

Supplementary file

Physically constrained intelligent interpretation of production profiles for multilayer oil wells based on distributed fiber optic temperature monitoring

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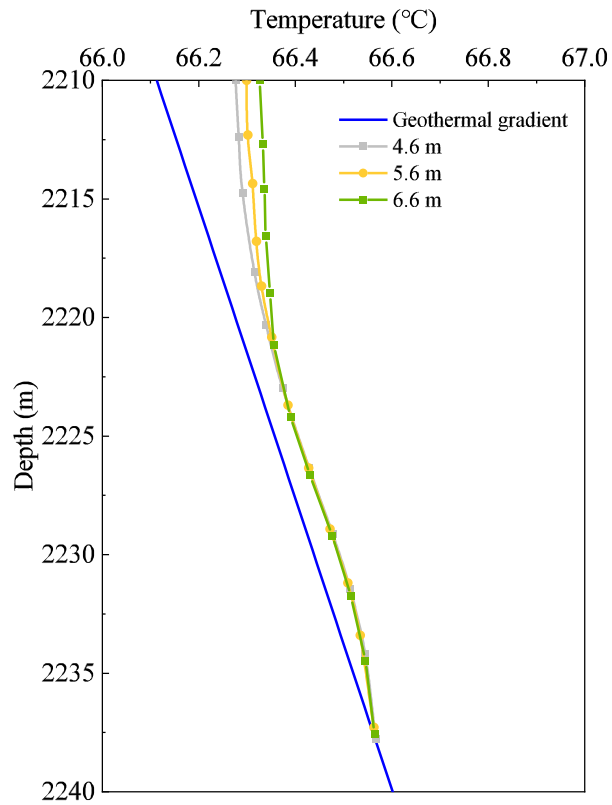


Fig. S1. Effect of reservoir thickness on temperature response curves.

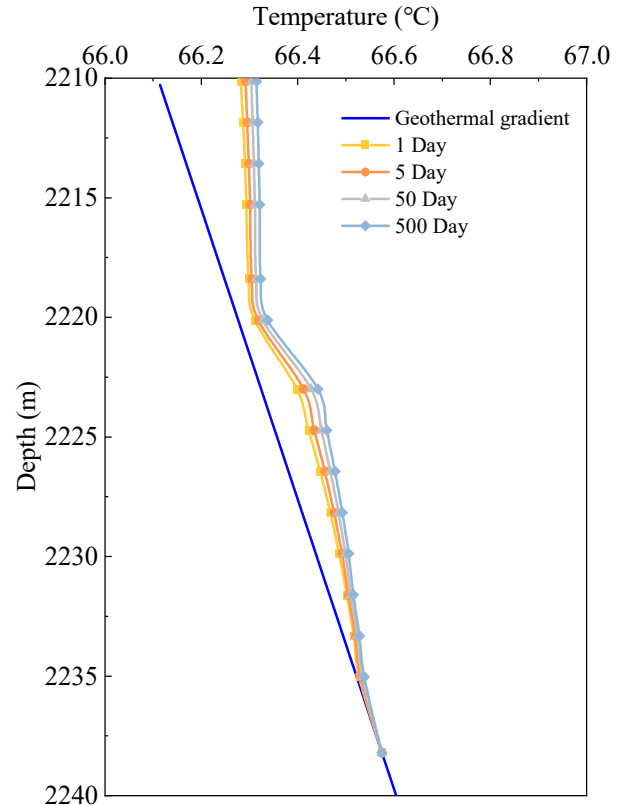


Fig. S2. Effect of production time on temperature response curves.

