**SUPPLEMENTARY MATERIALS**

**Supplementary Table 1.** Results of the mixed linear model with forcing requirement (FR) as the dependent variable and species, chilling accumulation (CA), and their interaction as the independent variables.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Source** | **Type III Sum of Squares** | **Den DF** | **Mean Square** | **F value** | **Significance** |
| Species | 8.1205 | 641.13 | 0.6247 | 94.350 | 0.000 |
| CA | 15.3101 | 641.94 | 15.3101 | 2312.487 | 0.000 |
| Species**×**CA | 3.8695 | 641.15 | 0.2977 | 44.959 | 0.000 |

*Conditional R2*=0.893

**Supplementary Table 2.** Parameters of the exponential decay functions between forcing requirement of spring events and chilling accumulation for each species.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **NO** | **Species** | ***a*** | ***b*** | ***c*** | ***R2*** |
| 1 | *Jasminum nudiflorum* | 2360.458  | 2234.085  | 0.002  | 0.70  |
| 2 | *Cotoneaster horizontalis* | 2389.925  | 6133.513  | 0.002  | 0.86  |
| 3 | *Syringa oblata* | 2818.695  | 29012.459  | 0.005  | 0.91  |
| 4 | *Salix babylonica* | 3068.119  | 9473.139  | 0.002  | 0.93  |
| 5 | *Viburnum dilatatum* | 3884.864  | 35631.488  | 0.002  | 0.97  |
| 6 | *Lespedeza bicolor* | 2724.300  | 24458.418  | 0.002  | 0.89  |
| 7 | *Forsythia suspensa* | 2415.243  | 12246.168  | 0.002  | 0.92  |
| 8 | *Amygdalus triloba* | 4377.486  | 13638.594  | 0.002  | 0.86  |
| 9 | *Populus simonii* | 4154.967  | 30776.894  | 0.004  | 0.96  |
| 10 | *Malus micromalus* | 3800.120  | 40000.000  | 0.004  | 0.85  |
| 11 | *Cerasus tomentosa* | 4538.056  | 32427.448  | 0.004  | 0.94  |
| 12 | *Ginkgo biloba* | 3908.842  | 22021.721  | 0.001  | 0.94  |
| 13 | *Metasequoia glyptostroboi* | 4334.263  | 17972.379  | 0.001  | 0.86  |
| 14 | *Fraxinus chinensis* | 8505.643  | 28882.141  | 0.003  | 0.78  |

a, b, c are parameters in Eq. (6). *R2*: coefficient of determination.



**Supplementary Figure 1.** Interannual change in the seasonal mean temperature in Beijing observed at the meteorological station (1952-2020) and simulated by the global climatic model HadGEM2-ES under RCP 4.5 and 8.5 (2021-2099). **A**, spring (March-May); **B**, summer (June-August); **C**, autumn (September-November); **D**, winter (December-February). The dashed lines show the linear fit in the past 69 years (1952-2020) and the future 79 years (2021-2099). The values in the parentheses were the linear trends of seasonal temperature (unit, °C/year). \*\*\*: *P*<0.001.