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# ANNEX 1

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MANN-WHITNEY TEST RESULTS





## Mann-Whitney W test for velocity

### Comparison of Two Samples - Presence\_velocity & Absence\_velocity

Sample 1: Presence\_velocity (Speed)

Sample 2: Absence\_velocity (Speed)

Sample 1: 406 values in the range from 0 to 0.952

Sample 2: 2775 values in the range from 0 to 1.068

#### *The StatAdvisor*

This process is designed to compare two data samples. Calculate various statistics and graphs for each sample several tests to determine if there are statistically significant differences between the two samples.

#### Statistical summary

	<i>Presence_velocity</i>	<i>Absence_velocity</i>
Count	406	2775
Average	0.0924655	0.192493
Standard Deviation	0.12654	0.181463
Coefficient of Variation	136.851%	94.27%
Minimum	0	0
Maximum	0.952	1.068
Rank	0.952	1.068
Standardized Bias	25.3217	31.2745
Standardized Kurtosis	50.3038	23.7518

#### *The StatAdvisor*

This table contains the statistical summary for the two data samples. Other tabular options can be used, within this analysis, to evaluate if the differences between the statisticians of the two samples are statistically significant. Of particular interest are the standardized bias and standardized kurtosis that can be used to compare whether samples come from normal distributions. Values of these statistics outside the range of -2 to +2 indicate significant deviations from normality, which would tend to invalidate the tests that compare standard deviations. In this case, both samples have standardized

bias values outside the normal range. Both samples have standardized kurtosis values outside the normal range.

### **Medians Comparison**

Sample median 1: 0.049

Sample median 2: 0.139

W-test of Mann-Whitney (Wilcoxon) to compare medians

Null hypothesis: median1 = median2

Alt hypothesis: median1  $\neq$  median2

Average range of sample 1: 1028.21

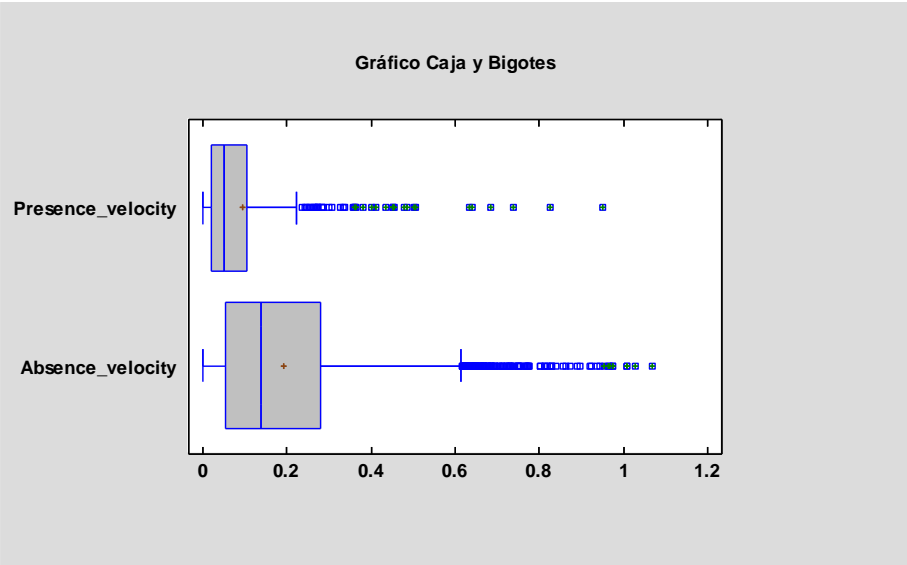
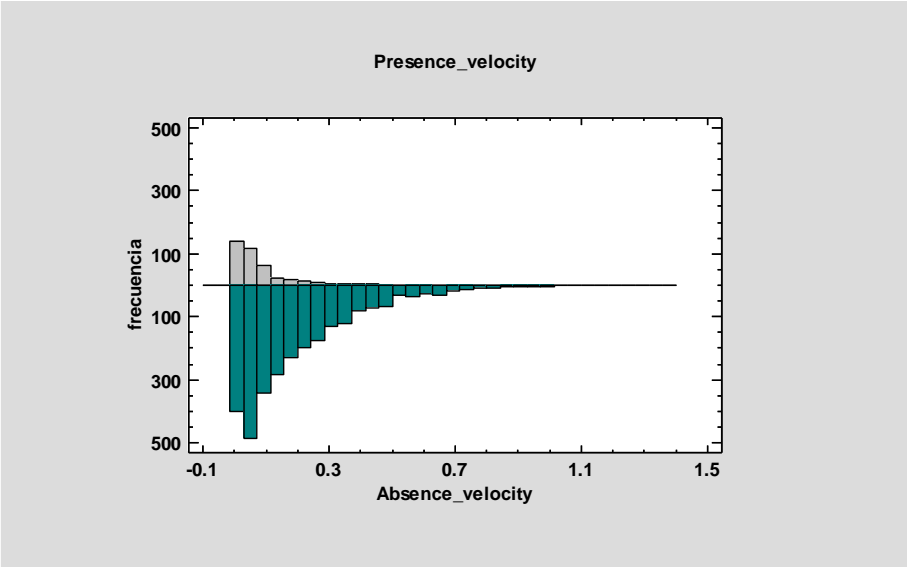
Average range of sample 2: 1673.34

