

Supplementary Materials

to

Slootman, A., de Kruijf, M., Glatz, G., Eggenhuisen, J. T., Jobe, Z. R., & Reijmer, J. J. G.
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**Settling velocity of sediment grains,
Part 1: Natural sediment particles are not ellipsoids.**
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- Figure S1.** MatLab curve fitting tool.
- Figure S2.** Intermediate results of the iteration process.
- Figure S3.** Error analysis for siliciclastics.
- Figure S4.** Error analysis for carbonates.
- Figure S5.** Error is not a function of Corey Shape Factor.
- Figure S6.** Error is not a function of particle Reynolds number.

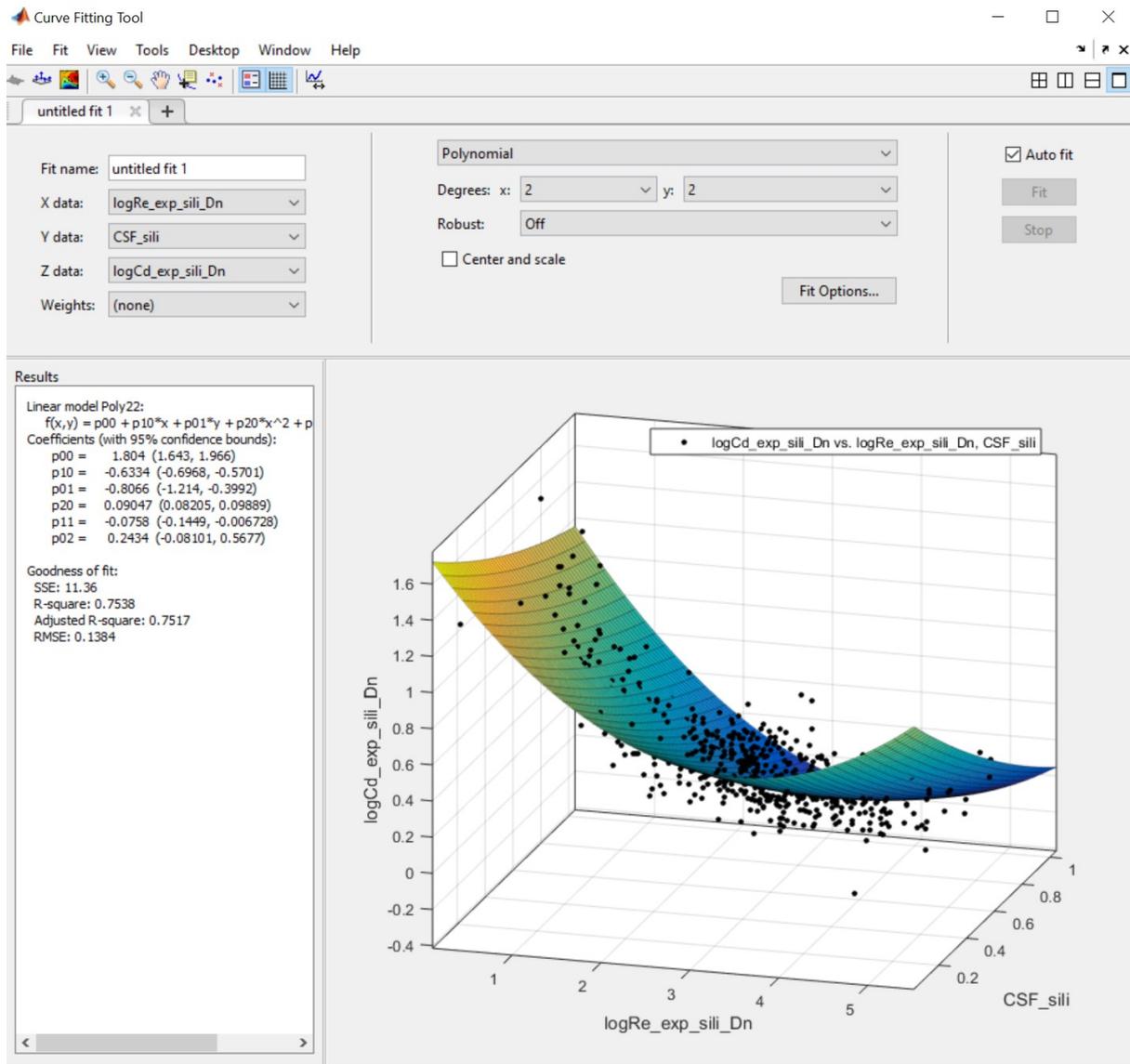


Figure S1A. MatLab curve fitting tool was used to determine the coefficients for the second-order polynomial surface that describes the relationship $C_D = f(Re_p, CSF)$. This figure shows the results for the siliciclastic compilation ($n = 599$).

