Relationships between Wood Formation and Cambium Phenology on the Tibetan Plateau during 1960–2014

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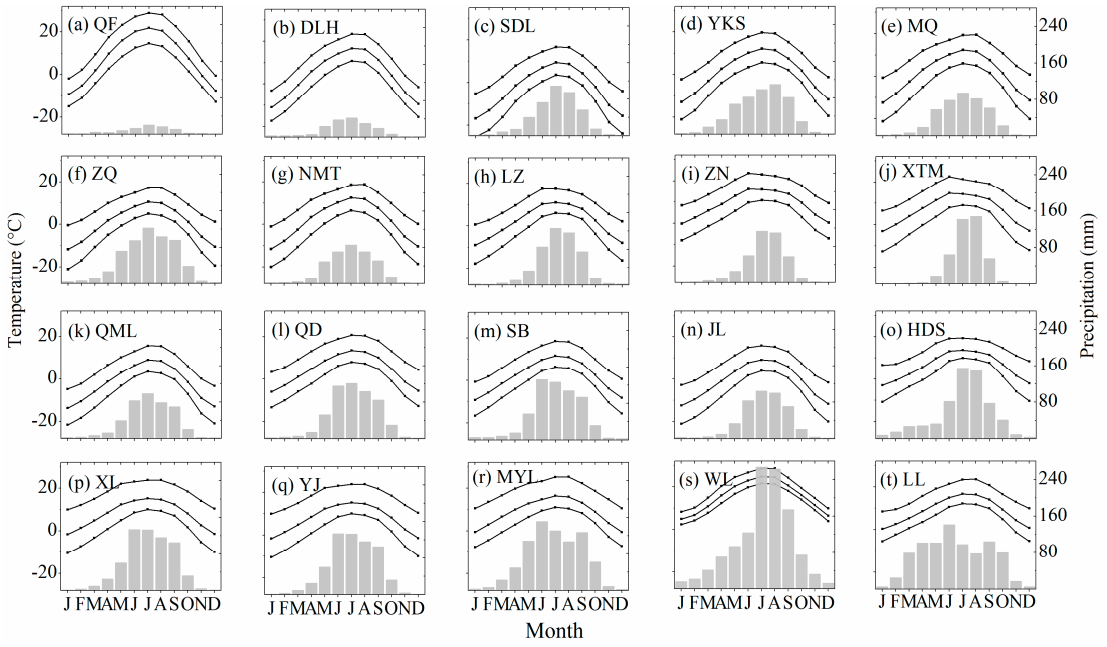

Figure S1 Averaged mean, minimum and maximum temperatures (lines with filled squares) and precipitation (gray histogram) from January to December at the 20 composite sites during the period 1960–2014.