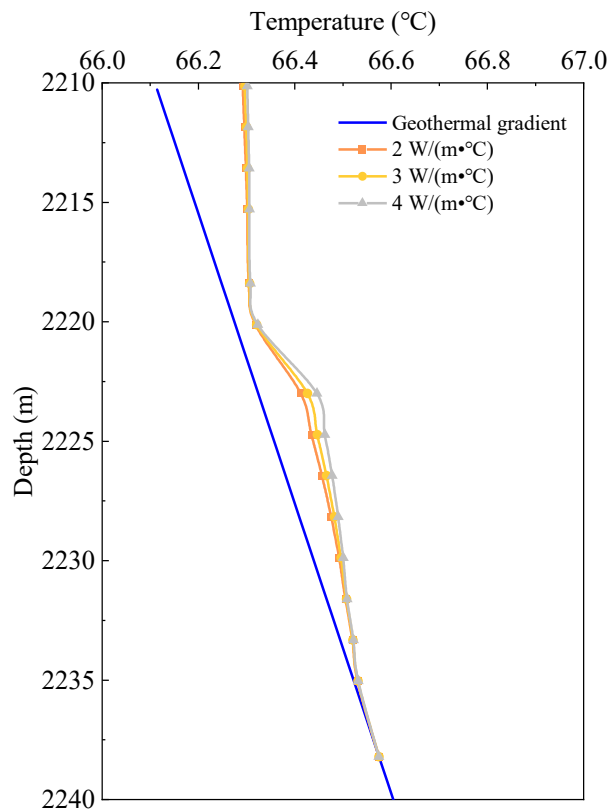


Fig. S3. Effect of rock thermal conductivity on temperature response curves.

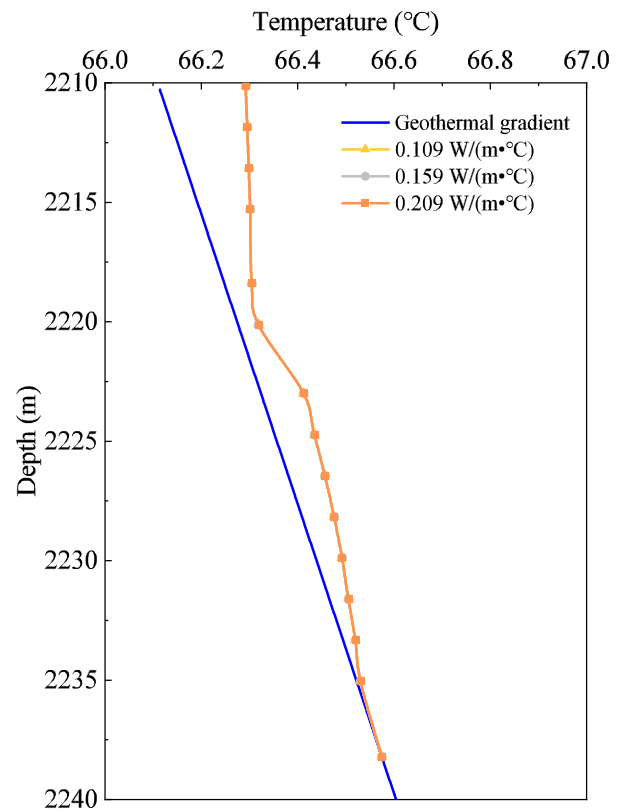


Fig. S4. Effect of oil thermal conductivity on temperature response curves.