W = 791816. value-P = 0

The null hypothesis is rejected for alpha = 0.05.

### *The StatAdvisor*

This option executes the Mann-Whitney W test to compare the medians of two samples. This test is constructed by combining the two samples, ordering the data from least to greatest, and comparing the average ranks of the two samples in the combined data. Because the P-value is less than 0.05, there is a statistically significant difference between the medians with a confidence of 95.0%.



## Mann-Whitney U test for depth

### Comparison of Two Samples - Presence\_depth & Absence\_depth

Sample 1: Presence\_depth (Depth)

Sample 2: Absence\_depth (Depth)

Sample 1: 406 values in the range of 0.02 to 0.235

Sample 2: 2775 values in the range of 0.005 to 0.4

#### *The StatAdvisor*

This procedure is designed to compare two data samples. It will calculate several statistics and graphs for each sample, and will execute several tests to determine if there are statistically significant differences between the two samples.

#### Statistical summary

	<i>Presence_depth</i>	<i>Absence_depth</i>
Count	406	2775
Average	0.085931	0.107085
Standard Deviation	0.0395376	0.061083
Coefficient of Variation	46.0109%	57.0416%
Minimum	0.02	0.005
Maximum	0.235	0.4
Rank	0.215	0.395
Standardized Bias	8.9803	26.2651
Standardized Kurtosis	5.37889	20.1549

#### *The StatAdvisor*

This table contains the statistical summary for the two data samples. Other tabular options can be used, within this analysis, to evaluate if the differences between the statistics of the two samples are statistically significant. Of particular interest are the standardized bias and standardized kurtosis that can be used to compare whether samples come from normal distributions. Values of these statistics outside the range of -2 to +2 indicate significant deviations from normality, which would tend to invalidate the tests that compare standard deviations. In this case, both samples have standardized

bias values outside the normal range. Both samples have standardized kurtosis values outside the normal range.

