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Is it feasible to relate CO2 atmospheric measurements with land use and cover change data? -A primary assessment of land use and cover change datasets in the Amazon

Graciela Tejada*, Luciana Gatti, Luana Basso, Luciano Marani, Henrique Cassol, Egidio Arai, Luiz Aragão, Stephane Crispim, Raiane Neves, Lucas Domingues, Caio Correia, Alber Ipia, Manuel Gloor, John Miller, and Celso von Randow

*gracielatejadap@gmail.com

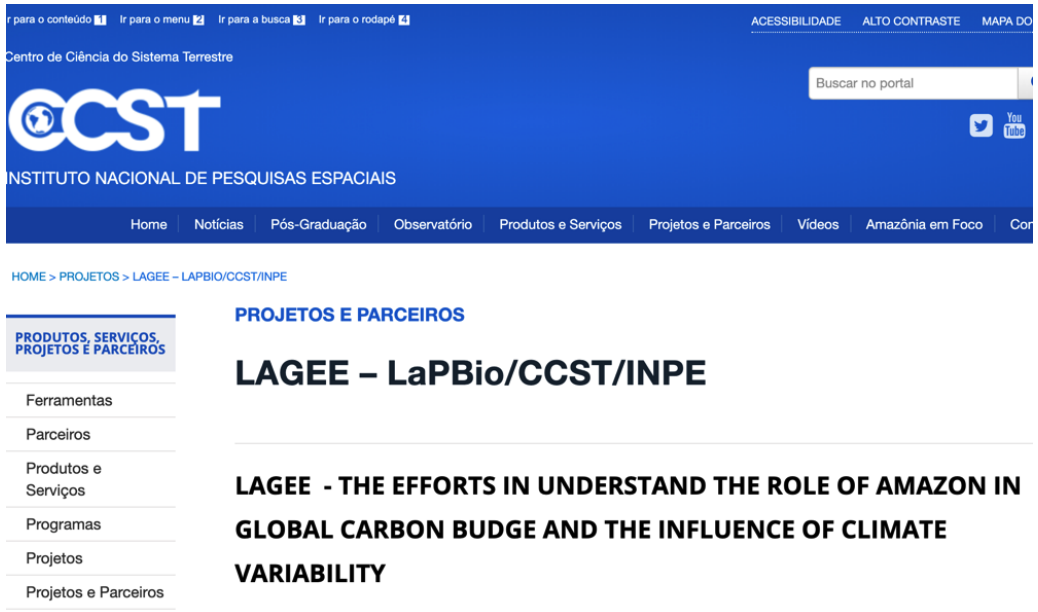
Amazon forest – a natural laboratory of global significance

- Tropical forest provides fundamental ecosystem services
- Brazil has around 75% of the Amazon tropical forest
- Amazon Deforestation, land use and cover change (LUCC)
- Frequent extreme events as droughts and floods
  are impacting the Amazon carbon (C) balance
- So important to have local measurements of greenhouse gases (GHGs) in the Amazon

to understand the Amazon carbon (C) balance

Objetive

To compare different LUCC datasets for the Amazon region to see if there is a relation between annual **LUCC** and bimonthly CO2 aircraft measurements in the Amazon.



