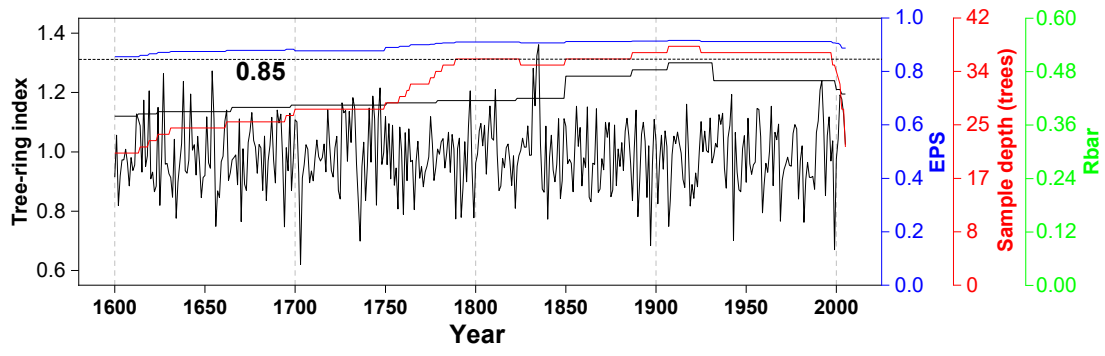
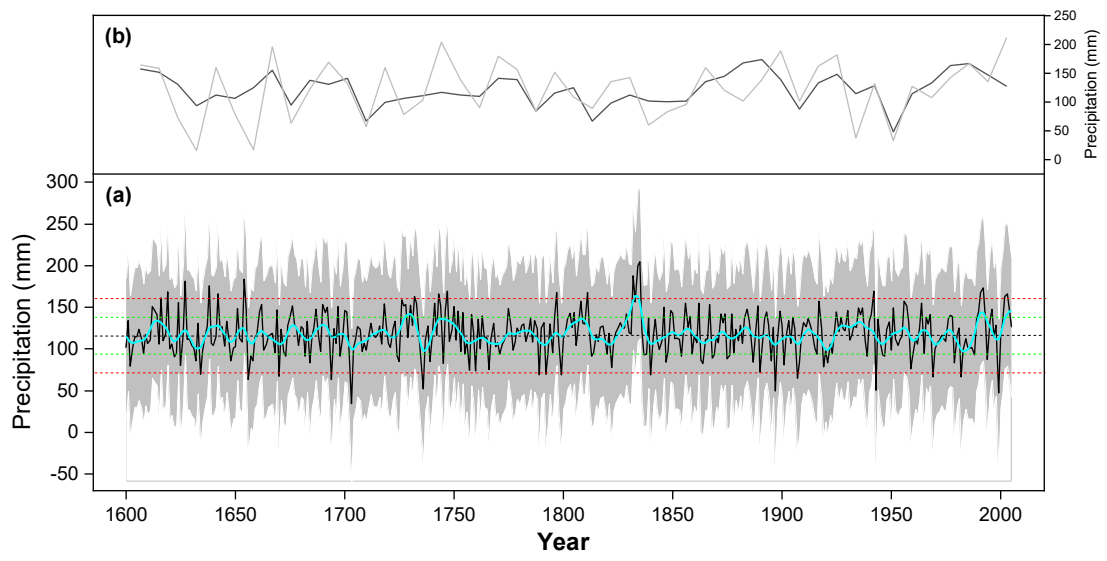


