**Table 1 Correlation coefficients between NDVI and climate elements**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| No. | Station | NDVI vs P | NDVI vs T | NDVI vs H | NDVI vs S | Vegetation types |
| 1 | LuShi | 0.820\*\* | 0.443\*\* | 0.349\*\* | 0.106\* | warm temperate zone forest |
| 2 | HeZuo | 0.826\*\* | 0.616\*\* | 0.613\*\* | 0.028 | warm temperate zone forest |
| 3 | YunCheng | 0.775\*\* | 0.408\*\* | 0.124\* | 0.514\*\* | warm temperate zone forest |
| 4 | Yan'An | 0.807\*\* | 0.471\*\* | 0.356\*\* | 0.177\*\* | warm temperate zone forest |
| 5 | Ji'Nan | 0.807\*\* | 0.468\*\* | 0.480\*\* | 0.156\*\* | warm temperate zone forest |
| 6 | JieXiu | 0.123\* | 0.407\*\* | 0.444\*\* | 0.034 | warm temperate zone forest |
| 7 | YuanPing | 0.841\*\* | 0.519\*\* | 0.504\*\* | 0.265\*\* | warm temperate zone forest |
| 8 | ZhengZhou | 0.584\*\* | 0.182\*\* | 0.077 | 0.396\*\* | warm temperate zone forest |
| 9 | HuiMingcounty | 0.578\*\* | 0.254\*\* | 0.246\*\* | 0.331\*\* | warm temperate zone forest |
| 10 | Hohhot | 0.721\*\* | 0.515\*\* | 0.228\*\* | 0.381\*\* | temperate zone typical steppe |
| 11 | darfur joint flag Abraham | 0.754\*\* | 0.480\*\* | -0.048 | 0.316\*\* | temperate zone typical steppe |
| 12 | GangCha | 0.787\*\* | 0.734\*\* | 0.773\*\* | -0.159\*\* | temperate zone shrub,semi-shrub desert |
| 13 | PingLiang | 0.841\*\* | 0.449\*\* | 0.362\*\* | 0.266\*\* | temperate zone forest (meadow) steppe |
| 14 | Xi'Ning | 0.809\*\* | 0.562\*\* | 0.537\*\* | 0.196\*\* | temperate zone forest (meadow) steppe |
| 15 | YanChi | 0.615\*\* | 0.307\*\* | 0.273\*\* | 0.226\*\* | temperate zone forest (meadow) steppe |
| 16 | YuLin | 0.812\*\* | 0.332\*\* | 0.118\* | 0.441\*\* | temperate zone forest (meadow) steppe |
| 17 | WuQiaoling | 0.806\*\* | 0.623\*\* | 0.416\*\* | -0.187\*\* | temperate zone forest (meadow) steppe |
| 18 | YinChuan | 0.839\*\* | 0.336\*\* | 0.280\*\* | 0.466\*\* | temperate zone desert steppe |
| 19 | Otog Banner | 0.608\*\* | 0.407\*\* | 0.264\*\* | 0.238\*\* | temperate zone desert steppe |
| 20 | Urad Middle Banner | 0.721\*\* | 0.340\*\* | -0.234\*\* | 0.505\*\* | temperate zone desert steppe |
| 21 | DaRi | 0.749\*\* | 0.542\*\* | 0.571\*\* | 0.228\*\* | Alpine shrubs, meadow  |
| 22 | MaDuo | 0.740\*\* | 0.529\*\* | 0.448\*\* | 0 | Alpine shrubs, meadow  |
| 23 | YuShu | 0.776\*\* | 0.626\*\* | 0.630\*\* | 0.167\*\* | Alpine shrubs, meadow  |
| 24 | QuMacai | 0.620\*\* | 0.435\*\* | 0.303\*\* | 0.106\* | Alpine shrubs, meadow  |

note: \*\*correlation is significant at the 0.01 level(2-tailed), \*correlation is significant at the 0.05 level(2-tailed). P: precipitation T: temperature, H: relative humidity, S: sunshine hours.