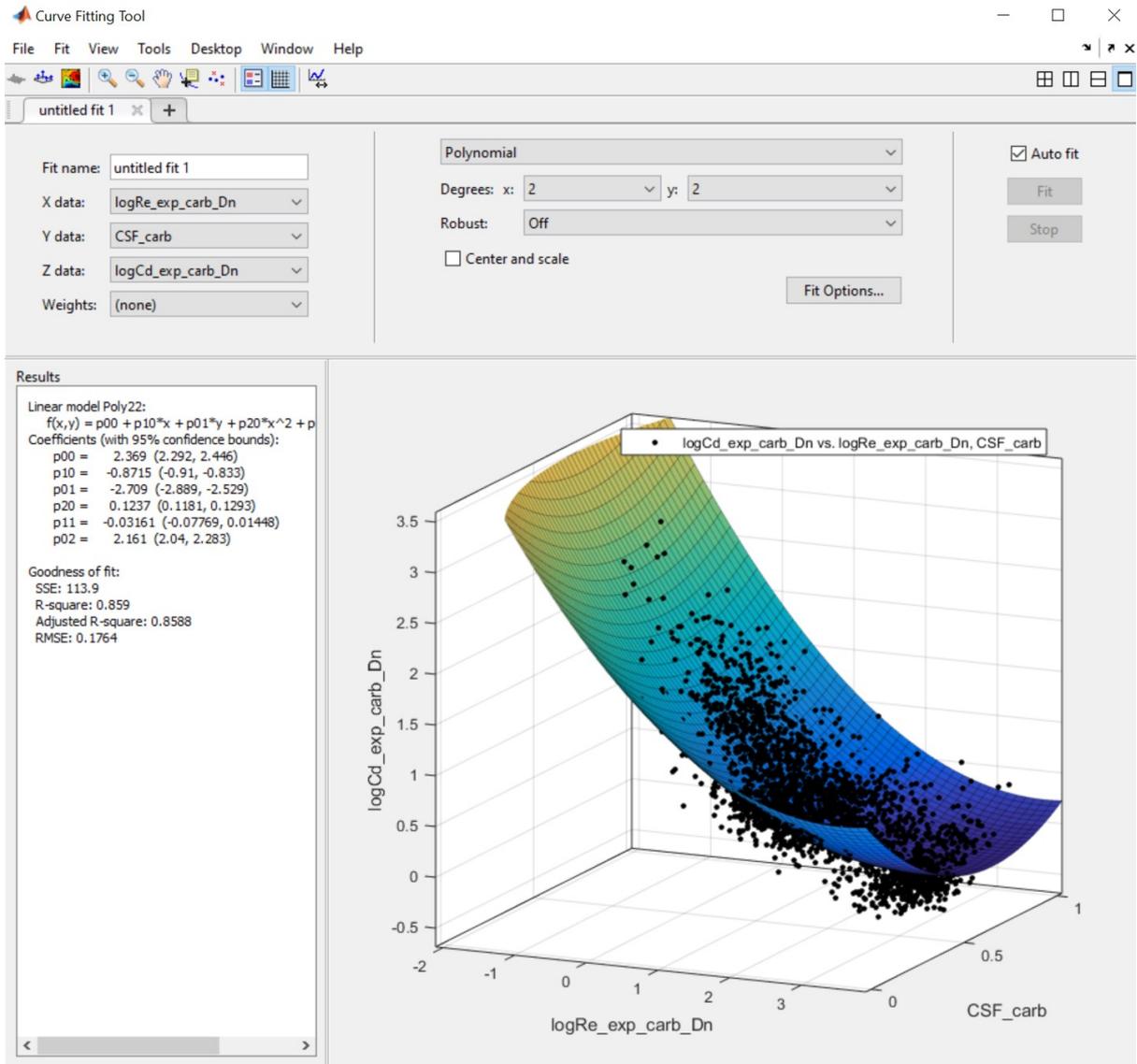
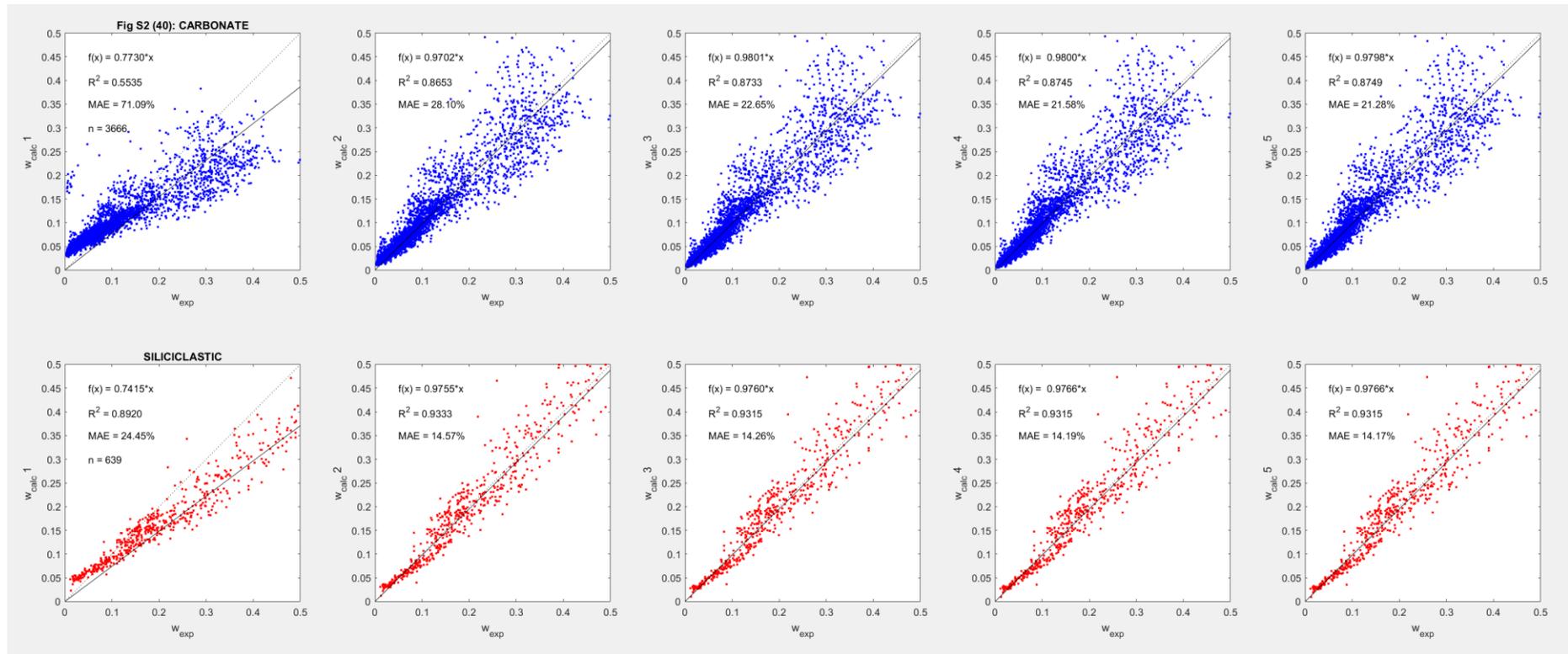
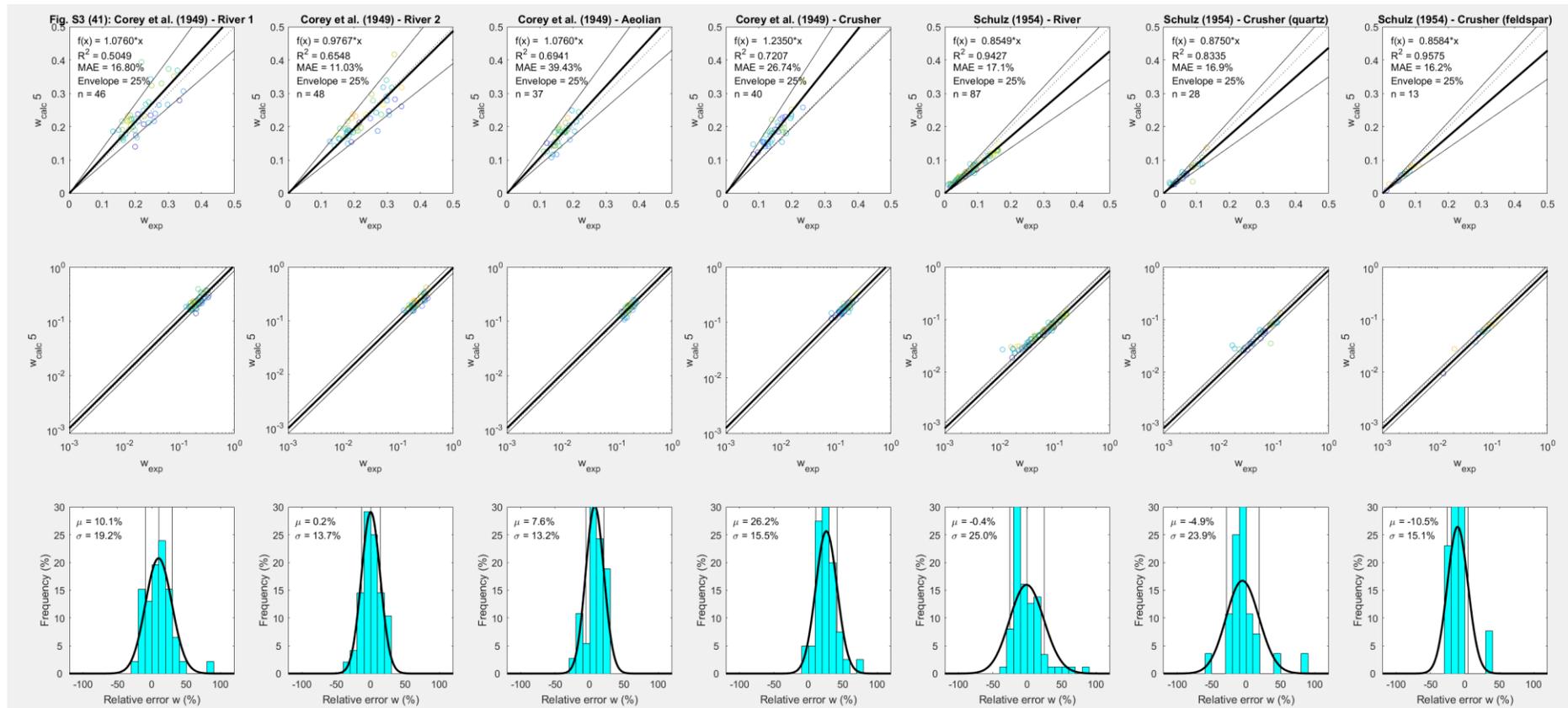


Figure S1B. MatLab curve fitting tool was used to determine the coefficients for the second-order polynomial surface that describes the relationship $C_D = f(Re_p, CSF)$. This figure shows the results for the carbonate compilation ($n = 3,666$).



