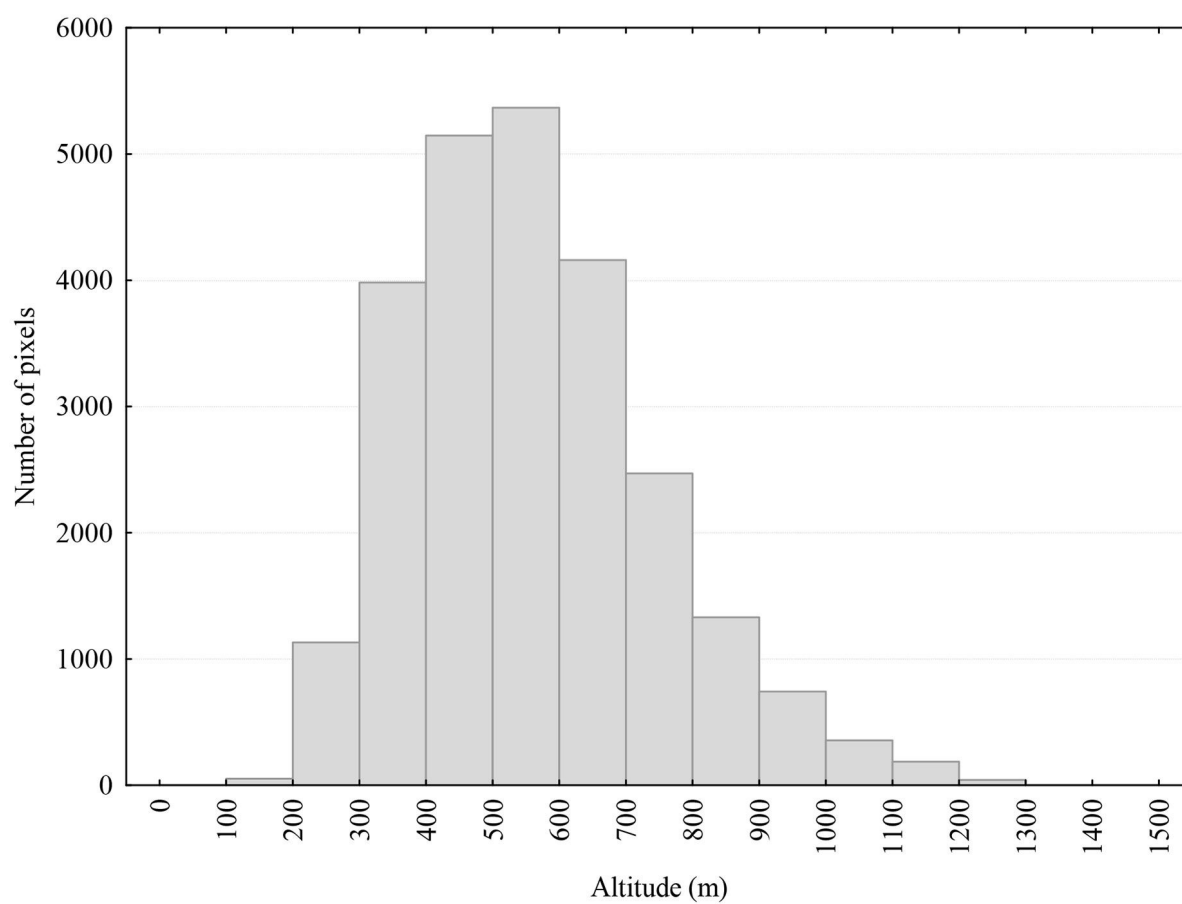## Supplementary material

Fig. S1 - The altitudinal distribution of analysed beech stands.

Tab. S1 - Description of MODIS dataset for analysis and overview of interpolation parameters.

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
n	45	35	44	39	59	46	47	43	54	51	81	77	49	31	57	45
$\bar{x}$	14.6	16.7	22.9	14.0	31.6	15.7	20.5	14.5	27.2	20.9	42	28.9	12.7	10.0	27.5	12.8
$s_{\bar{x}}$	3.5	3.3	3.8	4.3	6.7	4.8	4.0	4.1	5.8	4.1	5.8	6.1	3.9	3.6	5.1	3.7
$R\acute{M}S$	0.035	0.036	0.040	0.035	0.037	0.032	0.038	0.032	0.051	0.029	0.039	0.041	0.037	0.043	0.037	0.034
$s_{R\acute{M}S}$	0.006	0.011	0.012	0.009	0.006	0.008	0.009	0.007	0.016	0.007	0.007	0.006	0.006	0.012	0.009	0.007

n – number of images used for analyses; $\bar{x}$ – mean number of missing pixels; $s_{\bar{x}}$ – standard deviation of x; $R\acute{M}S$ – average RMS of interpolated sigmoidal logistic curves (from all pixels) [1]; $s_{R\acute{M}S}$ - standard deviation of $R\acute{M}S$

Fig. S2 - Leaf unfolding and temperature deviation from long-term average. y-left axis: Deviation (in days) of leaf unfolding onset from $GSD_{2001-2015}$ average; y-right axis: Deviation (in °C) of February-April mean air temperature from normal 1961-1990 in Slovakia (2001-2015).