**Table 2 Regression equations between NDVI and climatic elements at different time scales at Hohhot station**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Time scale | Regression equation | R2 | F | Significance level |
| S1 | N=0.422T+0.507P-0.00412 | 0.61 | 289.6 | 0.005 |
| S2 | N=0.371T+0.574P-0.0017 | 0.65 | 337.113 | 0.005 |
| S3 | N=0.371T+0.47P-0.028 | 0.67 | 381.86 | 0.005 |
| S4 | N=0.38T+0.414P+0.12 | 0.68 | 388.49 | 0.005 |
| S5 | N=0.628T+0.08P+0.324 | 0.27 | 69.56 | 0.005 |

Note: N is 10-day maximum NDVI, p is 10-day average precipitation, T is 10-day average temperature, S1 represents 20-day scale, S2 represents 40-day scale, S3 represents 80-day scale, S4 represents 160-day scale, S5 represents 320-day scale.

**Table 3 Regression equations between NDVI and climate elements at the most suitable time scales**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Station | Regression equation | RP2P | F | Significance level | Most suitable scale |
| DaRi | N=0.28P+0.57T+0.1 | 0.76 | 575.71 | 0.005 | S4 |
| MaDuo | N=0.42P+0.51T+0.08 | 0.8 | 754.95 | 0.005 | S4 |
| YuShu | N=0.53P+0.33T+0.108 | 0.817 | 824.9 | 0.005 | S4 |
| QuMacai | N=0.82P+0.131T+0.114 | 0.726 | 488.99 | 0.005 | S4 |
| LuShi | N=0.43P+0.57T-0.014 | 0.95 | 3584.119 | 0.005 | S4 |
| HeZuo | N=0.44P+0.47T+0.097 | 0.889 | 1492.234 | 0.005 | S4 |
| YunCheng | N=0.33P+0.58T+0.094 | 0.867 | 1206.5 | 0.005 | S3 |
| Yan'An | N=0.49P+0.37T+0.093 | 0.816 | 817.11 | 0.005 | S4 |
| Ji'Nan | N=0.68P+0.35T+0.027 | 0.892 | 1526.37 | 0.005 | S4 |
| JieXiu | N=0.77P+0.14T+0.047 | 0.795 | 717.55 | 0.005 | S4 |
| YuanPing | N=0.7P+0.25T+0.023 | 0.928 | 2380.455 | 0.005 | S4 |
| ZhengZhou | N=0.04P+0.76T+0.17 | 0.7333 | 507.34 | 0.005 | S4 |
| HuiMingcounty | N=0.05P+0.74T+0.12 | 0.752 | 558.26 | 0.005 | S4 |
| darfur joint flag Abraham | N=0.49P+0.37T+0.07 | 0.7481 | 547.845 | 0.005 | S3 |
| GangCha | N=0.92P+0.06T+0.001 | 0.8422 | 984.38 | 0.005 | S3 |
| YinChuan | N=0.27P+0.62T-0.06 | 0.7873 | 683.2 | 0.005 | S3 |
| Otog Banner | N=0.62P+0.09T+0.097 | 0.6 | 277.66 | 0.005 | S3 |
| Urad Middle Banner | N=0.14P+0.47T+0.132 | 0.6631 | 363.2 | 0.005 | S3 |
| PingLiang | N=0.35P+0.57T+0.05 | 0.8848 | 1416.43 | 0.005 | S4 |
| Xi'Ning | N=0.75P+0.212T+0.019 | 0.8578 | 1113.22 | 0.005 | S3 |
| YanChi | N=0.33P+0.27T+0.143 | 0.5213 | 200.94 | 0.005 | S3 |
| YuLin | N=0.27P+0.56T+0.08 | 0.7999 | 737.52 | 0.005 | S4 |
| WuQiaoling | N=0.62P+0.26T+0.078 | 0.8855 | 1427.11 | 0.005 | S4 |

Note: N is 10-day maximum NDVI, P is 10-day average precipitation, T is 10-day average temperature, S3 represents 80-day scale, S4 represents 160-day scale.