Bimonthly GHGs vertical profiles in four sites of the Amazon 2010-2018

LaGEE – Greenhouse Gas Laboratory

ciência para sustentabilidade

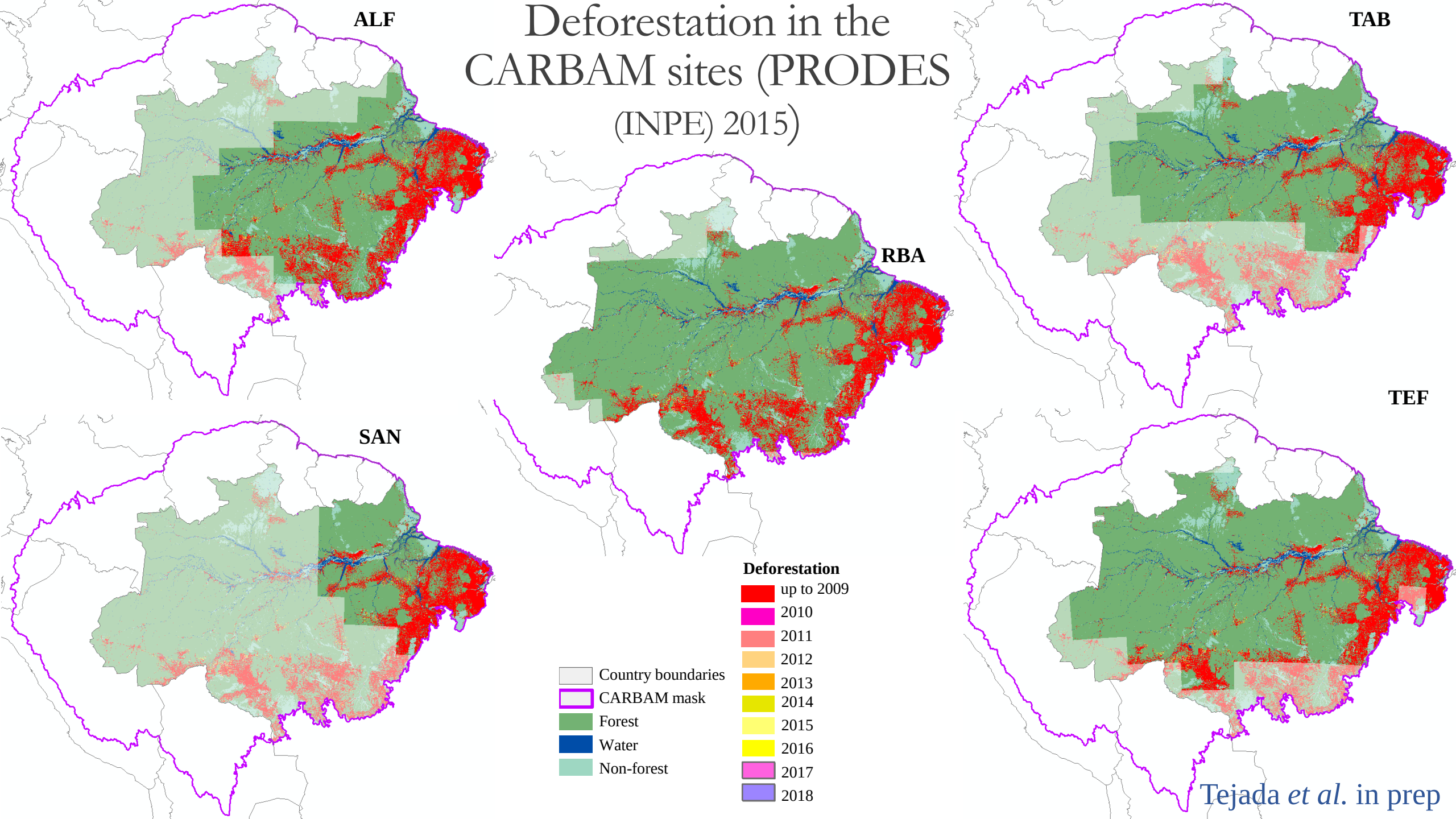
The lower-troposphere greenhouse gas (GHG) monitoring program

