

Global Ecosystem Dynamics Investigation (GEDI)

GEDI Level-4B Version 2.1

**Country estimates of mean aboveground biomass
density and total aboveground biomass stocks:
Changes from GEDI Level-4B Version 2**

1.0 Overview

Country-scale Global Ecosystem Dynamics Investigation (GEDI) estimates of land surface mean Aboveground Biomass Density (AGBD) and the associated Standard Errors were calculated for all countries contained within the GEDI orbital extent (51.6°N & °S) using the GEDI Level-4B (L4B) Version 2.1 product provided in this release. The methodology to estimate country mean, totals and associated uncertainty are presented in Dubayah et al. (2022a). In this product release, we compare the GEDI Version 2 estimates from Dubayah et al. (2022) with the revised estimates from GEDI L4B Version 2.1. National-scale NFI estimates of AGBD were taken from the 2020 Global Forest Resources Assessment (FRA) published by the Food and Agriculture Organization (FAO, 2020) of the United Nations, which have not changed from Dubayah et al., (2022a). FAO estimates are only for forested lands, whereas GEDI estimates are for all lands. To ensure a similar comparison to GEDI-based estimates we retrieved estimates of AGBD of forested land, the area of forested land, and total land area for every available country in the FRA online database. For consistency with previous country-estimates we applied that same quality filtering documented in Dubayah et al. (2022). Below, we summarized the statistics of GEDI L4B Version 2.1 product.

The estimated total land surface aboveground biomass using GEDI L4B Version 2 was 482.6 Pg and the number of valid L4A footprints passing the filters was 2.34×10^9 (Table 1). In Version 2.1, total biomass decreased 4% (464.7 Pg) and number of valid L4A footprints increased by +64% (Table 2). The overall decrease in the estimates between the set of country-estimates is explained by the new land-cover filters used to produce the new Version 2.1 GEDI L4B 1-km gridded biomass map. The latest L4B map uses a high-resolution world land cover map (ESA, 2021) to flag GEDI footprints in the following land-cover classes: 1) bare/sparse vegetation (value of 60 in the ESA 10-m V200 product) and 2) permanent snow and ice (value of 70). The ESA 10-m V200 accuracy for these two land-cover classes is above 90% (ESA, 2021). As a result, total and mean biomass stocks in countries with a substantial proportion of bare-earth terrain and/or land ice have their estimates below previous estimated using GEDI L4B Version 2. For instance, the list of countries presented in Figure 1 represent 50% of the total biomass decrease (Pg) between country estimates using the two L4B product versions.

Overall there is a strong consistency in country-estimates between product versions (Fig. 3) and compared to FAO reference values (Fig. 4). The agreement between GEDI country-level biomass estimates reached R-squared values of 0.99 and 0.95 for total and mean biomass, respectively. Compared to FAO, the agreement was similar both totals and mean estimates. Enhanced quality filtering and more GEDI mission data available explained the small variation across countries. Biomass gains are more visible over the small territories and archipelagos where high-quality GEDI tracks can be observed in Version 2.1 compared to the lack of coverage in Version 2 (Fig. 2).

2.0 References

Dubayah, R., Armston, J., Healey, S. P., Bruening, J. M., Patterson, P. L., Kellner, J. R., Duncanson, L., Saarela, S., Ståhl, G., Yang, Z., Tang, H., Blair, J. B., Fatoyinbo, L., Goetz, S., Hancock, S., Hansen, M., Hofton, M., Hurtt, G., & Luthcke, S. (2022). GEDI launches a new era of biomass inference from space. *Environmental Research Letters*, 17(9), 095001. <https://doi.org/10.1088/1748-9326/ac8694>

Dubayah, R.O., J. Armston, S.P. Healey, Z. Yang, P.L. Patterson, S. Saarela, G. Stahl, L. Duncanson, and J.R. Kellner. 2022. GEDI L4B Gridded Aboveground Biomass Density, Version 2. ORNL DAAC, Oak Ridge, Tennessee, USA. <https://doi.org/10.3334/ORNLDAAAC/2017>

ESA WorldCover Validation report accessible: <https://worldcover2021.esa.int/download>

FAO 2020 Global forest resources assessment Main Report (Rome: FAO) (available at: www.fao.org/documents/card/en/c/ca9825en)

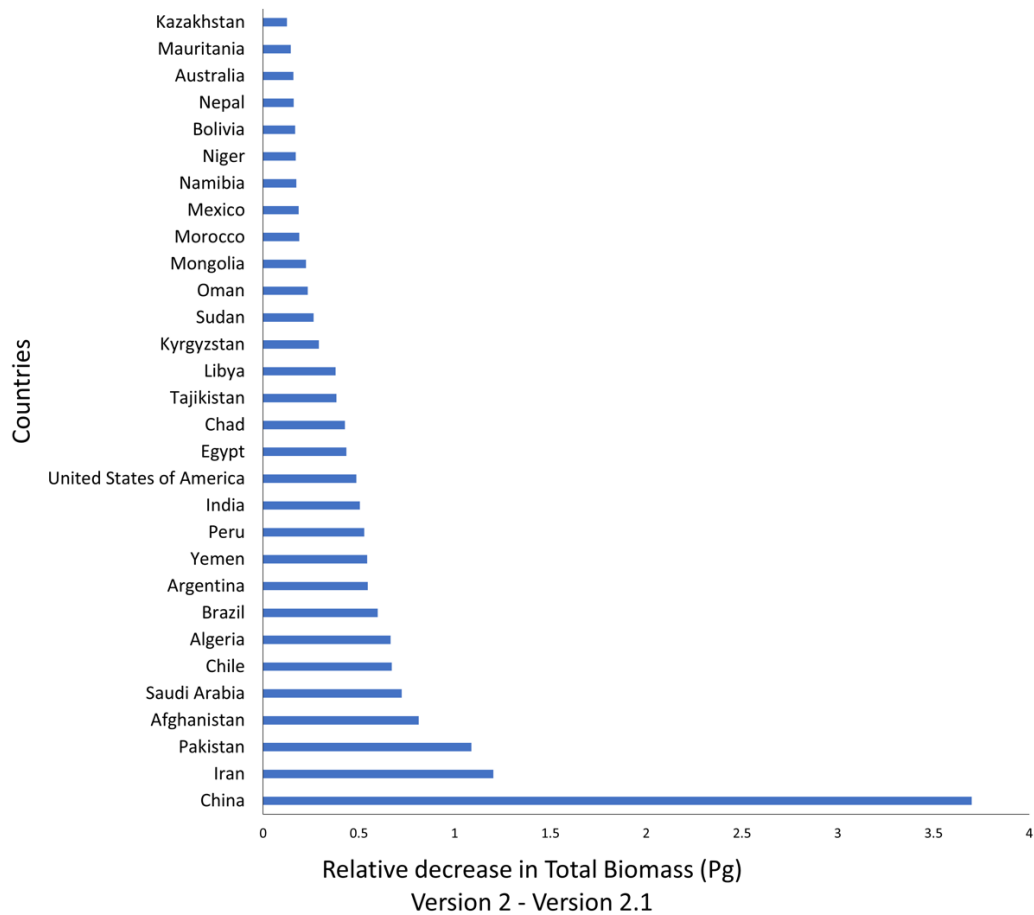


Figure 1. The largest reductions in total aboveground biomass (Pg) when comparing GEDI L4 Version 2 and the latest GEDI L4B Version 2.1 country estimates.

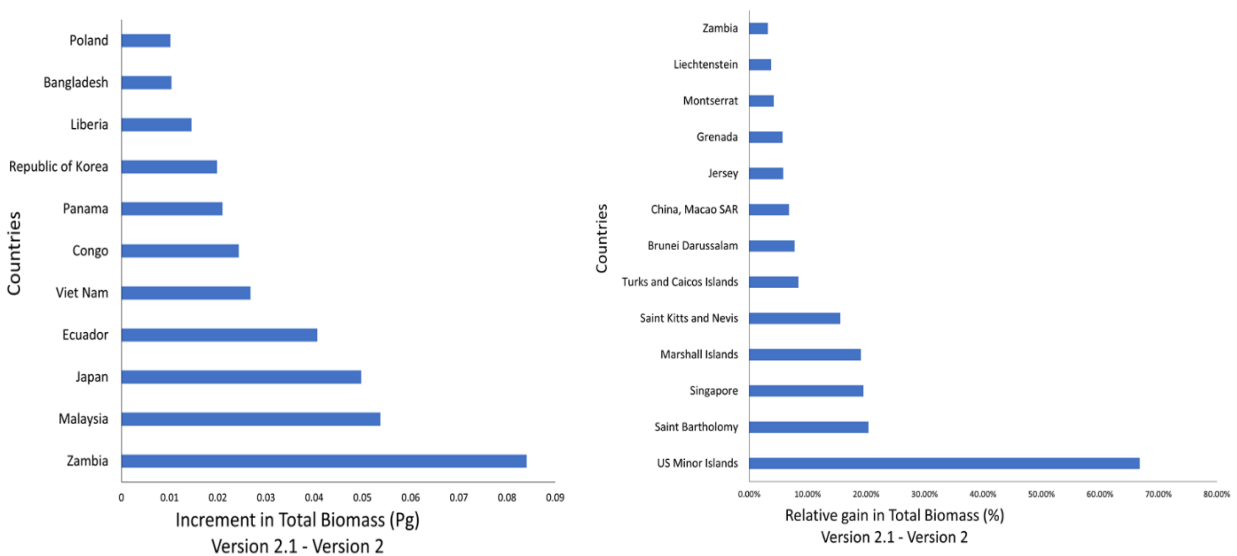


Figure 2. The largest increments in total aboveground biomass (Pg) and mean aboveground biomass ($Mg\ ha^{-1}$) when comparing GEDI L4 Version 2 and the latest GEDI L4B Version 2.1 country-estimates.

