Supplementary material

SOIL PHYSICAL QUALITY INDICES OF MINING-INDUCED DISTURBANCES IN SOIL WITHIN THE LOESS REGION OF WESTERN CHINA

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Supplemental material 1

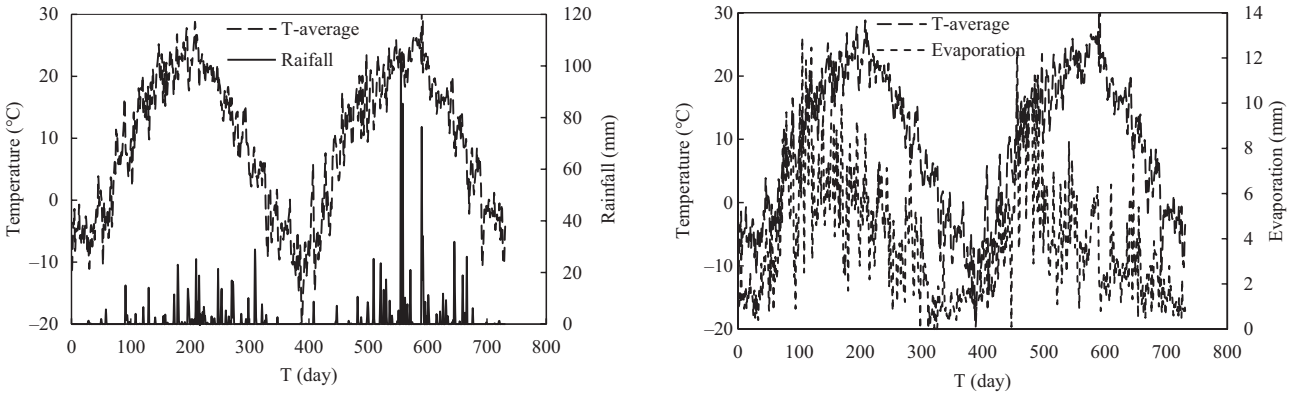

Figure S1. Meteorological data condition for the study region from January 2015 to December 2016

Supplemental material 2

For two head and combined reservoir conditions, SSHC was calculated by Equations (1)~(5):

$$SSHC = G_2Q_2 - G_1Q_1; \quad (1)$$

$$G_1 = \frac{H_2C_1}{\pi(2H_1H_2(H_2 - H_1) + a^2(H_1C_2 - H_2C_1))}; \quad (2)$$

$$G_2 = \frac{H_1C_2}{\pi(2H_1H_2(H_2 - H_1) + a^2(H_1C_2 - H_2C_1))}; \quad (3)$$

$$Q_1 = R_1 \times 35.22; \quad (4)$$

$$Q_2 = R_2 \times 35.22, \quad (5)$$

where *SSHC* is soil saturated hydraulic conductivity, cm/min; *G* is intermediate variable for SSHC calculation; *Q* is quasi-steady flow rate out of the permeameter and into the soil, cm^3/min; *H* is the water head height, cm; *C* is the shape factor, and the calculation formulas is related to soil texture-structure category; *R* is steady-state rate of fall of water in reservoir, cm/min; *a* is the borehole radius, cm. The subscript, 1 or 2, refers to the variable which is associated with the first or second head height. The two heads were 5 cm and 10 cm water height, respectively.

For one head and combined reservoir conditions, SSHC was calculated by Equation (6):

$$SSHC = \frac{C_1 \times Q_1}{2\pi H_1^2 + \pi a^2 C_1 + 2\pi H_1 / a^*}, \quad (6)$$

where a^* is microscopic capillary length factor which is decided according to the soil texture-structure category (= 0.12 cm^{-1} for the loess). The one head was 5 cm water height.