CARBAM project

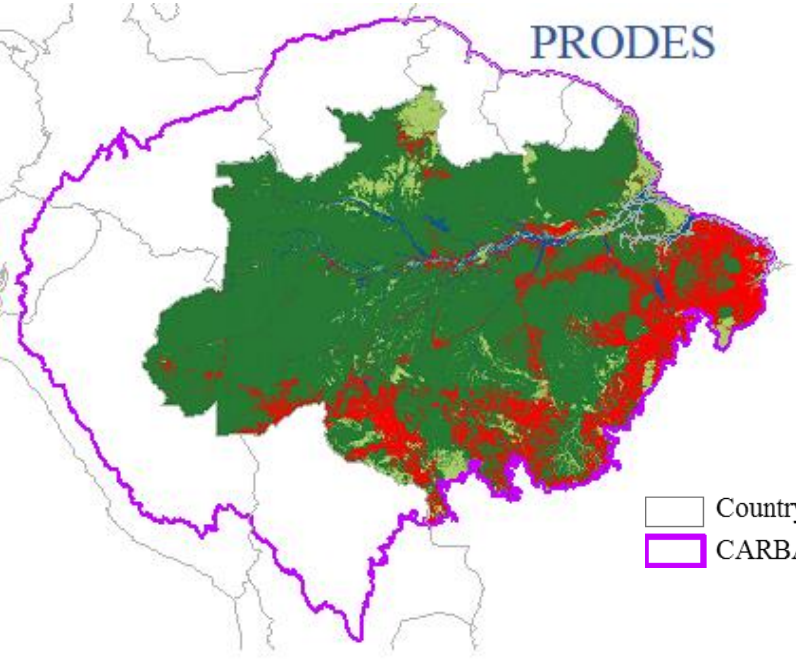
Alta Floresta (ALF), Santarem (SAN), Rio Branco (RBA), Tabatinga (TAB) and Tefé (TEF).

Gatti et al. (2014), Gatti *et al.* in prep

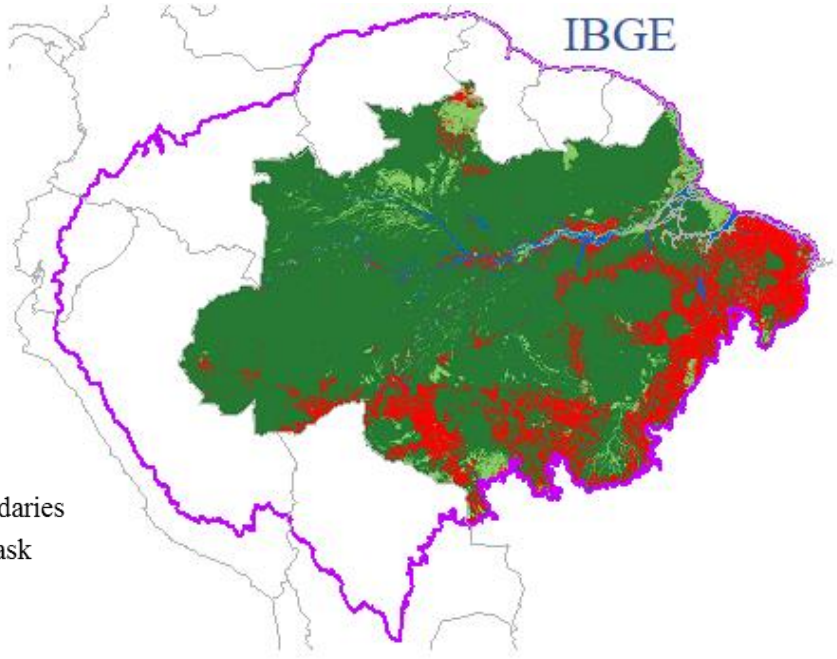
Deforestation in the CARBAM sites (PRODES (INPE) 2015)