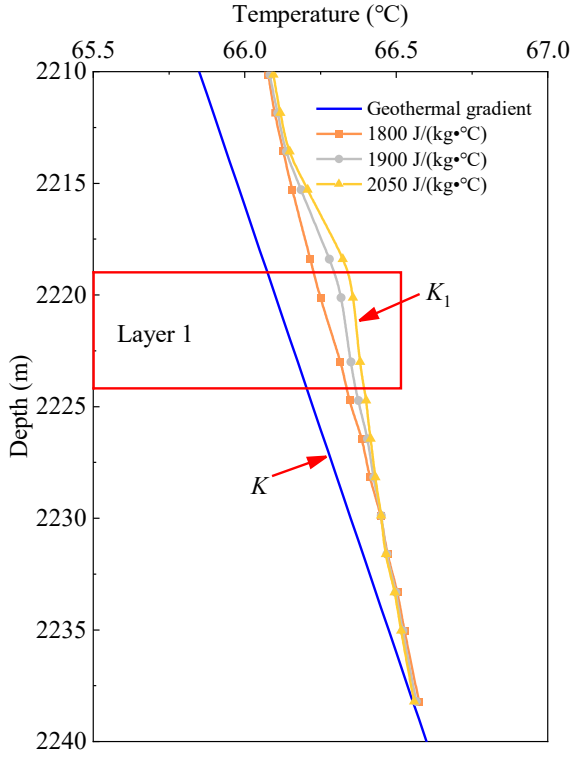


Fig. S5. Effect of oil heat capacity on temperature response curves.

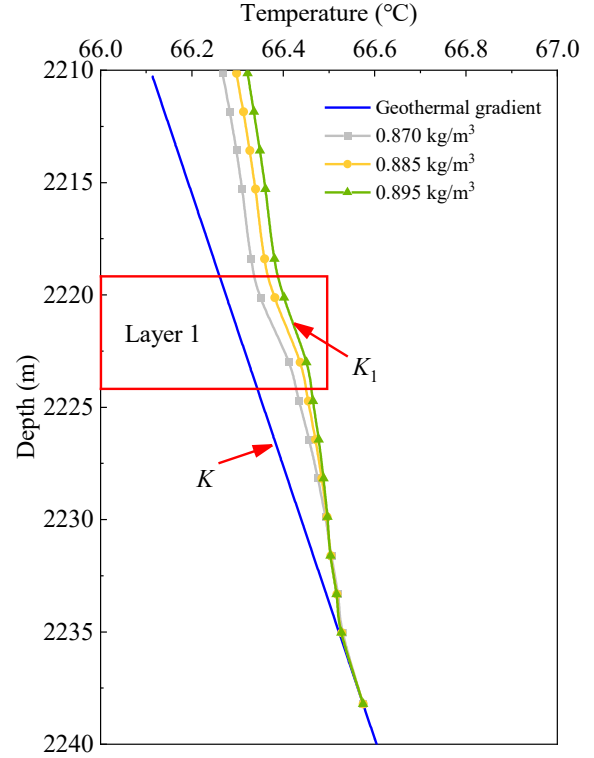


Fig. S6. Effect of oil density on temperature response curves.

