Supplemental Material for

A 406-year non-growing-season precipitation reconstruction in the southeastern Tibetan Plateau

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includes: Supplemental Table S1, Table S2, Table S3

Table S1 Differences among hydro-climatic reconstructions in the SETP

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Differences** | **Present study** | **Fan et al** | **Fang et al** | **Li et al** | **Zhang et al** |
| Tree species | *Tsuga forrestii* | *Picea linkiangensis*  *Tsuga dumosa*  *Abies ernestii* | *Abies forrestii* | *Abies forrestii* | Multi-species |
| Reconstruction target | precipitation | PDSI | PDSI | PDSI | PDSI |
| Reconstruction season | pNovember-cFebruary | cMarch–cApril | pMay-cApril | cApril-cJune | cMay-cJune |
| Detrending method | Negative exponential method | Negative exponential method  Cubic smoothing spline | Cubic smoothing spline | Negative exponential method  Linear regression curve | Cubic smoothing spline |
| Chronology | Residual | Residual | ARSTAN | Residual | Standard |
| Length of calibration period | 1956-  2005 | 1951-  2000 | 1954-  2005 | 1944-  2012 | 1953-  2005 |
| Sample replication (trees) | 38 | 98 | 64 | 47 | 409 |

Table S2 Comparison of extreme wet years in different hydro-climatic reconstructions in the SETP

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Present study | Fan et al | Fang et al | Li et al | Zhang et al | MADA (Cook et al) |
| 1627 | — | **Yes** | **No** | **No (wet)** | **Yes** |
| 1638 | — | **Yes** | **No** | **No (wet)** | **Yes** |
| 1654 | — | **Yes** | **No (wet)** | **No** | **Yes** |
| 1832 | **No (wet)** | **No (wet)** | **No** | **No (wet)** | **Yes** |
| 1834-35 | **Yes** | **Yes** | **No (wet)** | **No (wet)** | **Yes** |
| 1992 | **No (wet)** | **Yes** | **Yes** | **No (wet)** | **Yes** |

Note: “Yes” means the timely match of extreme wet years in present NGS precipitation reconstruction and compared reconstructions; “No (wet)” means the extreme wet years in present reconstruction were not extreme wet but wet in compared series; “No” means the extreme wet years in present reconstruction were not wet in compared series.

Table S3 Comparison of extreme dry years in different hydro-climatic reconstructions in the SETP

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Present study | Fan et al | Fang et al | Li et al | Zhang et al | MADA (Cook et al) |
| 1656 | **No (dry)** | **No (dry)** | **No** | **No (dry)** | **No** |
| 1670 | **Yes** | **Yes** | **Yes** | **No** | **Yes** |
| 1694 | **No** | **No (dry)** | **Yes** | **No (dry)** | **No** |
| 1703 | **Yes** | **Yes** | **No (dry)** | **No** | **No** |
| 1736 | **Yes** | **Yes** | **Yes** | **No (dry)** | **Yes** |
| 1897 | **Yes** | **Yes** | **Yes** | **No (dry)** | **Yes** |
| 1907 | **No** | **No (dry)** | **No** | **No** | **No** |
| 1943 | **No (dry)** | **Yes** | **No (dry)** | **No** | **No** |
| 1969 | **Yes** | **No (dry)** | **No (dry)** | **No (dry)** | **Yes** |
| 1982 | **Yes** | **Yes** | **No (dry)** | **No (dry)** | **Yes** |
| 1999 | **Yes** | **No (dry)** | **No (dry)** | **No (dry)** | **Yes** |

Note: “Yes” means the timely match of extreme dry years in present NGS precipitation reconstruction and compared reconstructions; “No (dry)” means the extreme dry years in present reconstruction were not extreme dry but dry in compared series; “No” means the extreme dry years in present reconstruction were not dry in compared series.