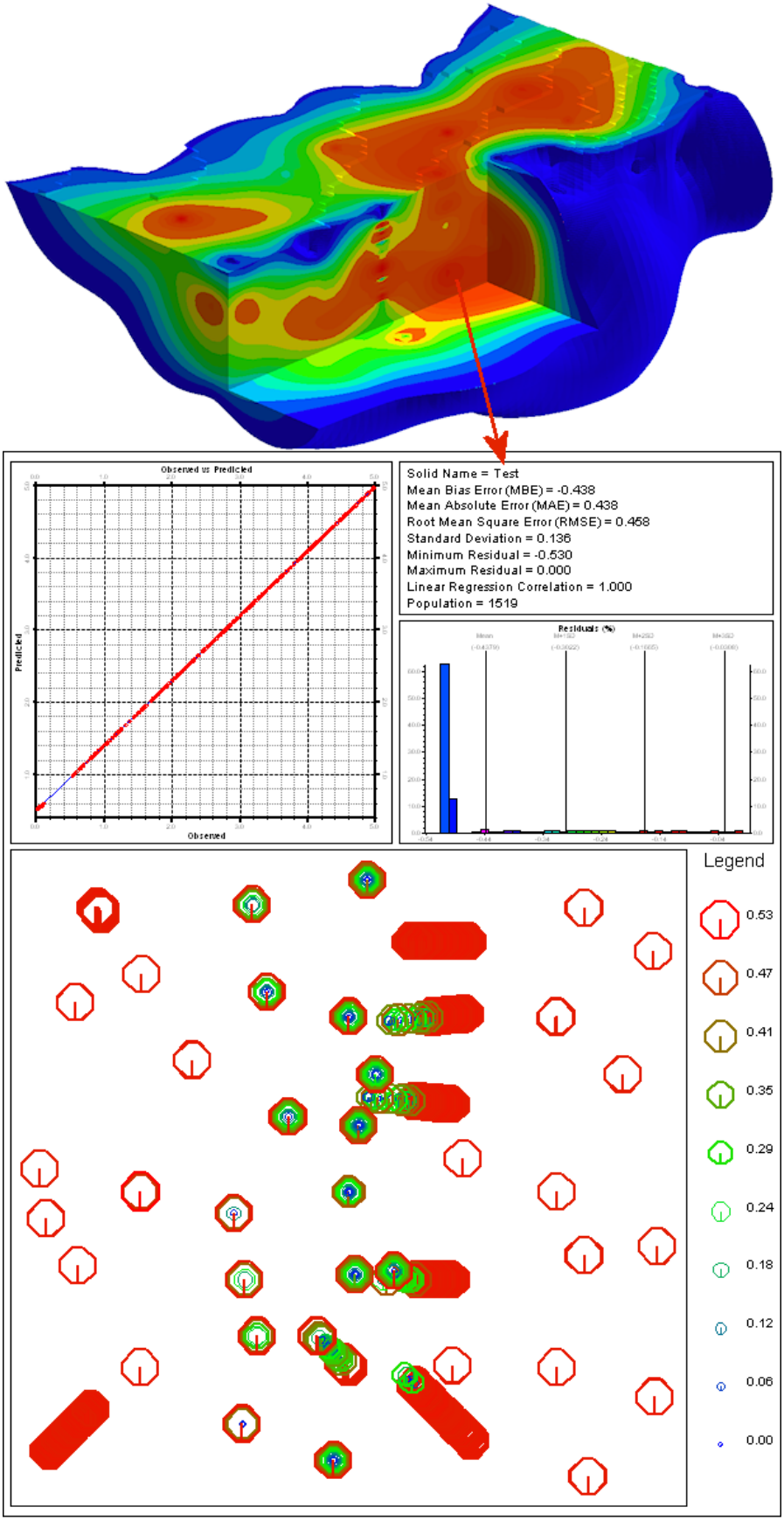
The ***Solid Evaluation*** program generates a report with diagrams that depict the accuracy of a solid (block) model relative to the original control points that were used to interpolate the voxel values.



The program input (Figure 1) consists of the interpolated solid model and the data that was used for the interpolation. This control point data may be located within the Datasheet, the borehole I-Data table, the borehole P-Data table, or the borehole T-Data table.