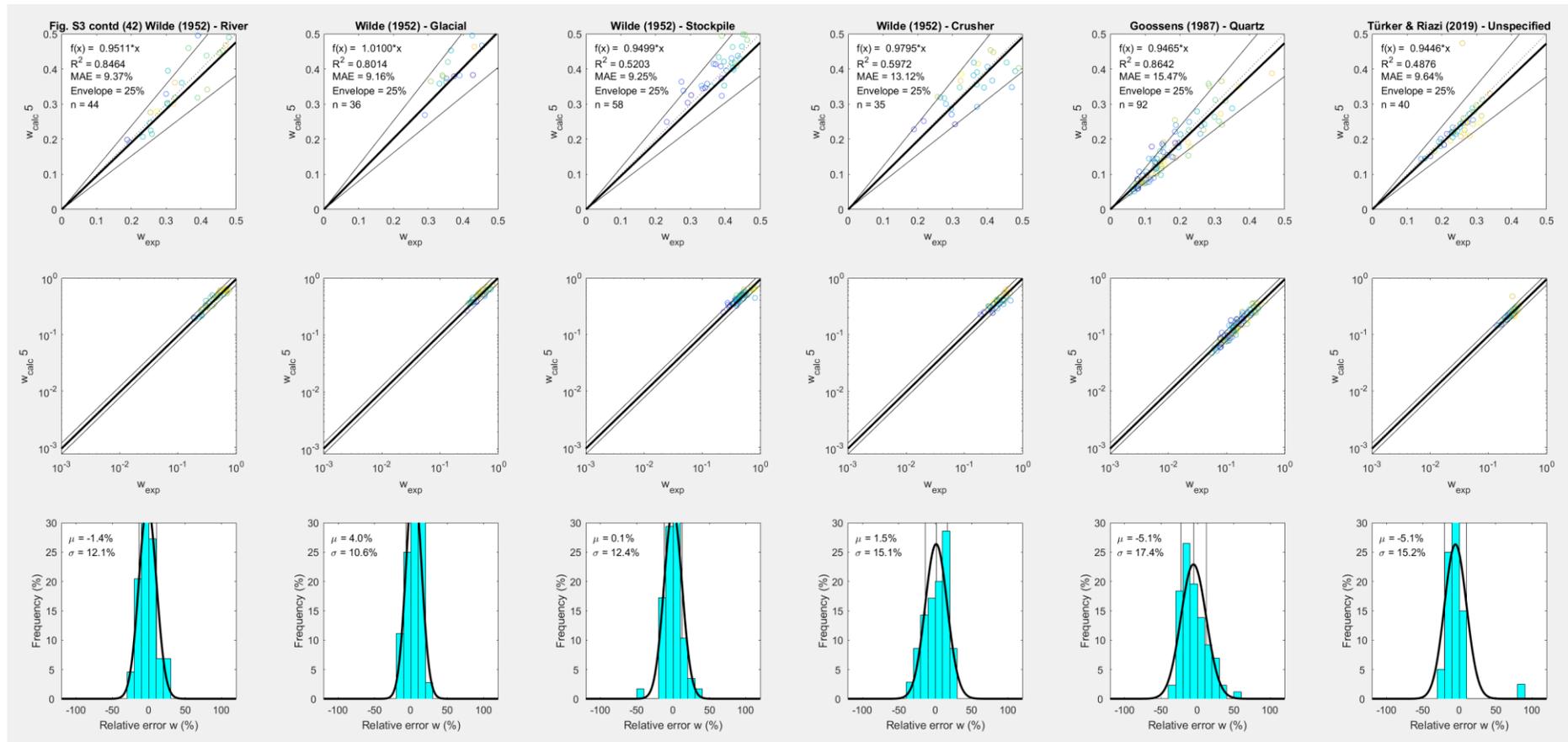
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2 **Figure S2.** Intermediate and final results of the iteration process to obtain predicted settling velocity. With each iteration, the mean absolute error (MAE) decreases. Five iterations were performed
 3 for each grain individually.