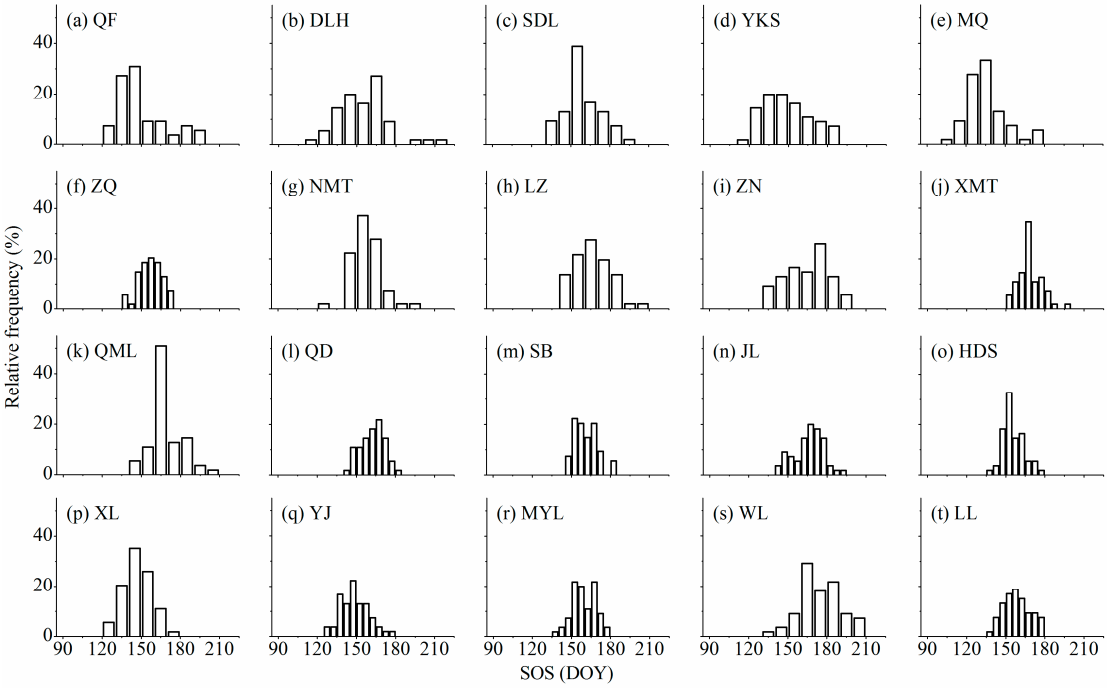

Figure S2 Frequency distributions of the start of the growing season (SOS) in the

study region. DOY: day of year.

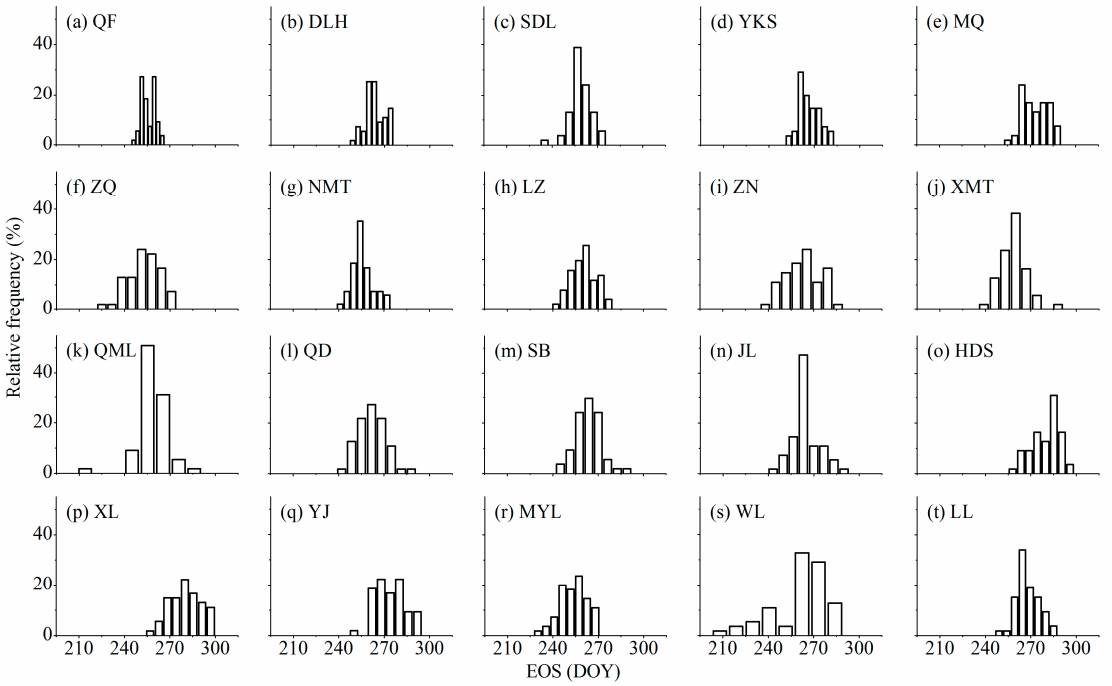

Figure S3 Frequency distributions of the ending of the growing season (EOS) in the study region. DOY: day of year.