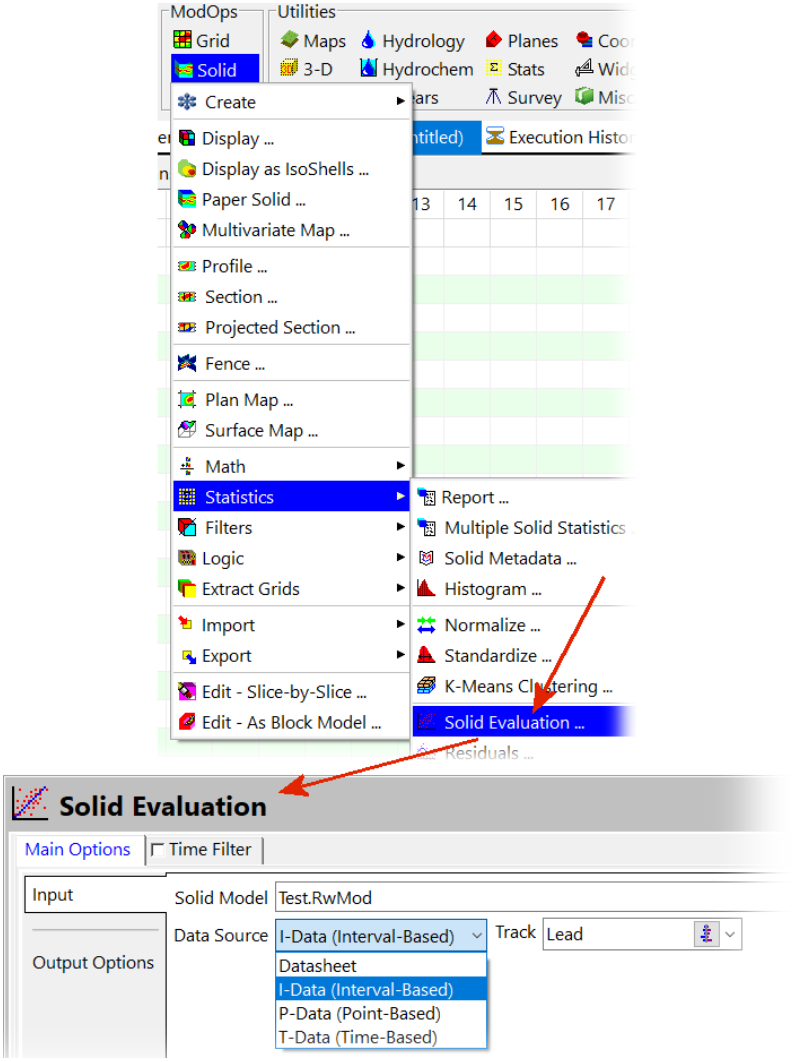


Figure 1

Upon completion, the program will produce a single-page graphical report (Figure 2) that summarizes the "goodness of fit" with a variety of diagrams;

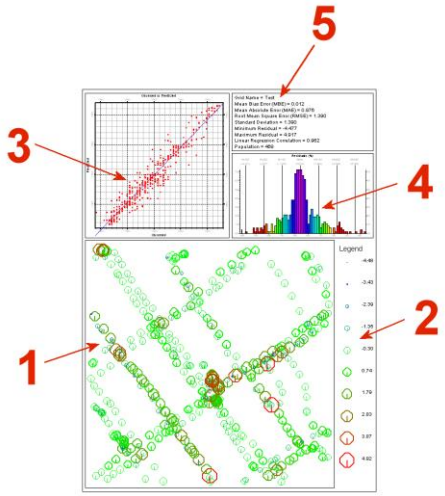


Figure 2

1. Control point location map (Figure 3) in which the symbols are proportionally scaled and heat-colored based on the absolute values of the residuals (i.e., the difference between the observed values and the corresponding interpolated voxel node values). Right-clicking on any of these points will display a menu that allows you to locate the point within the borehole database or the datasheet.