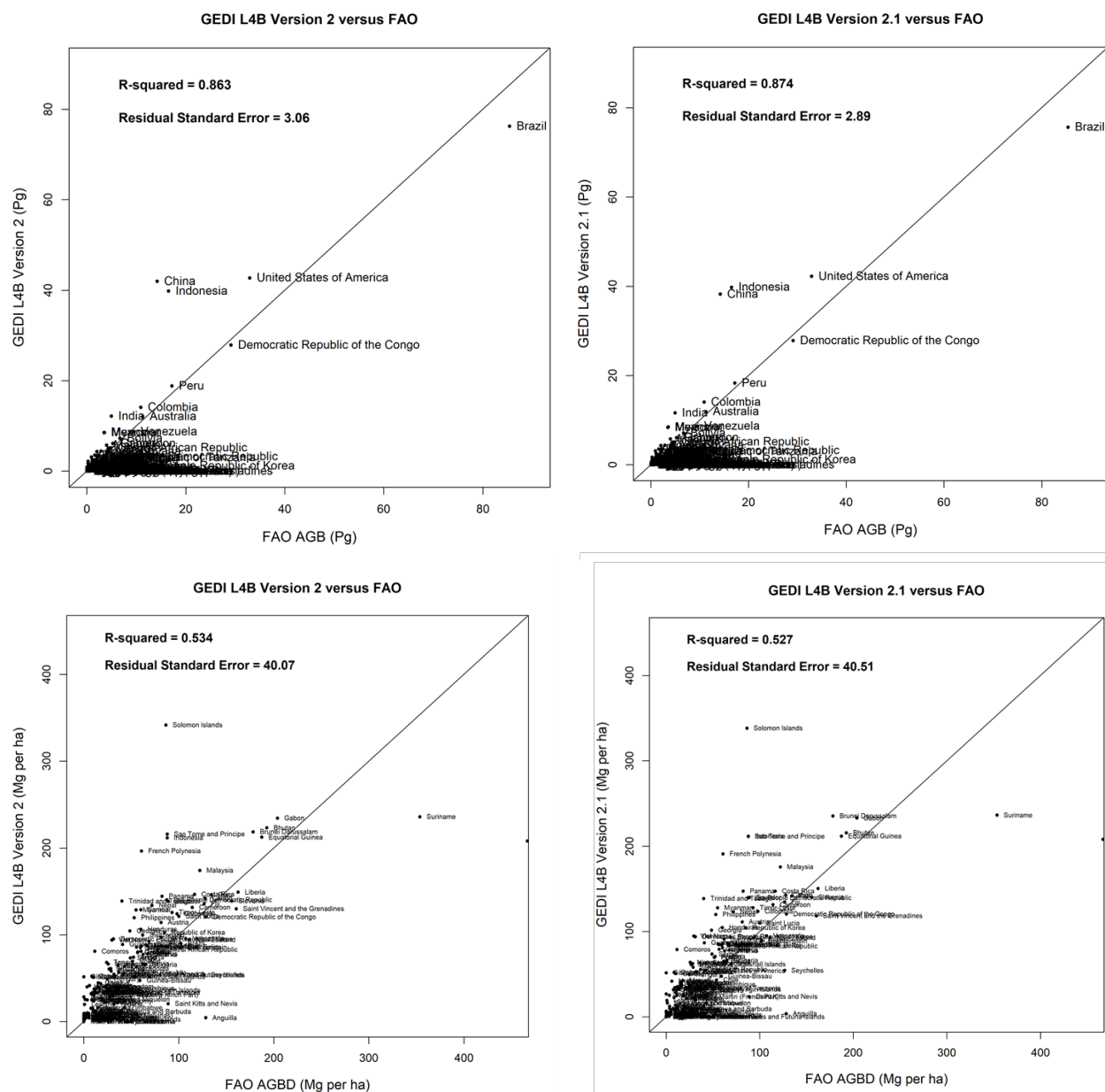


Figure 3. Comparison of country aboveground biomass estimates from GEDI L4B Version 2 and GEDI L4B Version 2.1 against FAO reference values for total biomass (Pg) and mean aboveground biomass.

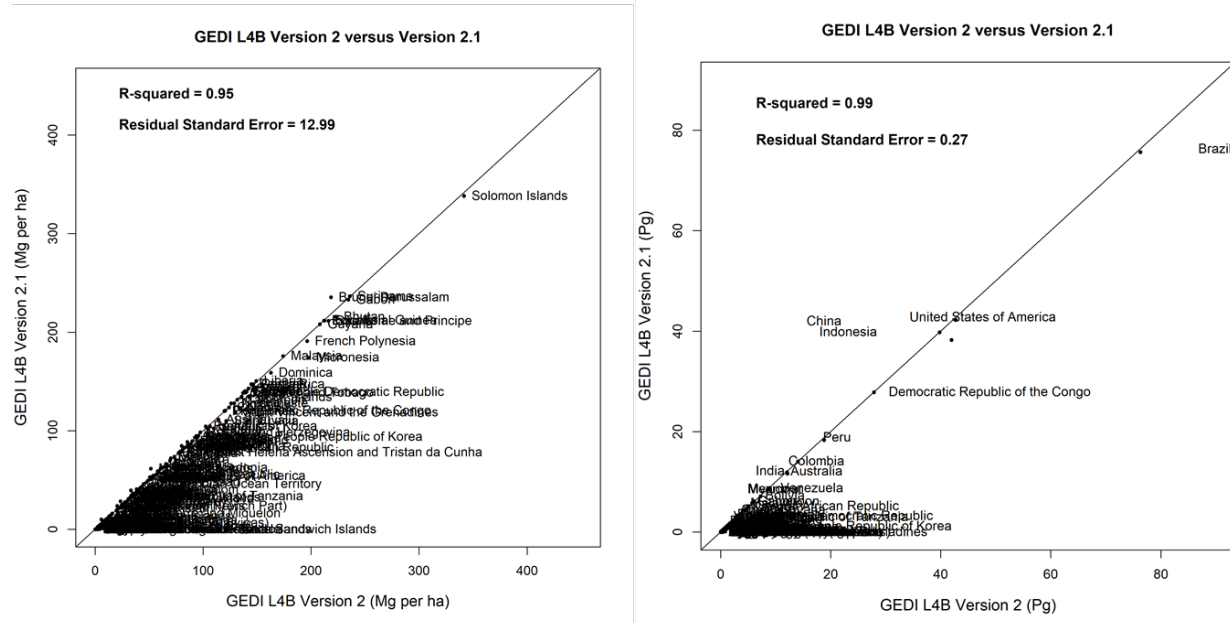


Figure 4. Comparison of country aboveground biomass estimates from GEDI L4B Version 2 and GEDI L4B Version 2.1 in terms of total aboveground biomass (Pg) and mean aboveground biomass density (Mg ha^{-1}).

Table 1. Country-level biomass estimates (Source: GEDI Level-4B Version 2). GEDI and FAO estimates of total aboveground biomass (AGB), mean aboveground biomass density (AGBD) and standard errors (SE) of the mean.