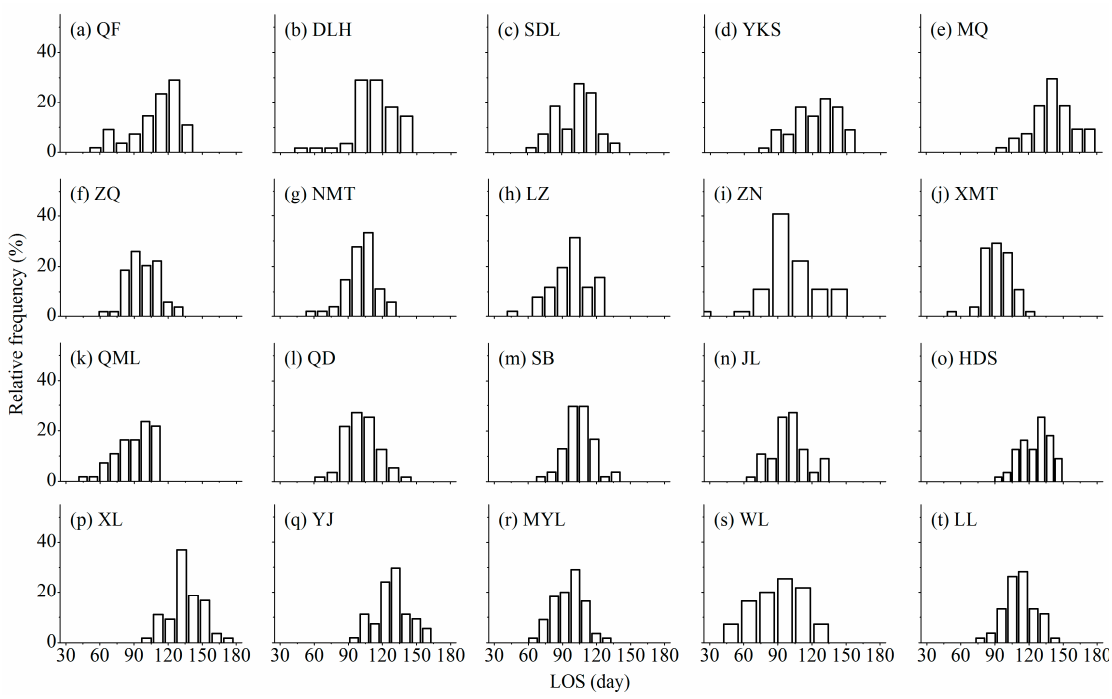

Figure S4 Frequency distributions of the length of the growing season (LOS) in the study region.

Table S1 Summer season temperature (including mean, minimum and maximum temperature) and accumulated precipitation at the 20 composite sites during the period 1960–2014 on the Tibetan Plateau. Data inside the bracket is the respective climate conditions in the winter season.

