FRIM Site (peninsular)

Site Stat

Area(km²)			12.9
ALS (Min, Max, Mean)	2	69.9	21.5
GEDI coverage: N. of shots before filtering			653
GEDI coverage: N. of shots after filtering			405
GEDI (Min, Max, Mean) For rh90	2.2	55.6	25.7

GEDI Spatial distribution per cell size

N. of 25m cell in the grid	19825
Av. shots N per cell	0.02
N. of Covered cells	408
Av. shots N per covered cell	1
Max shot N per covered cell	1
Min shots N per covered cell	1

Negeri_sebilan site (peninsular)

Site Stat

Area(km²)			6.6
ALS (Min, Max, Mean)	2	69.7	24.5
GEDI coverage: N. of shots before filtering			172
GEDI coverage: N. of shots after filtering			73
GEDI (Min, Max, Mean) For rh90	5.6	44.6	30

GEDI Spatial distribution per cell size

N. of 25m cell in the grid	10209
Av. shots N per cell	0.007
N. of Covered cells	74
Av. shots N per covered cell	1
Max shot N per covered cell	1
Min shots N per covered cell	1

Danum site (Borneo)

Site Stat

Area(km²)			75.5
ALS (Min, Max, Mean)	2	89.9	33
GEDI coverage: N. of shots before filtering			2796
GEDI coverage: N. of shots after filtering			1807
GEDI (Min, Max, Mean) For rh90	2	84.6	41.6

GEDI Spatial distribution per cell size

N. of 25m cell in the grid	118471
Av. shots N per cell	0.015
N. of Covered cells	1820
Av. shots N per covered cell	1
Max shot N per covered cell	1
Min shots N per covered cell	1

SAFE site part 1(Borneo)

Site Stat

Area(km²)			196.3
ALS (Min, Max, Mean)	2	89.9	14.6
GEDI coverage: N. of shots before filtering			10580
GEDI coverage: N. of shots after filtering			3620
GEDI (Min, Max, Mean) For rh90	2	78.9	23.7

GEDI Spatial distribution per cell size

N. of 25m cell in the grid	304922
Av. shots N per cell	0.011
N. of Covered cells	3652
Av. shots N per covered cell	1
Max shot N per covered cell	1
Min shots N per covered cell	1

SAFE site part 2(Borneo)

Site Stat

Area(km²)			200.3
ALS (Min, Max, Mean)	2	89.9	18.8
GEDI coverage: N. of shots before filtering			6617
GEDI coverage: N. of shots after filtering			5128
GEDI (Min, Max, Mean) For rh90	2	80.4	23

GEDI Spatial distribution per cell size

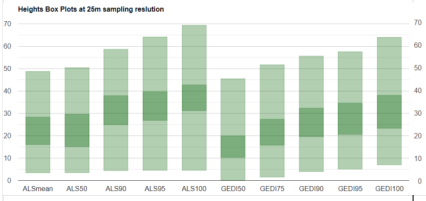
N. of 25m cell in the grid	312340
Av. shots N per cell	0.016
N. of Covered cells	5157
Av. shots N per covered cell	1
Max shot N per covered cell	1
Min shots N per covered cell	1

FRIM Site (peninsular)

GEDI Comparison : At footprint level

Gridded sample size To GEDI fp: **395**

ALS aggregation method	Resolution	25m				
	GEDI metric	50	75	90	95	100
mean	R²	0.53	0.531	0.503	0.48	0.447
	P	e-30	e-298	e-25	e-23	e-19
	RMSE	10.6	8.87	10	11.1	13.3
	rRMSE	0.487	0.4	0.44	0.49	0.59
	Delta mean	8.18	6.46	7.6	8.7	10.9
90percentile	R²	0.47	0.51	0.5	0.48	0.455
	P	e-27	e-32	e-31	e-29	e-25
	RMSE	18.3	13.5	11.26	10.7	10.67
	rRMSE	0.58	0.43	0.36	0.34	0.34
	Delta mean	15.9	10.7	8.23	7.8	7.9
95percentile	R²	0.42	0.45	0.44	0.43	0.4
	P	e-19	e-23	e-22	e-20	e-18
	RMSE	20.37	15.4	12.8	12.1	11.47
	rRMSE	0.6	0.458	0.38	0.36	0.34
	Delta mean	18	12.4	9.4	8.7	8.44
max	R²	0.36	0.38	0.387	0.379	0.37
	P	e-14	e-16	e-15	e-15	e-13
	RMSE	24.1	18.9	15.9	14.86	13.3
	rRMSE	0.643	0.506	0.426	0.39	0.355
	Delta mean	21.7	16	12.3	11	9.6



GEDI Comparison: All same as at footpritn level in 25 m resolution Aggregation

Negeri_sebilan site (peninsular)

GEDI Comparison : At footprint level

Gridded sample size To GEDI fp: **74**

ALS aggregation method	Resolution	25m				
	GEDI metric	50	75	90	95	100
mean	R²	0.65	0.64	0.60	0.58	0.56
	P	e-9	e-9	e-8	e-7	e-7
	RMSE	10	6.38	6.8	7.8	9.56
	rRMSE	0.37	0.23	0.25	0.28	0.34
	Delta mean	8.8	5.04	5.1	5.89	7.47
90percentile	R²	0.66	0.68	0.67	0.66	0.64
	P	e-10	e-11	e-11	e-10	e-10
	RMSE	17.16	11.4	7.9	6.9	6
	rRMSE	0.48	0.32	0.22	0.19	0.17
	Delta mean	16.3	10.4	6.51	5.4	4.56
95percentile	R²	0.66	0.69	0.66	0.65	0.63
	P	e-10	e-11	e-11	e-10	e-10
	RMSE	18.5	12.5	8.88	7.8	6.44
	rRMSE	0.498	0.33	2.39	0.21	0.174
	Delta mean	17.6	11.44	7.55	6.24	4.96
max	R²	0.58	0.64	0.62	0.61	0.61
	P	e-8	e-10	e-9	e-9	e-8
	RMSE	21.41	15.35	11.52	10.14	8.28
	rRMSE	0.53	0.38	0.288	0.253	0.207
	Delta mean	20.46	14.2	9.92	8.39	6.36

GEDI Comparison: All same as at footpritn level in 25 m resolution Aggregation

Danum site (Borneo)

GEDI Comparison : At footprint level

Gridded sample size To GEDI fp: **1794**

ALS aggregation method	Resolution	25m				
	GEDI metric	50	75	90	95	100
mean	R²	0.429	0.442	0.407	0.383	0.355
	P	e-81	e-87	e-73	e-63	e-54
	RMSE	16.67	13.08	15.25	17.12	20.312
	rRMSE	0.473	0.37	0.432	0.48	0.57
	Delta mean	13.58	9.7	11.67	13.37	16.4
90percentile	R²	0.346	0.438	0.445	0.44	0.43
	P	e-52	e-85	e-88	e-87	e-81
	RMSE	27.63	19.1	15	14.26	14.5
	rRMSE	0.57	0.4	0.3	0.3	0.3
	Delta mean	24.6	15.3	11.2	10.4	10.6
95percentile	R²	0.337	0.43	0.44	0.44	0.43
	P	e-49	e-82	e86	e-86	e-81
	RMSE	29.38	20.56	15.9	14.78	14.4
	rRMSE	0.6	0.412	0.32	0.3	0.3
	Delta mean	26.5	16.8	12.1	10.85	10.43
max	R²	0.314	0.41	0.43	0.43	0.436
	P	e-42	e-73	e-81	e-83	e-84
	RMSE	32.63	23.45	18	16.3	14.9
	rRMSE	0.6	0.44	0.33	0.3	0.3
	Delta mean	30	19.8	14.2	12.4	10.8

GEDI Comparison: All same as at footpritn level in 25 m resolution Aggregation

SAFE site part 1(Borneo)

GEDI Comparison : At footprint level

Gridded sample size To GEDI fp: **3356**

ALS aggregation method	Resolution	25m				
	GEDI metric	50	75	90	95	100
mean	R²	0.63	0.71	0.73	0.73	0.71
	P	0	0	0	0	0
	RMSE	10.88	9.33	11.25	12.79	15.7
	rRMSE	0.6	0.51	0.62	0.7	0.86
	Delta mean	8.21	7.05	8.64	10.04	12.87
90percentile	R²	0.58	0.68	0.72	0.73	0.72
	P	0	0	0	0	0
	RMSE	18.09	13.38	11.27	11.12	12.12
	rRMSE	0.7	0.52	0.44	0.43	0.47
	Delta mean	14.08	10.01	8.33	8.29	9.31
95percentile	R²	0.57	0.68	0.72	0.73	0.72
	P	0	0	0	0	0
	RMSE	19.41	14.44	11.87	11.41	11.93
	rRMSE	0.71	0.53	0.43	0.42	0.44
	Delta mean	15.31	10.9	8.82	8.5	9.11
max	R²	0.56	0.67	0.72	0.73	0.72
	P	0	0	0	0	0
	RMSE	21.7	16.41	13.22	12.31	12.03
	rRMSE	0.73	0.55	0.44	0.41	0.4
	Delta mean	17.5	12.65	9.93	9.21	9.14

GEDI Comparison: All same as at footpritn level in 25 m resolution Aggregation

SAFE site part 2(Borneo)

GEDI Comparison : At footprint level

Gridded sample size To GEDI fp: **4863**

ALS aggregation method	Resolution	25m				
	GEDI metric	50	75	90	95	100
mean	R²	0.58	0.57	0.5	0.48	0.47
	P	0	0	0	0	0
	RMSE	9.57	9.27	12.55	14.42	17.25
	rRMSE	0.53	0.51	0.7	0.8	0.96
	Delta mean	7.56	6.72	8.58	10	12.67
90percentile	R²	0.52	0.52	0.47	0.46	0.45
	P	0	0	0	0	0
	RMSE	15.68	12.64	12.77	13.41	14.76
	rRMSE	0.63	0.51	0.51	0.54	0.59
	Delta mean	12.89	9.67	8.81	8.94	9.89
95percentile	R²	0.51	0.51	0.46	0.45	0.45
	P	0	0.00E-02	0	0	0
	RMSE	17.06	13.72	13.31	13.66	14.61
	rRMSE	0.65	0.52	0.51	0.52	0.56
	Delta mean	14.19	10.66	9.37	9.24	9.75
max	R²	0.5	0.5	0.45	0.44	0.44
	P	0	0	0	0	0
	RMSE	19.5	15.77	14.56	14.45	14.69
	rRMSE	0.68	0.55	0.5	0.5	0.51
	Delta mean	16.53	12.59	10.65	10.08	9.88

GEDI Comparison: All same as at footpritn level in 25 m resolution Aggregation

Figure S1. GEDI-ALS comparison at 25m resolution.

FRIM Site (peninsular)

Site Stat

Area(km²)			12.9
ALS (Min, Max, Mean)	2	69.9	21.5
GEDI coverage: N. of shots before filtering			653
GEDI coverage: N. of shots after filtering			405
GEDI (Min, Max, Mean) For rh90	2.2	55.6	25.7

GEDI Spatial distribution per cell size

N. of 30m cell in the grid			13803
Av. shots N per cell			0.03
N. of Covered cells			406
Av. shots N per covered cell			1
Max shot N per covered cell			2
Min shots N per covered cell			1

GEDI Comparison : At footprint level

Gridded sample size To GEDI fp: **396**

ALS aggregation method	Resolution	30m				
	GEDI metric	50	75	90	95	100
mean	R²	0.54	0.55	0.53	0.51	0.47
	P	e-32	e-298	e-25	e-23	e-19
	RMSE	10.6	8.6	9.7	10.7	13
	rRMSE	0.47	0.38	0.43	0.47	0.58
	Delta mean	8.3	6.24	7.3	8.3	10.6
90percentile	R²	0.5	0.54	0.53	0.51	0.48
	P	e-27	e-32	e-31	e-29	e-25
	RMSE	18.4	13.5	11.09	10.5	10.4
	rRMSE	0.58	0.42	0.35	0.33	0.32
	Delta mean	16.3	10.9	8.23	7.6	7.6
95percentile	R²	0.46	0.5	0.5	0.477	0.45
	P	e-19	e-23	e-22	e-20	e-18
	RMSE	20.6	15.4	12.8	12	11.2
	rRMSE	0.6	0.458	0.38	0.35	0.33
	Delta mean	18.5	12.9	9.7	8.8	8.2
max	R²	0.42	0.46	0.455	0.45	0.42
	P	e-14	e-16	e-15	e-15	e-13
	RMSE	24.8	19.4	16.2	15	13.3
	rRMSE	0.643	0.5	0.42	0.39	0.347
	Delta mean	22.7	16.8	13	11.57	9.8