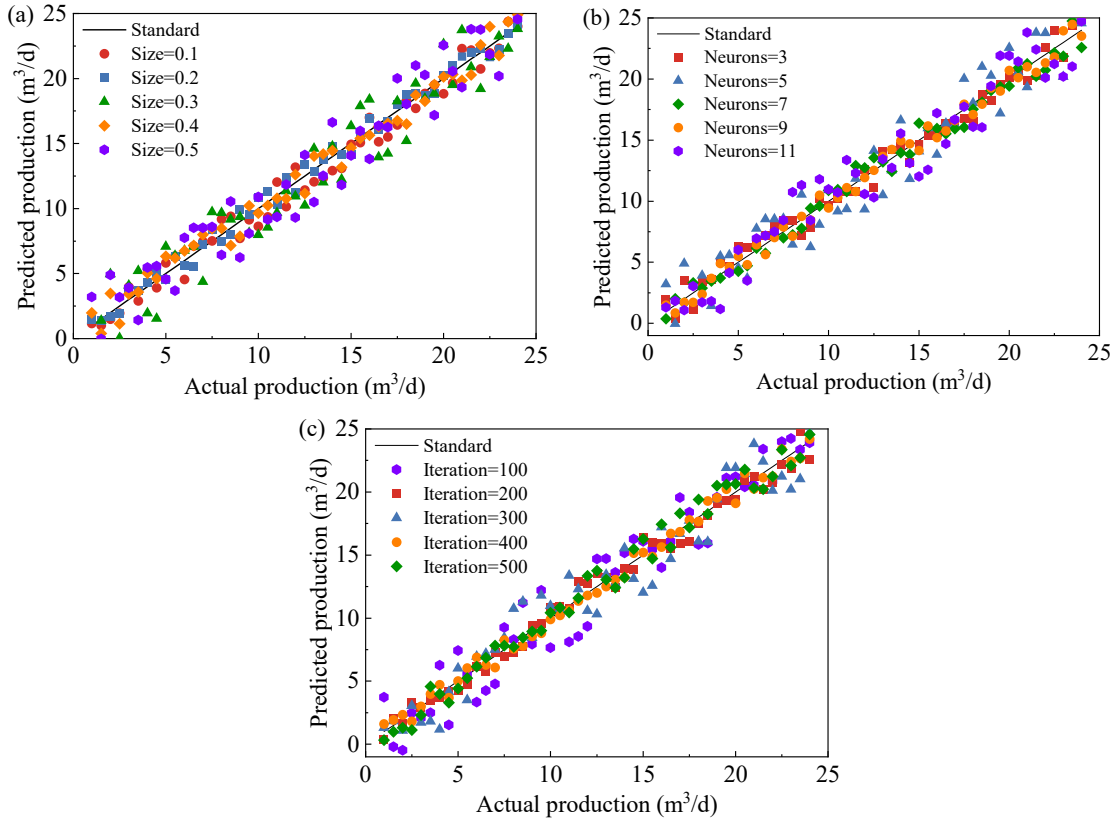


Fig. S7. Sensitivity analysis of BP neural network parameters: impact of (a) prediction sets proportion, (b) number of neurons, and (c) iteration counts on prediction results.