### **Medians Comparison**

Sample median 1: 0.08

Sample median 2: 0.093

W-test of Mann-Whitney (Wilcoxon) to compare medians

Null hypothesis: median1 = median2

Alt hypothesis: median1  $\neq$  median2

Average range of sample 1: 1340.31

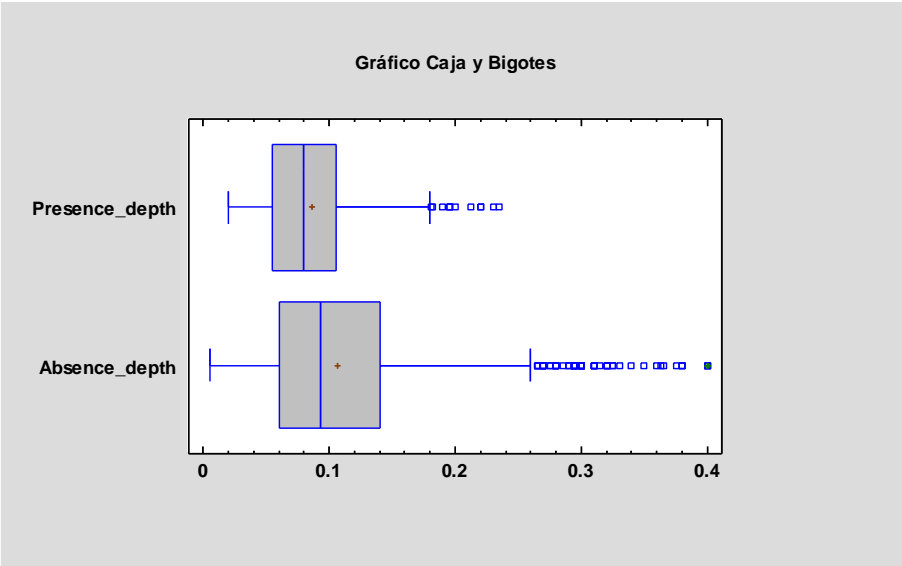
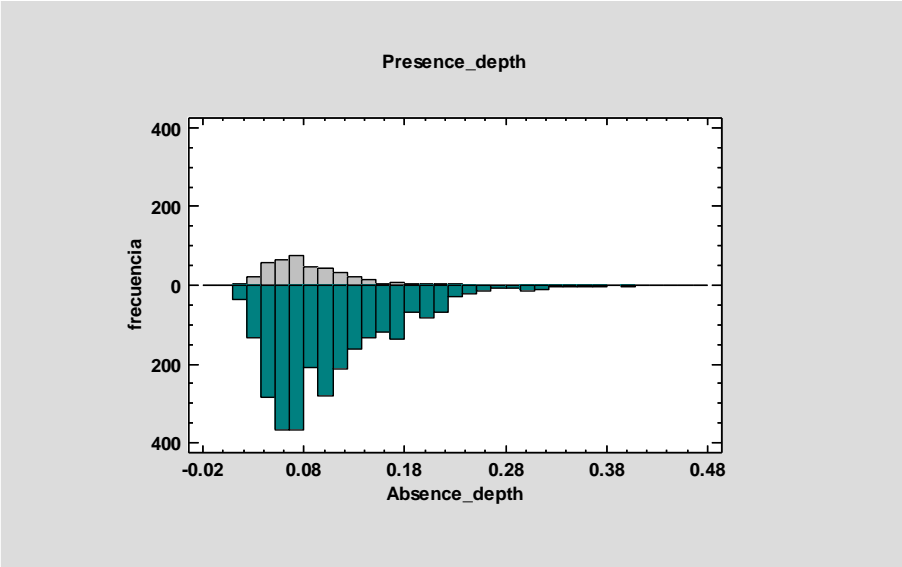
Average range of sample 2: 1627.68

W = 665104. P-value = 3.86019E-9

The null hypothesis is rejected for alpha = 0.05.

### *The StatAdvisor*

This option executes the Mann-Whitney W test to compare the medians of two samples. This test is constructed by combining the two samples, ordering the data from least to greatest, and comparing the average ranks of the two samples in the combined data. Because that the P-value is less than 0.05, there is a statistically significant difference between the medians with a confidence of 95.0





## Mann-Whitney W test for substrate

### Comparison of Two Samples - Presence\_substrate & Absence\_substrate

Sample 1: Presence\_substrate (Substrate)

Sample 2: Absence\_substrate (Substrate)

Sample 1: 406 values in the range of 1.0 to 5.0

Sample 2: 2775 values in the range of 1.0 to 5.0

#### *The StatAdvisor*

This procedure is designed to compare two data samples. It will calculate several statistics and graphs for each sample, and will execute several tests to determine if there are statistically significant differences between the two samples.

#### Statistical summary

	<i>Presence_substrate</i>	<i>Absence_substrate</i>
Count	406	2775
Average	3.09606	2.96577
Standard Deviation	1.55972	1.36595
Coefficient of Variation	50.3776%	46.0571%
Minimum	1.0	1.0
Maximum	5.0	5.0
Rank	4.0	4.0
Standardized Bias	-1.48089	1.73112
Standardized Kurtosis	-6.16773	-13.9343

#### *The StatAdvisor*

This table contains the statistical summary for the two data samples. Other tabular options can be used, within this analysis, to evaluate if the differences between the statistics of the two samples are statistically significant. Of particular interest are the standardized bias and standardized kurtosis that can be used to compare whether samples come from normal distributions. Values of these statistics outside the range of -2 to +2 indicate significant deviations from normality, which would tend to invalidate the tests that compare standard deviations. In this case, both standardized bias values

are within the expected range. Both samples have standardized kurtosis values outside the normal range.

### **Medians Comparison**

Sample median 1: 3.0

Sample median 2: 3.0

W-test of Mann-Whitney (Wilcoxon) to compare medians

Null hypothesis: median1 = median2

Alt hypothesis: median1  $\neq$  median2

Average range of sample 1: 1657.67

Average range of sample 2: 1581.25

W = 536258. P-value = 0.109003

The null hypothesis is not rejected for alpha = 0.05.

### *The StatAdvisor*

This option executes the Mann-Whitney W test to compare the medians of two samples.

This test is constructed by combining the two samples, ordering the data from least to greatest, and comparing the average ranks of the two samples in the combined data.

Because that the P-value is equal or greater than 0.05, there is not a statistically significant difference between the medians with a confidence of 95.0