GEDI Comparison: All same as at footpritn level in 30 m resolution Aggregation

Negeri_sebilan site (peninsular)

Site Stat

Area(km²)			6.6
ALS (Min, Max, Mean)	2	69.7	24.5
GEDI coverage: N. of shots before filtering			172
GEDI coverage: N. of shots after filtering			73
GEDI (Min, Max, Mean) For rh90	5.6	44.6	30

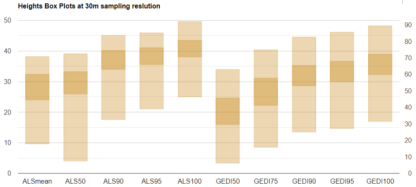
GEDI Spatial distribution per cell size

N. of 30m cell in the grid			7082
Av. shots N per cell			0.01
N. of Covered cells			73
Av. shots N per covered cell			1
Max shot N per covered cell			1
Min shots N per covered cell			1

GEDI Comparison : At footprint level

Gridded sample size To GEDI fp: **74**

ALS aggregation method	Resolution	30m				
	GEDI metric	50	75	90	95	100
mean	R²	0.71	0.7	0.66	0.63	0.615
	P	e-32	e-298	e-25	e-23	e-19
	RMSE	9.6	5.7	6.3	7.4	9.23
	rRMSE	0.5	0.2	0.23	0.27	0.33
	Delta mean	8.54	4.65	4.77	5.6	7.4
90percentile	R²	0.7	0.74	0.72	0.7	0.68
	P	e-10	e-11	e-11	e-10	e-10
	RMSE	17.3	11.33	7.66	6.6	5.55
	rRMSE	0.48	0.31	0.21	0.18	0.15
	Delta mean	16.5	10.3	6.5	5.3	4.23
95percentile	R²	0.69	0.73	0.71	0.69	0.67
	P	e-10	e-11	e-11	e-10	e-10
	RMSE	18.62	12.6	8.8	7.6	6.2
	rRMSE	0.5	0.34	0.23	0.2	0.165
	Delta mean	17.8	11.6	7.6	6.27	4.8
max	R²	0.635	0.68	0.66	0.64	0.62
	P	e-8	e-10	e-9	e-9	e-8
	RMSE	21.3	15.25	11.3	9.92	8
	rRMSE	0.53	0.38	0.28	0.25	0.2
	Delta mean	20.58	14.3	10.1	8.6	6.5



GEDI Comparison: All same as at footpritn level in 30 m resolution Aggregation

Danum site (Borneo)

Site Stat

Area(km²)			75.5
ALS (Min, Max, Mean)	2	89.9	33
GEDI coverage: N. of shots before filtering			2796
GEDI coverage: N. of shots after filtering			1807
GEDI (Min, Max, Mean) For rh90	2	84.6	41.6

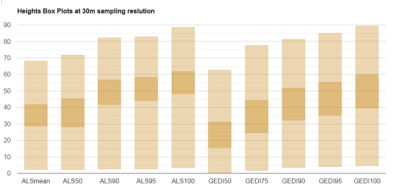
GEDI Spatial distribution per cell size

N. of 30m cell in the grid			82343
Av. shots N per cell			0.021
N. of Covered cells			1797
Av. shots N per covered cell			1.01
Max shot N per covered cell			2
Min shots N per covered cell			1

GEDI Comparison : At footprint level

Gridded sample size To GEDI fp: **1794**

ALS aggregation method	Resolution	30m				
	GEDI metric	50	75	90	95	100
mean	R²	0.35	0.36	0.33	0.32	0.305
	P	e-81	e-87	e-73	e-63	e-54
	RMSE	17.32	13.8	15.6	17.4	20.4
	rRMSE	0.48	0.4	0.44	0.49	0.57
	Delta mean	14.1	10.6	12.2	13.7	16.6
90percentile	R²	0.277	0.355	0.37	0.37	0.36
	P	e-52	e-85	e-88	e-87	e-81
	RMSE	28.9	20.56	16.3	15.36	15.2
	rRMSE	0.6	0.42	0.33	0.31	0.31
	Delta mean	25.7	16.5	12.5	11.5	11.3
95percentile	R²	0.27	0.356	0.37	0.37	0.37
	P	e-49	e-82	e86	e-86	e-81
	RMSE	30.9	22.2	17.3	16.01	15.2
	rRMSE	0.6	0.43	0.34	0.3	0.3
	Delta mean	27.8	18.2	13.5	12.1	11.3
max	R²	0.27	0.36	0.38	0.38	0.38
	P	e-42	e-73	e-81	e-83	e-84
	RMSE	34.25	25.05	19.5	17.68	15.9
	rRMSE	0.622	0.455	0.35	0.3	0.3
	Delta mean	31.56	21.4	15.5	13.7	11.9



GEDI Comparison: All same as at footpritn level in 30 m resolution Aggregation

SAFE site part 1(Borneo)

Site Stat

Area(km²)			196.3
ALS (Min, Max, Mean)	2	89.9	14.6
GEDI coverage: N. of shots before filtering			10580
GEDI coverage: N. of shots after filtering			3620
GEDI (Min, Max, Mean) For rh90	2	78.9	23.7

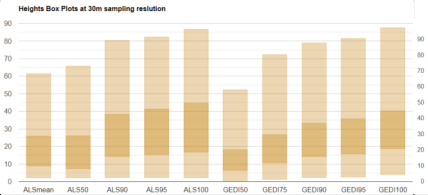
GEDI Spatial distribution per cell size

N. of 30m cell in the grid			212405
Av. shots N per cell			0.016
N. of Covered cells			3625
Av. shots N per covered cell			1.006
Max shot N per covered cell			2
Min shots N per covered cell			1

GEDI Comparison : At footprint level

Gridded sample size To GEDI fp: **3377**

ALS aggregation method	Resolution	30m				
	GEDI metric	50	75	90	95	100
mean	R²	0.62	0.7	0.72	0.72	0.7
	P	0	0	0	0	0
	RMSE	10.85	9.44	11.35	12.88	15.77
	rRMSE	0.6	0.52	0.62	0.71	0.87
	Delta mean	8.25	7.16	8.76	10.15	12.92
90percentile	R²	0.58	0.68	0.72	0.72	0.71
	P	0	0	0	0	0
	RMSE	18.37	13.67	11.46	11.25	12.11
	rRMSE	0.7	0.52	0.44	0.43	0.46
	Delta mean	14.39	10.26	8.55	8.47	9.39
95percentile	R²	0.57	0.67	0.71	0.72	0.71
	P	0	0	0	0	0
	RMSE	19.96	14.99	12.26	11.71	12
	rRMSE	0.71	0.54	0.44	0.42	0.43
	Delta mean	15.88	11.42	9.2	8.82	9.24
max	R²	0.55	0.66	0.71	0.71	0.71
	P	0	0	0	0	0
	RMSE	22.67	17.34	13.99	12.97	12.37
	rRMSE	0.73	0.56	0.45	0.42	0.4
	Delta mean	18.47	13.55	10.63	9.8	9.45



GEDI Comparison: All same as at footpritn level in 30 m resolution Aggregation

SAFE site part 2(Borneo)

Site Stat

Area(km²)			200.3
ALS (Min, Max, Mean)	2	89.9	18.8
GEDI coverage: N. of shots before filtering			6617
GEDI coverage: N. of shots after filtering			5128
GEDI (Min, Max, Mean) For rh90	2	80.4	23

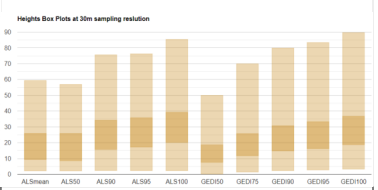
GEDI Spatial distribution per cell size

N. of 30m cell in the grid			217796
Av. shots N per cell			0.023
N. of Covered cells			5109
Av. shots N per covered cell			1.01
Max shot N per covered cell			2
Min shots N per covered cell			1

GEDI Comparison : At footprint level

Gridded sample size To GEDI fp: **4870**

ALS aggregation method	Resolution	30m				
	GEDI metric	50	75	90	95	100
mean	R²	0.57	0.55	0.49	0.47	0.46
	P	0	0	0	0	0
	RMSE	9.61	9.33	12.6	14.45	17.27
	rRMSE	0.53	0.52	0.7	0.8	0.96
	Delta mean	7.64	6.83	8.66	10.04	12.66
90percentile	R²	0.5	0.49	0.44	0.43	0.43
	P	0	0	0	0	0
	RMSE	16.24	13.18	13.13	13.66	14.85
	rRMSE	0.64	0.52	0.52	0.54	0.59
	Delta mean	13.4	10.15	9.2	9.27	10.06
95percentile	R²	0.49	0.49	0.44	0.43	0.43
	P	0	0	0	0	0
	RMSE	17.88	14.48	13.83	14.02	14.74
	rRMSE	0.66	0.54	0.51	0.52	0.54
	Delta mean	14.94	11.33	9.93	9.69	9.98
max	R²	0.48	0.48	0.43	0.42	0.42
	P	0	0	0	0	0
	RMSE	20.71	16.89	15.44	15.17	15.11
	rRMSE	0.69	0.56	0.51	0.51	0.5
	Delta mean	17.62	13.6	11.55	10.88	10.4



GEDI Comparison: All same as at footpritn level in 30 m resolution Aggregation

Figure S2. GEDI-ALS comparison at 30m resolution.

FRIM Site (peninsular)

Site Stat

Area(km²)			12.9
ALS (Min, Max, Mean)	2	69.9	21.5
GEDI coverage: N. of shots before filtering			653
GEDI coverage: N. of shots after filtering			405
GEDI (Min, Max, Mean) For rh90	2.2	55.6	25.7

GEDI Spatial distribution per cell size

N. of 90m cell in the grid	1541
Av. shots N per cell	0.243
N. of Covered cells	289
Av. shots N per covered cell	1.41
Max shot N per covered cell	4
Min shots N per covered cell	1

Negeri_sebilan site (peninsular)

Site Stat

Area(km²)			6.6
ALS (Min, Max, Mean)	2	69.7	24.5
GEDI coverage: N. of shots before filtering			172
GEDI coverage: N. of shots after filtering			73
GEDI (Min, Max, Mean) For rh90	5.6	44.6	30

GEDI Spatial distribution per cell size

N. of 90m cell in the grid	784
Av. shots N per cell	0.085
N. of Covered cells	50
Av. shots N per covered cell	1.48
Max shot N per covered cell	3
Min shots N per covered cell	1

Danum site (Borneo)

Site Stat

Area(km²)			75.5
ALS (Min, Max, Mean)	2	89.9	33
GEDI coverage: N. of shots before filtering			2796
GEDI coverage: N. of shots after filtering			1807
GEDI (Min, Max, Mean) For rh90	2	84.6	41.6

GEDI Spatial distribution per cell size

N. of 90m cell in the grid	9195
Av. shots N per cell	0.19
N. of Covered cells	1265
Av. shots N per covered cell	1.44
Max shot N per covered cell	5
Min shots N per covered cell	1

SAFE site part 1(Borneo)

Site Stat

Area(km²)			196.3
ALS (Min, Max, Mean)	2	89.9	14.6
GEDI coverage: N. of shots before filtering			10580
GEDI coverage: N. of shots after filtering			3620
GEDI (Min, Max, Mean) For rh90	2	78.9	23.7

GEDI Spatial distribution per cell size

N. of 90m cell in the grid	23830
Av. shots N per cell	0.15
N. of Covered cells	2512
Av. shots N per covered cell	1.45
Max shot N per covered cell	4
Min shots N per covered cell	1

SAFE site part 2(Borneo)

Site Stat

Area(km²)			200.3
ALS (Min, Max, Mean)	2	89.9	18.8
GEDI coverage: N. of shots before filtering			6617
GEDI coverage: N. of shots after filtering			5128
GEDI (Min, Max, Mean) For rh90	2	80.4	23

GEDI Spatial distribution per cell size

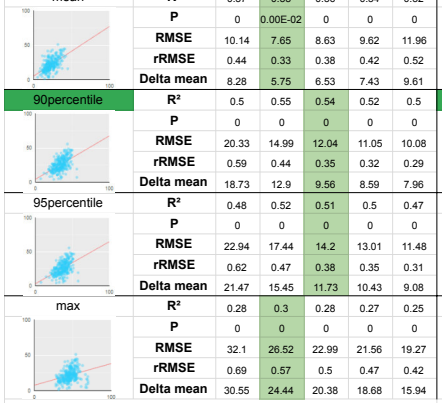
N. of 90m cell in the grid	24645
Av. shots N per cell	0.2
N. of Covered cells	3564
Av. shots N per covered cell	1.45
Max shot N per covered cell	5
Min shots N per covered cell	1