Updated location map



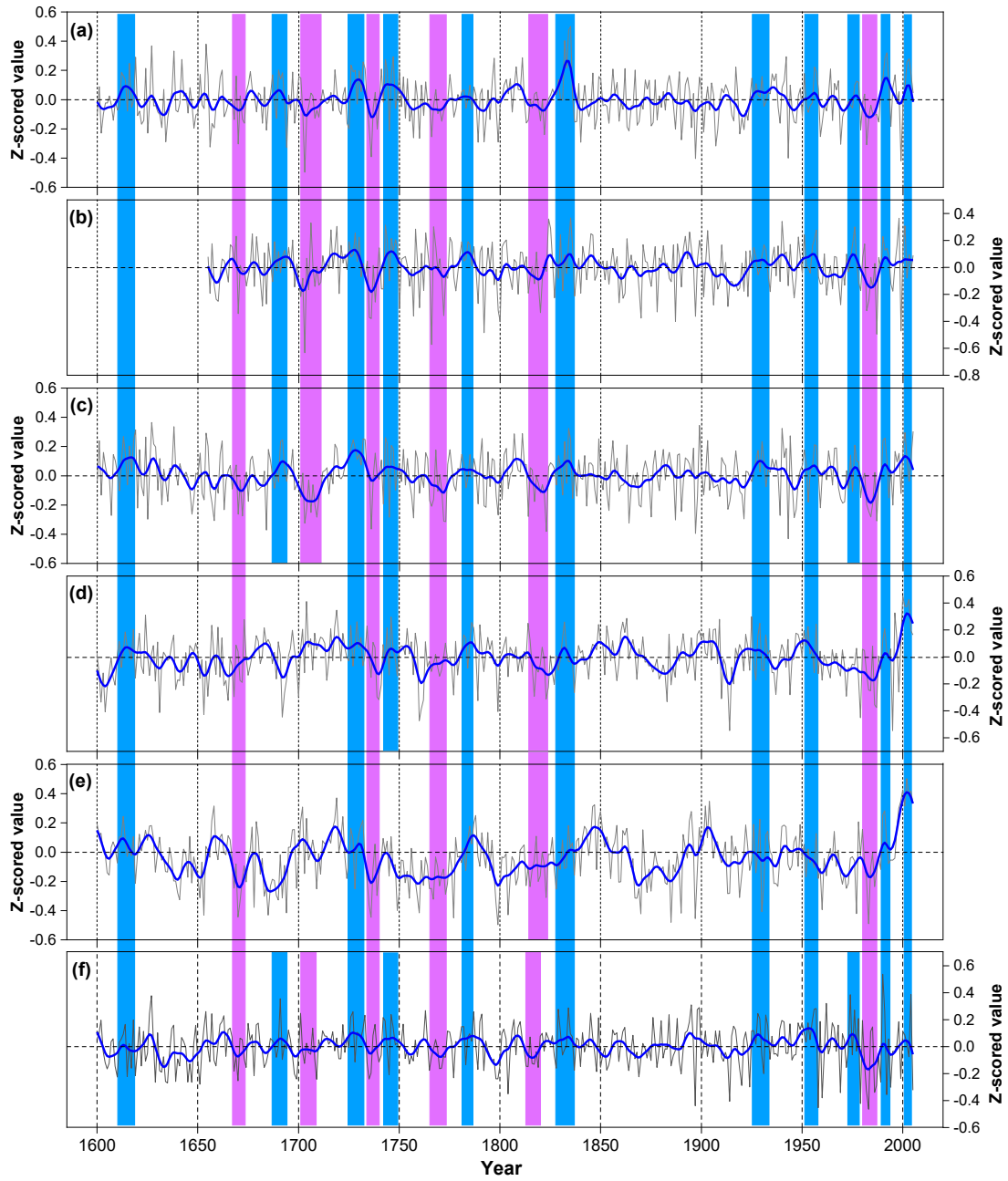
Updated Fig. 2 (it will be appeared as Fig. 3 in the revised manuscript)



Updated Fig. 5 (it will be appeared as Fig. 6 in the revised manuscript)

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	<i>Tsuga forrestii</i>	<i>Picea linkiangensis</i> <i>Tsuga dumosa</i> <i>Abies ernestii</i>	<i>Abies forrestii</i>	<i>Abies forrestii</i>	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



Updated Fig. 6 (it will be appeared as Fig. 7 in the revised manuscript)

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.