Discussion

Reply to the discussion by E. Arioğlu, N. Arioğlu, and C. Girgin of the paper "Concrete strength by combined nondestructive methods simply and reliably predicted"☆

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First, I would like to thank the discussers for their keen and valuable comments. Second, I would like to add the following comments.

The regression model the discussers presented is quite suitable and covers wide ranges of data but (in my opinion) is less practical or lacking some points due to the following:

1. The model the discussers suggested is more complicated than the simple linear one suggested by the author. Therefore, the linear model will be easier to use by practicing engineers because, as well known, simplicity is preferred at sites. However, this does not mean that it is the best in mathematical terms. However, from statistical point of view, the model was statistically acceptable as shown by the results presented in Figs. 4 and 5 and Table 2 in the paper. The r^2 and the 95% confidence intervals were statistically acceptable.

2. The models the discussers suggested (Table 1) produced r^2 in the range of .8987–.9624, while the r^2 in the model presented by the author produced r^2 values in the range of .9580–.9963. However, the r^2, all alone, is not sufficient to provide a full description of the significance of the results [1]; another measure is necessary in many cases. The author presented the 95% confidence interval in order to arrive at a better description of the observed and predicted data.

3. The number of data points the discussers used is small (33 data points) while the author used 122 data points. It is advisable that the discussers include more data points in order to generalize their results. Furthermore, it is advisable to introduce the possible interval of the predicted data.

At the end, it was found that the model and relationships presented by the discussers are reasonable and quite helpful for comparison purposes. The anticipated values using the relationships and plots presented by the discussers are close to those presented by the author. Therefore, the author finds that the model and relationships adds to the value of the paper and thanks the discussers for being objective and helpful. The notes 1 through 3 will, hopefully, add to their research.

References

[1] D. Montgomry, G. Runger, Applied Statistics and Probability for Engineers, second ed., Wiley, 1999.