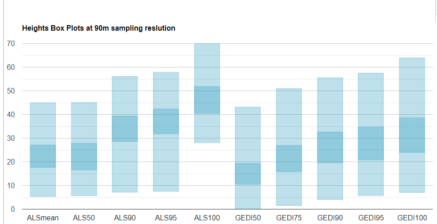
FRIM Site (peninsular)

GEDI Comparison: Mean Aggregation

Gridded sample size: 273

ALS aggregation method	Resolution	90m				
	GEDI metric	50	75	90	95	100
mean	R²	0.57	0.58	0.56	0.54	0.52
	P	0	0.00E-02	0	0	0
	RMSE	10.14	7.65	8.63	9.62	11.96
	rRMSE	0.44	0.33	0.38	0.42	0.52
	Delta mean	8.28	5.75	6.53	7.43	9.61
90percentile	R²	0.5	0.55	0.54	0.52	0.5
	P	0	0	0	0	0
	RMSE	20.33	14.99	12.04	11.05	10.08
	rRMSE	0.59	0.44	0.35	0.32	0.29
	Delta mean	18.73	12.9	9.56	8.59	7.96
95percentile	R²	0.48	0.52	0.51	0.5	0.47
	P	0	0	0	0	0
	RMSE	22.94	17.44	14.2	13.01	11.48
	rRMSE	0.62	0.47	0.38	0.35	0.31
	Delta mean	21.47	15.45	11.73	10.43	9.08
max	R²	0.28	0.3	0.28	0.27	0.25
	P	0	0	0	0	0
	RMSE	32.1	26.52	22.99	21.56	19.27
	rRMSE	0.69	0.57	0.5	0.47	0.42
	Delta mean	30.55	24.44	20.38	18.68	15.94





Negeri_sebilan site (peninsular)

GEDI Comparison: Mean Aggregation

Gridded sample size: 50

ALS aggregation method	Resolution	90m				
	GEDI metric	50	75	90	95	100
mean	R²	0.74	0.77	0.76	0.74	0.73
	P	0	0	0	0	0
	RMSE	9.67	5.16	5.44	6.57	8.5
	rRMSE	0.35	0.18	0.19	0.24	0.3
	Delta mean	8.5	4.17	4.04	5.23	7.39
90percentile	R²	0.57	0.65	0.69	0.7	0.7
	P	0	0	0	0	0
	RMSE	18.93	12.8	8.76	7.43	5.87
	rRMSE	0.5	0.34	0.23	0.2	0.16
	Delta mean	18.01	11.56	7.29	5.74	4.02
95percentile	R²	0.57	0.65	0.69	0.7	0.7
	P	0	0	0	0	0
	RMSE	20.8	14.59	10.41	8.96	7.05
	rRMSE	0.53	0.37	0.26	0.23	0.18
	Delta mean	19.93	13.49	9.08	7.39	5.28
max	R²	0.39	0.48	0.52	0.54	0.54
	P	0	0	0	0	0
	RMSE	27.34	21.06	16.82	15.23	13
	rRMSE	0.6	0.46	0.37	0.33	0.28
	Delta mean	26.27	19.83	15.39	13.64	11.09

Danum site (Borneo)

GEDI Comparison: Mean Aggregation

Gridded sample size: 1227

ALS aggregation method	Resolution	90m				
	GEDI metric	50	75	90	95	100
mean	R²	0.39	0.41	0.38	0.37	0.36
	P	0	0	0	0	0
	RMSE	15.84	11.63	13.78	15.61	18.77
	rRMSE	0.44	0.33	0.39	0.44	0.53
	Delta mean	13.37	9.07	10.82	12.45	15.45
90percentile	R²	0.26	0.37	0.39	0.39	0.4
	P	0	0	0	0	0
	RMSE	31.41	22.15	16.87	15.22	13.99
	rRMSE	0.6	0.42	0.32	0.29	0.27
	Delta mean	29.19	18.97	13.41	11.68	10.46
95percentile	R²	0.24	0.34	0.36	0.37	0.38
	P	0	0	0	0	0
	RMSE	34.72	25.23	19.47	17.48	15.54
	rRMSE	0.62	0.45	0.35	0.31	0.28
	Delta mean	32.61	22.19	15.99	13.88	11.74
max	R²	0.23	0.31	0.33	0.34	0.34
	P	0	0	0	0	0
	RMSE	42.4	32.55	26.17	23.74	20.82
	rRMSE	0.66	0.51	0.41	0.37	0.33
	Delta mean	40.6	29.94	23.03	20.4	17.01

SAFE site part 1(Borneo)

GEDI Comparison: Mean Aggregation

Gridded sample size: 2345

ALS aggregation method	Resolution	90m				
	GEDI metric	50	75	90	95	100
mean	R²	0.65	0.74	0.76	0.76	0.74
	P	0	0	0	0	0
	RMSE	10.05	8.15	10.08	11.63	14.58
	rRMSE	0.55	0.45	0.55	0.64	0.8
	Delta mean	7.81	6.29	7.9	9.29	12.14
90percentile	R²	0.58	0.69	0.73	0.74	0.73
	P	0	0	0	0	0
	RMSE	19.77	14.56	11.59	10.88	11.01
	rRMSE	0.7	0.52	0.41	0.39	0.39
	Delta mean	16.06	11.35	8.8	8.25	8.52
95percentile	R²	0.55	0.67	0.71	0.72	0.71
	P	0	0	0	0	0
	RMSE	22.49	17.08	13.65	12.56	11.87
	rRMSE	0.73	0.56	0.44	0.41	0.39
	Delta mean	18.49	13.52	10.47	9.55	9.14
max	R²	0.52	0.63	0.67	0.68	0.68
	P	0	0	0	0	0
	RMSE	29.6	23.88	19.82	18.19	16.19
	rRMSE	0.78	0.63	0.53	0.48	0.43
	Delta mean	25.2	19.75	15.91	14.38	12.62

SAFE site part 2(Borneo)

GEDI Comparison: Mean Aggregation

Gridded sample size: 3435

ALS aggregation method	Resolution	90m				
	GEDI metric	50	75	90	95	100
mean	R²	0.6	0.57	0.51	0.49	0.48
	P	0	0	0	0	0
	RMSE	8.91	8.73	12.18	14.06	16.94
	rRMSE	0.49	0.48	0.67	0.77	0.93
	Delta mean	7.21	6.29	8.13	9.57	12.29
90percentile	R²	0.54	0.52	0.46	0.45	0.45
	P	0.00E+00	0	0	0	0
	RMSE	16.59	13.19	12.75	13.08	14.01
	rRMSE	0.62	0.5	0.48	0.49	0.53
	Delta mean	14.31	10.61	9.15	8.89	9.22
95percentile	R²	0.5	0.47	0.42	0.41	0.41
	P	0	0	0	0	0
	RMSE	19.89	16.16	14.84	14.63	14.69
	rRMSE	0.67	0.55	0.5	0.49	0.5
	Delta mean	17.17	13.17	11.13	10.46	10.02
max	R²	0.43	0.41	0.36	0.35	0.36
	P	0	0	0	0	0
	RMSE	28.7	24.41	21.81	20.72	19.19
	rRMSE	0.76	0.64	0.57	0.55	0.51
	Delta mean	25.25	20.75	17.78	16.5	14.66

Figure S3-a.GEDI-ALS comparison at 90m resolution with GEDI aggregated for mean.

FRIM Site (peninsular)

Site Stat

Area(km²)			12.9
ALS (Min, Max, Mean)	2	69.9	21.5
GEDI coverage: N. of shots before filtering			653
GEDI coverage: N. of shots after filtering			405
GEDI (Min, Max, Mean) For rh90	2.2	55.6	25.7

GEDI Spatial distribution per cell size

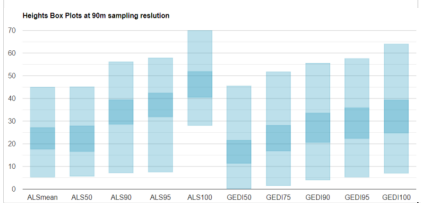
N. of 90m cell in the grid	1541
Av. shots N per cell	0.243
N. of Covered cells	289
Av. shots N per covered cell	1.41
Max shot N per covered cell	4
Min shots N per covered cell	1

GEDI Comparison: Max Aggregation

FRIM Site (peninsular)

Gridded sample size: **274**

ALS aggregation method	Resolution	90m				
	GEDI metric	50	75	90	95	100
mean	R²	0.59	0.6	0.58	0.56	0.54
	P	0.00E-02	0	0	0	0
	RMSE	9.44	7.89	9.43	10.62	13.11
	rRMSE	0.41	0.34	0.41	0.46	0.57
	Delta mean	7.43	6.01	7.41	8.51	10.83
90percentile	R²	0.52	0.56	0.55	0.53	0.51
	P	0	0	0	0	0
	RMSE	19.17	13.96	11.25	10.45	9.89
	rRMSE	0.56	0.41	0.33	0.3	0.29
	Delta mean	17.33	11.62	8.69	7.93	7.74
95percentile	R²	0.49	0.54	0.52	0.51	0.48
	P	0	0	0	0	0
	RMSE	21.75	16.33	13.26	12.19	10.98
	rRMSE	0.59	0.44	0.36	0.33	0.3
	Delta mean	20.07	14.13	10.59	9.46	8.52
max	R²	0.29	0.3	0.28	0.26	0.24
	P	0	0	0	0	0
	RMSE	30.99	25.44	22.01	20.63	18.48
	rRMSE	0.67	0.55	0.48	0.45	0.4
	Delta mean	29.21	23.06	19.05	17.38	14.8



GEDI Comparison: 90th percentile Aggregation

Same resuts as per max, slightly different RMSE in fractions

Negeri_sebilan site (peninsular)

Site Stat

Area(km²)			6.6
ALS (Min, Max, Mean)	2	69.7	24.5
GEDI coverage: N. of shots before filtering			172
GEDI coverage: N. of shots after filtering			73
GEDI (Min, Max, Mean) For rh90	5.6	44.6	30

GEDI Spatial distribution per cell size

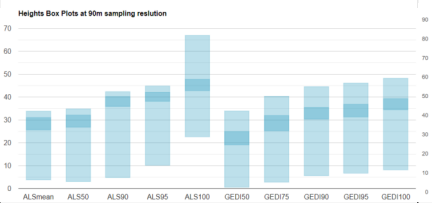
N. of 90m cell in the grid	784
Av. shots N per cell	0.085
N. of Covered cells	50
Av. shots N per covered cell	1.48
Max shot N per covered cell	3
Min shots N per covered cell	1

GEDI Comparison: Max Aggregation

Negeri_sebilan site (peninsular)

Gridded sample size: **50**

ALS aggregation method	Resolution	90m				
	GEDI metric	50	75	90	95	100
mean	R²	0.71	0.75	0.74	0.73	0.73
	P	0	0	0	0	0
	RMSE	9.04	5.23	6.3	7.58	9.63
	rRMSE	0.32	0.19	0.23	0.27	0.34
	Delta mean	7.81	3.99	4.83	6.3	8.61
90percentile	R²	0.57	0.64	0.68	0.69	0.7
	P	0	0	0	0	0
	RMSE	17.9	11.89	8	6.8	5.57
	rRMSE	0.48	0.32	0.21	0.18	0.15
	Delta mean	16.82	10.41	6.14	4.77	3.59
95percentile	R²	0.56	0.64	0.69	0.69	0.7
	P	0	0	0	0	0
	RMSE	19.75	13.63	9.53	8.14	6.42
	rRMSE	0.5	0.34	0.24	0.21	0.16
	Delta mean	18.74	12.34	7.9	6.22	4.4
max	R²	0.38	0.47	0.49	0.5	0.51
	P	0	0	0	0	0
	RMSE	26.28	20.07	15.91	14.34	12.16
	rRMSE	0.57	0.44	0.35	0.31	0.27
	Delta mean	25.08	18.68	14.21	12.45	9.86



GEDI Comparison: 90th percentile Aggregation

Same resuts as per max, slightly different RMSE in fractions

Danum site (Borneo)

Site Stat

Area(km²)			75.5
ALS (Min, Max, Mean)	2	89.9	33
GEDI coverage: N. of shots before filtering			2796
GEDI coverage: N. of shots after filtering			1807
GEDI (Min, Max, Mean) For rh90	2	84.6	41.6

GEDI Spatial distribution per cell size

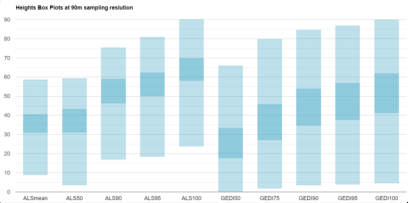
N. of 90m cell in the grid	9195
Av. shots N per cell	0.19
N. of Covered cells	1265
Av. shots N per covered cell	1.44
Max shot N per covered cell	5
Min shots N per covered cell	1

