

# Urban Flood Risk Prediction and Influencing Factors Analysis Based on the MaxEnt-PLUS Model

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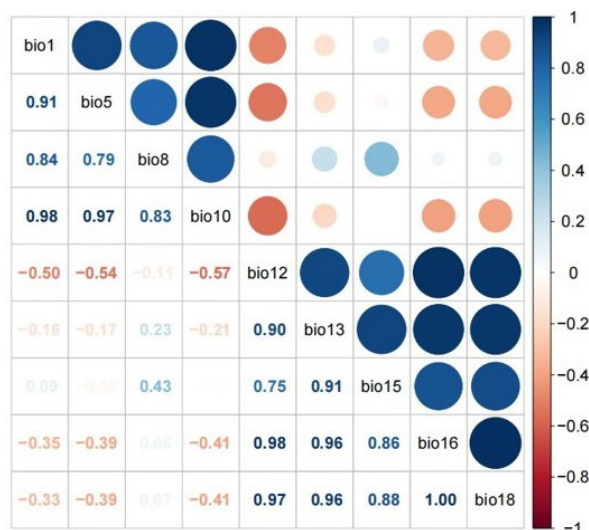
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## 1 Selection of Meteorological Factors

To minimize distortions from multicollinearity, eight candidate meteorological factors were evaluated using Pearson correlation analysis in ArcGIS 10.8 and R (v4.3.0). Following established practice in ecological modeling,  $|r| > 0.7$  was set as the threshold for strong collinearity. Factors were then screened through a combination of correlation analysis and permutation importance. As a result, mean annual temperature (Bio1) and annual precipitation (Bio12) were retained as predictors in the MaxEnt model, ensuring both variable independence and strong explanatory power for urban flood risk modeling.



**Fig. S1** Bioclimatic factor correlation. © Bo Luan, Jianing Luo, Xiulin Ye, Weidong Huang, Lu Yu, Guangyu Yu

## 2 FCs and RMs Selection Result

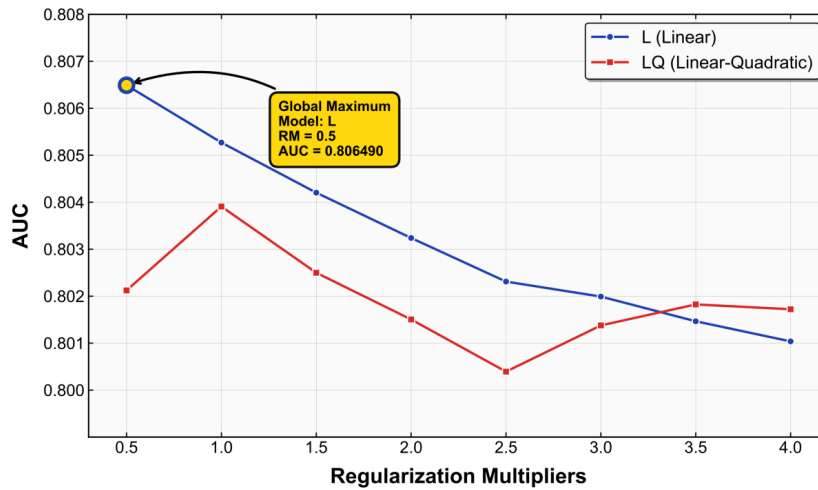


Fig. S2 FCs and RMs selection result. © Bo Luan, Jianing Luo, Xiulin Ye, Weidong Huang, Lu Yu, Guangyu Yu

## 3 Contributions of the Driving Factors Derived by PLUS Model

Supplementary Table 1: Contributions of the driving factors

Driving factor	Blue space	Green space	Built-up area
Elevation	0.166775	0.083928	0.074801
Slope	0.082661	0.033142	0.024758
Surface roughness	0.013168	0.047667	0.030896
Annual mean temperature	0.070775	0.038642	0.125288
Annual precipitation	0.012761	0.028914	0.073943
NDVI	0.206445	0.180268	0.100848
Population density	0.049857	0.204031	0.055202
Nighttime light	0.249714	0.168982	0.159232
Distance to road	0.115728	0.169718	0.258110
Distance to river	0.032117	0.044710	0.096921