

**Supplementary table 1** Percentage of days with significant temporal correlations between gross primary production (GPP) and total soil respiration rate ( $R_s$ ) and its components root ( $R_r$ ) and mycorrhizal ( $R_m$ ) respiration at the Straits Enclosure, Alice Holt forest during 2007 to 2010. Correlations calculated at multiple periods (1- to 128-days) as contributions of each year and over the entire experiment; n.a. denotes no data available.

Period		Percent of significant days			Period		Percent of significant days		
(days)	Years	GPP- $R_s$	GPP- $R_r$	GPP- $R_m$	(days)	Years	GPP- $R_s$	GPP- $R_r$	GPP- $R_m$
1	2007	10.9	n.a.	n.a.	16	2007	0.0	n.a.	n.a.
	2008	13.4	10.3	13.2		2008	0.0	0.0	0.0
	2009	9.2	9.5	9.0		2009	0.1	1.8	0.8
	2010	9.6	7.8	8.9		2010	0.7	1.4	0.0
	<b>Total</b>	<b>43.0</b>	<b>27.6</b>	<b>31.1</b>		<b>Total</b>	<b>0.9</b>	<b>3.3</b>	<b>0.8</b>
2	2007	1.6	n.a.	n.a.	32	2007	0.9	n.a.	n.a.
	2008	2.5	3.0	0.1		2008	8.8	4.1	3.8
	2009	1.5	2.1	2.9		2009	1.6	6.4	15.0
	2010	1.9	0.7	2.8		2010	0.0	0.0	0.0
	<b>Total</b>	<b>7.4</b>	<b>5.7</b>	<b>5.7</b>		<b>Total</b>	<b>11.3</b>	<b>10.5</b>	<b>18.8</b>
4	2007	0.9	n.a.	n.a.	64	2007	0.0	n.a.	n.a.
	2008	2.1	0.9	2.3		2008	0.0	0.0	0.0
	2009	1.3	2.6	2.0		2009	0.0	11.1	18.0
	2010	1.5	1.0	0.5		2010	0.0	0.0	0.0
	<b>Total</b>	<b>5.8</b>	<b>4.5</b>	<b>4.8</b>		<b>Total</b>	<b>0.0</b>	<b>11.1</b>	<b>18.0</b>
8	2007	1.4	n.a.	n.a.	128	2007	8.3	n.a.	n.a.
	2008	1.9	1.7	1.4		2008	11.5	0.0	0.0
	2009	3.0	2.1	3.8		2009	0.0	0.0	0.0
	2010	0.7	0.2	3.0		2010	0.0	0.0	4.9
	<b>Total</b>	<b>7.1</b>	<b>4.0</b>	<b>8.2</b>		<b>Total</b>	<b>19.8</b>	<b>0.0</b>	<b>4.9</b>