GEDI Comparison: Max Aggregation

Danum site (Borneo)

Gridded sample size: **1227**

ALS aggregation method	Resolution	90m				
	GEDI metric	50	75	90	95	100
mean	R²	0.38	0.39	0.36	0.34	0.34
	P	0	0	0	0	0
	RMSE	14.73	12.5	15.64	17.72	21.07
	rRMSE	0.41	0.35	0.44	0.5	0.59
	Delta mean	12.04	9.87	12.66	14.57	17.75
90percentile	R²	0.28	0.38	0.39	0.39	0.4
	P	0	0	0	0	0
	RMSE	29.43	20.36	15.7	14.49	14.02
	rRMSE	0.56	0.39	0.3	0.28	0.27
	Delta mean	26.8	16.67	11.92	10.8	10.5
95percentile	R²	0.26	0.36	0.37	0.37	0.38
	P	0	0	0	0	0
	RMSE	32.69	23.28	17.98	16.31	14.97
	rRMSE	0.58	0.42	0.32	0.29	0.27
	Delta mean	30.21	19.69	14.07	12.38	11.11
max	R²	0.25	0.33	0.34	0.35	0.35
	P	0	0	0	0	0
	RMSE	40.28	30.37	24.24	21.97	19.37
	rRMSE	0.63	0.47	0.38	0.34	0.3
	Delta mean	38.17	27.33	20.68	18.18	15.14



GEDI Comparison: 90th percentile Aggregation

Same resuts as per max, slightly different RMSE in fractions

SAFE site part 1(Borneo)

Site Stat

Area(km²)			196.3
ALS (Min, Max, Mean)	2	89.9	14.6
GEDI coverage: N. of shots before filtering			10580
GEDI coverage: N. of shots after filtering			3620
GEDI (Min, Max, Mean) For rh90	2	78.9	23.7

GEDI Spatial distribution per cell size

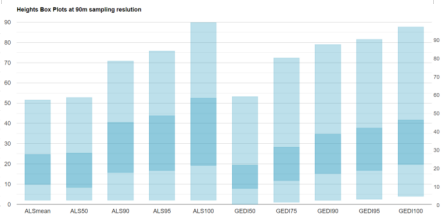
N. of 90m cell in the grid	23830
Av. shots N per cell	0.15
N. of Covered cells	2512
Av. shots N per covered cell	1.45
Max shot N per covered cell	4
Min shots N per covered cell	1

GEDI Comparison: Max Aggregation

SAFE site part 1(Borneo)

Gridded sample size: **2348**

ALS aggregation method	Resolution	90m				
	GEDI metric	50	75	90	95	100
mean	R²	0.64	0.72	0.74	0.74	0.72
	P	0	0	0	0	0
	RMSE	9.66	9.21	11.86	13.55	16.66
	rRMSE	0.53	0.51	0.65	0.74	0.91
	Delta mean	7.41	7.17	9.4	10.95	13.98
90percentile	R²	0.58	0.69	0.73	0.73	0.72
	P	0	0	0	0	0
	RMSE	18.56	13.57	11.26	10.95	11.77
	rRMSE	0.66	0.48	0.4	0.39	0.42
	Delta mean	14.83	10.36	8.47	8.33	9.16
95percentile	R²	0.56	0.67	0.71	0.72	0.71
	P	0	0	0	0	0
	RMSE	21.21	15.9	12.94	12.16	12.1
	rRMSE	0.69	0.52	0.42	0.4	0.39
	Delta mean	17.2	12.32	9.77	9.18	9.34
max	R²	0.52	0.63	0.67	0.68	0.68
	P	0	0	0	0	0
	RMSE	28.22	22.44	18.59	17.09	15.41
	rRMSE	0.75	0.6	0.49	0.45	0.41
	Delta mean	23.79	18.27	14.61	13.22	11.81



GEDI Comparison: 90th percentile Aggregation

Same resuts as per max, slightly different RMSE in fractions

SAFE site part 2(Borneo)

Site Stat

Area(km²)			200.3
ALS (Min, Max, Mean)	2	89.9	18.8
GEDI coverage: N. of shots before filtering			6617
GEDI coverage: N. of shots after filtering			5128
GEDI (Min, Max, Mean) For rh90	2	80.4	23

GEDI Spatial distribution per cell size

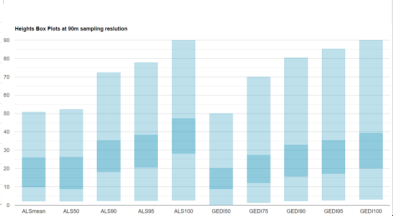
N. of 90m cell in the grid	24645
Av. shots N per cell	0.2
N. of Covered cells	3564
Av. shots N per covered cell	1.45
Max shot N per covered cell	5
Min shots N per covered cell	1

GEDI Comparison: Max Aggregation

SAFE site part 2(Borneo)

Gridded sample size: **3438**

ALS aggregation method	Resolution	90m				
	GEDI metric	50	75	90	95	100
mean	R²	0.59	0.55	0.48	0.46	0.45
	P	0	0	0	0	0
	RMSE	8.57	9.39	13.43	15.52	18.58
	rRMSE	0.47	0.52	0.74	0.85	1.02
	Delta mean	6.84	6.77	9.24	10.87	13.81
90percentile	R²	0.53	0.51	0.44	0.43	0.43
	P	0.00E+00	0	0	0	0
	RMSE	15.73	12.71	13	13.69	15.06
	rRMSE	0.59	0.48	0.49	0.51	0.57
	Delta mean	13.35	9.96	9.01	9.1	10
95percentile	R²	0.49	0.47	0.41	0.4	0.4
	P	0	0	0	0	0
	RMSE	18.91	15.41	14.69	14.82	15.36
	rRMSE	0.64	0.52	0.5	0.5	0.52
	Delta mean	16.12	12.3	10.68	10.27	10.33
max	R²	0.43	0.41	0.35	0.34	0.35
	P	0	0	0	0	0
	RMSE	27.62	23.37	21.05	20.15	18.93
	rRMSE	0.73	0.62	0.55	0.53	0.5
	Delta mean	24.11	19.62	16.83	15.65	14.08



GEDI Comparison: 90th percentile Aggregation

Same resuts as per max, slightly different RMSE in fractions

Figure S3-b.GEDI-ALS comparison at 90m resolution with GEDI aggregated for max.

FRIM Site (peninsular)

Site Stat

Area(km²)			12.9
ALS (Min, Max, Mean)	2	69.9	21.5
GEDI coverage: N. of shots before filtering			653
GEDI coverage: N. of shots after filtering			405
GEDI (Min, Max, Mean) For rh90	2.2	55.6	25.7

GEDI Spatial distribution per cell size

N. of 250m cell in the grid	201
Av. shots N per cell	1.64
N. of Covered cells	118
Av. shots N per covered cell	3.46
Max shot N per covered cell	10
Min shots N per covered cell	1

Negeri_sebilan site (peninsular)

Site Stat

Area(km²)			6.6
ALS (Min, Max, Mean)	2	69.7	24.5
GEDI coverage: N. of shots before filtering			172
GEDI coverage: N. of shots after filtering			73
GEDI (Min, Max, Mean) For rh90	5.6	44.6	30

GEDI Spatial distribution per cell size

N. of 250m cell in the grid	104
Av. shots N per cell	0.58
N. of Covered cells	25
Av. shots N per covered cell	2.96
Max shot N per covered cell	6
Min shots N per covered cell	1

Danum site (Borneo)

Site Stat

Area(km²)			75.5
ALS (Min, Max, Mean)	2	89.9	33
GEDI coverage: N. of shots before filtering			2796
GEDI coverage: N. of shots after filtering			1807
GEDI (Min, Max, Mean) For rh90	2	84.6	41.6

GEDI Spatial distribution per cell size

N. of 250m cell in the grid	1192
Av. shots N per cell	1.37
N. of Covered cells	512
Av. shots N per covered cell	3.55
Max shot N per covered cell	11
Min shots N per covered cell	1

SAFE site part 1(Borneo)

Site Stat

Area(km²)			196.3
ALS (Min, Max, Mean)	2	89.9	14.6
GEDI coverage: N. of shots before filtering			10580
GEDI coverage: N. of shots after filtering			3620
GEDI (Min, Max, Mean) For rh90	2	78.9	23.7

GEDI Spatial distribution per cell size

N. of 250m cell in the grid	3099
Av. shots N per cell	1.09
N. of Covered cells	1022
Av. shots N per covered cell	3.57
Max shot N per covered cell	14
Min shots N per covered cell	1

SAFE site part 2(Borneo)

Site Stat

Area(km²)			200.3
ALS (Min, Max, Mean)	2	89.9	18.8
GEDI coverage: N. of shots before filtering			6617
GEDI coverage: N. of shots after filtering			5128
GEDI (Min, Max, Mean) For rh90	2	80.4	23

GEDI Spatial distribution per cell size

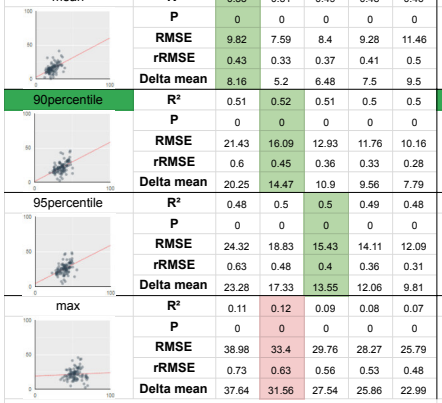
N. of 250m cell in the grid	3213
Av. shots N per cell	1.52
N. of Covered cells	1456
Av. shots N per covered cell	3.54
Max shot N per covered cell	12
Min shots N per covered cell	1

FRIM Site (peninsular)

GEDI Comparison: Mean Aggregation

Gridded sample size: 99

ALS aggregation method	Resolution	250m				
	GEDI metric	50	75	90	95	100
mean	R²	0.53	0.51	0.49	0.48	0.46
	P	0	0	0	0	0
	RMSE	9.82	7.59	8.4	9.28	11.46
	rRMSE	0.43	0.33	0.37	0.41	0.5
	Delta mean	8.16	5.2	6.48	7.5	9.5
90percentile	R²	0.51	0.52	0.51	0.5	0.5
	P	0	0	0	0	0
	RMSE	21.43	16.09	12.93	11.76	10.16
	rRMSE	0.6	0.45	0.36	0.33	0.28
	Delta mean	20.25	14.47	10.9	9.56	7.79
95percentile	R²	0.48	0.5	0.5	0.49	0.48
	P	0	0	0	0	0
	RMSE	24.32	18.83	15.43	14.11	12.09
	rRMSE	0.63	0.48	0.4	0.36	0.31
	Delta mean	23.28	17.33	13.55	12.06	9.81
max	R²	0.11	0.12	0.09	0.08	0.07
	P	0	0	0	0	0
	RMSE	38.98	33.4	29.76	28.27	25.79
	rRMSE	0.73	0.63	0.56	0.53	0.48
	Delta mean	37.64	31.56	27.54	25.86	22.99



Negeri_sebilan site (peninsular)

GEDI Comparison: Mean Aggregation

Gridded sample size: 25

ALS aggregation method	Resolution	250m				
	GEDI metric	50	75	90	95	100
mean	R²	0.37	0.43	0.48	0.5	0.51
	P	0	0	0	0	0
	RMSE	9.55	5.86	6.11	7.04	8.91
	rRMSE	0.35	0.22	0.23	0.26	0.33
	Delta mean	8.4	4.8	4.53	5.53	7.51
90percentile	R²	0.18	0.24	0.31	0.32	0.34
	P	0	0	0	0	0
	RMSE	18.61	12.59	8.56	7.09	5.25
	rRMSE	0.49	0.33	0.23	0.19	0.14
	Delta mean	17.66	11.45	7.28	5.79	4.19
95percentile	R²	0.08	0.15	0.24	0.26	0.29
	P	0	0	0	0	0
	RMSE	20.68	14.61	10.48	8.92	6.79
	rRMSE	0.52	0.37	0.26	0.22	0.17
	Delta mean	19.79	13.58	9.39	7.7	5.4
max	R²	0.29	0.32	0.29	0.29	0.29
	P	0	0	0	0	0
	RMSE	33.13	26.98	22.85	21.2	18.77
	rRMSE	0.63	0.51	0.44	0.4	0.36
	Delta mean	32.47	26.26	22.07	20.38	17.88

Danum site (Borneo)

