Supplementary Materials: Evaluating Biosphere Model Estimates of the Start of the Vegetation Active Season in Boreal Forests by Satellite Observations

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Table S1. Proportions of land cover classes in Finland determined from CORINE land cover 2000 (Härmä et al. 2005).

Land Cover Class	Proportion (%) [1]
Evergreen needle-leaf forest	23.6
Deciduous broad-leaf forest	4.4
Mixed Forest	15.8
Shrubs and/or herbaceous vegetation	17.4
Inland waters	8.5
Inland wetlands	7.0
Arable land	5.8
Urban fabric	1.5

[1] Only land cover classes with proportions higher than 1% were included here.

Table S2. Relationship between the mean of start of season from remote sensing and determined from JSBACH modelling for evergreen needle-leaf forest (ENF_SOS_{mod}) and deciduous broad-leaf forest (DBF_SOS_{mod}) for whole Finland and the three boreal sub-zones. The mean start of sesaon was calculated for the period 2003 to 2010. All correlations were significant ($p < 0.0001$). A positive bias means that the simulated date is late compared to observations.

Forest Type	Boreal Zone	N	R^2	RMSE (d)	Bias (d)
(a) ENF	Finland	922	0.90	5.00	−3.13
	Southern	326	0.81	4.10	−2.47
	Middle	336	0.86	4.96	−3.58
	Northern	251	0.25	5.76	−4.33
(b) DBF	Finland	741	0.88	5.95	4.80
	Southern	246	0.58	7.18	6.89
	Middle	257	0.79	4.78	3.94
	Northern	239	0.48	4.91	3.18

Table S3. Relationship between start of season derived from remote sensing and from JSBACH simulations for evergreen needle-leaf forest (ENF) and deciduous broad-leaf forest (DBF) for different years in Finland. All correlations were significant ($p < 0.0001$). A positive bias means that the simulated date is late compared to observations.

Forest Type	Year	R^2	RMSE (d)	Bias (d)
(a) ENF				
$N = 958$	2003	0.63	8.28	−3.30
$N = 973$	2004	0.65	10.14	−5.28
$N = 880$	2005	0.83	9.45	−6.03
$N = 948$	2006	0.63	6.77	−5.90
$N = 904$	2007	0.77	8.70	−0.28
$N = 959$	2008	0.77	8.11	−1.15
$N = 973$	2009	0.85	3.86	−1.58
$N = 956$	2010	0.89	6.91	−2.33

Table S3. *Cont.*

Forest Type	Year	R²	RMSE (d)	Bias (d)
(b) DBF				
N = 778	2003	0.43	8.05	5.02
N = 740	2004	0.63	10.96	7.01
N = 840	2005	0.86	6.32	4.24
N = 705	2006	0.56	6.48	2.41
N = 874	2007	0.84	9.52	7.52
N = 824	2008	0.83	6.35	2.10
N = 975	2009	0.80	7.36	5.67
N = 1002	2010	0.29	10.12	5.16