Country	ISO3	Percent Forest [%]	FAO Forested AGBD [Mg ha ⁻¹]	FAO Total AGBD [Mg ha ⁻¹]	GEDI L4B-2 Total AGBD [Mg ha ⁻¹]	GEDI L4B-2 AGBD SE [Mg ha ⁻¹]	GEDI L4B-2 AGBD SE [%]	FAO AGB [Pg]	GEDI L4B-2 AGB [Pg]	GEDI L4B-2 AGB SE [Pg]
Aruba	ABW	2.3	NA	NA	2.1	0.5	23.6	NA	3.6E-05	8.4E-06
Afghanistan	AFG	1.9	NA	NA	24.7	1.3	5.4	NA	1.6E+00	8.5E-02
Angola	AGO	53.4	30.3	16.2	34.6	0.6	1.9	2.0E+00	4.3E+00	8.0E-02
Anguilla	AIA	61.1	210.0	128.3	4.4	1.0	22.5	1.2E-03	3.5E-05	8.0E-06
Albania	ALB	28.8	NA	NA	56.9	1.4	2.5	NA	1.6E-01	4.0E-03
Andorra	AND	34.0	154.0	52.4	74.3	4.7	6.3	2.5E-03	3.4E-03	2.1E-04
United Arab Emirates	ARE	4.5	74.4	3.3	5.0	0.6	12.9	2.4E-02	3.5E-02	4.6E-03
Argentina	ARG	10.4	185.7	19.4	10.0	0.5	4.8	5.3E+00	2.8E+00	1.3E-01
Armenia	ARM	11.5	NA	NA	29.3	1.2	4.1	NA	8.7E-02	3.6E-03
Antigua and Barbuda	ATG	18.5	210.0	38.8	11.3	1.5	13.4	1.7E-03	5.1E-04	6.8E-05
Australia	AUS	17.4	84.0	14.6	15.7	0.8	5.0	1.1E+01	1.2E+01	6.1E-01
Austria	AUT	47.3	172.3	81.4	114.2	2.2	1.9	6.7E-01	9.6E-01	1.8E-02
Azerbaijan	AZE	13.7	NA	NA	29.5	1.0	3.3	NA	2.5E-01	8.4E-03
Burundi	BDI	10.9	119.4	13.0	37.6	1.0	2.6	3.3E-02	9.4E-02	2.4E-03
Belgium	BEL	22.8	NA	NA	57.9	1.4	2.5	NA	1.8E-01	4.4E-03
Benin	BEN	27.8	103.6	28.8	24.6	0.9	3.8	3.3E-01	2.9E-01	1.1E-02
Burkina Faso	BFA	22.7	47.8	10.9	10.7	0.9	8.3	3.0E-01	2.9E-01	2.4E-02
Bangladesh	BGD	14.5	62.8	9.1	33.4	0.9	2.8	1.2E-01	4.6E-01	1.3E-02
Bulgaria	BGR	35.9	180.5	64.7	65.4	1.4	2.2	7.0E-01	7.4E-01	1.6E-02
Bahrain	BHR	0.9	NA	NA	3.0	0.5	16.2	NA	1.7E-04	2.8E-05
Bahamas	BHS	50.9	39.8	20.3	4.1	0.3	8.4	2.0E-02	5.2E-03	4.3E-04
Bosnia and Herzegovina	BIH	42.7	NA	NA	97.4	1.8	1.9	NA	5.0E-01	9.5E-03
Saint Bartholomy	BLM	8.5	124.5	10.6	23.6	3.8	16.0	2.1E-05	5.8E-05	9.2E-06
Belarus	BLR	43.2	156.1	67.4	78.1	0.4	0.5	1.4E+00	1.6E+00	8.7E-03
Belize	BLZ	56.0	211.0	118.1	85.8	1.5	1.7	2.7E-01	1.9E-01	3.3E-03
Bermuda	BMU	20.0	NA	NA	20.3	1.5	7.2	NA	1.3E-04	9.1E-06
Bolivia	BOL	46.9	131.3	61.6	66.8	0.9	1.4	6.7E+00	7.3E+00	1.0E-01
Brazil	BRA	59.4	171.9	102.2	90.0	1.3	1.4	8.5E+01	7.6E+01	1.1E+00
Barbados	BRB	14.7	NA	NA	14.0	1.1	8.2	NA	6.2E-04	5.1E-05
Brunei Darussalam	BRN	72.1	247.0	178.1	218.5	6.6	3.0	9.4E-02	1.2E-01	3.8E-03
Bhutan	BTN	71.5	269.3	192.5	223.2	3.5	1.6	7.3E-01	9.0E-01	1.4E-02
Botswana	BWA	26.9	155.3	41.8	4.3	0.7	16.0	2.4E+00	2.5E-01	4.0E-02
Central African Republic	CAF	35.8	217.1	77.7	83.0	1.1	1.3	4.8E+00	5.1E+00	6.6E-02
Switzerland	CHE	32.1	193.1	62.0	99.8	2.4	2.5	2.5E-01	4.1E-01	1.0E-02
Chile	CHL	24.5	219.3	53.7	52.3	1.0	1.9	4.0E+00	3.9E+00	7.3E-02
China	CHN	23.3	64.7	15.1	44.7	0.7	1.6	1.4E+01	4.2E+01	6.8E-01

Cote d Ivoire	CIV	8.9	94.5	8.4	52.1	0.9	1.7	2.7E-01	1.7E+00	2.8E-02
Cameroon	CMR	43.0	265.1	114.1	131.6	2.1	1.6	5.4E+00	6.1E+00	9.5E-02
Democratic Republic of the Congo	COD	55.6	231.0	128.5	120.6	1.6	1.3	2.9E+01	2.8E+01	3.6E-01
Congo	COG	64.3	198.8	127.8	142.1	2.2	1.5	4.4E+00	4.9E+00	7.5E-02
Cook Islands	COK	65.0	NA	NA	142.8	13.6	9.5	NA	2.7E-03	2.6E-04
Colombia	COL	53.3	184.1	98.2	124.1	1.8	1.5	1.1E+01	1.4E+01	2.1E-01
Comoros	COM	17.7	66.0	11.7	80.9	2.2	2.7	2.2E-03	1.4E-02	3.7E-04
Cabo Verde	CPV	11.3	95.0	10.8	37.2	2.4	6.5	4.3E-03	1.4E-02	9.4E-04
Costa Rica	CRI	59.4	196.0	116.5	146.5	2.8	1.9	6.0E-01	7.5E-01	1.4E-02
Cuba	CUB	31.2	113.6	35.4	22.0	0.4	1.6	3.7E-01	2.4E-01	3.9E-03
Curacao	CUW	0.2	79.0	0.1	5.1	0.6	12.8	5.5E-06	2.4E-04	3.0E-05
Cayman Islands	CYM	53.0	NA	NA	5.4	0.9	17.1	NA	1.7E-04	2.9E-05
Cyprus	CYP	18.7	41.9	7.8	32.1	1.1	3.5	7.2E-03	1.7E-02	6.2E-04
Czechia	CZE	34.7	163.2	56.6	79.5	1.6	2.0	4.4E-01	6.3E-01	1.2E-02
Germany	DEU	32.7	185.1	60.6	86.7	0.9	1.1	2.1E+00	3.1E+00	3.4E-02
Djibouti	DJI	0.3	86.5	0.2	9.4	0.8	8.9	5.0E-04	2.0E-02	1.8E-03
Dominica	DMA	63.8	NA	NA	162.9	7.5	4.6	NA	1.2E-02	5.5E-04
Dominican Republic	DOM	44.4	82.7	36.7	56.5	1.0	1.7	1.8E-01	2.7E-01	4.8E-03
Algeria	DZA	0.8	29.4	0.2	3.9	0.5	14.2	5.7E-02	8.9E-01	1.3E-01
Ecuador	ECU	50.3	177.0	89.1	138.3	2.4	1.8	2.2E+00	3.5E+00	6.2E-02
Egypt	EGY	0.0	120.0	0.1	4.7	0.5	11.4	5.4E-03	4.7E-01	5.3E-02
Eritrea	ERI	10.4	72.5	7.6	15.3	1.0	6.7	7.7E-02	1.9E-01	1.2E-02
Spain	ESP	37.2	55.9	20.8	33.4	0.9	2.8	1.0E+00	1.7E+00	4.7E-02
Ethiopia	ETH	15.2	121.3	18.5	27.1	0.8	2.9	2.1E+00	3.0E+00	8.9E-02
Fiji	FJI	62.4	202.8	126.5	135.8	8.1	6.0	2.3E-01	2.6E-01	1.5E-02
Falkland Islands (Malvinas)	FLK	0.0	0.0	0.0	6.9	0.5	7.4	0.0E+00	8.0E-03	5.9E-04
France	FRA	31.5	135.5	42.7	63.6	1.3	2.1	2.3E+00	3.5E+00	7.2E-02
Micronesia	FSM	92.0	NA	NA	197.6	16.6	8.4	NA	1.3E-02	1.1E-03
Gabon	GAB	91.3	223.3	203.9	234.4	3.9	1.7	5.3E+00	6.1E+00	1.0E-01
United Kingdom	GBR	13.2	115.0	15.2	40.2	0.4	1.0	3.7E-01	9.8E-01	9.8E-03
Georgia	GEO	40.6	119.3	48.5	104.4	1.7	1.7	3.4E-01	7.3E-01	1.2E-02
Guernsey	GGY	5.3	NA	NA	38.2	6.9	18.0	NA	2.8E-04	5.1E-05
Ghana	GHA	35.1	96.6	33.9	37.6	0.8	2.1	7.7E-01	9.0E-01	1.9E-02
Gibraltar	GIB	0.0	0.0	0.0	51.6	9.9	19.3	0.0E+00	1.9E-05	3.7E-06
Guinea	GIN	25.2	131.2	33.0	52.4	0.8	1.6	8.1E-01	1.3E+00	2.1E-02
Gambia	GMB	24.0	41.8	10.0	13.5	1.1	8.4	1.0E-02	1.4E-02	1.2E-03
Guinea-Bissau	GNB	70.4	84.0	59.1	47.5	1.0	2.1	1.7E-01	1.6E-01	3.3E-03
Equatorial Guinea	GNQ	87.3	214.5	187.2	212.4	3.9	1.8	5.3E-01	5.7E-01	1.0E-02
Greece	GRC	30.3	34.2	10.4	51.4	1.3	2.5	1.3E-01	6.7E-01	1.7E-02
Grenada	GRD	52.1	109.4	57.0	80.2	3.8	4.8	1.9E-03	2.8E-03	1.3E-04
Guatemala	GTM	32.9	124.1	40.8	88.9	1.6	1.8	4.4E-01	9.7E-01	1.8E-02
Guyana	GUY	93.6	499.0	466.8	208.0	3.2	1.5	9.2E+00	4.4E+00	6.8E-02