GEDI Comparison: Mean Aggregation

Gridded sample size: 480

ALS aggregation method	Resolution	250m				
	GEDI metric	50	75	90	95	100
mean	R²	0.4	0.43	0.4	0.39	0.38
	P	0	0	0	0	0
	RMSE	14.8	9.16	11.48	13.45	16.75
	rRMSE	0.41	0.26	0.32	0.38	0.47
	Delta mean	12.97	7.06	9.01	10.93	14.2
90percentile	R²	0.33	0.44	0.45	0.45	0.46
	P	0	0	0	0	0
	RMSE	31.32	21.43	15.68	13.83	12.15
	rRMSE	0.59	0.4	0.3	0.26	0.23
	Delta mean	29.97	19.43	13.05	10.98	9.1
95percentile	R²	0.33	0.44	0.45	0.45	0.46
	P	0	0	0	0	0
	RMSE	34.94	24.87	18.73	16.58	14.2
	rRMSE	0.61	0.44	0.33	0.29	0.25
	Delta mean	33.71	23.11	16.29	13.92	11.07
max	R²	0.29	0.36	0.35	0.34	0.34
	P	0	0	0	0	0
	RMSE	49.25	38.96	32.29	29.76	26.45
	rRMSE	0.69	0.55	0.45	0.42	0.37
	Delta mean	48.23	37.54	30.31	27.57	23.8

SAFE site part 1(Borneo)

GEDI Comparison: Mean Aggregation

Gridded sample size: 953

ALS aggregation method	Resolution	250m				
	GEDI metric	50	75	90	95	100
mean	R²	0.73	0.8	0.81	0.81	0.79
	P	0	0	0	0	0
	RMSE	9.07	6.58	8.53	10.12	13.2
	rRMSE	0.5	0.36	0.47	0.55	0.72
	Delta mean	7.16	5.09	6.83	8.28	11.24
90percentile	R²	0.64	0.74	0.77	0.78	0.77
	P	0	0	0	0	0
	RMSE	20	14.5	11.13	10.11	9.73
	rRMSE	0.69	0.5	0.39	0.35	0.34
	Delta mean	16.62	11.71	8.78	7.91	7.73
95percentile	R²	0.61	0.71	0.75	0.76	0.75
	P	0	0	0	0	0
	RMSE	23.11	17.48	13.73	12.35	11.06
	rRMSE	0.72	0.55	0.43	0.39	0.35
	Delta mean	19.53	14.4	11.01	9.81	8.78
max	R²	0.52	0.62	0.66	0.67	0.67
	P	0	0	0.00E+00	0	0
	RMSE	36.95	31.11	26.83	24.96	22.19
	rRMSE	0.81	0.68	0.59	0.55	0.49
	Delta mean	32.91	27.21	23.03	21.21	18.57

SAFE site part 2(Borneo)

GEDI Comparison: Mean Aggregation

Gridded sample size: 1409

ALS aggregation method	Resolution	250m				
	GEDI metric	50	75	90	95	100
mean	R²	0.64	0.58	0.5	0.48	0.47
	P	0	0	0	0	0
	RMSE	8.38	8.18	11.86	13.77	16.59
	rRMSE	0.46	0.45	0.65	0.75	0.91
	Delta mean	6.93	5.67	7.66	9.16	11.95
90percentile	R²	0.56	0.51	0.44	0.42	0.42
	P	0	0	0	0	0
	RMSE	16.94	13.32	12.68	12.89	13.57
	rRMSE	0.62	0.49	0.46	0.47	0.49
	Delta mean	15.1	11.11	9.28	8.82	8.79
95percentile	R²	0.52	0.47	0.41	0.4	0.39
	P	0	0	0	0	0
	RMSE	20.24	16.23	14.69	14.36	14.17
	rRMSE	0.66	0.53	0.48	0.47	0.46
	Delta mean	18.16	13.9	11.5	10.64	9.75
max	R²	0.34	0.28	0.28	0.29	0
	P	0	0	0	0	0
	RMSE	33.8	30.45	28.91	26.49	0
	rRMSE	0.7	0.63	0.6	0.55	0
	Delta mean	30.27	26.56	24.91	22.37	0

Figure S4-a.GEDI-ALS comparison at 250m resolution with GEDI aggregated for mean.

FRIM Site (peninsular)

Site Stat

Area(km²)			12.9
ALS (Min, Max, Mean)	2	69.9	21.5
GEDI coverage: N. of shots before filtering			653
GEDI coverage: N. of shots after filtering			405
GEDI (Min, Max, Mean) For rh90	2.2	55.6	25.7

GEDI Spatial distribution per cell size

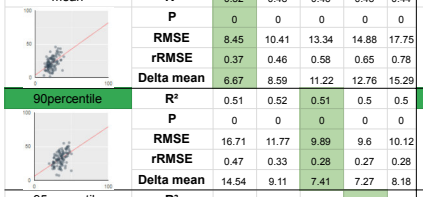
N. of 250m cell in the grid	201
Av. shots N per cell	1.64
N. of Covered cells	118
Av. shots N per covered cell	3.46
Max shot N per covered cell	10
Min shots N per covered cell	1

GEDI Comparison: Max Aggregation

FRIM Site (peninsular)

Gridded sample size: 99

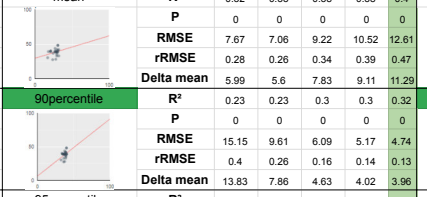
ALS aggregation method	Resolution	250m				
	GEDI metric	50	75	90	95	100
mean	R^2	0.52	0.48	0.46	0.45	0.44
	P	0	0	0	0	0
	RMSE	8.45	10.41	13.34	14.88	17.75
	rRMSE	0.37	0.46	0.58	0.65	0.78
	Delta mean	6.67	8.59	11.22	12.76	15.29
90percentile	R^2	0.51	0.52	0.51	0.5	0.5
	P	0	0	0	0	0
	RMSE	16.71	11.77	9.89	9.6	10.12
	rRMSE	0.47	0.33	0.28	0.27	0.28
	Delta mean	14.54	9.11	7.41	7.27	8.18
95percentile	R^2	0.49	0.51	0.5	0.5	0.49
	P	0	0	0	0	0
	RMSE	19.43	14.01	11.38	10.6	10.2
	rRMSE	0.5	0.36	0.29	0.27	0.26
	Delta mean	17.53	11.4	8.72	7.97	8.01
max	R^2	0.12	0.15	0.14	0.14	0.13
	P	0	0	0	0	0
	RMSE	33.91	28	24.41	22.93	20.8
	rRMSE	0.64	0.53	0.46	0.43	0.39
	Delta mean	31.81	25.18	20.98	19.17	16.61



Negeri_sebilan site (peninsular)

Gridded sample size: 25

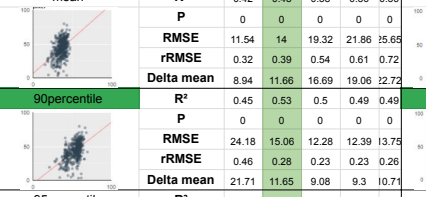
ALS aggregation method	Resolution	250m				
	GEDI metric	50	75	90	95	100
mean	R^2	0.32	0.33	0.38	0.38	0.4
	P	0	0	0	0	0
	RMSE	7.67	7.06	9.22	10.52	12.61
	rRMSE	0.28	0.26	0.34	0.39	0.47
	Delta mean	5.99	5.6	7.83	9.11	11.29
90percentile	R^2	0.23	0.23	0.3	0.3	0.32
	P	0	0	0	0	0
	RMSE	15.15	9.61	6.09	5.17	4.74
	rRMSE	0.4	0.26	0.16	0.14	0.13
	Delta mean	13.83	7.86	4.63	4.02	3.96
95percentile	R^2	0.19	0.21	0.29	0.3	0.31
	P	0	0	0	0	0
	RMSE	17.13	11.4	7.51	6.22	4.88
	rRMSE	0.43	0.29	0.19	0.16	0.12
	Delta mean	15.96	9.95	5.97	4.7	3.77
max	R^2	0.17	0.14	0.12	0.13	0.14
	P	0	0	0	0	0
	RMSE	29.61	23.79	19.65	18	15.63
	rRMSE	0.56	0.45	0.37	0.34	0.3
	Delta mean	28.64	22.63	18.34	16.63	14.1



Danum site (Borneo)

Gridded sample size: 480

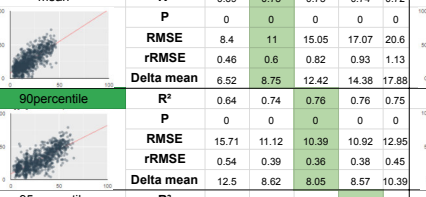
ALS aggregation method	Resolution	250m				
	GEDI metric	50	75	90	95	100
mean	R^2	0.42	0.43	0.38	0.36	0.36
	P	0	0	0	0	0
	RMSE	11.54	14	19.32	21.86	25.65
	rRMSE	0.32	0.39	0.54	0.61	0.72
	Delta mean	8.94	11.66	16.69	19.06	22.72
90percentile	R^2	0.45	0.53	0.5	0.49	0.49
	P	0	0	0	0	0
	RMSE	24.18	15.06	12.28	12.39	13.75
	rRMSE	0.46	0.28	0.23	0.23	0.26
	Delta mean	21.71	11.65	9.08	9.3	10.71
95percentile	R^2	0.45	0.52	0.5	0.49	0.49
	P	0	0	0	0	0
	RMSE	27.63	17.85	13.72	13.01	13.19
	rRMSE	0.49	0.31	0.24	0.23	0.23
	Delta mean	25.39	14.51	10.27	9.61	9.95
max	R^2	0.4	0.44	0.4	0.39	0.38
	P	0	0	0	0	0
	RMSE	41.55	30.83	24.77	22.68	20.09
	rRMSE	0.58	0.43	0.35	0.32	0.28
	Delta mean	39.89	28.33	21.63	19.28	16.3



SAFE site part 1(Borneo)

Gridded sample size: 955

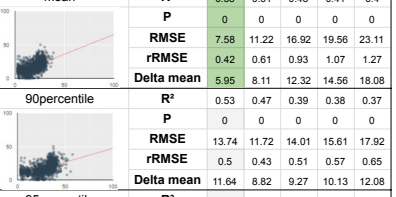
ALS aggregation method	Resolution	250m				
	GEDI metric	50	75	90	95	100
mean	R^2	0.69	0.75	0.75	0.74	0.72
	P	0	0	0	0	0
	RMSE	8.4	11	15.05	17.07	20.6
	rRMSE	0.46	0.6	0.82	0.93	1.13
	Delta mean	6.52	8.75	12.42	14.38	17.88
90percentile	R^2	0.64	0.74	0.76	0.76	0.75
	P	0	0	0	0	0
	RMSE	15.71	11.12	10.39	10.92	12.95
	rRMSE	0.54	0.39	0.36	0.38	0.45
	Delta mean	12.5	8.62	8.05	8.57	10.39
95percentile	R^2	0.62	0.72	0.74	0.74	0.73
	P	0	0	0	0	0
	RMSE	18.56	13.28	11.29	11.12	12.16
	rRMSE	0.58	0.42	0.35	0.35	0.38
	Delta mean	15.05	10.41	8.71	8.69	9.66
max	R^2	0.53	0.63	0.66	0.67	0.66
	P	0	0	0.00E+00	0	0
	RMSE	31.87	25.64	21.67	19.98	17.78
	rRMSE	0.7	0.56	0.48	0.44	0.39
	Delta mean	27.66	21.65	17.72	16.07	14.07

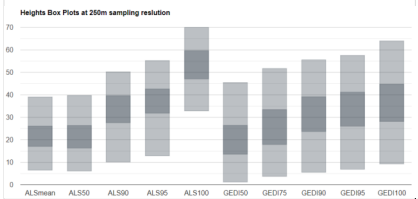


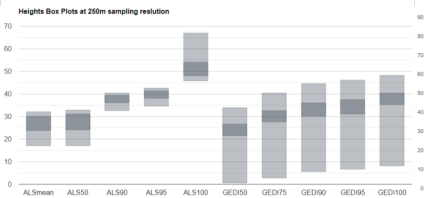
SAFE site part 2(Borneo)

