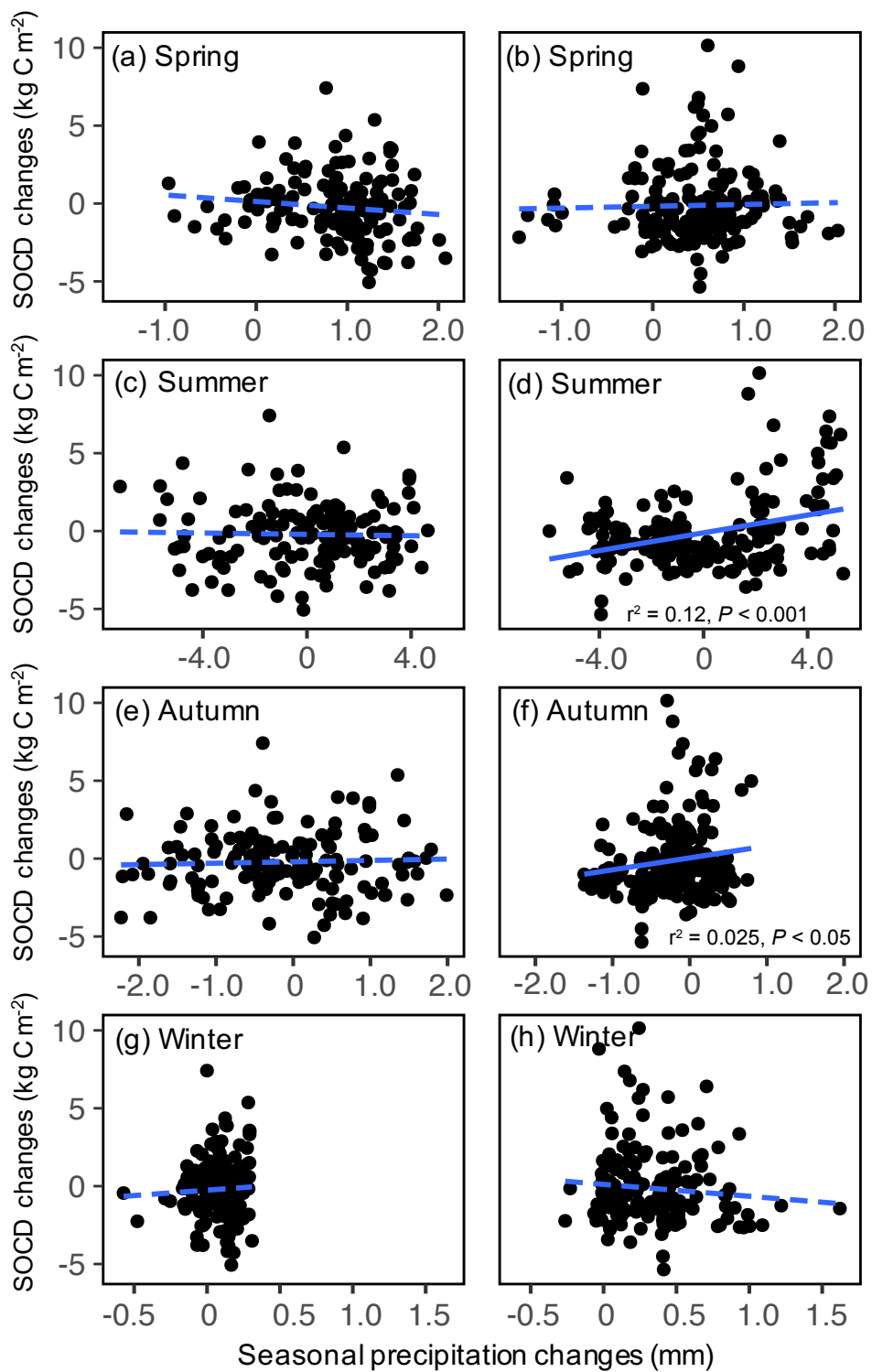


1 **Table S1:** Comparison of cross validation results among different extrapolation
2 methods to predict SOCD in north China grasslands during 2000s. SOCD: soil organic
3 carbon density, ANN: artificial neural network, RF: random forest, r^2 : coefficient of
4 determination, RMSE: root mean square error.

