**Дополнительные материалы**

**Supplementary materials**

**Таблица 1S.** Статистические характеристики метеорологических показателей и их линейных временных трендов за весь период наблюдений 1998÷2022 гг. (n = 25).

**Table 1S.** Statistical characteristics for meteorological indexes and their linear time trends for the whole observation period 1998÷2022 (n = 25).

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Characteristics | MAT | ST(5−9) | ST(6−8) | SP  | SP(5−9) | SP(6−8) | WI(5−9) | WI(6−8) | HTC(6−8) |
| oC | mm |
| Климатичес-кая норма (1991−2020) | **5.7** | **77** | **52** | **640** | **333** | **220** | **0.62** | **0.60** | **1.38** |
| Mean | 5.9 | 78 | 53 | 651 | 337 | 215 | 0.62 | 0.58 | 1.33 |
| Median | 6.0 | 77 | 53 | 660 | 312 | 219 | 0.61 | 0.65 | 1.45 |
| Min | 4.0 | 70 | 48 | 400 | 209 | 109 | 0.41 | 0.29 | 0.64 |
| Max | 7.6 | 92 | 65 | 929 | 599 | 359 | 0.87 | 0.84 | 2.25 |
| Range (Max − Min) | 3.6 | 22 | 17 | 529 | 390 | 250 | 0.46 | 0.55 | 1.61 |
| STD | 0.8 | 4.8 | 3.6 | 119 | 94 | 72 | 0.12 | 0.16 | 0.47 |
| SE | 0.2 | 1.0 | 0.7 | 23.8 | 18.8 | 14.3 | 0.02 | 0.03 | 0.09 |
| CI | 0.3 | 1.8 | 1.3 | 44.5 | 35.0 | 26.8 | 0.05 | 0.06 | 0.18 |
| CV, % | 13.5 | 6.1 | 6.7 | 18.3 | 27.8 | 33.3 | 19.9 | 28.3 | 35.4 |
| Cos (Range/Mean) | 0.6 | 0.3 | 0.3 | 0.8 | 1.2 | 1.2 | 0.7 | 0.9 | 1.2 |
| Linear trends (1998÷2022) |
| *a* | 0.05 | 0.13 | 0.06 | -2.8 | -2.3 | -3.5 | -0.004 | -0.008 | -0.022 |
| *R*2 | 0.21 | 0.04 | 0.02 | 0.03 | 0.03 | 0.13 | 0.06 | 0.12 | 0.12 |
| *p* | 0.02 | ns | ns | ns | ns | ns | ns | ns | ns |

*Notes: MAT is a mean annual Tair (°C); SP Is an annual sum of precipitation, P (mm); ST(5‒9) and ST(6‒8) are the sum of mean monthly Tair from May to September and June to August, respectively; SP(5‒9) and SP(6‒8) are the sum of monthly P from May to September and June to August, respectively; wetness indexes WI(5‒9) and WI(6‒8) are the ratio lgSP(5‒9)/ST(5‒9) and lgSP(6‒8)/ST(6‒8) for periods from May to September and June to August, respectively; HTC(6‒8) is the Selyaninov hydrothermal coefficient over the summer period (June–August); ClimNo – Climatological Norm is a mean value for each meteorological index over period between 1981 – 2010 [Ref]; Mean, Median, Min, Max are mean, median, minimal, and maximal values, respectively; Range is the difference between Max and Min; STD is standard deviation; SE is standard error; CI – is a confidence interval, CV is coefficient of variation; Cos is a ratio between Range and Mean (coefficient oscillation); a is the coefficient of the liner regression (y = ax + b), R2 is the coefficient of determination, p is the probability of the linear trends.*

**Таблица 2S.** Статистические характеристики *Q*10 and SR10 и их линейных временных трендов за весь период наблюдений 1998÷2022 гг. (n = 25).

**Table 2S.** Statistical characteristics for Q10 and SR10 values for different temperature intervals and their linear time trends (n = 25).

|  |  |
| --- | --- |
|  | **Дерново-подзолистая почв (Entic Podzol**) |
| Characteristics | *Q*\*10 | *Q*10 | SR\*10 | SR10 | SR10-obs |
| Mean | 2.82 | 2.46 | 1.93 | 2.02 | 2.43 |
| Median | 2.41 | 2.12 | 1.76 | 1.82 | 2.35 |
| Min | 1.40 | 1.38 | 1.30 | 1.52 | 1.14 |
| Max | 5.42 | 5.24 | 3.19 | 3.46 | 4.56 |
| Range (Max − Min) | 4.02 | 3.86 | 1.89 | 1.94 | 3.42 |
| STD | 1.02 | 1.01 | 0.45 | 0.50 | 0.81 |
| SE | 0.20 | 0.20 | 0.09 | 0.10 | 0.16 |
| CI | 0.42 | 0.42 | 0.19 | 0.21 | 0.33 |
| CV, % | 36.3 | 41.1 | 23.3 | 24.8 | 33.3 |
| Cos (Range/Mean) | 1.43 | 1.57 | 0.98 | 0.96 | 1.41 |
| Linear trends (1998÷2022) |
| *a* | -0.010 | 0.007 | -0.032 | -0.043 | -0.049 |
| *R*2 | ns | ns | 0.28 | 0.41 | 0.20 |
| *p* | 0.005 | 0.009 | 0.07 | <0.001 | 0.03 |
|  | **Серая лесная почва (Haplic Luvisol**) |
| Mean | 3.56 | 2.41 | 1.98 | 2.29 | 2.38 |
| Median | 3.44 | 2.33 | 2.02 | 2.19 | 2.36 |
| Min | 2.27 | 1.63 | 0.83 | 0.91 | 0.91 |
| Max | 5.71 | 3.62 | 3.74 | 4.02 | 4.03 |
| Range (Max − Min) | 3.44 | 1.99 | 2.91 | 3.11 | 3.12 |
| STD | 1.03 | 0.54 | 0.69 | 0.72 | 0.83 |
| SE | 0.21 | 0.11 | 0.14 | 0.14 | 0.17 |
| CI | 0.42 | 0.22 | 0.28 | 0.30 | 0.34 |
| CV, % | 28.8 | 22.5 | 34.8 | 31.4 | 34.7 |
| Cos (Range/Mean) | 0.97 | 0.82 | 1.47 | 1.36 | 1.31 |
| Linear trends (1998÷2022) |
| *a* | -0.014 | 0.013 | 0.054 | 0.063 | 0.054 |
| *R*2 | ns | ns | 0.34 | 0.41 | 0.23 |
| *p* | 0.010 | 0.009 | 0.002 | <0.001 | 0.01 |

*Notes: Q\*10 and Q10 are the temperature coefficient for soil respiration at all range of soil temperature, Ts and for Ts > 1oC, respectively; SR\*10 and SR10 are the rate of soil respiration at 10oC (g C/m2/hour) calculated with using Q10 values; SR10-obs is the observed rate of soil respiration at 10oC (g C/m2/day). Mean, Median, Min, Max are mean, median, minimal, and maximal values, respectively; Range is the difference between Max and Min; STD is standard deviation; SE is standard error; CI is a confidence interval, CV is coefficient of variation; Cos is a ratio between Range and Mean (coefficient oscillation); a is the coefficient of the liner regression (y = ax + b), R2 is the coefficient of determination, p is the probability of the linear trends.*