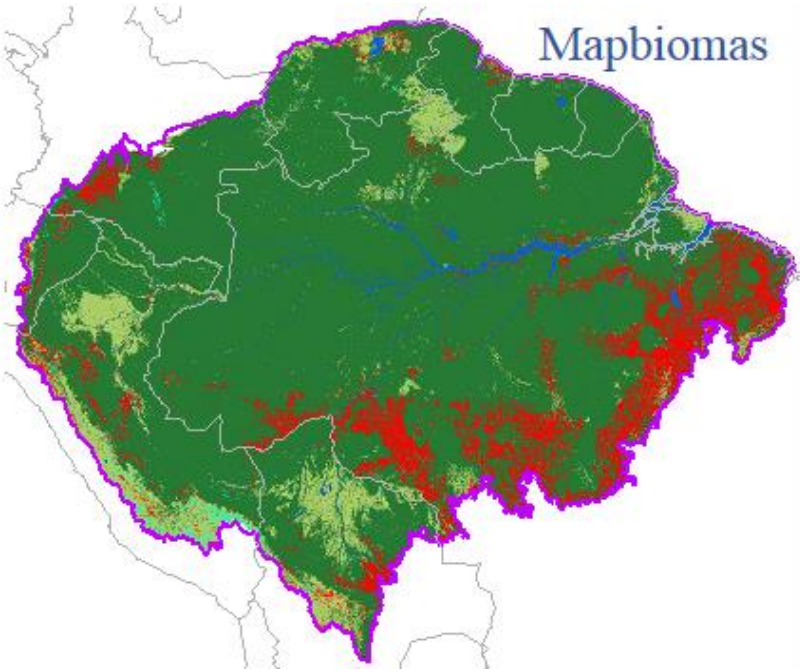
Tejada *et al.* in prep



Deforestation up to 2018 (INPE 2015)



Land use and land cover (LUCC) up to 2018 (IBGE 2020)



Land use and land cover (LUCC) up to 2017 (Mapbiomas, 2018)

	PRODES Annual	IBGE 2010-2012-2014-2016-2018	Mapbiomas 2010 to 2017
Forest	Forest	Forest vegetation	Forets formation
Deforestation	Deforestation	Agricultural Area, Managed Pasture, Mosaic of Occupation in Forests, Mosaic of Occupations in Grasslands	Farming
Natural vegetation	Non-forest	Humid Areas, Grassland vegetation	Savanna formation, Mangrove, Flooded forest, Grassland, Other non forest natural formation
Others	Non-forest	Artificial Area,	Non vegetated area, Non observed, Salt flat, River, lake and ocean
Water	Water	Inland Water Bodies, Coastal Water Bodies	Water

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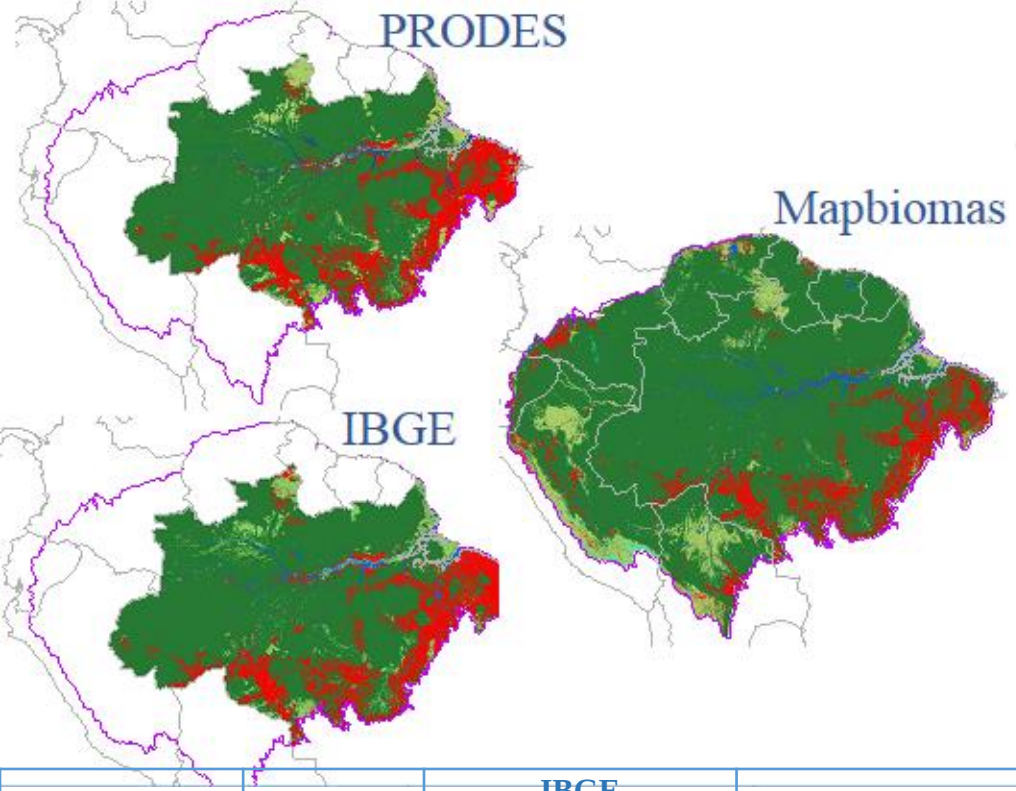