Hong Kong SAR	HKG	NA	NA	NA	54.3	3.0	5.4	NA	5.6E-03	3.1E-04
Honduras	HND	56.8	105.7	60.1	106.3	1.9	1.8	6.7E-01	1.2E+00	2.1E-02
Croatia	HRV	34.7	174.0	60.3	81.0	1.7	2.1	3.4E-01	4.5E-01	9.4E-03
Haiti	HTI	12.6	94.5	11.9	35.2	0.7	2.0	3.3E-02	9.5E-02	1.9E-03
Hungary	HUN	22.7	109.5	24.8	49.0	1.8	3.7	2.3E-01	4.6E-01	1.7E-02
Indonesia	IDN	49.1	179.0	87.8	211.8	7.3	3.4	1.7E+01	4.0E+01	1.4E+00
India	IND	24.3	68.7	16.7	38.5	0.6	1.6	5.0E+00	1.2E+01	1.9E-01
British Indian Ocean Territory	IOT	NA	NA	NA	44.9	10.5	23.4	NA	2.2E-04	5.1E-05
Ireland	IRL	11.4	111.6	12.7	33.5	0.8	2.4	8.7E-02	2.3E-01	5.5E-03
Iran	IRN	6.6	137.7	9.1	15.2	0.8	5.3	1.5E+00	2.5E+00	1.3E-01
Iraq	IRQ	1.9	51.1	1.0	3.7	0.5	14.0	4.2E-02	1.6E-01	2.3E-02
Israel	ISR	6.5	NA	NA	11.9	0.9	7.6	NA	2.6E-02	2.0E-03
Italy	ITA	32.5	110.6	36.0	64.8	1.2	1.9	1.1E+00	2.0E+00	3.8E-02
Jamaica	JAM	55.1	158.5	87.4	86.1	1.5	1.8	9.5E-02	9.5E-02	1.7E-03
Jersey	JEY	5.0	NA	NA	38.5	2.2	5.7	NA	4.6E-04	2.6E-05
Jordan	JOR	1.1	56.9	0.6	6.2	0.6	10.1	5.6E-03	5.5E-02	5.6E-03
Japan	JPN	68.4	NA	NA	137.0	1.2	0.8	NA	5.1E+00	4.3E-02
Kazakhstan	KAZ	1.3	82.5	1.1	4.5	0.4	10.0	2.9E-01	1.2E+00	1.2E-01
Kenya	KEN	6.3	200.4	12.7	12.3	0.7	5.5	7.2E-01	7.2E-01	3.9E-02
Kyrgyzstan	KGZ	6.9	49.7	3.4	40.0	2.3	5.8	6.5E-02	8.0E-01	4.6E-02
Cambodia	KHM	45.7	69.3	31.7	54.4	1.0	1.8	5.6E-01	9.8E-01	1.8E-02
Kiribati	KIR	1.5	NA	NA	20.6	2.9	14.2	NA	2.0E-03	2.8E-04
Saint Kitts and Nevis	KNA	42.3	210.0	88.8	20.5	2.8	13.9	2.3E-03	5.4E-04	7.5E-05
Republic of Korea	KOR	64.5	131.7	85.0	102.5	1.7	1.7	8.3E-01	1.0E+00	1.7E-02
Kuwait	KWT	0.4	NA	NA	1.7	0.6	35.1	NA	3.0E-03	1.1E-03
Lao People Democratic Republic	LAO	71.9	121.5	87.4	140.3	3.0	2.1	2.0E+00	3.2E+00	6.8E-02
Lebanon	LBN	14.0	61.3	8.6	25.1	1.5	6.0	8.8E-03	2.5E-02	1.5E-03
Liberia	LBR	79.1	205.4	162.4	149.0	2.4	1.6	1.6E+00	1.4E+00	2.2E-02
Libya	LBY	0.1	49.3	0.1	2.5	0.5	21.0	1.1E-02	4.0E-01	8.4E-02
Saint Lucia	LCA	34.0	294.0	100.1	121.2	6.5	5.4	6.1E-03	7.3E-03	3.9E-04
Liechtenstein	LIE	41.9	242.4	101.5	85.5	11.5	13.4	1.6E-03	1.2E-03	1.6E-04
Sri Lanka	LKA	33.7	79.2	26.7	60.5	1.1	1.9	1.7E-01	4.0E-01	7.4E-03
Lesotho	LSO	1.1	73.7	0.8	19.7	1.3	6.7	2.6E-03	5.9E-02	4.0E-03
Luxembourg	LUX	36.5	180.7	66.0	88.1	2.4	2.7	1.6E-02	2.3E-02	6.2E-04
China, Macao SAR	MAC	NA	NA	NA	7.1	3.8	53.6	NA	2.1E-05	1.1E-05
Saint-Martin (French Part)	MAF	24.8	124.5	30.9	30.8	4.5	14.5	1.5E-04	2.1E-04	3.0E-05
Morocco	MAR	12.9	39.9	5.1	8.8	0.6	7.1	2.3E-01	5.2E-01	3.7E-02
Monaco	MCO	NA	0.0	NA	70.1	8.0	11.5	NA	1.3E-04	1.5E-05
Republic of Moldova	MDA	11.8	93.4	11.0	30.8	2.0	6.6	3.6E-02	1.0E-01	6.7E-03
Madagascar	MDG	21.4	163.2	34.9	34.0	0.7	2.2	2.0E+00	2.0E+00	4.4E-02
Maldives	MDV	2.7	135.0	3.7	10.0	6.6	66.1	1.1E-04	1.1E-04	7.2E-05
Mexico	MEX	33.8	52.4	17.7	43.6	0.6	1.3	3.5E+00	8.5E+00	1.1E-01

Marshall Islands	MHL	52.2	132.1	69.0	51.7	9.9	19.2	1.2E-03	8.5E-04	1.6E-04
North Macedonia	MKD	39.7	71.6	28.4	61.0	1.5	2.4	7.2E-02	1.5E-01	3.7E-03
Mali	MLI	10.9	46.4	5.1	4.9	0.6	12.3	6.2E-01	6.1E-01	7.5E-02
Malta	MLT	1.4	NA	NA	26.9	2.8	10.4	NA	8.8E-04	9.1E-05
Myanmar	MMR	43.7	125.5	54.9	128.7	2.2	1.7	3.6E+00	8.5E+00	1.5E-01
Montenegro	MNE	61.5	96.9	59.6	85.3	2.3	2.6	8.0E-02	1.2E-01	3.1E-03
Mongolia	MNG	9.1	54.9	5.0	9.4	0.6	6.5	7.8E-01	1.5E+00	9.5E-02
Mozambique	MOZ	46.7	101.4	47.4	38.2	0.8	2.2	3.7E+00	3.0E+00	6.6E-02
Mauritania	MRT	0.3	53.1	0.2	1.7	0.5	30.0	1.7E-02	1.8E-01	5.4E-02
Montserrat	MSR	25.0	NA	NA	50.8	9.0	17.8	NA	5.1E-04	9.0E-05
Mauritius	MUS	19.1	124.2	23.7	34.4	1.2	3.4	4.8E-03	6.9E-03	2.3E-04
Malawi	MWI	23.8	78.7	18.7	24.6	0.7	2.8	1.8E-01	2.4E-01	6.8E-03
Malaysia	MYS	58.2	209.9	122.1	174.1	3.4	1.9	4.0E+00	5.7E+00	1.1E-01
Namibia	NAM	8.1	67.4	5.4	6.4	0.7	10.5	4.5E-01	5.3E-01	5.5E-02
New Caledonia	NCL	45.8	146.0	66.9	87.0	6.0	6.9	1.2E-01	1.6E-01	1.1E-02
Niger	NER	0.9	38.2	0.3	2.2	0.5	24.9	4.1E-02	2.5E-01	6.4E-02
Norfolk Island	NFK	12.3	NA	NA	97.8	15.8	16.2	NA	4.0E-04	6.5E-05
Nigeria	NGA	23.7	134.8	32.0	20.4	0.5	2.6	2.9E+00	1.8E+00	4.9E-02
Nicaragua	NIC	28.3	91.0	25.8	66.3	1.2	1.8	3.1E-01	8.5E-01	1.6E-02
Niue	NIU	72.6	112.1	81.3	97.2	12.2	12.5	2.1E-03	2.1E-03	2.7E-04
Netherlands	NLD	11.0	55.1	6.0	41.5	0.8	1.8	2.0E-02	1.6E-01	2.8E-03
Nepal	NPL	41.6	172.2	71.6	134.0	2.5	1.9	1.0E+00	2.0E+00	3.7E-02
Nauru	NRU	0.0	0.0	0.0	28.3	6.0	21.2	0.0E+00	8.1E-05	1.7E-05
New Zealand	NZL	37.6	294.7	110.7	94.3	4.4	4.7	2.9E+00	2.5E+00	1.2E-01
Oman	OMN	0.0	107.7	0.0	8.3	0.6	7.1	2.7E-04	2.6E-01	1.8E-02
Pakistan	PAK	4.8	75.3	3.6	24.9	1.2	4.8	2.8E-01	2.2E+00	1.0E-01
Panama	PAN	56.7	145.1	82.2	144.5	3.2	2.2	6.1E-01	1.1E+00	2.4E-02
Pitcairn Islands	PCN	70.0	NA	NA	37.3	3.8	10.1	NA	1.6E-04	1.6E-05
Peru	PER	56.5	237.8	134.4	145.9	2.3	1.6	1.7E+01	1.9E+01	3.0E-01
Philippines	PHL	24.1	219.8	53.0	119.7	2.2	1.8	1.6E+00	3.5E+00	6.4E-02
Palau	PLW	90.0	NA	NA	109.8	12.1	11.0	NA	5.4E-03	6.0E-04
Papua New Guinea	PNG	79.2	176.0	139.4	321.084	19.3	6.0	6.3E+00	1.5E+01	9.0E-01
Poland	POL	31.0	166.0	51.4	69.4	0.8	1.1	1.6E+00	2.2E+00	2.4E-02
Democratic People's Republic of Korea	PRK	50.1	62.3	31.2	95.1	1.7	1.8	3.8E-01	1.2E+00	2.1E-02
Paraguay	PRY	40.5	69.9	28.3	7.7	0.2	2.4	1.1E+00	3.1E-01	7.5E-03
French Polynesia	PYF	40.8	148.9	60.8	196.4	16.2	8.2	2.2E-02	6.6E-02	5.4E-03
Qatar	QAT	0.0	0.0	0.0	2.0	0.5	24.5	0.0E+00	2.3E-03	5.5E-04
Romania	ROU	30.1	207.5	62.5	77.2	1.4	1.8	1.4E+00	1.8E+00	3.3E-02
Rwanda	RWA	11.2	146.1	16.3	38.4	1.3	3.4	4.0E-02	9.7E-02	3.3E-03
Saudi Arabia	SAU	0.5	26.6	0.1	4.4	0.5	12.4	2.6E-02	8.4E-01	1.0E-01
Sudan	SDN	9.8	56.0	5.5	4.3	0.6	13.3	1.0E+00	7.9E-01	1.1E-01
South Sudan	SDS	11.3	NA	NA	25.6	0.7	2.7	NA	1.6E+00	4.3E-02
Senegal	SEN	41.9	44.3	18.5	13.2	0.8	6.3	3.6E-01	2.6E-01	1.6E-02