Site	T_{min} (°C)	T_{mean} (°C)	T_{max} (°C)	Pre (mm)	Alt (m a.s.l.)	Station
QF	13.57 (–12.89)	20.92 (–7.32)	28.07 (–0.01)	50.21 (4.55)	1477	Jiuquan
DLH	9.74 (–15.29)	15.76 (–9.09)	22.50 (–1.14)	109.92 (8.50)	2982	Delingha
SDL	2.26 (–23.93)	8.43 (–15.25)	15.92 (–3.88)	277.26 (4.99)	3320	Yieniugou
YKS	4.82 (–19.07)	11.35 (–11.13)	18.95 (–0.68)	288.62 (7.18)	2850	Menyuan
MQ	5.06 (–19.39)	11.45 (–10.67)	18.61 (0.91)	253.15 (6.90)	3284	TongGui
ZQ	3.95 (–19.19)	9.61 (–10.22)	16.42 (0.90)	321.42 (11.46)	3500	Henan
NMT	5.35 (–18.23)	11.57 (–9.88)	18.03 (0.44)	226.80 (4.13)	3323	Xinghai
LZ	5.35 (–16.02)	10.58 (–7.56)	17.25 (1.86)	326.05 (7.64)	4200	Dangxiong
ZN	10.32 (–6.72)	15.79 (0.93)	22.96 (9.42)	282.97 (1.33)	3552	Zedang
XTM	8.53 (–11.30)	14.21 (–2.02)	21.42 (7.48)	355.62 (0.57)	3836	Rikaze
QML	2.38 (–20.31)	7.96 (–12.44)	14.73 (–3.51)	259.15 (8.41)	4175	Qumalai
QD	7.19 (–12.01)	12.72 (–4.80)	20.07 (4.47)	339.66 (7.91)	3644	Nangqiang
SB	5.50 (–15.02)	10.76 (–7.76)	17.70 (0.56)	365.91 (15.54)	4023	Suoxian
JL	3.07 (–19.71)	8.52 (–11.22)	15.32 (–1.72)	286.72 (7.91)	4507	Naqu
HDS	9.32 (–9.44)	13.29 (–1.88)	19.19 (7.38)	385.51 (26.84)	3277	Zhongdian
XL	9.34 (–9.30)	14.72 (–0.58)	23.53 (10.81)	382.15 (5.34)	3000	Xinlong
YJ	9.34 (–9.30)	14.72 (–0.58)	23.53 (10.81)	382.15 (5.34)	3000	Xinlong
MYL	10.35 (–6.46)	15.69 (0.63)	24.60 (11.58)	388.82 (12.04)	2664	Maeerkang
WL	20.83 (3.47)	23.99 (6.05)	27.94 (9.44)	650.88 (49.19)	699	Dujiangyan
LL	11.53 (–4.44)	16.06 (1.21)	22.80 (9.31)	316.49 (35.39)	2736	Bomi

Summer season means June–August; winter season indicates December–January. T_{mean}: mean temperature; T_{max}: maximum temperature; T_{min}: minimum temperature; Pre: precipitation; Alt: Altitude. Temperature is the averaged data and precipitation is the accumulated data. Note that climatic records at Dangxiong and Bomi stations started at the year 1963 and 1961, respectively. Climate records at the MQ site are averaged from two stations of Tongde and Guinan.

Table S2. Tree-ring width chronology used in the study.

