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Supplementary information for

How did Swiss forest trees respond to the hot summer 2015?

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List of abbreviations

SR:	stem radius
dbh:	diameter at breast height
SRI:	annual stem radius increment
GRO:	growth-induced irreversible expansion of SR
GRO_{abs}:	absolute annual increment of stem area per tree (in cm^{-2})
GRO_n:	GRO_{abs} normalized by dbh (in %)
ΔGRO_n:	differences in stem growth between the two years 2014 and 2015 normalized for each tree by its mean annual stem growth
GRO_{start}:	start of the growth period, defined as the date when 5% of SRI were reached
GRO_{end}:	end of the growth period, defined as the date when 95% of SRI were reached
GDD:	growing degree days calculated over the mean stem growth periods of the two years 2014 and 2015

TreeNet site abbreviations

BEA:	Beatenberg
DAV:	Davos
JUS:	Jussy
LAE:	Lägeren
LAU:	Lausanne
MUR:	Muri
RIE	Riehen
VOR:	Vordemwald
WAN:	Wangen

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Table S1 *Source of meteorological data. Air temperature was recorded at a 10 min time resolution (MeteoSwiss, LFW, LWF-ETHZ); precipitation at 10min (MeteoSwiss), 30min (LWF-ETHZ Lägeren) or hourly (LWF, LWF-ETHZ Davos) time resolution. At the LWF sites meteorological data from the open field (Freiland) stations were used. At the LWF-ETHZ sites (Davos and Lägeren), meteorological data was provided by the National Air Pollution Monitoring Network NABEL. For climatological characterization of the sites, i.e. for monthly deviations from the norm (Fig. 2), data from nearby MeteoSwiss stations were used for all sites. Source: Federal Office of Meteorology and Climatology MeteoSwiss*

TreeNet Site	Meteorological station used for calculations (GDD and precipitation sums) over the mean growing period	Data source (difference in elevation to TreeNet site, distance to TreeNet site)	MeteoSwiss station used for long-term climatological characterization (refer to *Fig. 2*)
Beatenberg (BEA)	Beatenberg (BEA)	LWF	Interlaken (INT)
Davos (DAV)	Davos (DAV)	LWF-ETHZ	Davos (DAV)
Jussy (JUS)	Jussy (JUS)	LWF	Genève-Cointrin (GVE)
Lägeren (LAE)	Lägeren (LAE)	LWF-ETHZ	Zürich-Affoltern (REH)
Lausanne (LAU)	Villars-Tiercelin (VIT)	MeteoSwiss (49 m, 5.7 km)	Villars-Tiercelin (VIT)
Muri (MUR)	Mosen (MOA)	MeteoSwiss (-38 m, 10.1 km)	Mosen (MOA)
Riehen (RIE)	Basel-Binningen (BAS)	MeteoSwiss (-134 m, 9.3 km)	Basel-Binningen (BAS)
Vordemwald (VOR)	Wynau (WYN)	MeteoSwiss (-58 m, 7.9 km)	Wynau (WYN)
Wangen (WAN)	Zürich-Kloten (KLO)	MeteoSwiss (-64 m, 10.7 km)	Zürich-Kloten (KLO)

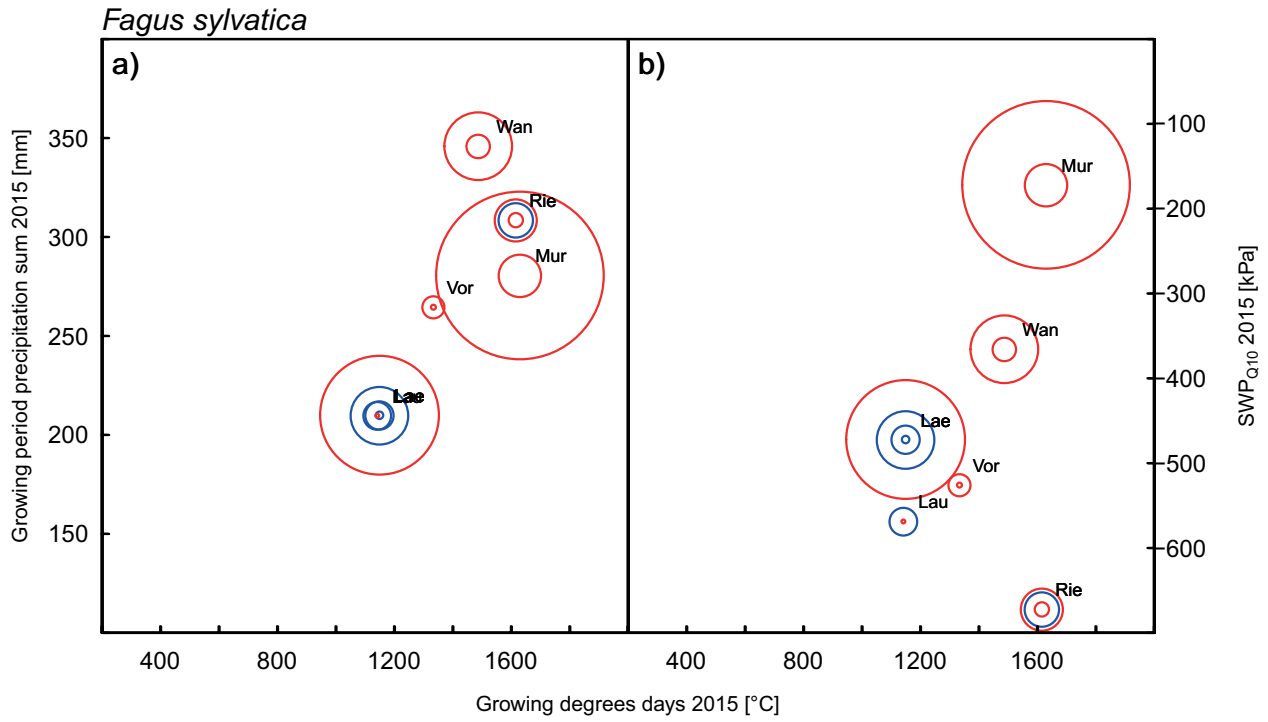

Fig. S1 Growth of Fagus sylvatica in relation to growing degree days and precipitation. Tree-wise normalized differences in annual stem growth between 2015 and 2014 (ΔGRO_n) for European beech (Fagus sylvatica) in relation to meteorological and soil water conditions during the growing period 2015. Circle size represents difference, red circles show better growth in 2015 compared to 2014, blue circles show better growth in 2014 compared to 2015. Individual panels show normalized difference in annual growth normalized for diameter at breast height dbh in relation to (a) site-wise GDD and precipitation sums over the site specific growing period, (b) site-wise GDD and the 10th percentile of soil water potential (SWP_{Q10}) in 10 cm depth during the site specific growing period. Source: For meteorological data refer to Table S1; SWP are measured at the sites.