Singapore	SGP	21.9	135.7	29.8	33.1	2.6	7.8	2.1E-03	1.7E-03	1.3E-04
Saint Helena Ascension and Tristan da Cunha	SHN	5.1	NA	NA	103.6	21.7	20.9	NA	3.8E-03	8.0E-04
Solomon Islands	SLB	90.1	95.8	86.3	341.6	24.9	7.3	2.4E-01	9.3E-01	6.8E-02
Sierra Leone	SLE	35.1	82.0	28.8	58.2	1.1	1.8	2.1E-01	4.2E-01	7.7E-03
El Salvador	SLV	28.2	113.6	32.0	52.1	1.0	1.9	6.6E-02	1.1E-01	2.1E-03
San Marino	SMR	16.7	91.0	15.2	39.4	6.9	17.6	9.1E-05	2.4E-04	4.2E-05
Somalia	SOM	9.5	102.5	9.8	4.2	0.6	15.2	6.1E-01	2.0E-01	3.0E-02
Saint Pierre and Miquelon	SPM	5.3	26.3	1.4	25.6	5.2	20.5	3.2E-05	6.2E-04	1.3E-04
Serbia	SRB	31.1	157.0	48.9	73.4	1.9	2.6	4.3E-01	5.7E-01	1.5E-02
Sao Tome and Principe	STP	54.1	162.5	87.9	216.0	6.2	2.9	8.4E-03	2.2E-02	6.4E-04
Suriname	SUR	97.4	362.9	353.5	236.0	4.2	1.8	5.5E+00	3.4E+00	6.1E-02
Slovakia	SVK	40.1	171.1	68.5	92.4	1.7	1.8	3.3E-01	4.5E-01	8.2E-03
Slovenia	SVN	61.5	253.1	155.6	139.0	2.5	1.8	3.1E-01	2.8E-01	5.0E-03
Eswatini	SWZ	28.9	76.1	22.0	22.2	1.0	4.7	3.8E-02	3.8E-02	1.8E-03
Sint Maarten (Dutch Part)	SXM	10.9	NA	NA	3.0	80.0	2686.4	NA	7.0E-06	1.9E-04
Seychelles	SYC	73.3	172.8	126.6	53.7	3.4	6.3	5.8E-03	2.3E-03	1.5E-04
Syrian Arab Republic	SYR	2.8	50.0	1.4	3.3	0.5	16.1	2.6E-02	6.2E-02	1.0E-02
Turks and Caicos Islands	TCA	11.1	132.3	14.6	2.3	0.7	29.9	1.4E-03	1.0E-04	3.1E-05
Chad	TCD	3.4	91.2	3.1	8.7	0.6	7.1	3.9E-01	1.1E+00	7.8E-02
Togo	TGO	22.2	121.0	26.9	27.5	0.7	2.6	1.5E-01	1.6E-01	4.1E-03
Thailand	THA	38.9	142.5	55.4	85.7	1.5	1.7	2.8E+00	4.4E+00	7.7E-02
Tajikistan	TJK	3.1	NA	NA	47.9	2.9	6.1	NA	6.8E-01	4.1E-02
Turkmenistan	TKM	8.8	NA	NA	3.7	0.6	15.5	NA	1.7E-01	2.7E-02
Timor-Leste	TLS	61.9	150.0	92.9	125.8	6.9	5.5	1.4E-01	1.9E-01	1.0E-02
Tonga	TON	12.4	194.4	24.2	68.2	7.0	10.3	1.7E-03	4.1E-03	4.2E-04
Trinidad and Tobago	TTO	44.5	90.2	40.1	138.7	2.8	2.0	2.1E-02	7.1E-02	1.4E-03
Tunisia	TUN	4.5	58.7	2.7	4.7	0.6	12.8	4.1E-02	7.4E-02	9.5E-03
Turkey	TUR	28.9	48.1	13.9	32.8	0.8	2.5	1.1E+00	2.6E+00	6.3E-02
Tuvalu	TUV	33.3	NA	NA	141.7	22.7	16.0	NA	3.3E-04	5.2E-05
United Republic of Tanzania	TZA	51.6	48.6	25.1	33.4	0.6	1.9	2.2E+00	3.0E+00	5.6E-02
Uganda	UGA	11.7	96.0	11.2	25.2	0.6	2.5	2.2E-01	5.3E-01	1.3E-02
Ukraine	UKR	16.7	140.0	23.4	40.7	1.0	2.6	1.4E+00	2.3E+00	5.9E-02
US Minor Islands	UMI	NA	NA	NA	5.9	2.1	35.3	NA	1.7E-05	5.9E-06
Uruguay	URY	11.6	97.0	11.3	11.8	0.3	2.9	2.0E-01	2.1E-01	6.1E-03
United States of America	USA	35.4	118.7	42.0	54.7	0.6	1.1	3.3E+01	4.3E+01	4.9E-01
Uzbekistan	UZB	8.7	NA	NA	5.7	0.6	10.3	NA	2.5E-01	2.6E-02
Saint Vincent and the Grenadines	VCT	73.2	219.1	160.4	130.0	7.8	6.0	6.3E-03	4.8E-03	2.9E-04
Venezuela	VEN	52.4	204.7	107.3	95.7	1.4	1.5	9.5E+00	8.7E+00	1.3E-01
British Virgin Islands	VGB	24.1	210.0	50.7	36.1	3.4	9.3	7.6E-04	5.2E-04	4.9E-05
Viet Nam	VNM	47.2	62.7	29.6	93.8	1.8	1.9	9.2E-01	3.1E+00	5.9E-02

Vanuatu	VUT	36.3	NA	NA	147.1	9.5	6.5	NA	1.8E-01	1.2E-02
Wallis and Futuna Islands	WLF	41.6	192.6	80.2	53.7	8.6	16.1	1.1E-03	7.5E-04	1.2E-04
Samoa	WSM	57.1	105.0	60.0	129.0	8.1	6.2	1.7E-02	3.6E-02	2.2E-03
Yemen	YEM	1.0	NA	NA	17.1	0.9	5.4	NA	7.7E-01	4.2E-02
South Africa	ZAF	14.1	85.7	12.0	8.9	0.6	6.5	1.5E+00	1.1E+00	7.1E-02
Zambia	ZMB	60.3	44.0	26.5	35.1	0.7	2.1	2.0E+00	2.6E+00	5.6E-02
Zimbabwe	ZWE	45.1	95.0	42.8	16.0	1.0	6.0	1.7E+00	6.2E-01	3.7E-02

Table 2. Country-level biomass estimates (Source: GEDI Level-4B Version 2.1). GEDI and FAO estimates of total aboveground biomass (AGB), mean aboveground biomass density (AGBD) and standard errors (SE) of the mean.

