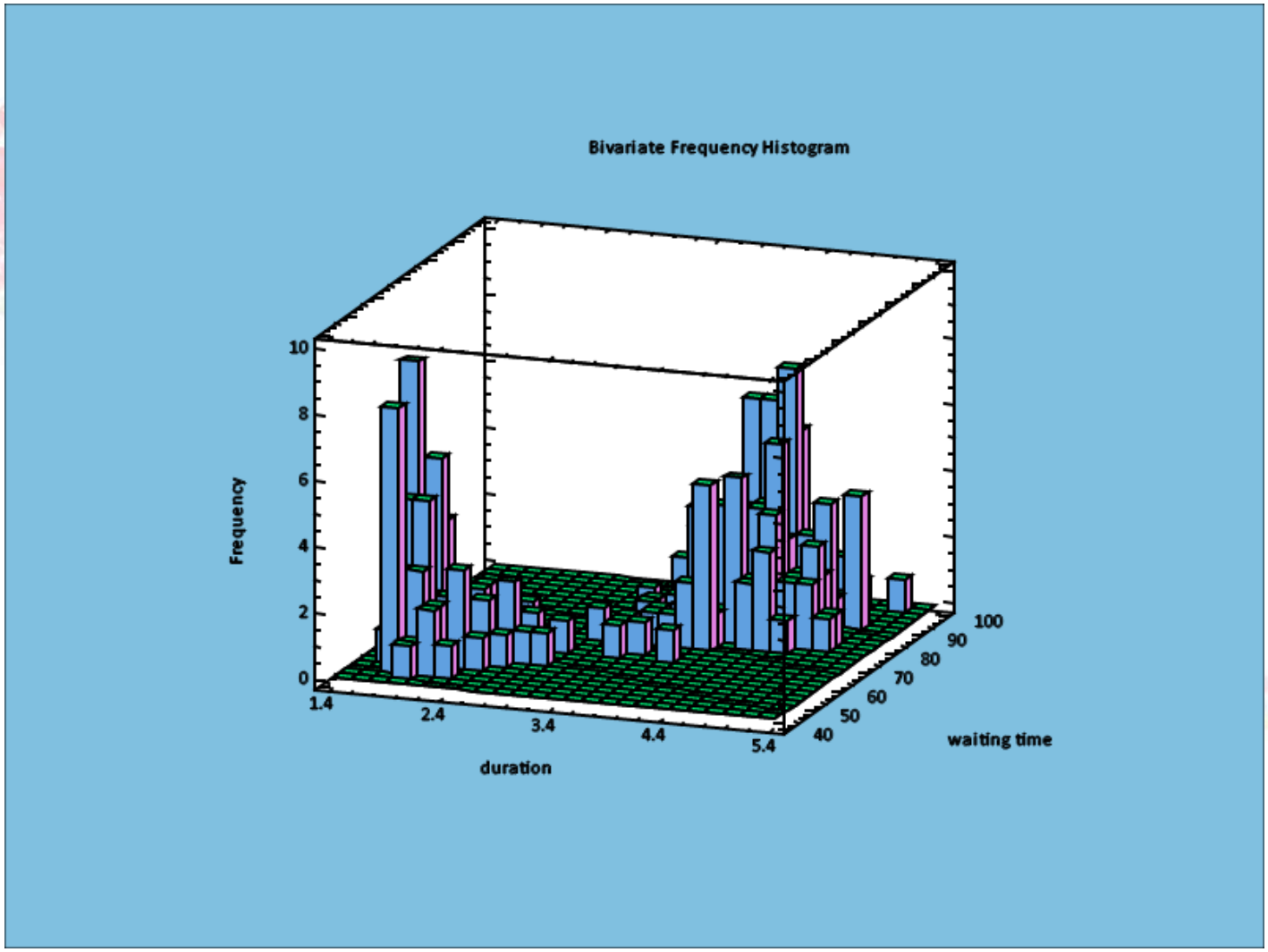