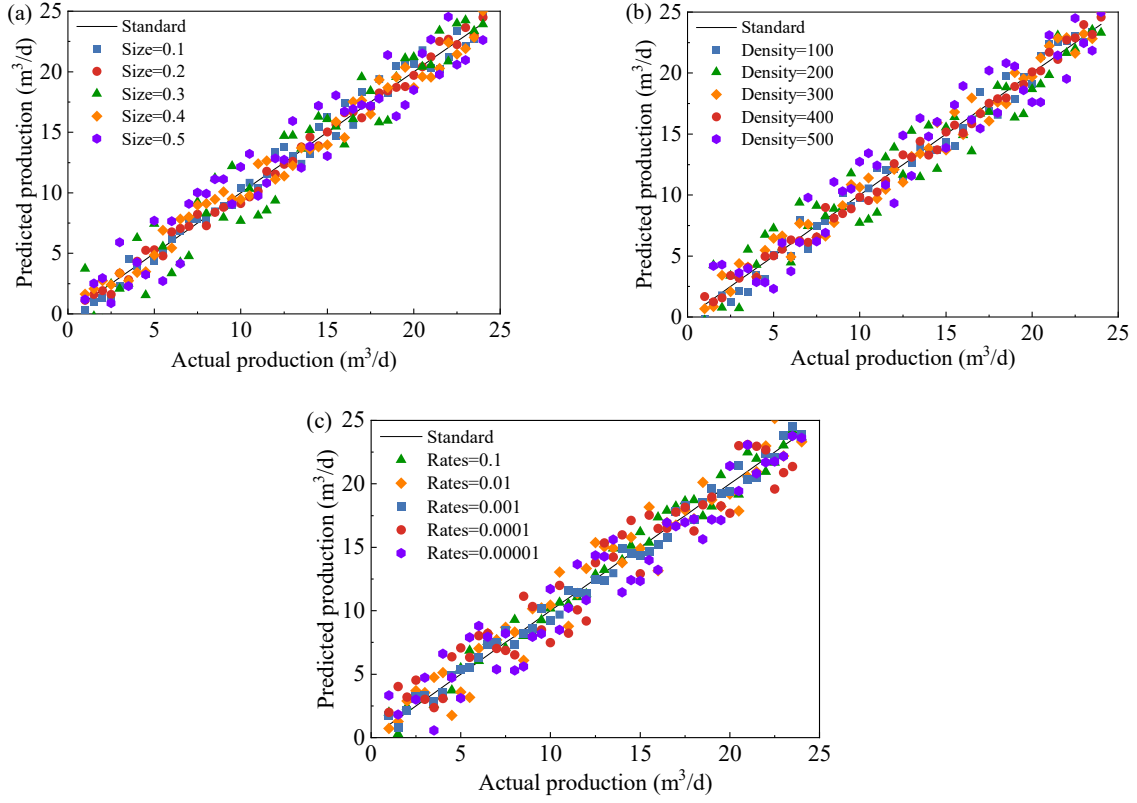


Fig. S8. Sensitivity analysis of RBF neural network parameters: impact of (a) prediction sets proportion, (b) radial basis density, and (c) learning rates on prediction results.

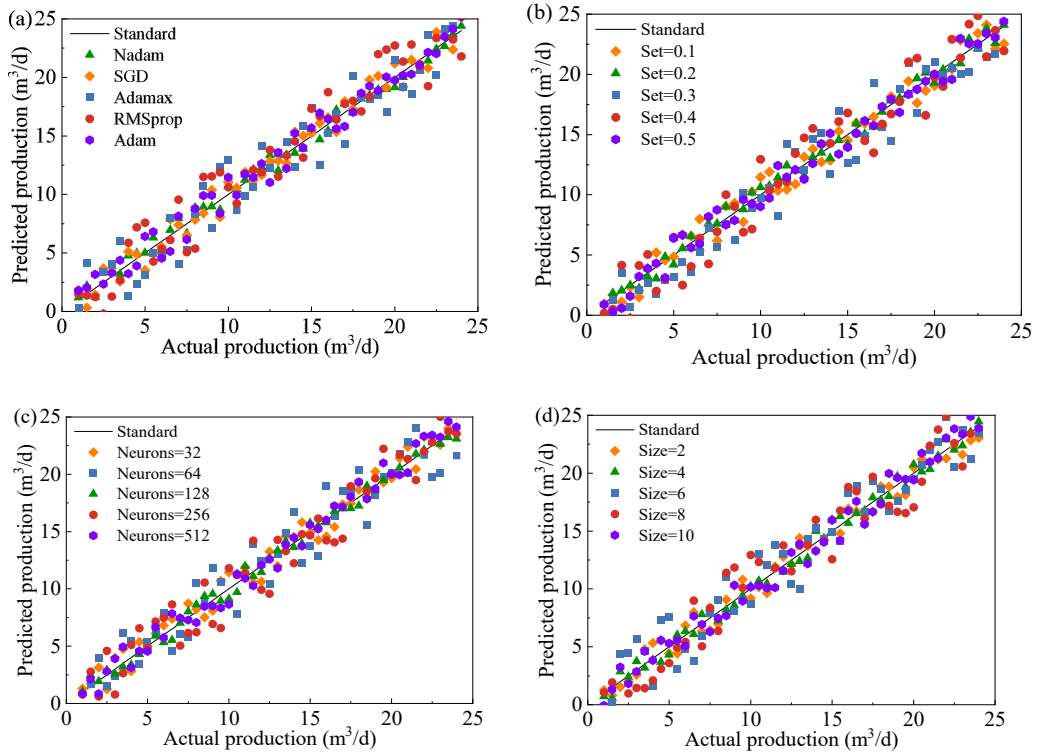


Fig. S9. Sensitivity analysis of FCNN neural network parameters: impact of (a) optimizers, (b) prediction sets proportion, (c) number of neurons, and (d) batch sizes on prediction results.