Site	Coordinate (ºN, ºE)	Elevation (m a.s.l.)	Species	No. of trees	Series length	EPS	R_{bar}	SNR	References
QF	39.6, 98.1	3100-3500	*Juniperus przewalskii* Kom.	673	293-2012	0.99	0.51	98.3	[1]
DLH	37.5, 97.1	3780	*Juniperus przewalskii* Kom.	485	404-2011	0.99	0.51	296.6	[2]
	37.5, 97.2	3730	*Juniperus przewalskii* Kom.						[2]
	37.5, 97.5	3920	*Juniperus przewalskii* Kom.						[2]
	37.5, 97.7	3740-4012	*Juniperus przewalskii* Kom.						[3]
	37.5, 97.1	3700	*Juniperus przewalskii* Kom.						This study
	37.4, 97.8		*Juniperus przewalskii* Kom.						[2]
	37.4, 98.1	3800	*Juniperus przewalskii* Kom.						[2]
	37.4, 98.1	3700	*Juniperus przewalskii* Kom.						[4]
	37.0, 98.7	3700	*Juniperus przewalskii* Kom.						[2]
	36.8, 98.2	3720	*Juniperus przewalskii* Kom.						[2]
	36.7, 98.4	3700	*Juniperus przewalskii* Kom.						[2]
SDL	38.4, 99.9	2750-3300	*Juniperus przewalskii* Kom.	226	975-2014	0.89	0.39	8.32	[5]
	38.4, 99.9	3550	*Juniperus przewalskii* Kom.						[4]
	38.4, 99.9	3250	*Juniperus przewalskii* Kom.						[4]
	38.2, 100.4	3400	*Juniperus przewalskii* Kom.						[4]
	38.2, 100.4	3200	*Juniperus przewalskii* Kom.						[4]
	38.2, 100.0	3530	*Juniperus przewalskii* Kom.						[4]
	38.2, 100.0	3250	*Juniperus przewalskii* Kom.						[4]
YKS	37.8, 101.5	3050	*Juniperus przewalskii* Kom.	25	1662-2008				[6]
MQ	34.8, 99.8		*Juniperus przewalskii* Kom.	479	599-2012	0.96	0.20	23.5	This study
ZQ	35.1, 100.1	3831	*Juniperus spp.*	31	1470-2008				[7]
	35.0, 100.4	3626	*Juniperus spp.*	28	1465-2005				[7]
NMT	34.6, 101.0	3575	*Juniperus spp.*	34	1506-2008				[7]
LZ	30.3, 91.5	4200-4575	*Juniperus tibetica* Kom.	63	1037-2009	0.95	0.43	19.2	[8]
ZN	29.4, 91.0	4275-4420	*Juniperus tibetica* Kom.	163	945-2010	0.97	0.21	29.1	[9]
	29.3, 92.0	4434-4550	*Juniperus tibetica* Kom.						[9]
	29.0, 93.3	3127-3139	*Cypress Cupressus* gigantea						[10]
	29.0, 90.4	4460-4678	*Sabina tibetica* Kom.						[11]
	28.9, 93.3	3080-3420	*Cypress Cupressus* gigantea						[10]
XTM	30.1, 87.5	4460	*Sabina tibetica* Kom.	112	1265-2013	0.93	0.33	12.7	[12]
	29.8, 87.4	4576-4781	*Sabina tibetica* Kom.						[12]
QML	33.8, 96.2	4160-4370	*Juniperus tibetica* Kom.	62	1440-2010	0.96	0.29	26.53	[13]
	33.7, 96.3	4160-4371	*Juniperus tibetica* Kom.						[13]
QD	32.7, 95.7	4200	*Juniperus tibetica* Kom.	18	1290-2006	0.97	0.52	36.2	[2]
	31.2, 97.2	4350-4500	*Sabina tibetica* Kom.	104	984-2009		0.28	26.6	[14]
	30.8, 98.7	3817	*Juniperus spp.*	24	1475-2006				[7]
	30.1, 97.1	4382	*Juniperus spp.*	29	1702-2006				[7]
	29.5, 98.4	4050	*Juniperus spp.*	28	1451-2006				[7]

SB	31.3, 94.9	4005-4375	*Juniperus tibetica* Kom.	69	976-2010	0.95	0.57	18.6	[15]
	31.1, 94.6	4144	*Juniperus spp.*	24	1449-2006				[7]
JL	30.6, 93.6	4005-4485	*Juniperus tibetica* Kom.	60	1067-2010	0.94	0.31	17.0	[15]
HDS	27.6, 99.8	3500	*Abies forestii* Rogers	93	1429-2005	0.96	0.22	26.74	[16]
	27.6, 99.4	3240	*Picea likiangensis* (Franchet) Pritzel						[2]
	27.6, 99.3	3150	*Tsuga dumosa* (D. Don) Eichler						[2]
XL	30.9, 100.3	3300	*Picea likiangensis* (Franchet) Pritzel	21	1663-2007	0.95	0.49	19.5	[16]
YJ	30.0, 100.8	4020	*Picea likiangensis* (Franchet) Pritzel	24	1715-2007	0.95	0.41	17.7	[16]
MYL	31.7, 102.8	3750	*Sabina saltuaria*	37	1770-2010	0.98	0.21	3.2	Li ZS provided data
WL	30.8, 103.0	3600	*Sabina saltuaria*	62	1739-2015 (updated)	0.90	0.28	2.7	[17]
LL	30.6, 96.2	4440	*Juniperus spp.*	32	1548-2006				[7]

EPS: expressed population signal; R_{bar}: inter-series correlation; SNR: signal-to-noise ratio.

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