Country	ISO3	Percent Forest [%]	FAO Forested AGBD [Mg ha ⁻¹]	FAO Total AGBD [Mg ha ⁻¹]	GEDI L4B-2.1 Total AGBD [Mg ha ⁻¹]	GEDI L4B-2.1 AGBD SE [Mg ha ⁻¹]	GEDI L4B-2.1 AGBD SE [%]	FAO AGB [Pg]	GEDI L4B-2.1 AGB [Pg]	GEDI L4B-2.1 AGB SE [Pg]
Aruba	ABW	2.3	NA	NA	1.9	0.4	21.2	NA	3.2E-05	6.9E-06
Afghanistan	AFG	1.9	NA	NA	12.0	0.6	4.9	NA	7.7E-01	3.8E-02
Angola	AGO	53.4	30.3	16.2	34.5	0.6	1.8	2.0E+00	4.3E+00	7.7E-02
Anguilla	AIA	61.1	210.0	128.3	3.8	0.7	18.9	1.2E-03	3.0E-05	5.7E-06
Albania	ALB	28.8	NA	NA	55.5	1.4	2.5	NA	1.6E-01	3.9E-03
Andorra	AND	34.0	154.0	52.4	70.8	3.7	5.2	2.5E-03	3.2E-03	1.7E-04
United Arab Emirates	ARE	4.5	74.4	3.3	0.5	0.0	6.7	2.4E-02	3.7E-03	2.5E-04
Argentina	ARG	10.4	185.7	19.4	8.1	0.4	4.5	5.3E+00	2.3E+00	1.0E-01
Armenia	ARM	11.5	NA	NA	28.3	1.1	4.0	NA	8.4E-02	3.4E-03
Antigua and Barbuda	ATG	18.5	210.0	38.8	9.4	1.1	11.8	1.7E-03	4.2E-04	5.0E-05
Australia	AUS	17.4	84.0	14.6	15.5	0.8	5.0	1.1E+01	1.2E+01	6.0E-01
Austria	AUT	47.3	172.3	81.4	111.3	2.0	1.8	6.7E-01	9.3E-01	1.7E-02
Azerbaijan	AZE	13.7	NA	NA	28.0	0.9	3.1	NA	2.4E-01	7.4E-03
Burundi	BDI	10.9	119.4	13.0	35.3	0.7	2.1	3.3E-02	8.8E-02	1.9E-03
Belgium	BEL	22.8	NA	NA	58.9	1.5	2.5	NA	1.8E-01	4.5E-03
Benin	BEN	27.8	103.6	28.8	21.8	0.9	4.0	3.3E-01	2.5E-01	1.0E-02
Burkina Faso	BFA	22.7	47.8	10.9	10.4	0.9	8.4	3.0E-01	2.8E-01	2.4E-02
Bangladesh	BGD	14.5	62.8	9.1	34.1	0.9	2.5	1.2E-01	4.7E-01	1.2E-02
Bulgaria	BGR	35.9	180.5	64.7	66.2	1.4	2.2	7.0E-01	7.5E-01	1.6E-02
Bahrain	BHR	0.9	NA	NA	1.7	0.2	10.6	NA	9.7E-05	1.0E-05
Bahamas	BHS	50.9	39.8	20.3	3.8	0.3	6.7	2.0E-02	4.8E-03	3.2E-04
Bosnia and Herzegovina	BIH	42.7	NA	NA	98.3	1.9	1.9	NA	5.1E-01	9.6E-03
Saint Bartholomy	BLM	8.5	124.5	10.6	28.4	8.9	31.2	2.1E-05	6.9E-05	2.2E-05
Belarus	BLR	43.2	156.1	67.4	78.3	0.4	0.5	1.4E+00	1.6E+00	8.0E-03
Belize	BLZ	56.0	211.0	118.1	83.8	1.4	1.6	2.7E-01	1.9E-01	3.1E-03
Bermuda	BMU	20.0	NA	NA	18.9	1.5	7.7	NA	1.2E-04	9.1E-06
Bolivia	BOL	46.9	131.3	61.6	65.3	0.9	1.3	6.7E+00	7.1E+00	9.5E-02
Brazil	BRA	59.4	171.9	102.2	89.3	1.3	1.4	8.5E+01	7.6E+01	1.1E+00
Barbados	BRB	14.7	NA	NA	12.6	0.9	7.2	NA	5.6E-04	4.0E-05
Brunei Darussalam	BRN	72.1	247.0	178.1	235.5	9.8	4.2	9.4E-02	1.3E-01	5.6E-03
Bhutan	BTN	71.5	269.3	192.5	215.7	3.2	1.5	7.3E-01	8.7E-01	1.3E-02
Botswana	BWA	26.9	155.3	41.8	4.3	0.7	15.8	2.4E+00	2.5E-01	3.9E-02
Central African Republic	CAF	35.8	217.1	77.7	83.0	1.1	1.3	4.8E+00	5.1E+00	6.5E-02
Switzerland	CHE	32.1	193.1	62.0	90.9	1.9	2.1	2.5E-01	3.8E-01	8.0E-03
Chile	CHL	24.5	219.3	53.7	43.2	0.7	1.5	4.0E+00	3.2E+00	4.8E-02
China	CHN	23.3	64.7	15.1	40.8	0.5	1.3	1.4E+01	3.8E+01	5.0E-01

Cote d Ivoire	CIV	8.9	94.5	8.4	52.1	0.9	1.7	2.7E-01	1.7E+00	2.8E-02
Cameroon	CMR	43.0	265.1	114.1	131.4	2.1	1.6	5.4E+00	6.1E+00	9.6E-02
Democratic Republic of the Congo	COD	55.6	231.0	128.5	120.4	1.5	1.3	2.9E+01	2.8E+01	3.6E-01
Congo	COG	64.3	198.8	127.8	142.8	2.2	1.6	4.4E+00	4.9E+00	7.7E-02
Cook Islands	COK	65.0	NA	NA	134.1	13.9	10.4	NA	2.6E-03	2.7E-04
Colombia	COL	53.3	184.1	98.2	123.6	1.8	1.5	1.1E+01	1.4E+01	2.1E-01
Comoros	COM	17.7	66.0	11.7	79.0	2.6	3.2	2.2E-03	1.3E-02	4.3E-04
Cabo Verde	CPV	11.3	95.0	10.8	28.3	1.9	6.6	4.3E-03	1.1E-02	7.3E-04
Costa Rica	CRI	59.4	196.0	116.5	147.2	2.7	1.8	6.0E-01	7.5E-01	1.4E-02
Cuba	CUB	31.2	113.6	35.4	22.2	0.4	1.6	3.7E-01	2.4E-01	4.0E-03
Curacao	CUW	0.2	79.0	0.1	5.1	0.6	11.2	5.5E-06	2.3E-04	2.6E-05
Cayman Islands	CYM	53.0	NA	NA	4.7	0.3	7.4	NA	1.5E-04	1.1E-05
Cyprus	CYP	18.7	41.9	7.8	31.7	1.1	3.3	7.2E-03	1.7E-02	5.7E-04
Czechia	CZE	34.7	163.2	56.6	79.1	1.6	2.0	4.4E-01	6.2E-01	1.2E-02
Germany	DEU	32.7	185.1	60.6	86.0	0.9	1.1	2.1E+00	3.1E+00	3.3E-02
Djibouti	DJI	0.3	86.5	0.2	2.9	0.2	8.3	5.0E-04	6.3E-03	5.2E-04
Dominica	DMA	63.8	NA	NA	158.9	7.0	4.4	NA	1.2E-02	5.1E-04
Dominican Republic	DOM	44.4	82.7	36.7	55.6	0.9	1.7	1.8E-01	2.7E-01	4.4E-03
Algeria	DZA	0.8	29.4	0.2	1.0	0.1	5.5	5.7E-02	2.3E-01	1.2E-02
Ecuador	ECU	50.3	177.0	89.1	139.9	2.5	1.8	2.2E+00	3.6E+00	6.3E-02
Egypt	EGY	0.0	120.0	0.1	0.4	0.0	8.1	5.4E-03	3.6E-02	2.9E-03
Eritrea	ERI	10.4	72.5	7.6	9.9	0.6	6.1	7.7E-02	1.2E-01	7.4E-03
Spain	ESP	37.2	55.9	20.8	32.8	0.9	2.8	1.0E+00	1.7E+00	4.6E-02
Ethiopia	ETH	15.2	121.3	18.5	26.3	0.7	2.8	2.1E+00	3.0E+00	8.3E-02
Fiji	FJI	62.4	202.8	126.5	134.8	7.7	5.7	2.3E-01	2.6E-01	1.5E-02
Falkland Islands (Malvinas)	FLK	0.0	0.0	0.0	6.6	0.5	7.8	0.0E+00	7.6E-03	5.9E-04
France	FRA	31.5	135.5	42.7	63.2	1.3	2.0	2.3E+00	3.5E+00	7.1E-02
Micronesia	FSM	92.0	NA	NA	174.2	15.4	8.8	NA	1.1E-02	9.8E-04
Gabon	GAB	91.3	223.3	203.9	232.9	3.9	1.7	5.3E+00	6.1E+00	1.0E-01
United Kingdom	GBR	13.2	115.0	15.2	40.2	0.4	1.0	3.7E-01	9.8E-01	9.9E-03
Georgia	GEO	40.6	119.3	48.5	101.5	1.4	1.4	3.4E-01	7.1E-01	9.8E-03
Guernsey	GGY	5.3	NA	NA	35.3	3.3	9.2	NA	2.6E-04	2.4E-05
Ghana	GHA	35.1	96.6	33.9	36.8	0.7	2.0	7.7E-01	8.8E-01	1.8E-02
Gibraltar	GIB	0.0	0.0	0.0	51.6	9.9	19.3	0.0E+00	1.9E-05	3.7E-06
Guinea	GIN	25.2	131.2	33.0	52.8	0.9	1.6	8.1E-01	1.3E+00	2.1E-02
Gambia	GMB	24.0	41.8	10.0	13.6	1.2	9.0	1.0E-02	1.4E-02	1.3E-03
Guinea-Bissau	GNB	70.4	84.0	59.1	47.7	1.1	2.4	1.7E-01	1.6E-01	3.7E-03
Equatorial Guinea	GNQ	87.3	214.5	187.2	211.8	3.7	1.8	5.3E-01	5.6E-01	1.0E-02
Greece	GRC	30.3	34.2	10.4	50.7	1.2	2.5	1.3E-01	6.7E-01	1.6E-02
Grenada	GRD	52.1	109.4	57.0	84.8	3.3	4.0	1.9E-03	2.9E-03	1.2E-04
Guatemala	GTM	32.9	124.1	40.8	86.9	1.5	1.7	4.4E-01	9.5E-01	1.6E-02
Guyana	GUY	93.6	499.0	466.8	208.1	3.2	1.5	9.2E+00	4.4E+00	6.8E-02