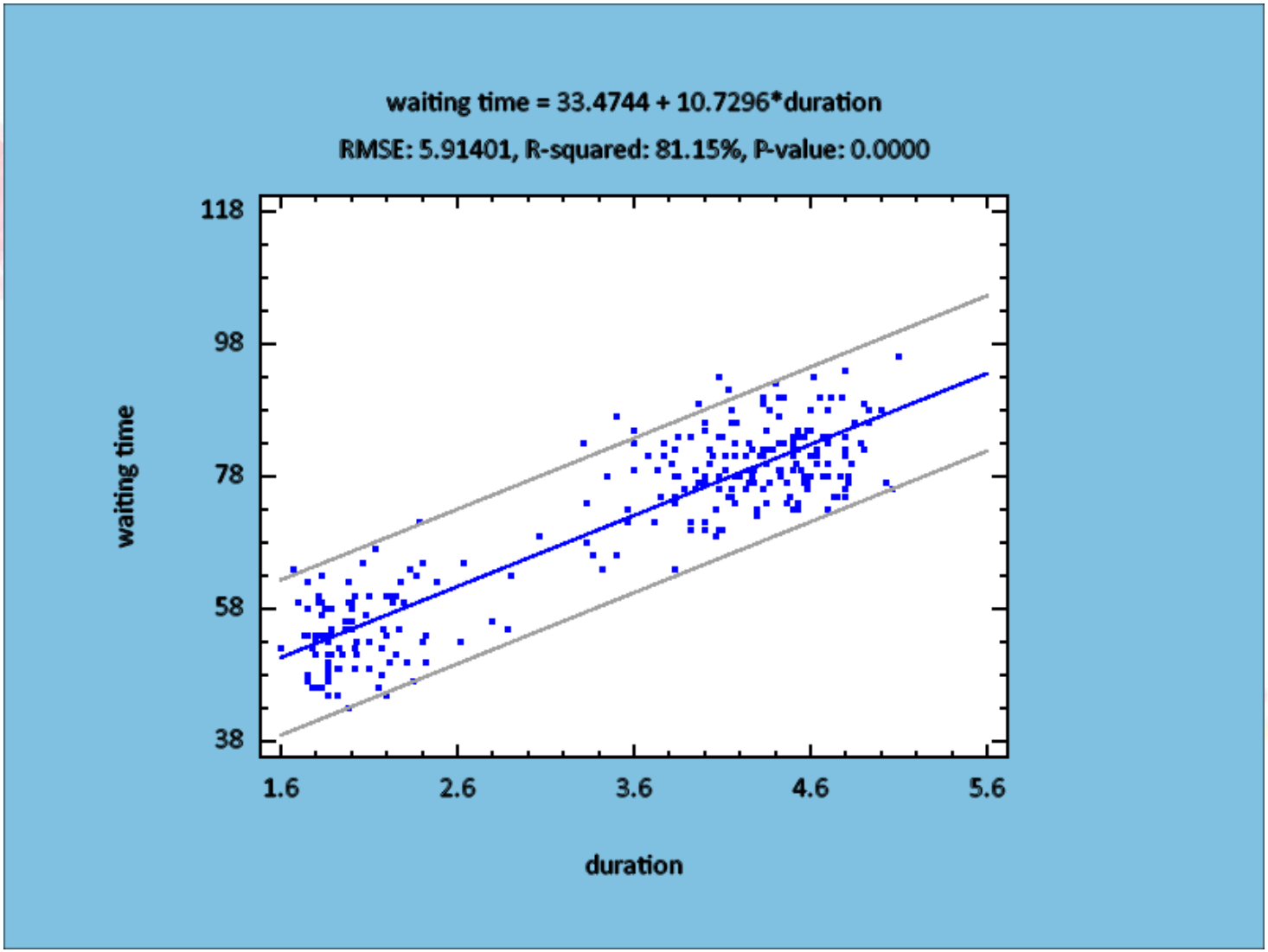
Bivariate Histogram