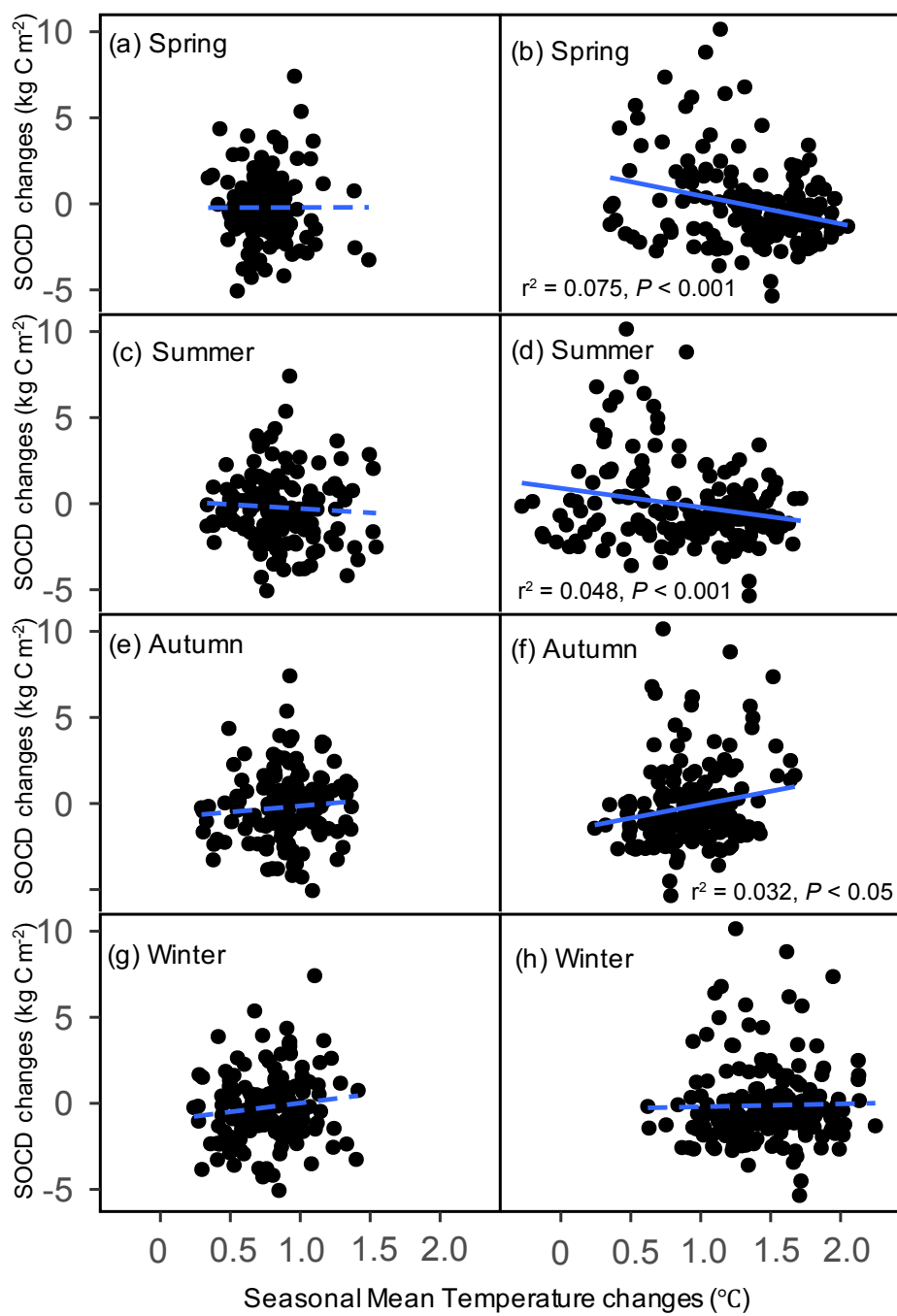
	r^2	<i>RMSE</i>
Ordinary Kriging interpolation	0.43	3.20
Cokriging interpolation (NDVI)	0.48	3.02
ANN	0.62	2.39
RF	0.73	1.98