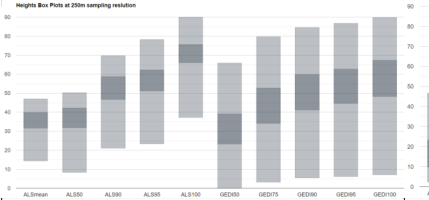
Gridded sample size: 1414

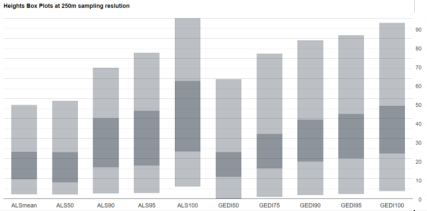
ALS aggregation method	Resolution	250m				
	GEDI metric	50	75	90	95	100
mean	R^2	0.58	0.51	0.43	0.41	0.4
	P	0	0	0	0	0
	RMSE	7.58	11.22	16.92	19.56	23.11
	rRMSE	0.42	0.61	0.93	1.07	1.27
	Delta mean	5.95	8.11	12.32	14.56	18.08
90percentile	R^2	0.53	0.47	0.39	0.38	0.37
	P	0	0	0	0	0
	RMSE	13.74	11.72	14.01	15.61	17.92
	rRMSE	0.5	0.43	0.51	0.57	0.65
	Delta mean	11.64	8.82	9.27	10.13	12.08
95percentile	R^2	0.5	0.45	0.37	0.36	0.35
	P	0	0	0	0	0
	RMSE	16.79	13.74	14.58	15.58	17.16
	rRMSE	0.55	0.45	0.48	0.51	0.56
	Delta mean	14.44	10.79	10.15	10.39	11.41
max	R^2	0.39	0.34	0.28	0.27	0.27
	P	0	0	0	0	0
	RMSE	34.57	29.65	26.69	25.49	23.67
	rRMSE	0.72	0.62	0.56	0.53	0.49
	Delta mean	31.01	25.88	22.47	21.16	19.01

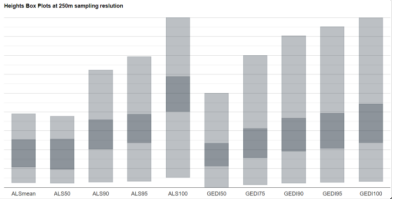












GEDI Comparison: 90th percentile Aggregation

Same resuts as per max, slightly different RMSE in fractions

Same resuts as per max, slightly different RMSE in fractions

Same resuts as per max, slightly different RMSE in fractions

Same resuts as per max, slightly different RMSE in fractions

Same resuts as per max, slightly different RMSE in fractions

Figure S4-b. GEDI-ALS comparison at 250m resolution with GEDI aggregated for max.

FRIM Site (peninsular)

Site Stat

Area(km²)			12.9
ALS (Min, Max, Mean)	2	69.9	21.5
GEDI coverage: N. of shots before filtering			653
GEDI coverage: N. of shots after filtering			405
GEDI (Min, Max, Mean) For rh90	2.2	55.6	25.7

GEDI Spatial distribution per cell size

N. of 1000m cell in the grid	11
Av. shots N per cell	17
N. of Covered cells	19
Av. shots N per covered cell	21.5
Max shot N per covered cell	51
Min shots N per covered cell	1

Negeri_sebilan site (peninsular)

Site Stat

Area(km²)			6.6
ALS (Min, Max, Mean)	2	69.7	24.5
GEDI coverage: N. of shots before filtering			172
GEDI coverage: N. of shots after filtering			73
GEDI (Min, Max, Mean) For rh90	5.6	44.6	30

GEDI Spatial distribution per cell size

N. of 1000m cell in the grid	8
Av. shots N per cell	6.12
N. of Covered cells	7
Av. shots N per covered cell	10.6
Max shot N per covered cell	28
Min shots N per covered cell	2

Danum site (Borneo)

Site Stat

Area(km²)			75.5
ALS (Min, Max, Mean)	2	89.9	33
GEDI coverage: N. of shots before filtering			2796
GEDI coverage: N. of shots after filtering			1807
GEDI (Min, Max, Mean) For rh90	2	84.6	41.6

GEDI Spatial distribution per cell size

N. of 1000m cell in the grid	75
Av. shots N per cell	
N. of Covered cells	81
Av. shots N per covered cell	22.47
Max shot N per covered cell	81
Min shots N per covered cell	1

SAFE site part 1(Borneo)

Site Stat

Area(km²)			196.3
ALS (Min, Max, Mean)	2	89.9	14.6
GEDI coverage: N. of shots before filtering			10580
GEDI coverage: N. of shots after filtering			3620
GEDI (Min, Max, Mean) For rh90	2	78.9	23.7

GEDI Spatial distribution per cell size

N. of 1000m cell in the grid	198
Av. shots N per cell	14.9
N. of Covered cells	138
Av. shots N per covered cell	26.46
Max shot N per covered cell	61
Min shots N per covered cell	1

SAFE site part 2(Borneo)

Site Stat

Area(km²)			200.3
ALS (Min, Max, Mean)	2	89.9	18.8
GEDI coverage: N. of shots before filtering			6617
GEDI coverage: N. of shots after filtering			5128
GEDI (Min, Max, Mean) For rh90	2	80.4	23

GEDI Spatial distribution per cell size

N. of 1000m cell in the grid	200
Av. shots N per cell	21.31
N. of Covered cells	189
Av. shots N per covered cell	27.28
Max shot N per covered cell	89
Min shots N per covered cell	2

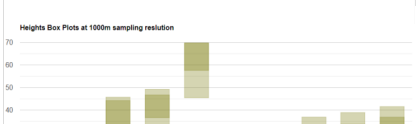
FRIM Site (peninsular)

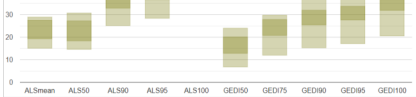
GEDI Comparison: Mean Aggregation

FRIM Site (peninsular)

Gridded sample size: **9**

ALS aggregation method	Resolution	1000m			
	GEDI metric	50	75	90	95
mean	R²	0.64	0.69	0.66	0.63
	P	0	0	0	0
	RMSE	6.59	4.29	6.81	8.5
	rRMSE	0.3	0.2	0.31	0.39
	Delta mean	6.32	2.48	5.7	7.66
90percentile	R²	0.51	0.57	0.54	0.52
	P	0	0	0	0
	RMSE	20.6	14.51	10.74	9.14
	rRMSE	0.57	0.4	0.3	0.25
	Delta mean	19.43	13.42	9.84	8.2
95percentile	R²	0.48	0.54	0.52	0.5
	P	0	0	0	0
	RMSE	24.01	17.81	13.86	12.1
	rRMSE	0.6	0.45	0.35	0.3
	Delta mean	22.96	16.56	12.59	10.95
max	R²	0.1	0.13	0.09	0.05
	P	0	0	0	0
	RMSE	44.53	38.14	33.98	32.09
	rRMSE	0.73	0.62	0.56	0.53
	Delta mean	44.13	37.73	33.52	31.57





FRIM Site (peninsular)

Site Stat

Area(km²)			12.9
ALS (Min, Max, Mean)	2	69.9	21.5
GEDI coverage: N. of shots before filtering			653
GEDI coverage: N. of shots after filtering			405
GEDI (Min, Max, Mean) For rh90	2.2	55.6	25.7

GEDI Spatial distribution per cell size

N. of 1000m cell in the grid	11
Av. shots N per cell	17
N. of Covered cells	19
Av. shots N per covered cell	21.5
Max shot N per covered cell	51
Min shots N per covered cell	1

Negeri_sebilan site (peninsular)

Site Stat

Area(km²)			6.6
ALS (Min, Max, Mean)	2	69.7	24.5
GEDI coverage: N. of shots before filtering			172
GEDI coverage: N. of shots after filtering			73
GEDI (Min, Max, Mean) For rh90	5.6	44.6	30

GEDI Spatial distribution per cell size

N. of 1000m cell in the grid	8
Av. shots N per cell	6.12
N. of Covered cells	7
Av. shots N per covered cell	10.6
Max shot N per covered cell	28
Min shots N per covered cell	2

Danum site (Borneo)

Site Stat

Area(km²)			75.5
ALS (Min, Max, Mean)	2	89.9	33
GEDI coverage: N. of shots before filtering			2796
GEDI coverage: N. of shots after filtering			1807
GEDI (Min, Max, Mean) For rh90	2	84.6	41.6

GEDI Spatial distribution per cell size

N. of 1000m cell in the grid	75
Av. shots N per cell	
N. of Covered cells	81
Av. shots N per covered cell	22.47
Max shot N per covered cell	81
Min shots N per covered cell	1

SAFE site part 1(Borneo)

Site Stat

Area(km²)			196.3
ALS (Min, Max, Mean)	2	89.9	14.6
GEDI coverage: N. of shots before filtering			10580
GEDI coverage: N. of shots after filtering			3620
GEDI (Min, Max, Mean) For rh90	2	78.9	23.7

GEDI Spatial distribution per cell size

N. of 1000m cell in the grid	198
Av. shots N per cell	14.9
N. of Covered cells	138
Av. shots N per covered cell	26.46
Max shot N per covered cell	61
Min shots N per covered cell	1

SAFE site part 2(Borneo)

Site Stat

Area(km²)			200.3
ALS (Min, Max, Mean)	2	89.9	18.8
GEDI coverage: N. of shots before filtering			6617
GEDI coverage: N. of shots after filtering			5128
GEDI (Min, Max, Mean) For rh90	2	80.4	23

GEDI Spatial distribution per cell size

N. of 1000m cell in the grid	200
Av. shots N per cell	21.31
N. of Covered cells	189
Av. shots N per covered cell	27.28
Max shot N per covered cell	89
Min shots N per covered cell	2

FRIM Site (peninsular)

GEDI Comparison: Max Aggregation

FRIM Site (peninsular)

Gridded sample size: 9

ALS aggregation method	Resolution	1000m			
	GEDI metric	50	75	90	95
mean	R²	0.82	0.83	0.79	0.78
	P	0	0	0	0
	RMSE	11.36	17.73	21.33	23.52
	rRMSE	0.52	0.81	0.98	1.08
	Delta mean	9.77	16.51	20.36	22.85
90percentile	R²	0.76	0.74	0.71	0.71
	P	0	0	0	0
	RMSE	10.09	7.42	9.09	10.22
	rRMSE	0.28	0.2	0.25	0.28
	Delta mean	6.35	6.74	8.23	9.02
95percentile	R²	0.71	0.7	0.67	0.68
	P	0	0	0	0
	RMSE	12.98	7.88	7.89	8.09
	rRMSE	0.33	0.2	0.2	0.2
	Delta mean	9.64	6.1	7.26	7.16
max	R²	0.35	0.35	0.34	0.32
	P	0	0	0	0
	RMSE	31.97	23.74	20.17	17.74
	rRMSE	0.52	0.39	0.33	0.29
	Delta mean	30.81	22.71	18.86	16.37



Negeri_sebilan site (peninsular)

GEDI Comparison: Max Aggregation

Negeri_sebilan site (peninsular)

Gridded sample size: 6

ALS aggregation method	Resolution	1000m				
	GEDI metric	50	75	90	95	100
mean	R²	0.49	0.22	0.27	0.24	0.27
	P	0	0	0	0	0
	RMSE	7.51	14	18.31	20.3	22.86
	rRMSE	0.34	0.63	0.82	0.91	1.03
	Delta mean	6.46	12.98	17.76	19.78	22.46
90percentile	R²	0.22	-0.07	0.03	0.01	0.03
	P	0	0	0	0.18	0
	RMSE	8.26	4.45	5.09	6.7	8.99
	rRMSE	0.23	0.12	0.14	0.19	0.25
	Delta mean	7.51	3.41	4.29	5.8	8.49
95percentile	R²	0.18	-0.1	-0.01	-0.01	0.01
	P	0	0	0.29	0.28	0.21
	RMSE	10.59	5.49	3.6	4.64	6.63
	rRMSE	0.27	0.14	0.09	0.12	0.17
	Delta mean	10.01	4.16	3.29	4.01	5.99
max	R²	0.08	0.09	0.29	0.37	0.42
	P	0	0	0	0	0
	RMSE	39.25	32.83	28	25.96	23.25
	rRMSE	0.58	0.49	0.41	0.38	0.34
	Delta mean	38.83	32.32	27.53	25.52	22.83



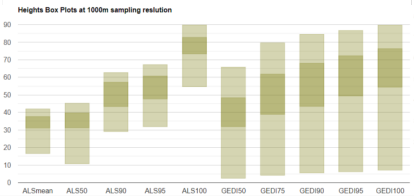
Danum site (Borneo)

GEDI Comparison: Max Aggregation

Danum site (Borneo)