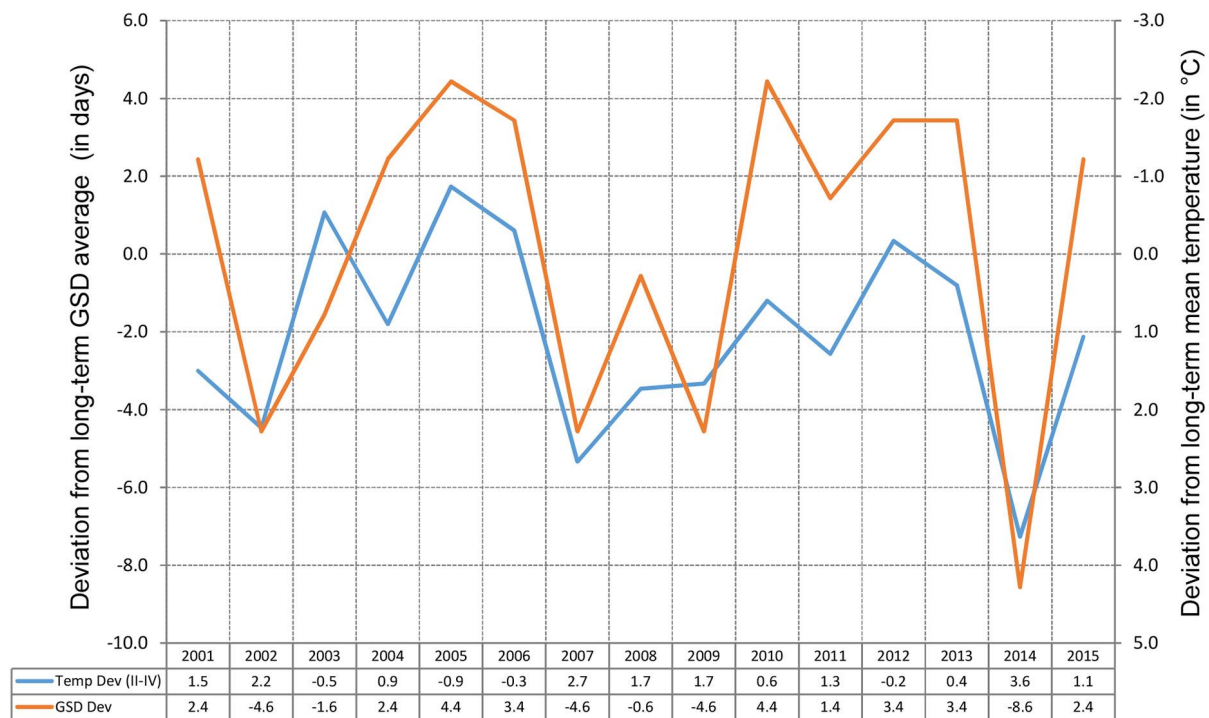|	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Temp Dev (II-IV)	1.5	2.2	-0.5	0.9	-0.9	-0.3	2.7	1.7	1.7	0.6	1.3	-0.2	0.4	3.6	1.1
GSD Dev	2.4	-4.6	-1.6	2.4	4.4	3.4	-4.6	-0.6	-4.6	4.4	1.4	3.4	3.4	-8.6	2.4

Fig. S3 - Leaf fall and temperature deviation from long-term average. y-left axis: Deviation (in days) of leaf fall onset from $DSD_{2001-2015}$ average; y-right axis: Deviation (in °C) of September monthly mean air temperature from normal 1961-1990 in Slovakia (2001-2015).

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Temp Dev (IX)	-1.1	-0.3	1	0.4	1.6	1.4	-2	-0.3	1.9	-1	2.8	2.2	-1	1.5	1.9
DSD Dev	-1.6	4.4	0.4	-1.6	1.4	0.4	-3.6	-5.6	0.4	-3.6	6.4	-0.6	-2.6	4.4	1.4