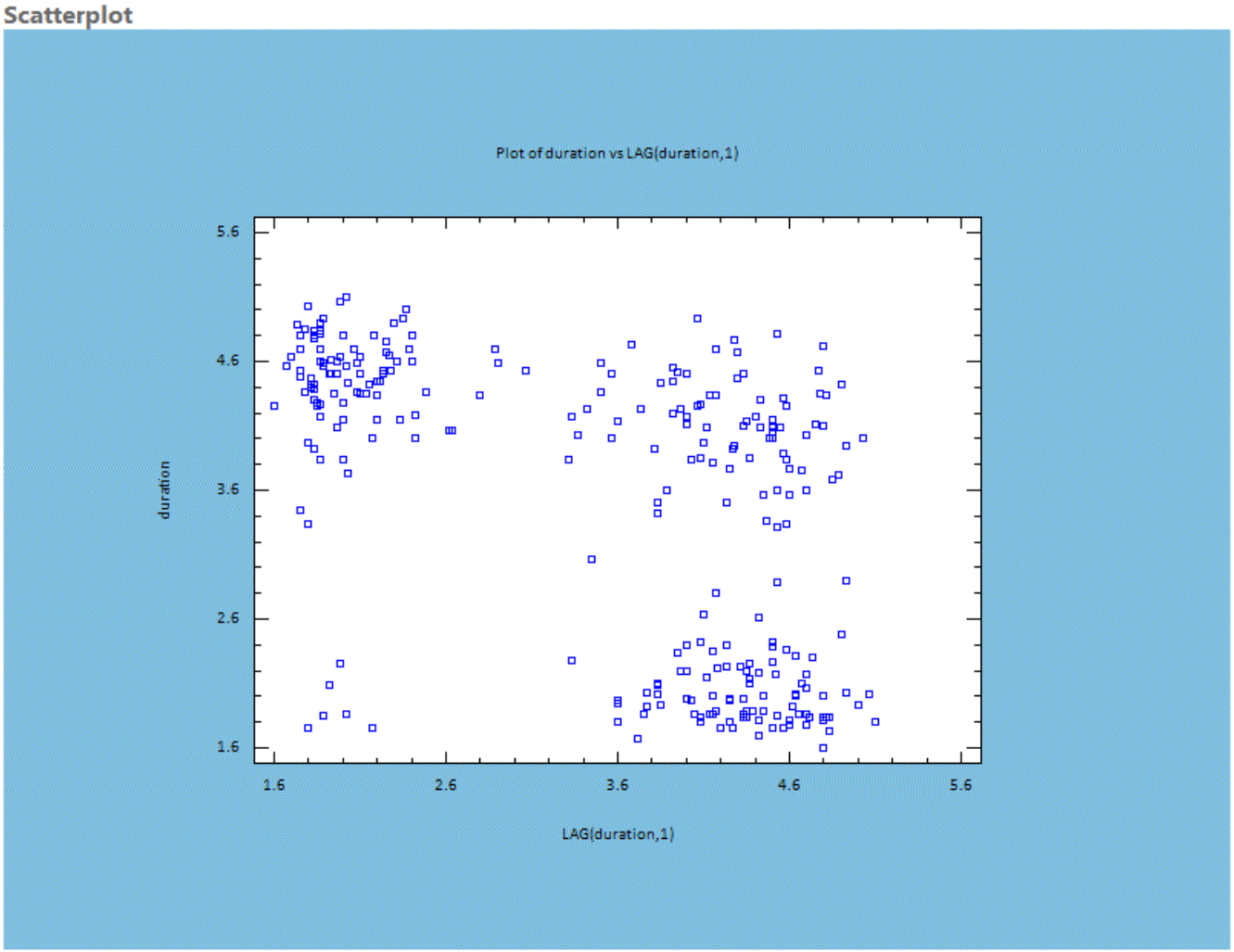


Linear Regression

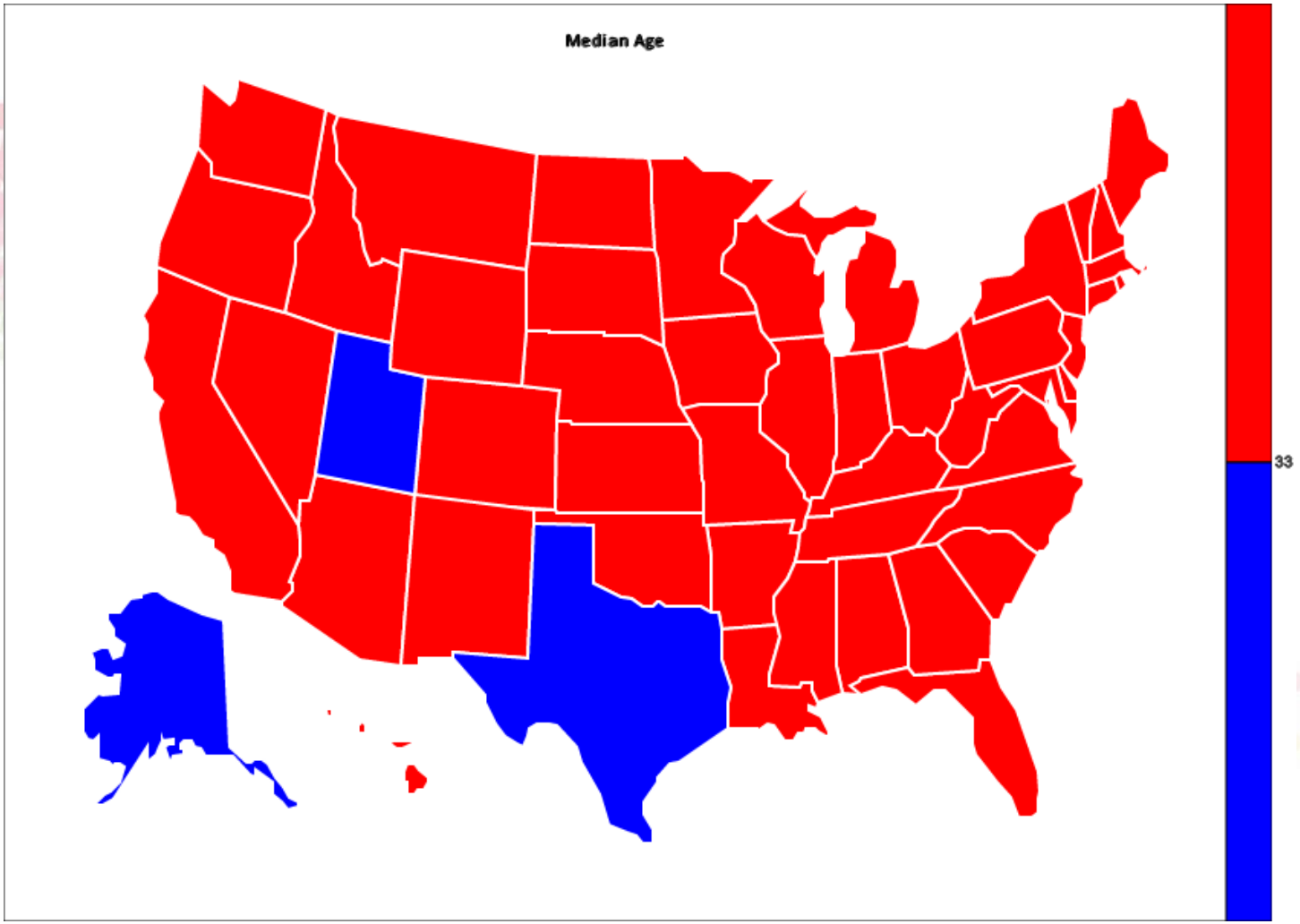


Entering Expressions

X-Y Scatterplot



Interactive Map Statlet