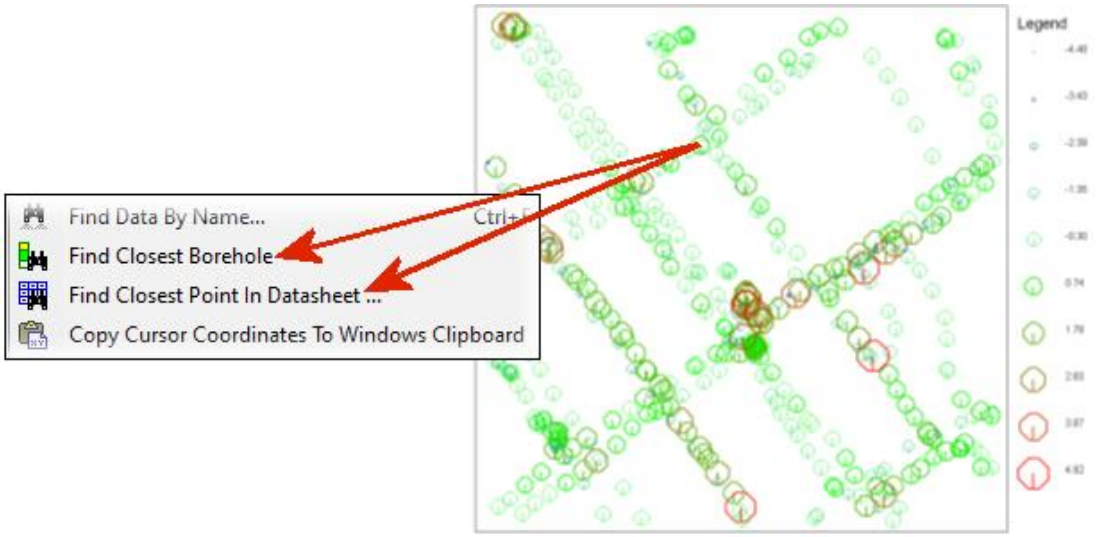


Figure 3

2. A legend explaining the symbology within the residuals map. For example, if the solid represents lead concentrations in PPB, a symbol with a corresponding value of 4.92 means that the interpolated value is +/- 4.92 PPB of what it should be.

3. A scattergram (Figure 4) depicting the residuals with the x-axis representing the observed values and the y-axis representing the predicted (interpolated) values. The blue line depicts a linear regression that is best-fit to the data. The correlation coefficient for this regression is shown within the statistical summary (item #5). A perfect fit would plot all of the points along a diagonal line.

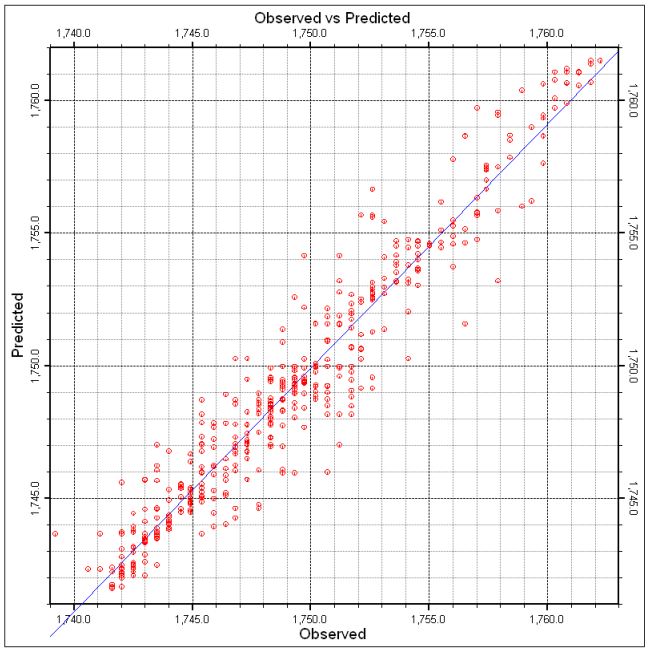


Figure 4

4. A cumulative frequency histogram (Figure 5) depicting the relative distribution of the residuals. In this example, the typical error (mean +/- one standard deviation) is 1.4 ppb. Errors between 1.4 and 2.8 ppb are atypical. Errors between 2.8 and 4.2 ppb are uncommon. Errors greater than 4.2 ppb are very rare.

