Annual land use and land cover maps for Northeast Brazil (2000–2020) using an ecoregionspecific approach – This product is based on MODIS imagery and Random Forest classification, validated with independent reference data. It includes 21 annual maps organized into two thematic legend levels (Level 1 and Level 2). The methodology and results are detailed in the article published by Ganem et al. (2025) in *GIScience & Remote Sensing*: https://doi.org/10.1080/15481603.2025.2510140

This dataset provides annual land use and land cover (LULC) classifications for Northeast Brazil (NEB) from 2000 to 2020, based on MODIS surface reflectance imagery. Using a context-specific Random Forest model with 56 features, classifications were tailored to each NEB ecoregion and validated with over 10,000 independent reference points. The dataset includes a two-tier legend that uniquely distinguishes NEB shrublands at the national level, aligns with global datasets (7 Level-1 classes), and preserves ecoregional detail (16 Level-2 classes). The 2018 map achieved 90.5% overall accuracy at Level-1. At Level-2, ecoregional accuracies were 95.9% (Amazon), 94.3% (Atlantic Forest), 89.4% (Cerrado), and 87.9% (Caatinga).

Each map is available in GeoTIFF (.tif) format and projected in the EPSG:4674 (SIRGAS 2000) coordinate reference system. Pixel values represent land use and land cover classes:

## Level-1 Legend

- 0 No Data
- 1-Forest
- 2-Savanna
- 3 Shrub
- 4 Grass
- 5 Farming (Pasture + Cropland combined)
- 6 Non-Vegetated
- 7-Water

## Level-2 Legend

- 0 No Data
- $1-Amazon \ Forest$
- 2 Atlantic Forest
- 3 Cerrado Forest
- 4 Caatinga Forest
- 5 Amazon Mangrove
- 6 Cerrado Savanna
- 7 Caatinga Savanna
- 8 Caatinga Shrub
- 9 Cerrado Shrub
- 10 Caatinga Grass
- 11 Forest Plantation
- 12 Cropland
- 13-Pastureland

14 – Urban Areas 15 – Non-Vegetated 16 – Water

This product is the result of a collaboration between researchers from UCLA Geography, INPE, and APNE. The methodology, results, and comparison with existing global and national datasets are detailed in the following publication:

## Any use of this product must cite the following publication:

Ganem, K. A.; Xue, Y.; Dutra, A. C.; Pareyn, F. G. C.; Shimabukuro, Y. E. (2025). From rainforests to drylands: A context-specific framework for mapping land use and land cover dynamics in Northeast Brazil (2000–2020). GIScience & Remote Sensing, 62(1), 2510140. https://doi.org/10.1080/15481603.2025.2510140