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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

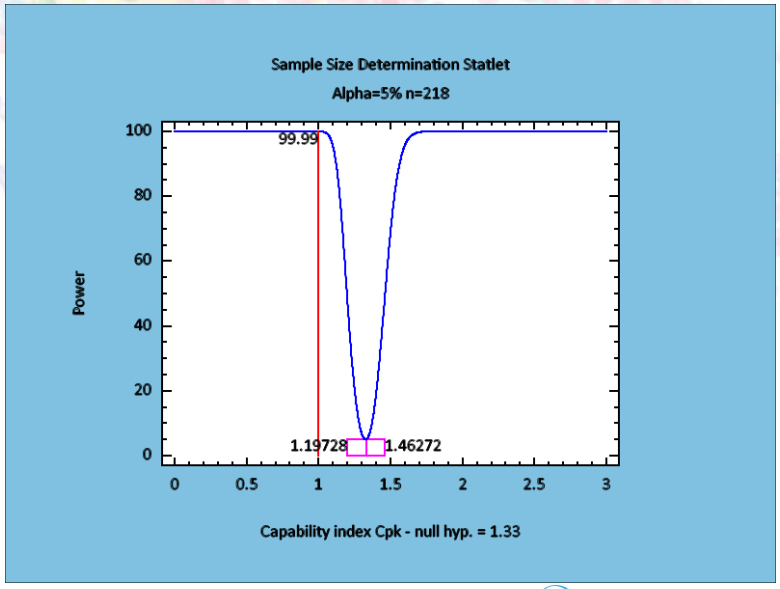
Parameter to be estimated: Capability index Cpk