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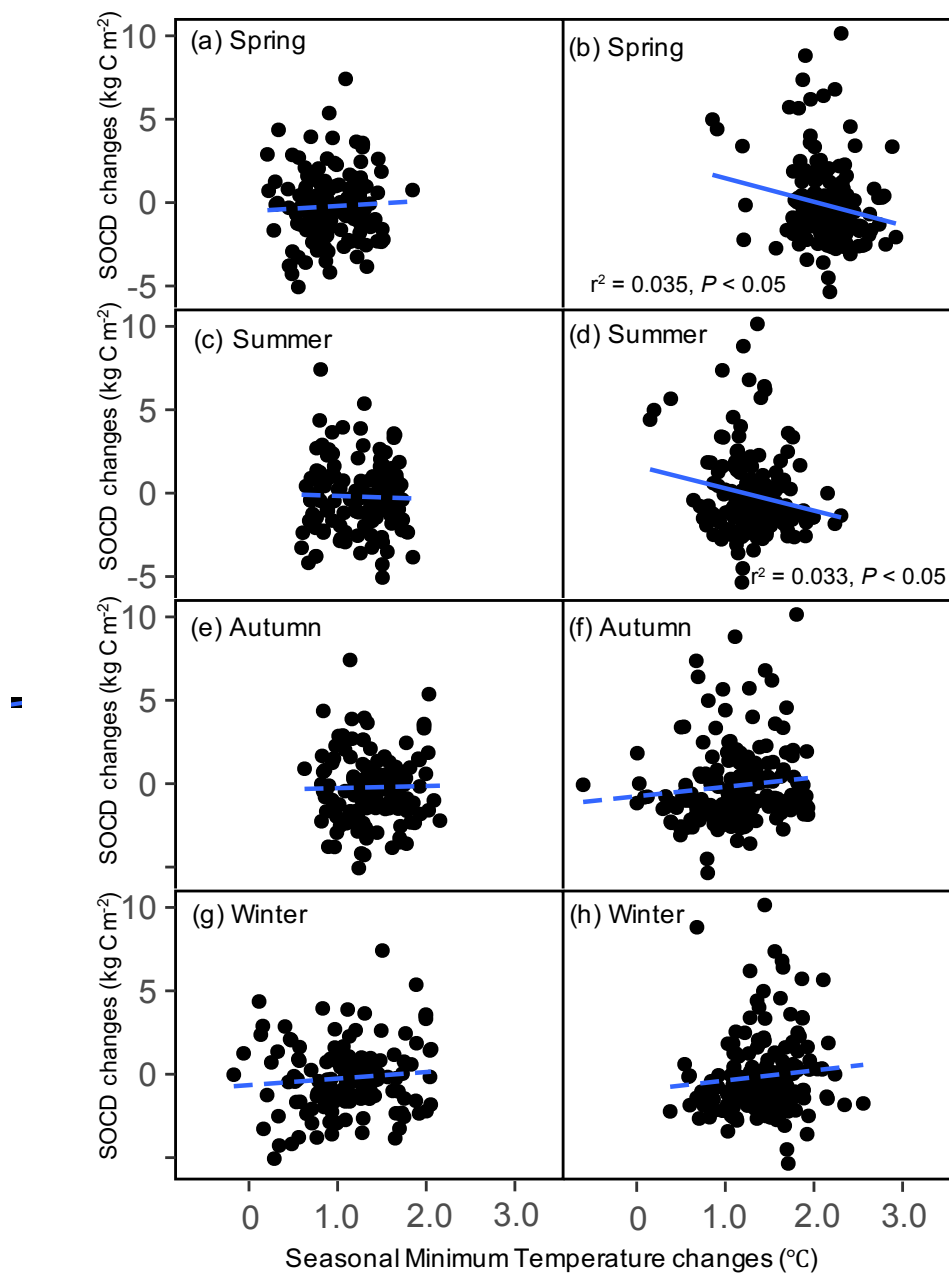
23 Figure S1: Relationships between the SOCD change values and the seasonal
 24 precipitation change values across the alpine (a, c, e and g) and temperate (b, d, f and
 25 h) grasslands from the 1980s to the 2000s. SOCD: soil organic carbon density.



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27 Figure S2: Relationships between the SOCD change values and the seasonal mean
 28 temperature change values across the alpine (a, c, e and g) and temperate (b, d, f and h)
 29 grasslands from the 1980s to the 2000s. SOCD: soil organic carbon density.

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32 Figure S3: Relationships between the SOCD change values and the seasonal minimum
 33 temperature change values across the alpine (a, c, e and g) and temperate (b, d, f and h)
 34 grasslands from the 1980s to the 2000s. SOCD: soil organic carbon density.

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