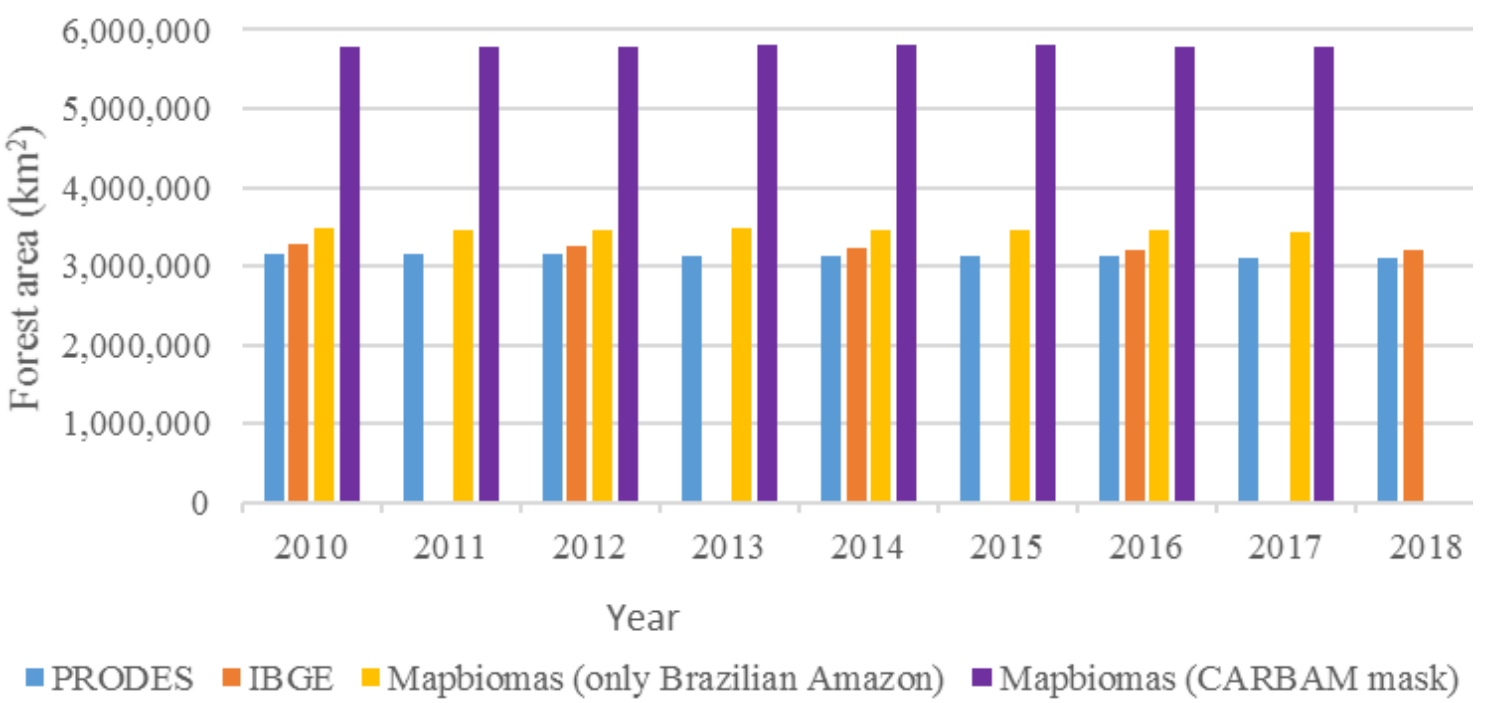

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Forest	Forest	Forest vegetation	Forets formation
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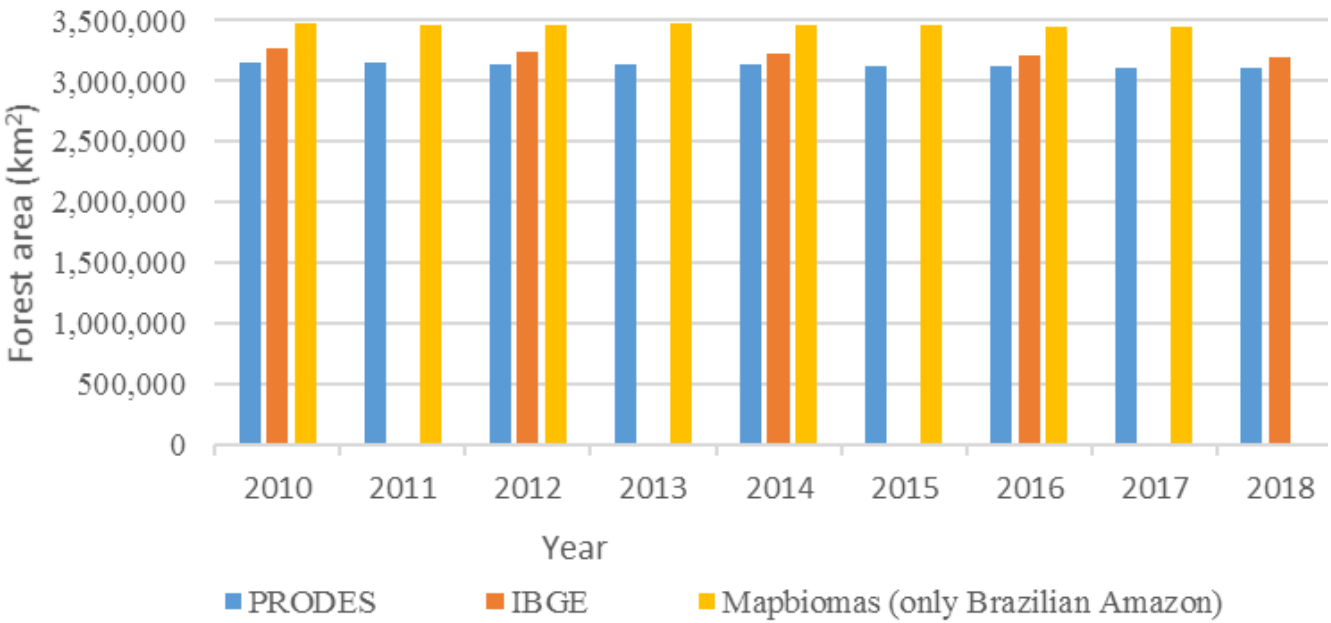

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- C fluxes are not only related to deforestation
- Interannual variability could be related with the several droughts that influence the photosynthesis/respiration
- Other variables related to LUCC as fire emissions and biomass should be included
- This is a first attempt to see the relationship between LUCC data and local flight CO_2 measurements with different temporal and spatial scales.
  - gave us relevant elements as to considered other LUCC data bases to make a mask outside Brazil
  - different temporal and spatial scales,
  - the annual influence areas of each site and other variables related to LUCC.