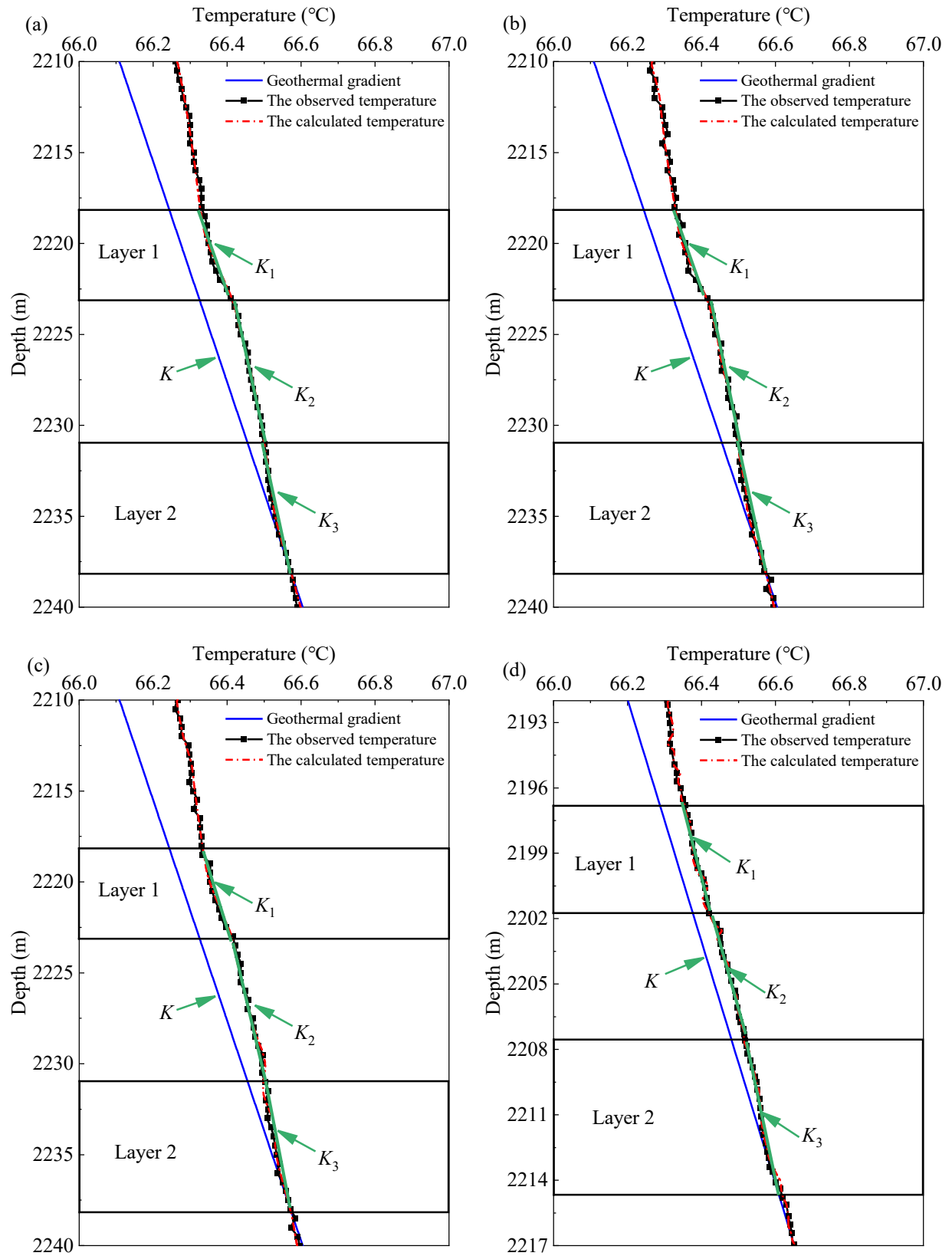


Fig. S10. Temperature production profile data of (a) well XX-77-1 4/10, (b) well XX-77-1 4/12, (c) well XX-77-1 4/18, and (d) well XX-18-1 5/08.