



Supplementary material to the paper “Monitoring of Canopy Stress Symptoms in New Zealand Kauri Trees Analysed with AISA Hyperspectral Data”

Algorithms for the Linear and M5P regression for the baseline index combinations

Table S1. Algorithms for the Linear and M5P regression for the selected baseline models in WEKA on the full spectral range (VIS to SWIR2). Baseline models on the visible to SWIR2 (full) spectral range for all crown sizes. (The abbreviations for the indices are explained in Appendix C).

Linear. Regression	M5P Regression		
	M5 Pruned Model Tree	Rules Used in the Model	
-3.602 × LWVI2 + 1.784 × BGI + -2.45 × SR670 + 5.305	NDVI_H ≤ 0.862: LWVI2 ≤ 0.388: LM1 (138/22.73%) LWVI2 > 0.388: BGI ≤ 0.342: LM2 (62/54.029%) BGI > 0.342: LM3 (52/75.938%) NDVI_H > 0.862: NDVI_H ≤ 0.904: LM4 (323/40.351%) NDVI_H > 0.904: NDVI_H ≤ 0.934: LM5 (446/28.99%) NDVI_H > 0.934: BGI ≤ 0.146: LM6 (76/27.466%) BGI > 0.146: LM7 (161/28.509%)	LM num: 1 CHAer17_v7_5clss = -0.5386 × LWVI2 + 0.801 × BGI -0.1376 × SR670 + 4.6944 LM num: 2 CHAer17_v7_5clss = -0.6011 × LWVI2 + 0.9553 × BGI -0.1376 × SR670 + 3.3511 LM num: 3 CHAer17_v7_5clss = -0.6011 × LWVI2 + 1.0598 × BGI -0.1376 × SR670 + 3.9959 LM num: 4 CHAer17_v7_5clss = -7.537 × NDVI_H -3.2805 × LWVI2 + 0.0598 × BGI + 0.1047 × SR670 + 11.0986	LM num: 5 CHAer17_v7_5clss = -9.0297 × NDVI_H -0.088 × LWVI2 + 0.0566 × BGI -0.0528 × SR670 + 10.2496 LM num: 6 CHAer17_v7_5clss = -0.4406 × NDVI_H -0.088 × LWVI2 + 0.2198 × BGI -0.2491 × SR670 + 1.9566 LM num: 7 CHAer17_v7_5clss = -0.4406 × NDVI_H -0.088 × LWVI2 + 0.1466 × BGI -0.1883 × SR670 + 2.0688

Table S2. Algorithms for the Linear and M5P regression for the selected baseline models in WEKA on the visible (VIS) to near-infrared1 (NIR1) spectral range. Baseline models on the visible to NIR1 spectral range for all crown sizes. (The abbreviations for the indices are explained in Appendix C).

Linear Regression	M5P Regression		
	M5 Pruned Model Tree	Rules Used in the Model	
=	NDVI_A ≤ 0.876:	LM num: 1=	LM num: 4 =
-4.36 × WBI +	NDVI_A ≤ 0.815 : LM1 (150/32.8%)	-2.468 × WBI	-0.1288 × WBI
-1.97 × NDVI_A +	NDVI_A > 0.815:	-0.1086 × NDVI_A	-6.9809 × NDVI_A
2.38 × RGI +	NDVI_A ≤ 0.859 : LM2 (60/71.7%)	+ 0.333 × RGI	+ 3.6967 × RGI
-2.8\021 × RVI +	NDVI_A > 0.859 : LM3 (47/50.3%)	-0.1545 × RVI	+ 0.0562 × RVI
6.707	NDVI_A > 0.876:	+ 5.6865	+ 7.5694
	RGI ≤ 0.202 : LM4 (376/27.942%)		
	RGI > 0.202:	LM num: 2 =	LM num: 5 =
	NDVI_A ≤ 0.901 : LM5 (168/45%)	-6.9788 × WBI	-9.1692 × WBI
	NDVI_A > 0.901 : LM6 (457/28.1%)	-2.5469 × NDVI_A	-3.1583 × NDVI_A
		+ 0.4042 × RGI	+ 4.0775 × RGI
		-0.1545 × RVI	+ 8.4438 × RVI
		+ 8.8272	+ 5.4795
		LM num: 3 =	LM num: 6 =
		-2.2424 × WBI	-0.182 × WBI
		-3.0582 × NDVI_A	-7.9926 × NDVI_A
		+ 0.4042 × RGI	+ 0.176 × RGI
		-0.1545 × RVI	+ 0.3248 × RVI
		+ 6.7223	+ 9.2511