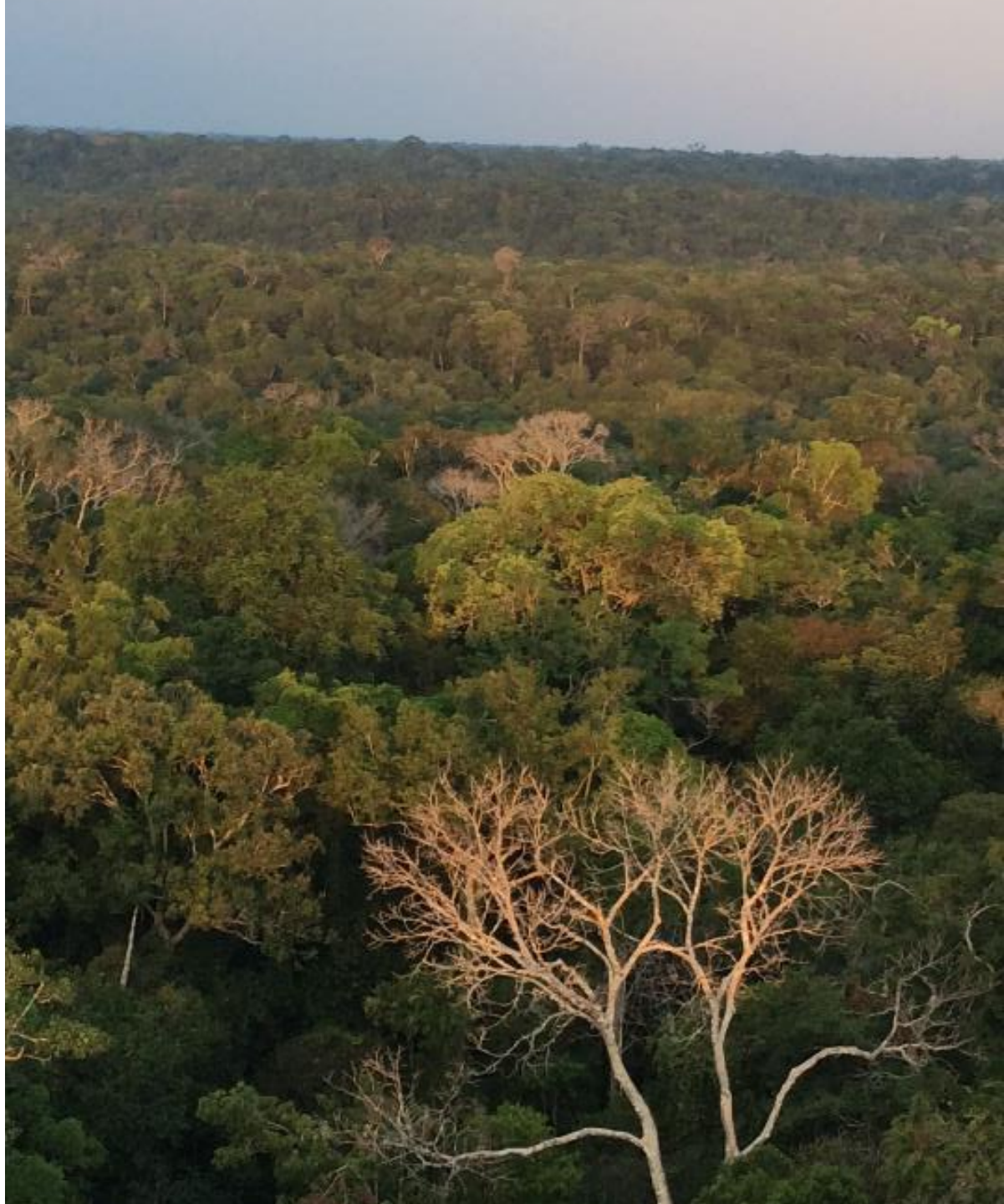
Conclusions

Thank you,

Obrigada,

Gracias

gracielatejadap@gmail.com
graciela.tejada@inpe.br



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