Gridded sample size: 62

ALS aggregation method	Resolution	1000m				
	GEDI metric	50	75	90	95	100
mean	R²	0.66	0.6	0.51	0.47	0.48
	P	0	0	0	0	0
	RMSE	11.96	20.78	27.1	29.89	33.95
	rRMSE	0.34	0.59	0.77	0.85	0.97
	Delta mean	9.78	18.59	24.8	27.51	31.44
90percentile	R²	0.79	0.77	0.67	0.62	0.63
	P	0	0	0	0	0
	RMSE	13.69	9.64	13.47	15.68	19.07
	rRMSE	0.27	0.19	0.26	0.3	0.37
	Delta mean	11.58	7.66	10.69	12.76	16.54
95percentile	R²	0.79	0.78	0.67	0.63	0.63
	P	0	0	0	0	0
	RMSE	16.86	10.19	11.87	13.56	16.45
	rRMSE	0.31	0.18	0.21	0.25	0.3
	Delta mean	14.79	7.71	9.14	10.46	13.73
max	R²	0.49	0.37	0.25	0.22	0.22
	P	0	0	0	0	0
	RMSE	40.42	30.4	25.35	23.54	21.18
	rRMSE	0.51	0.38	0.32	0.3	0.27
	Delta mean	39.07	27.64	21.72	19.39	16.14



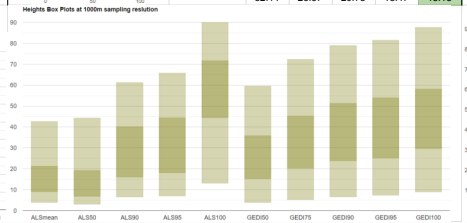
SAFE site part 1(Borneo)

GEDI Comparison: Max Aggregation

SAFE site part 1(Borneo)

Gridded sample size: 112

ALS aggregation method	Resolution	1000m				
	GEDI metric	50	75	90	95	100
mean	R²	0.81	0.82	0.79	0.78	0.76
	P	0	0	0	0	0
	RMSE	12.55	19.2	24.14	26.56	30.64
	rRMSE	0.7	1.07	1.35	1.49	1.71
	Delta mean	10.4	17.19	22.03	24.49	28.64
90percentile	R²	0.79	0.83	0.81	0.8	0.78
	P	0	0	0	0	0
	RMSE	8.88	9.51	13.02	15.16	18.99
	rRMSE	0.29	0.32	0.43	0.5	0.63
	Delta mean	6.94	7.45	11.01	13.02	16.67
95percentile	R²	0.75	0.8	0.78	0.77	0.76
	P	0	0	0	0	0
	RMSE	11.31	8.8	10.64	12.33	15.76
	rRMSE	0.33	0.26	0.31	0.36	0.46
	Delta mean	9.06	6.79	8.65	10.34	13.57
max	R²	0.55	0.63	0.64	0.64	0.64
	P	0	0	0	0	0
	RMSE	34.69	28.03	23.71	21.67	18.67
	rRMSE	0.58	0.47	0.4	0.36	0.31
	Delta mean	32.14	25.37	20.78	18.47	15.18



SAFE site part 2(Borneo)

GEDI Comparison: Max Aggregation

SAFE site part 2(Borneo)

Gridded sample size: 169

ALS aggregation method	Resolution	1000m				
	GEDI metric	50	75	90	95	100
mean	R²	0.66	0.34	0.23	0.22	0.22
	P	0	0	0	0	0
	RMSE	10.09	20.62	30.19	33.86	38.74
	rRMSE	0.57	1.16	1.7	1.91	2.18
	Delta mean	8.34	17.4	25.77	29.24	34.31
90percentile	R²	0.65	0.38	0.24	0.23	0.23
	P	0	0	0	0	0
	RMSE	7.8	13.52	22.38	25.8	30.2
	rRMSE	0.28	0.48	0.8	0.92	1.08
	Delta mean	6.4	9.24	16.1	19.33	24.17
95percentile	R²	0.63	0.4	0.26	0.24	0.25
	P	0	0	0	0	0
	RMSE	10.03	12.07	20.03	23.23	27.33
	rRMSE	0.32	0.38	0.63	0.73	0.86
	Delta mean	8.23	8.39	13.53	16.36	20.86
max	R²	0.4	0.24	0.14	0.12	0.15
	P	0	0	0	0	0
	RMSE	42.1	34.47	29.87	28.28	25.71
	rRMSE	0.64	0.53	0.46	0.43	0.39
	Delta mean	39.74	31.57	26.9	25.38	22.57

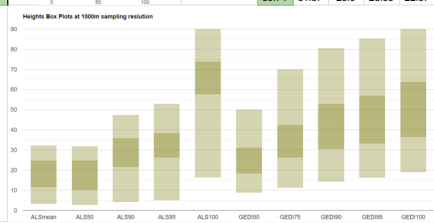


Figure S5-b.GEDI-ALS comparison at 1000m resolution with GEDI aggregated for max.

FRIM Site (peninsular)

Site Stat

Area(km²)			12.9
ALS (Min, Max, Mean)	2	69.9	21.5
GEDI coverage: N. of shots before filtering			653
GEDI coverage: N. of shots after filtering			405
GEDI (Min, Max, Mean) For rh90	2.2	55.6	25.7

GEDI Spatial distribution per cell size

N. of 1000m cell in the grid	11
Av. shots N per cell	17
N. of Covered cells	19
Av. shots N per covered cell	21.5
Max shot N per covered cell	51
Min shots N per covered cell	1

Negeri_sebilan site (peninsular)

Site Stat

Area(km²)			6.6
ALS (Min, Max, Mean)	2	69.7	24.5
GEDI coverage: N. of shots before filtering			172
GEDI coverage: N. of shots after filtering			73
GEDI (Min, Max, Mean) For rh90	5.6	44.6	30

GEDI Spatial distribution per cell size

N. of 1000m cell in the grid	8
Av. shots N per cell	6.12
N. of Covered cells	7
Av. shots N per covered cell	10.6
Max shot N per covered cell	28
Min shots N per covered cell	2

Danum site (Borneo)

Site Stat

Area(km²)			75.5
ALS (Min, Max, Mean)	2	89.9	33
GEDI coverage: N. of shots before filtering			2796
GEDI coverage: N. of shots after filtering			1807
GEDI (Min, Max, Mean) For rh90	2	84.6	41.6

GEDI Spatial distribution per cell size

N. of 1000m cell in the grid	75
Av. shots N per cell	
N. of Covered cells	81
Av. shots N per covered cell	22.47
Max shot N per covered cell	81
Min shots N per covered cell	1

SAFE site part 1(Borneo)

Site Stat

Area(km²)			196.3
ALS (Min, Max, Mean)	2	89.9	14.6
GEDI coverage: N. of shots before filtering			10580
GEDI coverage: N. of shots after filtering			3620
GEDI (Min, Max, Mean) For rh90	2	78.9	23.7

GEDI Spatial distribution per cell size

N. of 1000m cell in the grid	198
Av. shots N per cell	14.9
N. of Covered cells	138
Av. shots N per covered cell	26.46
Max shot N per covered cell	61
Min shots N per covered cell	1

SAFE site part 2(Borneo)

Site Stat

Area(km²)			200.3
ALS (Min, Max, Mean)	2	89.9	18.8
GEDI coverage: N. of shots before filtering			6617
GEDI coverage: N. of shots after filtering			5128
GEDI (Min, Max, Mean) For rh90	2	80.4	23

GEDI Spatial distribution per cell size

N. of 1000m cell in the grid	200
Av. shots N per cell	21.31
N. of Covered cells	189
Av. shots N per covered cell	27.28
Max shot N per covered cell	89
Min shots N per covered cell	2

GEDI Comparison: 90th percentile Aggregation

FRIM Site (peninsular)

Gridded sample size: 9

ALS aggregation method	Resolution	1000m			
	GEDI metric	50	75	90	95
mean	R²	0.83	0.81	0.8	0.79
	P	0	0	0	0
	RMSE	5.9	12.59	16.65	18.92
	rRMSE	0.27	0.58	0.76	0.87
	Delta mean	5.13	11.79	16.12	18.54
90percentile	R²	0.77	0.77	0.76	0.75
	P	0	0	0	0
	RMSE	12.54	6.55	6.07	6.67
	rRMSE	0.34	0.18	0.17	0.18
	Delta mean	10.99	5.23	4.36	5.06
95percentile	R²	0.74	0.73	0.73	0.72
	P	0	0	0	0
	RMSE	15.91	8.94	6.55	5.73
	rRMSE	0.4	0.22	0.16	0.14
	Delta mean	14.45	7.98	4.96	3.84
max	R²	0.3	0.26	0.28	0.26
	P	0	0	0	0
	RMSE	36.13	27.97	23.69	21.39
	rRMSE	0.59	0.46	0.39	0.35
	Delta mean	35.62	27.43	23.1	20.69

Negeri_sebilan site (peninsular)

Gridded sample size: 6

ALS aggregation method	Resolution	1000m				
	GEDI metric	50	75	90	95	100
mean	R²	0.58	0.35	0.44	0.22	0.12
	P	0	0	0	0	0
	RMSE	5.53	11.65	15.01	17.62	20.71
	rRMSE	0.25	0.52	0.68	0.79	0.93
	Delta mean	4.89	10.9	14.66	17.07	20.06
90percentile	R²	0.32	0.06	0.21	0	-0.09
	P	0	0	0	0.69	0
	RMSE	9.71	4.39	2.22	4.16	6.99
	rRMSE	0.27	0.12	0.06	0.11	0.19
	Delta mean	9.35	3.07	2.05	3.63	6.09
95percentile	R²	0.3	0.05	0.19	0.02	-0.07
	P	0	0	0	0.08	0
	RMSE	12.14	6.34	2.74	2.61	4.78
	rRMSE	0.31	0.16	0.07	0.07	0.12
	Delta mean	11.85	5.57	2.25	2.56	4.06
max	R²	0.1	0.14	0.34	0.45	0.48
	P	0	0	0	0	0
	RMSE	40.98	34.72	30.92	28.45	25.47
	rRMSE	0.61	0.51	0.46	0.42	0.38
	Delta mean	40.67	34.39	30.63	28.23	25.23

Danum site (Borneo)

Gridded sample size: 62

ALS aggregation method	Resolution	1000m				
	GEDI metric	50	75	90	95	100
mean	R²	0.64	0.58	0.49	0.47	0.48
	P	0	0	0	0	0
	RMSE	6.49	15.08	21.36	24.15	28.2
	rRMSE	0.18	0.43	0.61	0.69	0.8
	Delta mean	4.81	13.49	19.66	22.35	26.25
90percentile	R²	0.75	0.73	0.65	0.63	0.64
	P	0	0	0	0	0
	RMSE	18	8.83	9.34	11	13.85
	rRMSE	0.35	0.17	0.18	0.21	0.27
	Delta mean	17.13	6.84	6.45	8.07	11.4
95percentile	R²	0.76	0.74	0.66	0.64	0.65
	P	0	0	0	0	0
	RMSE	21.64	11.3	9.28	9.93	11.74
	rRMSE	0.39	0.2	0.17	0.18	0.21
	Delta mean	20.94	9.32	6.34	6.62	9.08
max	R²	0.43	0.36	0.22	0.2	0.22
	P	0	0	0	0	0
	RMSE	46.13	34.64	29.02	26.89	23.88
	rRMSE	0.58	0.43	0.36	0.34	0.3
	Delta mean	45.41	32.81	26.7	24.19	20.22

SAFE site part 1(Borneo)

Gridded sample size: 112

ALS aggregation method	Resolution	1000m				
	GEDI metric	50	75	90	95	100
mean	R²	0.83	0.85	0.85	0.84	0.82
	P	0	0	0	0	0
	RMSE	7.15	13.17	17.91	20.1	23.87
	rRMSE	0.4	0.74	1	1.12	1.34
	Delta mean	5.44	11.57	16.31	18.55	22.45
90percentile	R²	0.81	0.87	0.87	0.86	0.85
	P	0	0	0	0	0
	RMSE	11.42	6.96	7.96	9.36	12.58
	rRMSE	0.38	0.23	0.26	0.31	0.42
	Delta mean	9.49	5.5	6.12	7.58	10.74
95percentile	R²	0.79	0.85	0.86	0.85	0.84
	P	0	0	0	0	0
	RMSE	14.92	8.93	7.27	7.6	9.78
	rRMSE	0.44	0.26	0.21	0.22	0.29
	Delta mean	12.8	7.52	5.81	6.06	7.99
max	R²	0.6	0.67	0.68	0.69	0.67
	P	0	0	0	0	0
	RMSE	39.6	32.75	28.23	26.12	22.8
	rRMSE	0.66	0.55	0.47	0.44	0.38
	Delta mean	37.27	30.4	25.76	23.61	20.14

SAFE site part 2(Borneo)