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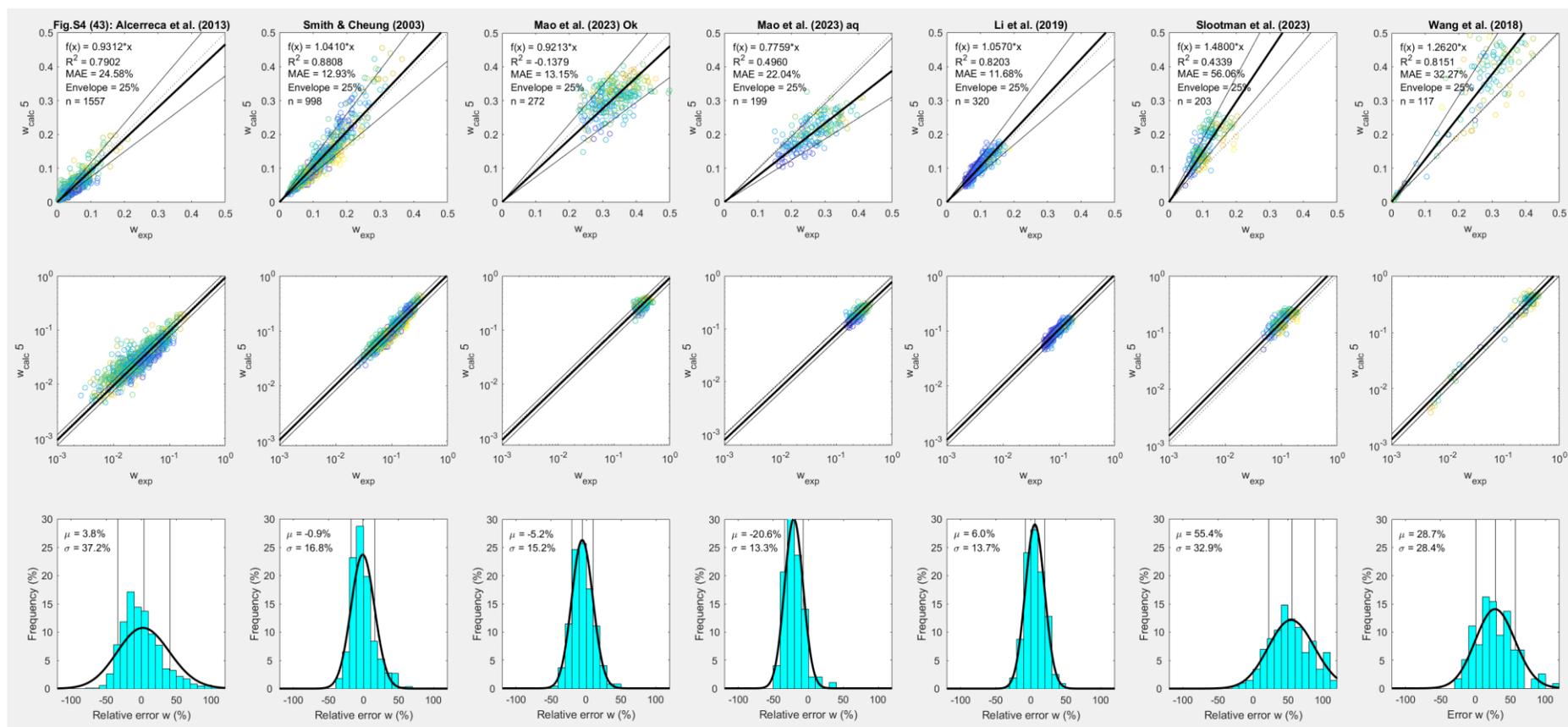
5 **Figure S3. Siliciclastics.** Observed versus predicted settling velocity (fifth iteration) on (A) linear and (B) logarithmic scale for individual populations of the siliciclastic dataset. The function $f(x)$
6 is the best fit of linear regression passing through the origin with coefficient R^2 . Mean absolute error (MAE, Eq. 9) and the 25% error envelope are shown. (C) Relative error is calculated using
7 Equation 8. Histograms and corresponding normal gamma probability density functions show the distribution of relative error. The mean μ and standard deviation σ of the distribution are
8 indicated, which respectively provide a measure of accuracy and precision of the predicted settling velocity.



