**Supplementary Figures and Table**

**Combining and competing effects between precipitation and temperature on Holocene fire regime evolution inferred from a sedimentary black carbon record in southwestern China**

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**Supplementary Figure 1.** Comparison between the black carbon (BC) relative content and BC influx.

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**Supplementary Figure 2.** The correlation between precipitation (Sensitive Component 2, Ning et al., 2017) and BC influx during mid-late Holocene recorded in Lake Ximenglongtan.

**Supplementary Table 1.** AMS radiocarbon dates of terrestrial plant leaves from Lake XMLT a.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Lab Number | Sample depth  / cm | | δ13C  /‰ | Δ14C  /‰ | 14C ages  / ±30 yr BP | Cal year BP  /2σ | Median age  / cal yr BP |
| Beta 404942 | | 154 | -31.3 | -50.9±3.5 | 420 | 447-636 | 499 |
| Beta 420496 | | 227 | -29 | -131.2±3.2 | 1130 | 963-1204 | 1052 |
| Beta 404943 | | 335 | -27.4 | -262.9±2.8 | 2450 | 2350-2606 | 2431 |
| Beta 421444 | | 385 | -29.9 | -284.6±2.7 | 2690 | 2746-2990 | 2816 |
| Beta 420497 | | 486 | -27.7 | -404.2±2.2 | 4160 | 4546-4821 | 4689 |
| Beta 404944 | | 528 | -28.1 | -439.5±2.1 | 4650 | 5097-5463 | 5363 |
| Beta 420498 | | 614 | -25.9 | -484.3±1.9 | 5320 | 5990-6236 | 6099 |
| Beta 404945 | | 699 | -27.9 | -535.5±1.7 | 6160 | 6609-7018 | 6848 |
| Beta 420499 | | 793 | -26.2 | -540.1±1.7 | 6240 | 7106-7303 | 7225 |
| Beta 404946 | | 845 | -26.7 | -558.6±1.6 | 6570 | 7429-7571 | 7488 |
| Beta 420500 | | 975 | -28.8 | -623.6±1.4 | 7850 | 8527-8783 | 8626 |
| Beta 404947 | | 1042 | -31 | -641.0±1.3 | 8230 | 9059-9369 | 9203 |

(a) All of the AMS 14C dates are calibrated to calendar years before present using the IntCal13 calibration dataset (Reimer et al., 2013)