Hong Kong SAR	HKG	NA	NA	NA	53.0	2.1	4.0	NA	5.5E-03	2.2E-04
Honduras	HND	56.8	105.7	60.1	104.8	1.9	1.8	6.7E-01	1.2E+00	2.1E-02
Croatia	HRV	34.7	174.0	60.3	81.0	1.6	2.0	3.4E-01	4.5E-01	8.8E-03
Haiti	HTI	12.6	94.5	11.9	35.3	0.7	2.0	3.3E-02	9.5E-02	1.9E-03
Hungary	HUN	22.7	109.5	24.8	49.5	1.8	3.6	2.3E-01	4.6E-01	1.7E-02
Indonesia	IDN	49.1	179.0	87.8	211.7	7.4	3.5	1.7E+01	4.0E+01	1.4E+00
India	IND	24.3	68.7	16.7	36.9	0.5	1.4	5.0E+00	1.2E+01	1.6E-01
British Indian Ocean Territory	IOT	NA	NA	NA	46.0	6.9	15.1	NA	2.3E-04	3.4E-05
Ireland	IRL	11.4	111.6	12.7	33.3	0.8	2.3	8.7E-02	2.3E-01	5.4E-03
Iran	IRN	6.6	137.7	9.1	7.8	0.3	4.3	1.5E+00	1.3E+00	5.4E-02
Iraq	IRQ	1.9	51.1	1.0	2.6	0.2	7.9	4.2E-02	1.1E-01	9.0E-03
Israel	ISR	6.5	NA	NA	5.9	0.4	7.5	NA	1.3E-02	9.7E-04
Italy	ITA	32.5	110.6	36.0	63.1	1.2	1.9	1.1E+00	1.9E+00	3.6E-02
Jamaica	JAM	55.1	158.5	87.4	84.7	1.5	1.7	9.5E-02	9.3E-02	1.6E-03
Jersey	JEY	5.0	NA	NA	40.7	2.1	5.2	NA	4.8E-04	2.5E-05
Jordan	JOR	1.1	56.9	0.6	1.4	0.1	6.3	5.6E-03	1.3E-02	8.0E-04
Japan	JPN	68.4	NA	NA	138.3	1.2	0.8	NA	5.2E+00	4.4E-02
Kazakhstan	KAZ	1.3	82.5	1.1	4.0	0.4	10.1	2.9E-01	1.1E+00	1.1E-01
Kenya	KEN	6.3	200.4	12.7	12.0	0.6	5.4	7.2E-01	7.0E-01	3.8E-02
Kyrgyzstan	KGZ	6.9	49.7	3.4	25.4	1.4	5.6	6.5E-02	5.0E-01	2.8E-02
Cambodia	KHM	45.7	69.3	31.7	52.8	0.9	1.7	5.6E-01	9.6E-01	1.7E-02
Kiribati	KIR	1.5	NA	NA	17.7	2.8	15.6	NA	1.7E-03	2.6E-04
Saint Kitts and Nevis	KNA	42.3	210.0	88.8	23.6	2.8	11.9	2.3E-03	6.2E-04	7.4E-05
Republic of Korea	KOR	64.5	131.7	85.0	104.5	1.7	1.6	8.3E-01	1.0E+00	1.7E-02
Kuwait	KWT	0.4	NA	NA	0.4	0.0	7.7	NA	7.8E-04	6.0E-05
Lao People Democratic Republic	LAO	71.9	121.5	87.4	139.4	2.8	2.0	2.0E+00	3.2E+00	6.4E-02
Lebanon	LBN	14.0	61.3	8.6	22.7	1.2	5.2	8.8E-03	2.3E-02	1.2E-03
Liberia	LBR	79.1	205.4	162.4	150.6	2.4	1.6	1.6E+00	1.4E+00	2.3E-02
Libya	LBY	0.1	49.3	0.1	0.1	0.0	10.5	1.1E-02	2.0E-02	2.1E-03
Saint Lucia	LCA	34.0	294.0	100.1	109.9	3.5	3.2	6.1E-03	6.6E-03	2.1E-04
Liechtenstein	LIE	41.9	242.4	101.5	88.7	8.6	9.7	1.6E-03	1.2E-03	1.2E-04
Sri Lanka	LKA	33.7	79.2	26.7	61.3	1.2	1.9	1.7E-01	4.1E-01	7.6E-03
Lesotho	LSO	1.1	73.7	0.8	19.3	1.3	6.8	2.6E-03	5.8E-02	3.9E-03
Luxembourg	LUX	36.5	180.7	66.0	86.2	2.3	2.6	1.6E-02	2.2E-02	5.9E-04
China, Macao SAR	MAC	NA	NA	NA	7.6	4.6	60.3	NA	2.3E-05	1.4E-05
Saint-Martin (French Part)	MAF	24.8	124.5	30.9	23.6	5.0	21.0	1.5E-04	1.6E-04	3.4E-05
Morocco	MAR	12.9	39.9	5.1	5.6	0.3	5.3	2.3E-01	3.3E-01	1.7E-02
Monaco	MCO	NA	0.0	NA	72.0	9.0	12.6	NA	1.4E-04	1.7E-05
Republic of Moldova	MDA	11.8	93.4	11.0	30.9	1.7	5.4	3.6E-02	1.0E-01	5.6E-03
Madagascar	MDG	21.4	163.2	34.9	33.5	0.7	2.2	2.0E+00	2.0E+00	4.4E-02
Maldives	MDV	2.7	135.0	3.7	10.0	7.8	77.6	1.1E-04	1.1E-04	8.5E-05
Mexico	MEX	33.8	52.4	17.7	42.7	0.5	1.3	3.5E+00	8.4E+00	1.1E-01