Gridded sample size: 169

ALS aggregation method	Resolution	1000m				
	GEDI metric	50	75	90	95	100
mean	R²	0.73	0.45	0.27	0.25	0.25
	P	0	0	0	0	0
	RMSE	6.04	14.35	23.38	26.64	30.79
	rRMSE	0.34	0.81	1.32	1.5	1.73
	Delta mean	4.5	10.91	18.27	21.4	25.93
90percentile	R²	0.71	0.47	0.29	0.27	0.27
	P	0	0	0	0	0
	RMSE	10.13	10.13	17.02	19.71	23.04
	rRMSE	0.36	0.36	0.61	0.7	0.82
	Delta mean	8.87	7.1	10.23	12.16	16.01
95percentile	R²	0.69	0.48	0.3	0.29	0.29
	P	0	0	0	0	0
	RMSE	13.43	10.84	15.66	17.88	20.68
	rRMSE	0.42	0.34	0.49	0.56	0.65
	Delta mean	12.04	8.49	9.89	10.92	13.31
max	R²	0.43	0.25	0.08	0.07	0.09
	P	0	0	0	0.00E-02	0
	RMSE	46.83	40.18	35.63	33.74	30.67
	rRMSE	0.72	0.62	0.55	0.52	0.47
	Delta mean	44.78	37.38	32.45	30.74	27.68

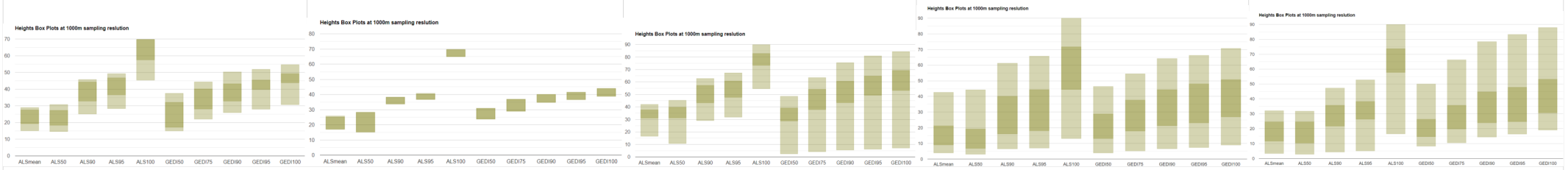


Figure S5-c. GEDI-ALS comparison at 1000m resolution with GEDI aggregated for 90th percentile.

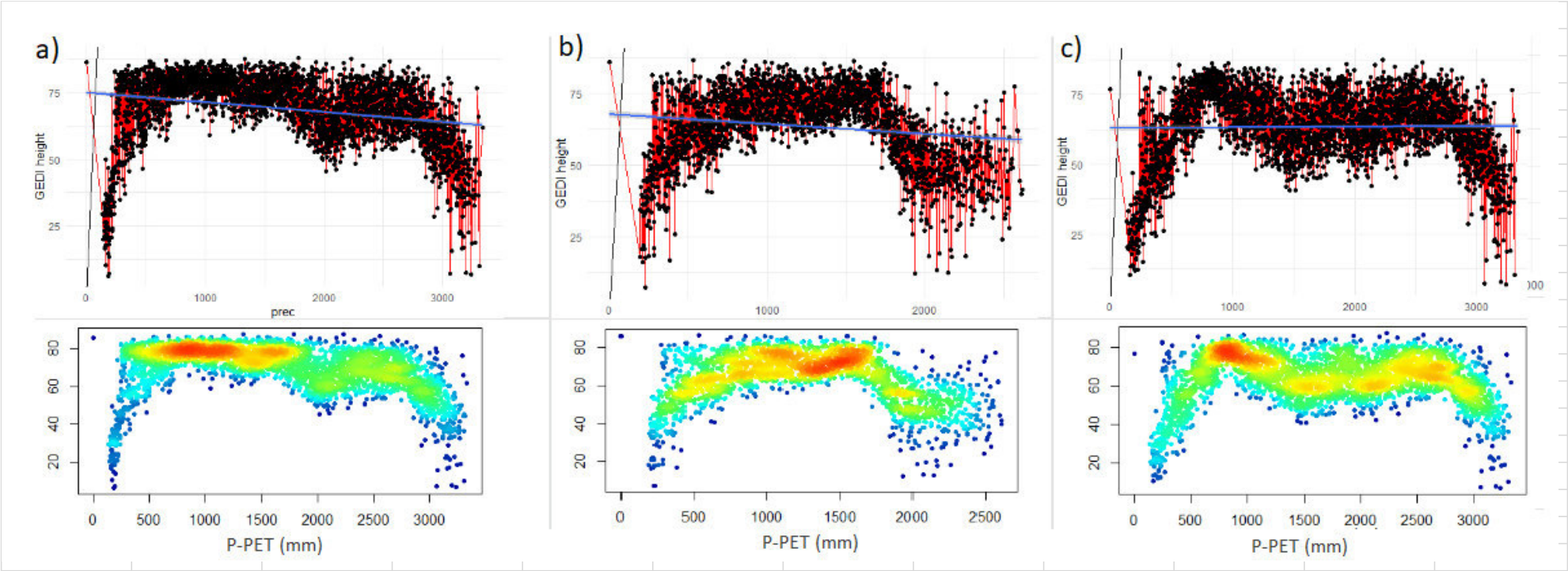


Figure S6. Maximum canopy height per P-PET gradients showing similar pattern for the peninsula part and Borneo part:
a) Entire Malaysia (GLM 1st order: R^2=0.06, GLM 4th order: R^2=0.54),
b) Peninsula part (GLM 1st order: R^2=0.02, GLM 4th order: R^2=0.5),
c) Borneo part (GLM 1st order: R^2=0, GLM 4th order R^2=0.47).

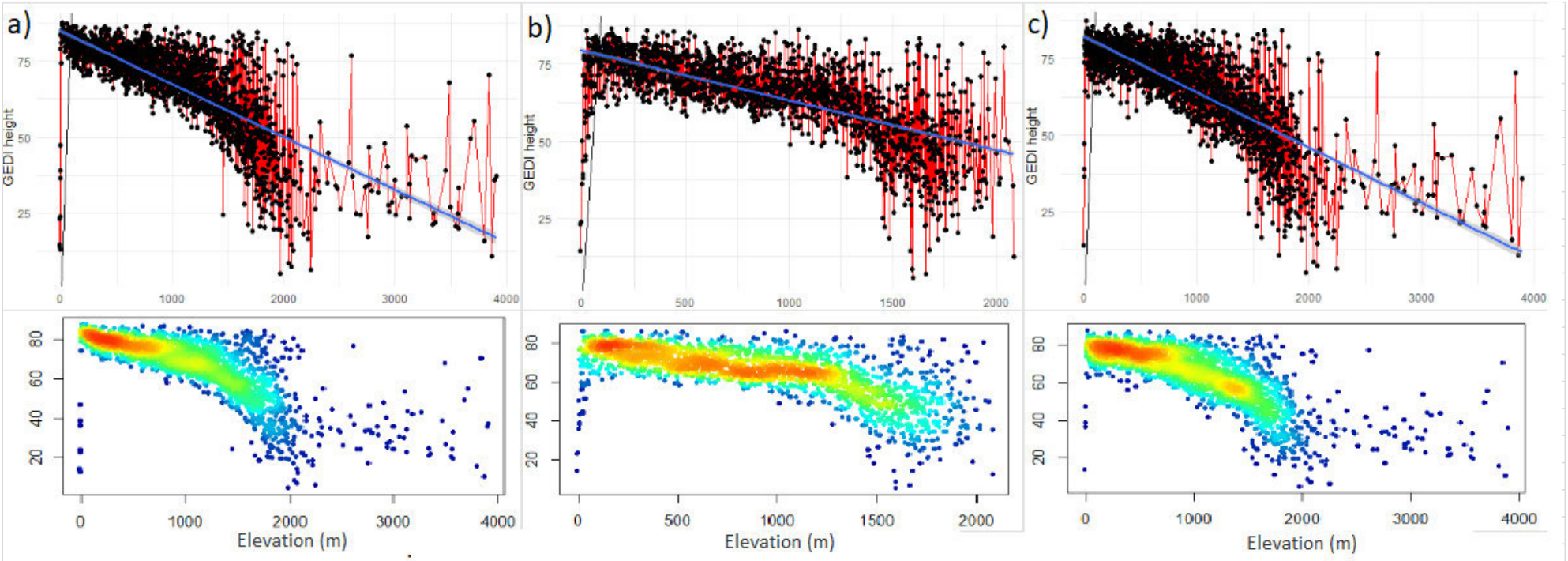


Figure S7. Maximum canopy height per elevation gradients showing similar pattern for the peninsula part and Borneo part:
a) Entire Malaysia (GLM 1st order: R^2=0.58, GLM 4th order: R^2=0.63),
b) Peninsula part (GLM 1st order: R^2=0.44, GLM 4th order: R^2=0.5),
c) Borneo part (GLM 1st order: R^2=0.59, GLM 4th order R^2=0.65).

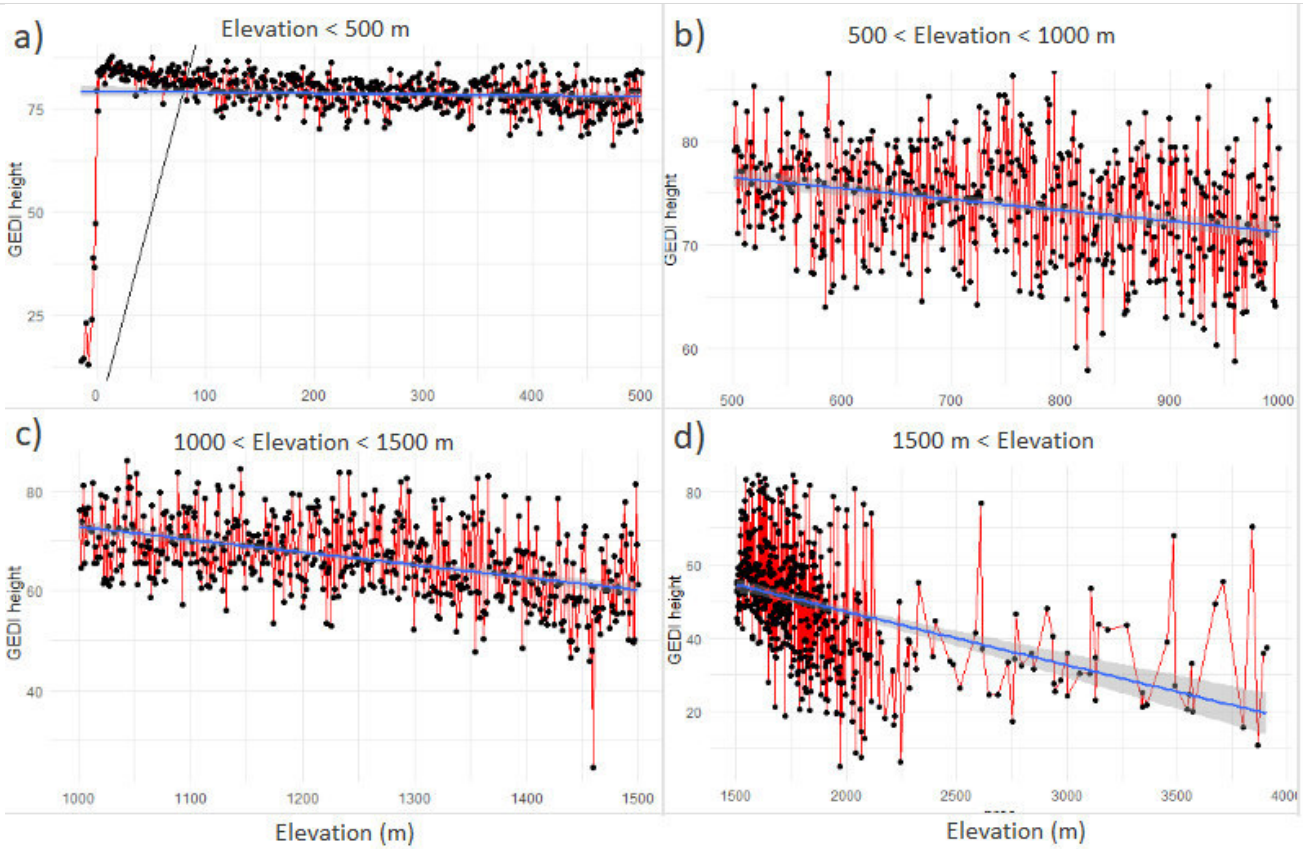


Figure S8. Maximum canopy height per elevation gradients across different elevation intervals (zones) showing negative realtionship for higher elevation zones after the breaking point.
a) Elevation < 500m (GLM 1st order: R^2=0.00, GLM 4th order: R^2=0.21),
b) 500 < Elevation < 1000 (GLM 1st order: R^2=0.08, GLM 4th order: R^2=0.09),
c) 1000 < Elevation < 1500 (GLM 1st order: R^2=0.2, GLM 4th order R^2=0.23),
d) 1500 < Elevation (GLM 1st order: R^2=0.17, GLM 4th order R^2=0.27).