Supplemental material 3

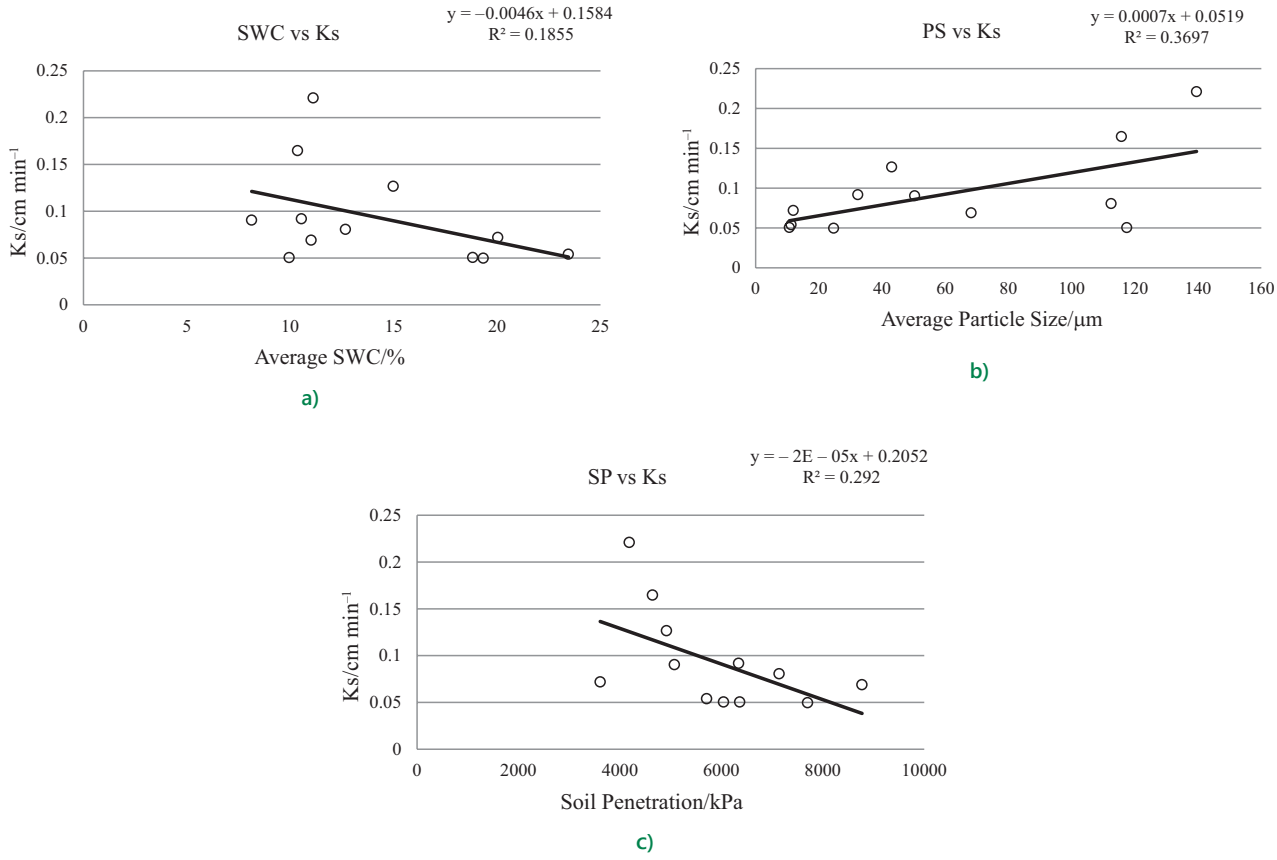

Figure S2. The relationships between SSHC and SWC, PS and SP

Supplemental material 4

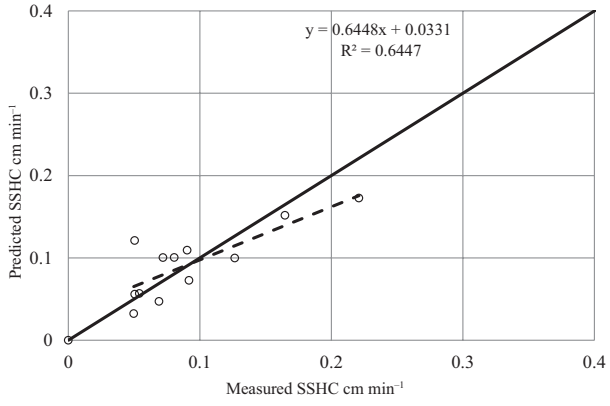

Figure S3. Comparison between measured and predicted SSHC by line model