Null hypothesis: 1.33 Alpha risk: 5 %

Alt. hypothesis: 1 Type: Two-sided

Base sample size on: Relative error Relative error: 10 %

Update Plot | Titles and scaling | ☑ Plot alternative hypothesis | ☑ Plot confidence limits



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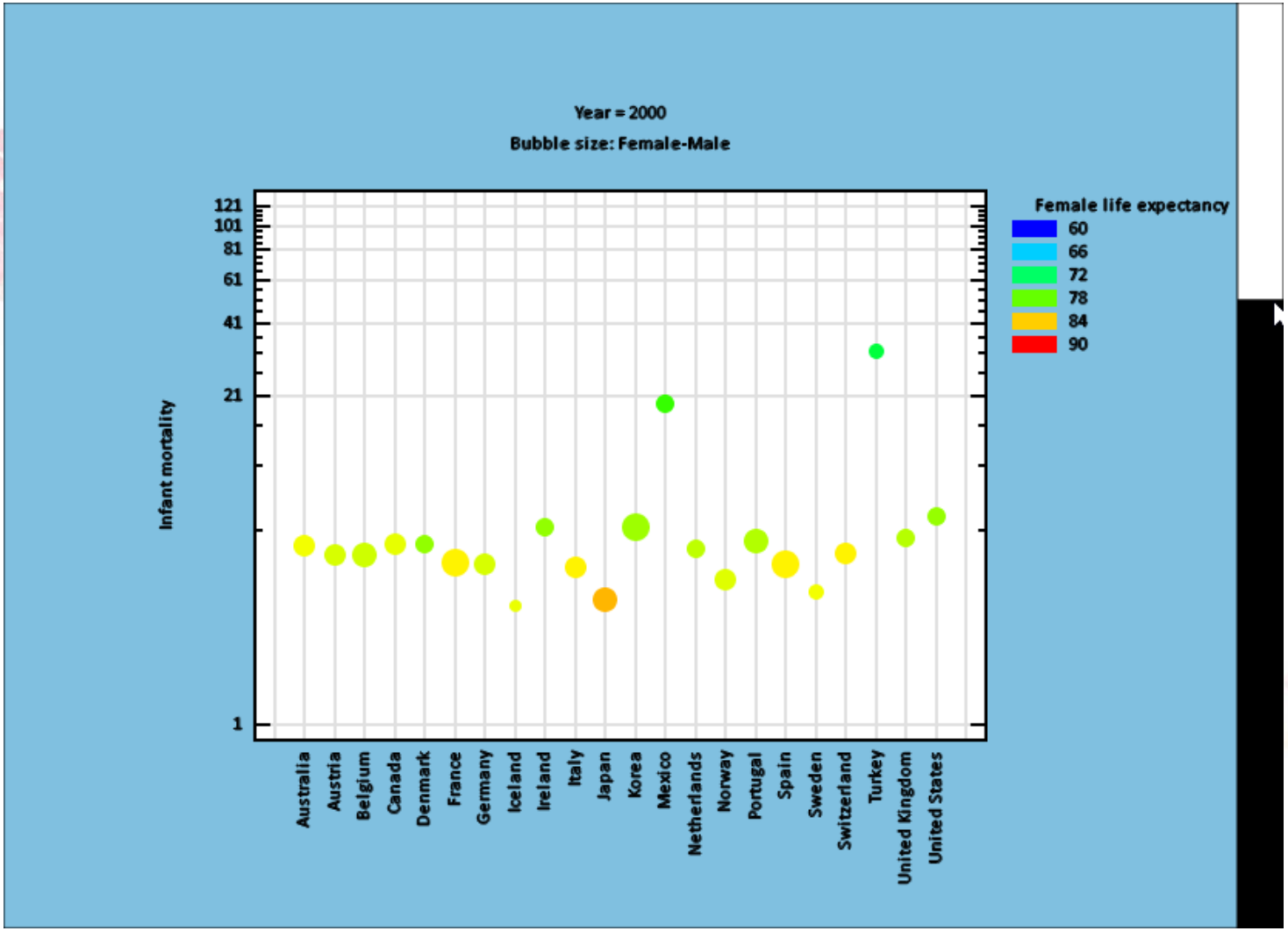
Visualizers