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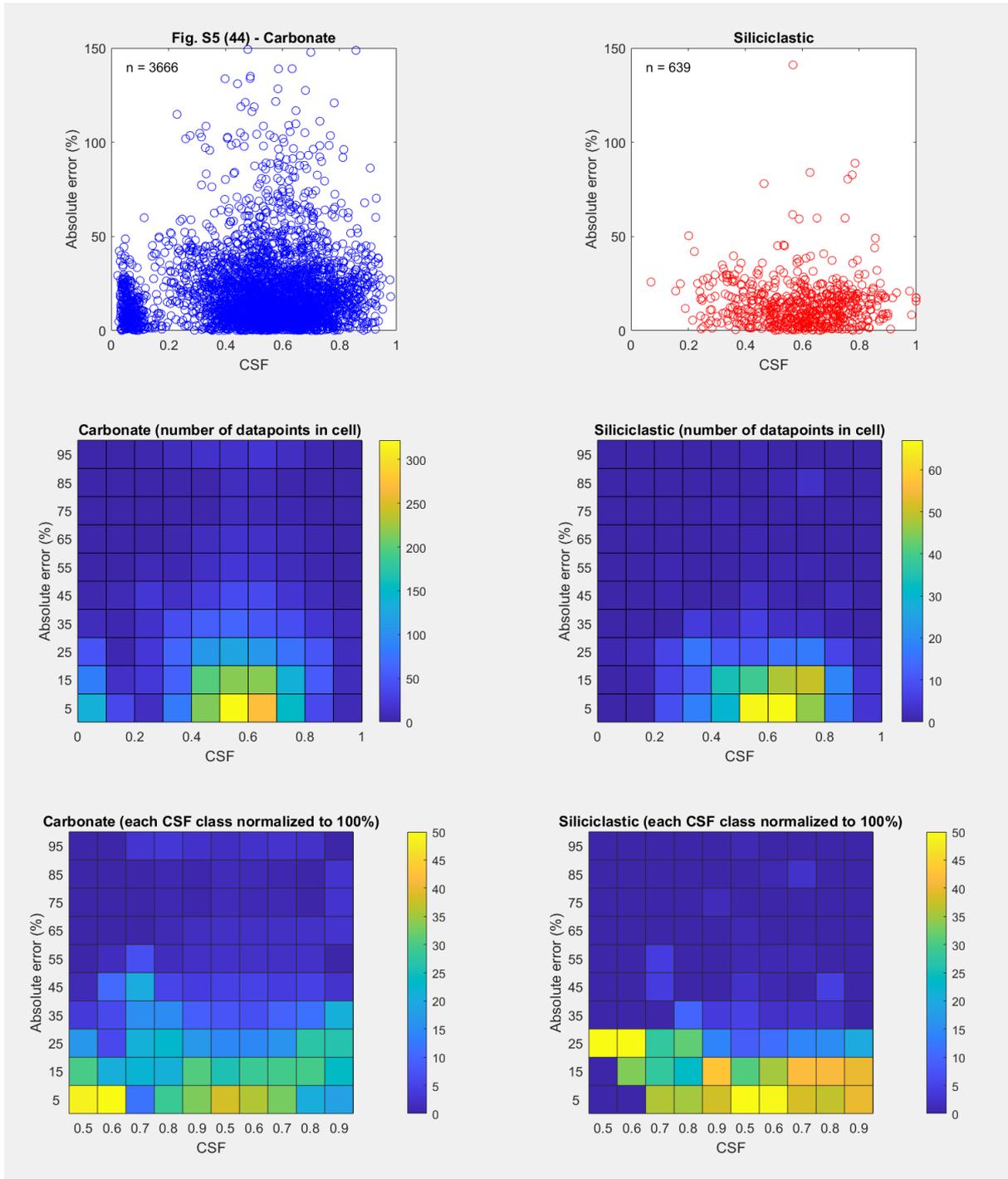
10 **Figure S3 continued. Siliciclastics.**

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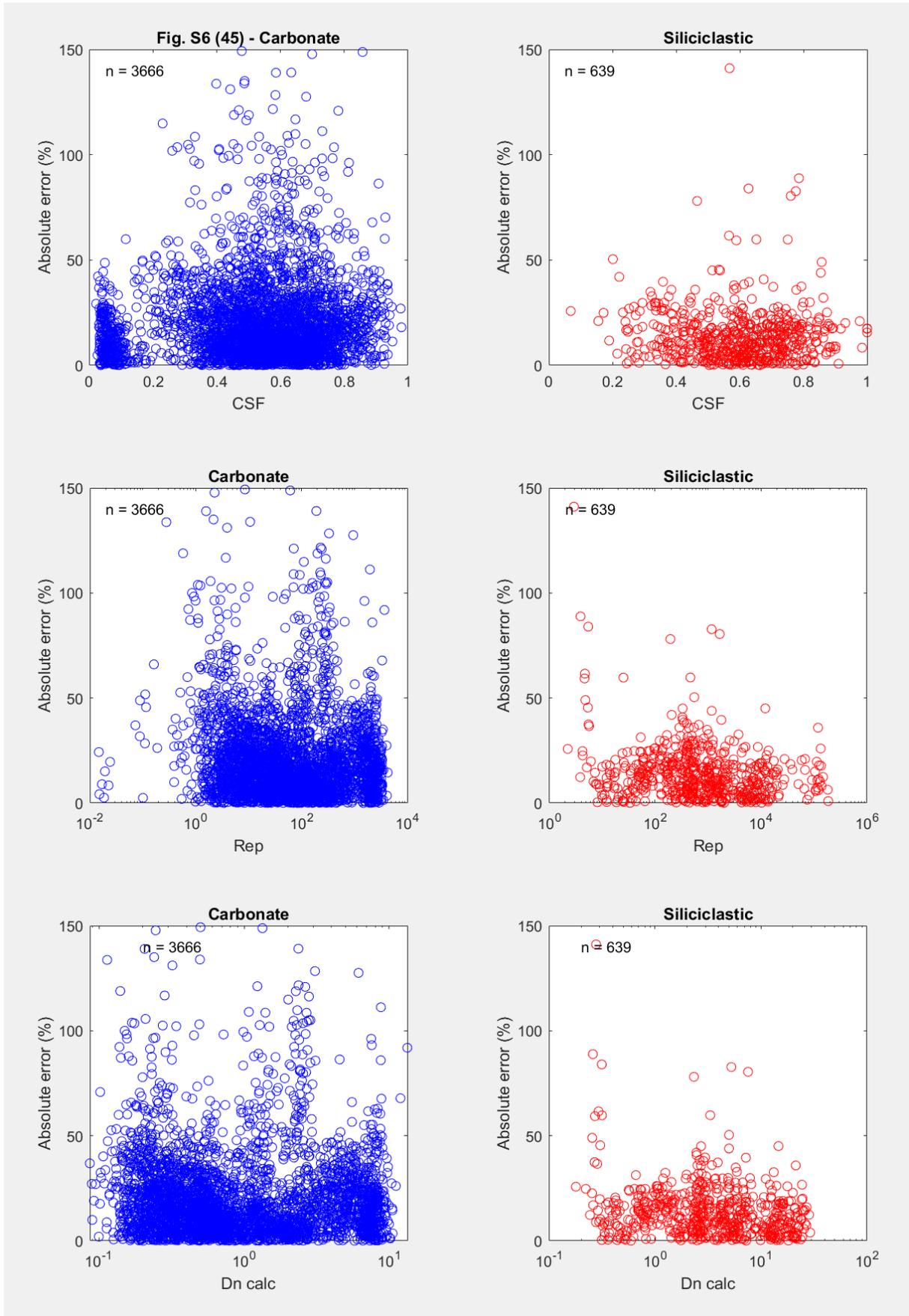
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13 **Figure S4. Carbonates.** Observed versus predicted settling velocity (fifth iteration) on (A) linear and (B) logarithmic scale for individual populations of the carbonates dataset. The function $f(x)$
 14 is the best fit of linear regression passing through the origin with coefficient R^2 . Mean absolute error (MAE, Eq. 9) and the 25% error envelope are shown. (C) Relative error is calculated using
 15 Equation 8. Histograms and corresponding normal gamma probability density functions show the distribution of relative error. The mean μ and standard deviation σ of the distribution are
 16 indicated, which respectively provide a measure of accuracy and precision of the predicted settling velocity.



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18 **Figure S5. (A)** Absolute error between observed and predicted settling velocity (fifth iteration) plotted by Corey shape factor.
 19 **(B)** Distribution of absolute error displayed as number of data points within each cell. **(C)** Distribution of absolute error shown
 20 as a percentage for each cell within a range of Corey shape factor (e.g., 0.4-0.5).



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22 **Figure S6.** Absolute error is not a function of CSF, Rep or nominal diameter Dn.