Marshall Islands	MHL	52.2	132.1	69.0	61.5	9.1	14.8	1.2E-03	1.0E-03	1.5E-04
North Macedonia	MKD	39.7	71.6	28.4	62.4	1.4	2.3	7.2E-02	1.6E-01	3.6E-03
Mali	MLI	10.9	46.4	5.1	4.1	0.3	8.3	6.2E-01	5.1E-01	4.2E-02
Malta	MLT	1.4	NA	NA	23.5	1.9	8.2	NA	7.7E-04	6.3E-05
Myanmar	MMR	43.7	125.5	54.9	127.8	2.1	1.6	3.6E+00	8.5E+00	1.4E-01
Montenegro	MNE	61.5	96.9	59.6	84.3	3.0	3.5	8.0E-02	1.2E-01	4.1E-03
Mongolia	MNG	9.1	54.9	5.0	7.9	0.4	5.2	7.8E-01	1.2E+00	6.5E-02
Mozambique	MOZ	46.7	101.4	47.4	38.0	0.9	2.3	3.7E+00	3.0E+00	6.8E-02
Mauritania	MRT	0.3	53.1	0.2	0.3	0.1	27.1	1.7E-02	3.6E-02	9.7E-03
Montserrat	MSR	25.0	NA	NA	52.9	7.4	14.0	NA	5.3E-04	7.4E-05
Mauritius	MUS	19.1	124.2	23.7	34.3	1.1	3.1	4.8E-03	6.9E-03	2.1E-04
Malawi	MWI	23.8	78.7	18.7	24.5	0.7	3.0	1.8E-01	2.4E-01	7.3E-03
Malaysia	MYS	58.2	209.9	122.1	175.8	3.4	1.9	4.0E+00	5.8E+00	1.1E-01
Namibia	NAM	8.1	67.4	5.4	4.3	0.5	12.2	4.5E-01	3.5E-01	4.3E-02
New Caledonia	NCL	45.8	146.0	66.9	84.5	5.8	6.9	1.2E-01	1.6E-01	1.1E-02
Niger	NER	0.9	38.2	0.3	0.7	0.2	24.5	4.1E-02	8.4E-02	2.1E-02
Norfolk Island	NFK	12.3	NA	NA	90.2	16.0	17.7	NA	3.7E-04	6.6E-05
Nigeria	NGA	23.7	134.8	32.0	19.9	0.5	2.7	2.9E+00	1.8E+00	4.8E-02
Nicaragua	NIC	28.3	91.0	25.8	63.8	1.1	1.8	3.1E-01	8.2E-01	1.5E-02
Netherlands	NLD	11.0	55.1	6.0	41.9	0.8	1.8	2.0E-02	1.6E-01	2.9E-03
Nepal	NPL	41.6	172.2	71.6	123.1	1.6	1.3	1.0E+00	1.8E+00	2.3E-02
Nauru	NRU	0.0	0.0	0.0	26.8	5.2	19.4	0.0E+00	7.7E-05	1.5E-05
New Zealand	NZL	37.6	294.7	110.7	92.6	4.4	4.8	2.9E+00	2.5E+00	1.2E-01
Oman	OMN	0.0	107.7	0.0	0.8	0.0	5.4	2.7E-04	2.6E-02	1.4E-03
Pakistan	PAK	4.8	75.3	3.6	12.5	0.5	3.8	2.8E-01	1.1E+00	4.1E-02
Panama	PAN	56.7	145.1	82.2	147.3	3.0	2.0	6.1E-01	1.1E+00	2.2E-02
Pitcairn Islands	PCN	70.0	NA	NA	13.5	3.8	28.3	NA	5.7E-05	1.6E-05
Peru	PER	56.5	237.8	134.4	141.8	2.2	1.6	1.7E+01	1.8E+01	2.9E-01
Philippines	PHL	24.1	219.8	53.0	119.9	2.2	1.8	1.6E+00	3.5E+00	6.4E-02
Palau	PLW	90.0	NA	NA	102.3	11.2	11.0	NA	5.0E-03	5.5E-04
Papua New Guinea	PNG	79.2	176.0	139.4	323.8	19.6	6.0	6.3E+00	1.5E+01	9.1E-01
Poland	POL	31.0	166.0	51.4	69.7	0.8	1.1	1.6E+00	2.2E+00	2.4E-02
Democratic People Republic of Korea	PRK	50.1	62.3	31.2	94.0	1.7	1.8	3.8E-01	1.1E+00	2.1E-02
Paraguay	PRY	40.5	69.9	28.3	7.6	0.2	2.4	1.1E+00	3.0E-01	7.4E-03
French Polynesia	PYF	40.8	148.9	60.8	191.0	14.8	7.8	2.2E-02	6.4E-02	5.0E-03
Qatar	QAT	0.0	0.0	0.0	0.4	0.0	8.7	0.0E+00	4.7E-04	4.1E-05
Romania	ROU	30.1	207.5	62.5	77.4	1.4	1.8	1.4E+00	1.8E+00	3.2E-02
Rwanda	RWA	11.2	146.1	16.3	38.5	1.0	2.7	4.0E-02	9.7E-02	2.6E-03
Saudi Arabia	SAU	0.5	26.6	0.1	0.6	0.0	5.4	2.6E-02	1.1E-01	6.2E-03
Sudan	SDN	9.8	56.0	5.5	2.8	0.3	9.8	1.0E+00	5.3E-01	5.2E-02
South Sudan	SDS	0.5	NA	NA	26.4	0.7	2.6	NA	1.7E+00	4.4E-02
Senegal	SEN	41.9	44.3	18.5	13.1	0.9	6.5	3.6E-01	2.6E-01	1.7E-02
Singapore	SGP	21.9	135.7	29.8	39.6	2.7	6.9	2.1E-03	2.0E-03	1.4E-04

Saint Helena	SHN	5.1	NA	NA	78.0	9.7	12.4	NA	2.9E-03	3.6E-04
Ascension and Tristan da Cunha										
Solomon Islands	SLB	90.1	95.8	86.3	338.2	23.7	7.0	2.4E-01	9.2E-01	6.4E-02
Sierra Leone	SLE	35.1	82.0	28.8	58.0	1.1	1.9	2.1E-01	4.2E-01	7.9E-03
El Salvador	SLV	28.2	113.6	32.0	52.9	0.9	1.7	6.6E-02	1.1E-01	1.8E-03
San Marino	SMR	16.7	91.0	15.2	38.1	5.4	14.1	9.1E-05	2.3E-04	3.3E-05
Somalia	SOM	9.5	102.5	9.8	3.4	0.5	16.4	6.1E-01	1.6E-01	2.6E-02
Saint Pierre and Miquelon	SPM	5.3	26.3	1.4	16.2	1.8	11.3	3.2E-05	3.9E-04	4.4E-05
Serbia	SRB	31.1	157.0	48.9	73.5	1.9	2.5	4.3E-01	5.7E-01	1.4E-02
Sao Tome and Principe	STP	54.1	162.5	87.9	211.5	5.8	2.7	8.4E-03	2.2E-02	6.0E-04
Suriname	SUR	97.4	362.9	353.5	236.3	4.0	1.7	5.5E+00	3.4E+00	5.8E-02
Slovakia	SVK	40.1	171.1	68.5	93.1	1.7	1.8	3.3E-01	4.5E-01	8.1E-03
Slovenia	SVN	61.5	253.1	155.6	140.2	2.5	1.8	3.1E-01	2.8E-01	5.1E-03
Eswatini	SWZ	28.9	76.1	22.0	21.3	1.0	4.5	3.8E-02	3.6E-02	1.6E-03
Sint Maarten (Dutch Part)	SXM	10.9	NA	NA	2.9	10.9	373.6	NA	6.8E-06	2.5E-05
Seychelles	SYC	73.3	172.8	126.6	54.4	3.6	6.6	5.8E-03	2.4E-03	1.6E-04
Syrian Arab Republic	SYR	2.8	50.0	1.4	2.3	0.3	11.8	2.6E-02	4.3E-02	5.1E-03
Turks and Caicos Islands	TCA	11.1	132.3	14.6	2.5	0.7	26.0	1.4E-03	1.1E-04	2.9E-05
Chad	TCD	3.4	91.2	3.1	5.4	0.3	6.5	3.9E-01	6.8E-01	4.4E-02
Togo	TGO	22.2	121.0	26.9	27.6	0.8	2.8	1.5E-01	1.6E-01	4.4E-03
Thailand	THA	38.9	142.5	55.4	85.1	1.5	1.8	2.8E+00	4.4E+00	7.8E-02
Tajikistan	TJK	3.1	NA	NA	21.0	1.2	5.9	NA	3.0E-01	1.7E-02
Turkmenistan	TKM	8.8	NA	NA	1.7	0.2	12.4	NA	7.9E-02	9.9E-03
Timor-Leste	TLS	61.9	150.0	92.9	127.9	7.0	5.5	1.4E-01	1.9E-01	1.1E-02
Trinidad and Tobago	TTO	44.5	90.2	40.1	138.7	2.5	1.8	2.1E-02	7.1E-02	1.3E-03
Tunisia	TUN	4.5	58.7	2.7	3.1	0.3	8.7	4.1E-02	4.8E-02	4.2E-03
Turkey	TUR	28.9	48.1	13.9	32.1	0.8	2.4	1.1E+00	2.5E+00	6.0E-02
Tuvalu	TUV	33.3	NA	NA	110.7	16.8	15.1	NA	2.5E-04	3.9E-05
United Republic of Tanzania	TZA	51.6	48.6	25.1	33.5	0.6	1.9	2.2E+00	3.0E+00	5.7E-02
Uganda	UGA	11.7	96.0	11.2	24.9	0.6	2.5	2.2E-01	5.2E-01	1.3E-02
Ukraine	UKR	16.7	140.0	23.4	40.5	1.1	2.6	1.4E+00	2.3E+00	6.0E-02
US Minor Islands	UMI	NA	NA	NA	9.9	3.9	39.2	NA	2.8E-05	1.1E-05
Uruguay	URY	11.6	97.0	11.3	11.2	0.3	3.0	2.0E-01	2.0E-01	6.0E-03
United States of America	USA	35.4	118.7	42.0	54.1	0.6	1.1	3.3E+01	4.2E+01	4.7E-01
Uzbekistan	UZB	8.7	NA	NA	4.2	0.3	7.7	NA	1.8E-01	1.4E-02
Saint Vincent and the Grenadines	VCT	73.2	219.1	160.4	118.5	5.6	4.8	6.3E-03	4.4E-03	2.1E-04
Venezuela	VEN	52.4	204.7	107.3	94.9	1.4	1.5	9.5E+00	8.7E+00	1.3E-01
British Virgin Islands	VGB	24.1	210.0	50.7	32.2	3.1	9.7	7.6E-04	4.7E-04	4.5E-05
Viet Nam	VNM	47.2	62.7	29.6	94.6	1.8	1.9	9.2E-01	3.1E+00	5.9E-02
Vanuatu	VUT	36.3	NA	NA	144.5	9.4	6.5	NA	1.8E-01	1.2E-02
Yemen	YEM	1.0	NA	NA	5.1	0.3	5.2	NA	2.3E-01	1.2E-02

South Africa	ZAF	14.1	85.7	12.0	8.6	0.5	6.3	1.5E+00	1.0E+00	6.6E-02
Zambia	ZMB	60.3	44.0	26.5	36.2	0.8	2.1	2.0E+00	2.7E+00	5.8E-02
Zimbabwe	ZWE	45.1	95.0	42.8	16.1	0.9	5.9	1.7E+00	6.3E-01	3.7E-02
