



Chloris Geospatial™

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DATA SPECIFICATIONS

Update April 2024

Chloris Data Specifications

Above-Ground Biomass (AGB) Stock and Change Product provides annual estimates of dry biomass stock and change in live woody vegetation, starting from the year 2000. The dataset is spatially explicit and wall-to-wall, with quantified uncertainty at the pixel- and site-level. It is designed to measure biomass losses (carbon emissions) from deforestation and degradation, and biomass gains (carbon removals) from vegetation growth, at 30m and 10m resolution.

	30 m	10 m
Approach	Direct AGB Measurement	Direct AGB Measurement
Raster data units	t/ha (metric tonnes)	t/ha (metric tonnes)
AGB value range	0-1000+ t/ha (metric tonnes)	0-1000+ t/ha (metric tonnes)
Spatial coverage	Global	Global
Spatial resolution	30x30m	10x10m
Temporal coverage	2000-present	2017-present
Temporal resolution	Annual, with customizable date range	Annual, with customizable date range
Uncertainty	At pixel- & site-level, by default reported at 95% CI	At pixel- & site-level, by default reported at 95% CI
Main Sensors	IceSAT/GLAS, GEDI, various airborne LiDAR datasets, Landsat 5, 7, 8 and 9	IceSAT/GLAS, GEDI, various airborne LiDAR datasets, Landsat 5, 7, 8 and 9, Sentinel 2
Model Performance ¹	Latin America: R2 0.933, RMSE 34.494 South-East Asia: R2 0.792, RMSE 61.133 Africa: get in touch to learn more Pantropic: R2 0.892, RMSE 49.634 California: R2 0.883, RMSE 50.346 Pennsylvania: R2 0.848, RMSE 28.568 Washington: R2 0.835, RMSE 31.016 All RMSE units in t AGB/ha (metric tonnes)	Forthcoming
Science & Methodology	Our method is published in peer-reviewed science (Baccini 2012 and 2017) and Chloris White Papers, upcoming publication on model performance	

¹ We validate our models against fully independent, high-quality data sets derived from airborne LiDAR and field measurements. To find out more about our data validation, visit: chloris.earth/data-validation



Forest Cover Product is based on AGB thresholds and AGB dynamics over time. It includes disaggregated reporting on degradation, deforestation, and forest area gains, at 30m and 10m resolution.

	30 m	10 m
Approach	Forest/non-forest definition customizable by client. Implementation based on biomass threshold	Forest/non-forest definition customizable by the client. Implementation based on biomass threshold
Classes	Forest Non-Forest Forest Area Gain Forest Area Loss Forest Degradation	Forest Non-Forest Forest Area Gain Forest Area Loss Forest Degradation
Spatial coverage	Global	Global
Spatial resolution	30x30m	10x10m
Temporal coverage	2000-2023	2017-present
Temporal resolution	Annual, with customizable date range	Annual, with customizable date range
Main Sensors	IceSAT/GLAS, GEDI, various airborne LiDAR datasets, Landsat 5, 7, 8 and 9	IceSAT/GLAS, GEDI, various airborne LiDAR datasets, Landsat 5, 7, 8 and 9, Sentinel 2

Data products are available for download as GeoTIFF files via app.chloris.earth. Annual data products have one file per year. Available raster datasets for download are:

- Annual above-ground biomass stock (t/ha)
- Annual above-ground biomass change (t/ha/yr)
- Standard error of the annual above-ground biomass stock estimates (t/ha)
- Standard error of the annual above-ground biomass change estimates (t/ha)
- Forest and non-forest area in the selected year (Boolean mask: 1 = forest, 0 = non-forest)
- Forest area gain: the area that has transitioned into forest area from non-forest area within the specified year (Boolean mask: 1 = transition to forest, 0 = no transition)
- Forest area loss: the area that has transitioned into non-forest area from forest area within the specified year (Boolean mask: 1 = transition to non-forest, 0 = no transition)
- Forest Degradation: area which remained forest in the given year, but experienced statistically significant losses in biomass (Boolean mask: 1 degradation area, 0 no degradation)