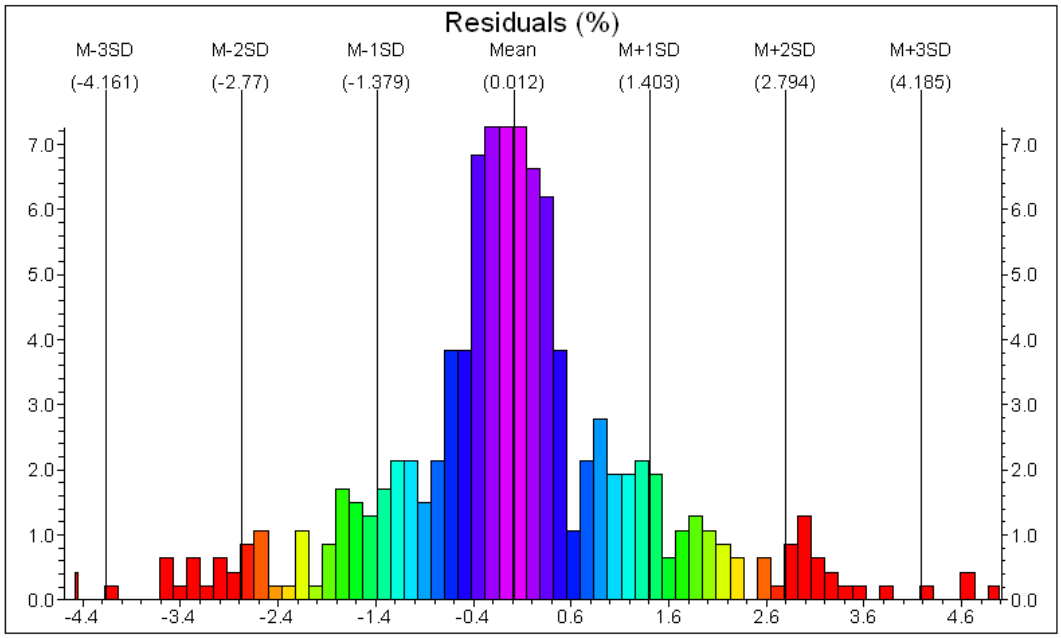


Figure 5

5. A statistical summary (Figure 6) which lists the following computations;

Solid Name = Test
Mean Bias Error (MBE) = -0.438
Mean Absolute Error (MAE) = 0.438
Root Mean Square Error (RMSE) = 0.458
Standard Deviation = 0.136
Minimum Residual = -0.530
Maximum Residual = 0.000
Linear Regression Correlation = 1.000
Population = 1519

Figure 6

- **Mean Bias Error (MBE)** is the average difference between observed and predicted values. It shows if there's a tendency to consistently overestimate or underestimate the data. A value close to zero indicates little to no systematic bias. In this example, the negative value (-0.438) suggests that, on average, the predictions are lower than the observed values by 0.438 units.

- **Mean Absolute Error (MAE)** is the average of the absolute differences between observed and predicted values, without considering the direction of the error. It provides a general measure of error magnitude, with lower values indicating more accurate predictions. Here, the average prediction error is 0.438.

- **Root Mean Square Error (RMSE)** is the square root of the average squared differences between observed and predicted values. RMSE penalizes larger errors more heavily than MAE, so it is often used when large errors are especially undesirable. In this example, the slightly larger RMSE than MAE (0.458 > 0.438) suggests there are some larger individual errors present in the dataset.

- **Standard Deviation** of the residuals (differences between observed and predicted values). It measures the spread of errors around the mean, with higher values indicating greater variability. In this example, the low standard deviation (0.136) suggests that most residuals are close to their average value.

- **Minimum Residual** is the largest negative error in the dataset, indicating the most significant instance of underestimation by the model. In this example, the smallest difference between a predicted value and the observed value is -0.530, meaning one prediction underestimated the actual value by 0.530 units.
- **Maximum Residual** is the largest positive error, indicating the most significant overestimation by the model. In this example, the largest residual is 0.000, indicating that at least one prediction matched the observed value exactly.
- **Linear Regression Correlation** is the correlation coefficient between observed and predicted values, indicating the strength and direction of the linear relationship. This shows the goodness-of-fit for the blue linear regression line with the scattergram to the left. A correlation of 1.000 indicates a perfect linear relationship, suggesting very high accuracy.
- **Population** refers to the number of data points or samples used in the analysis. Here, there are 1,519 points, which provides a reasonably large dataset for evaluating the model's performance.