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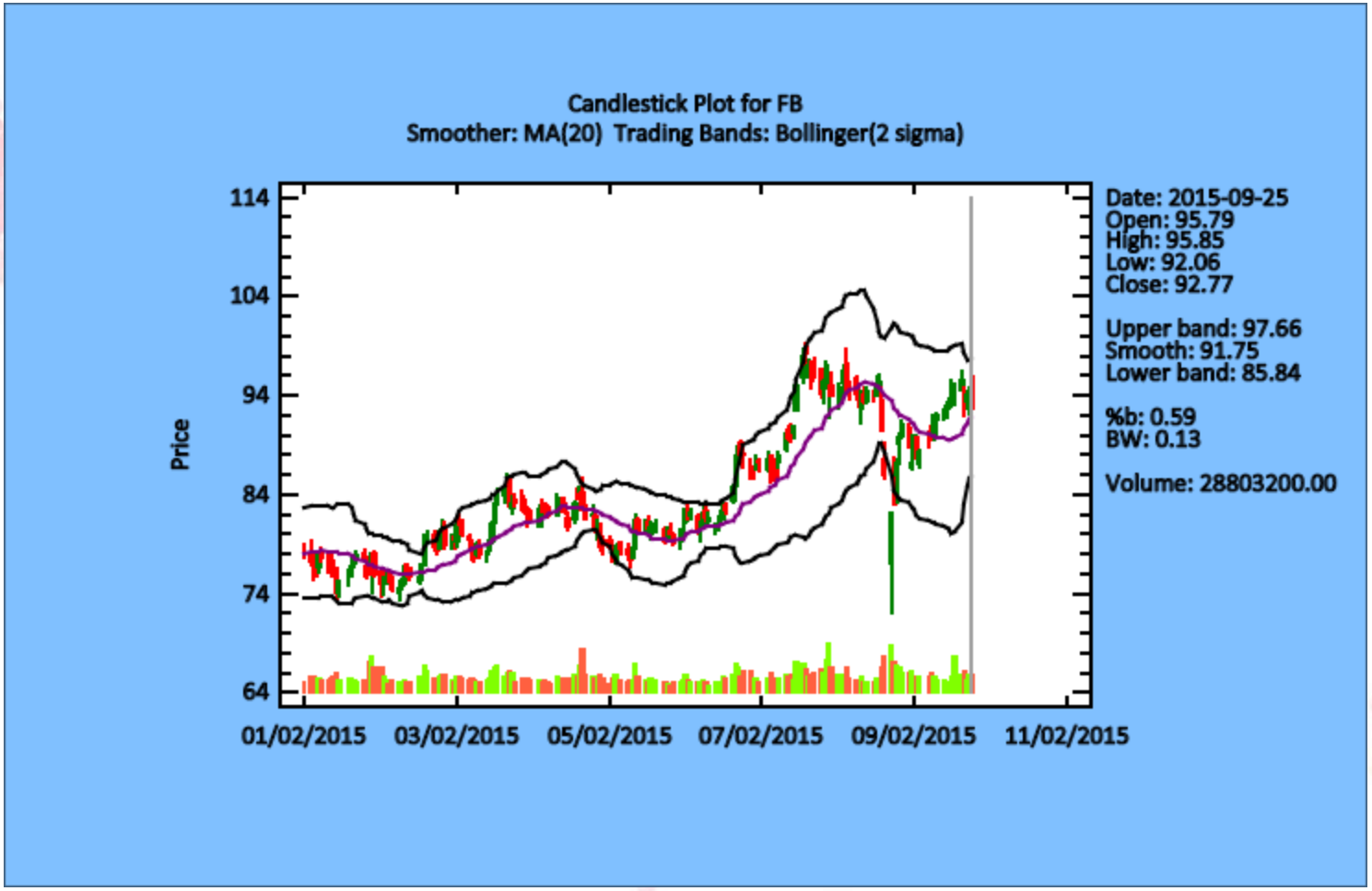
Stock Price Plot



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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