

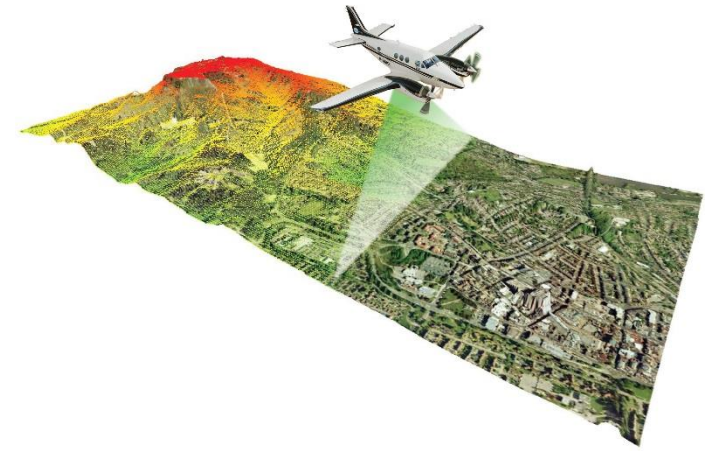


Subproject 7 development

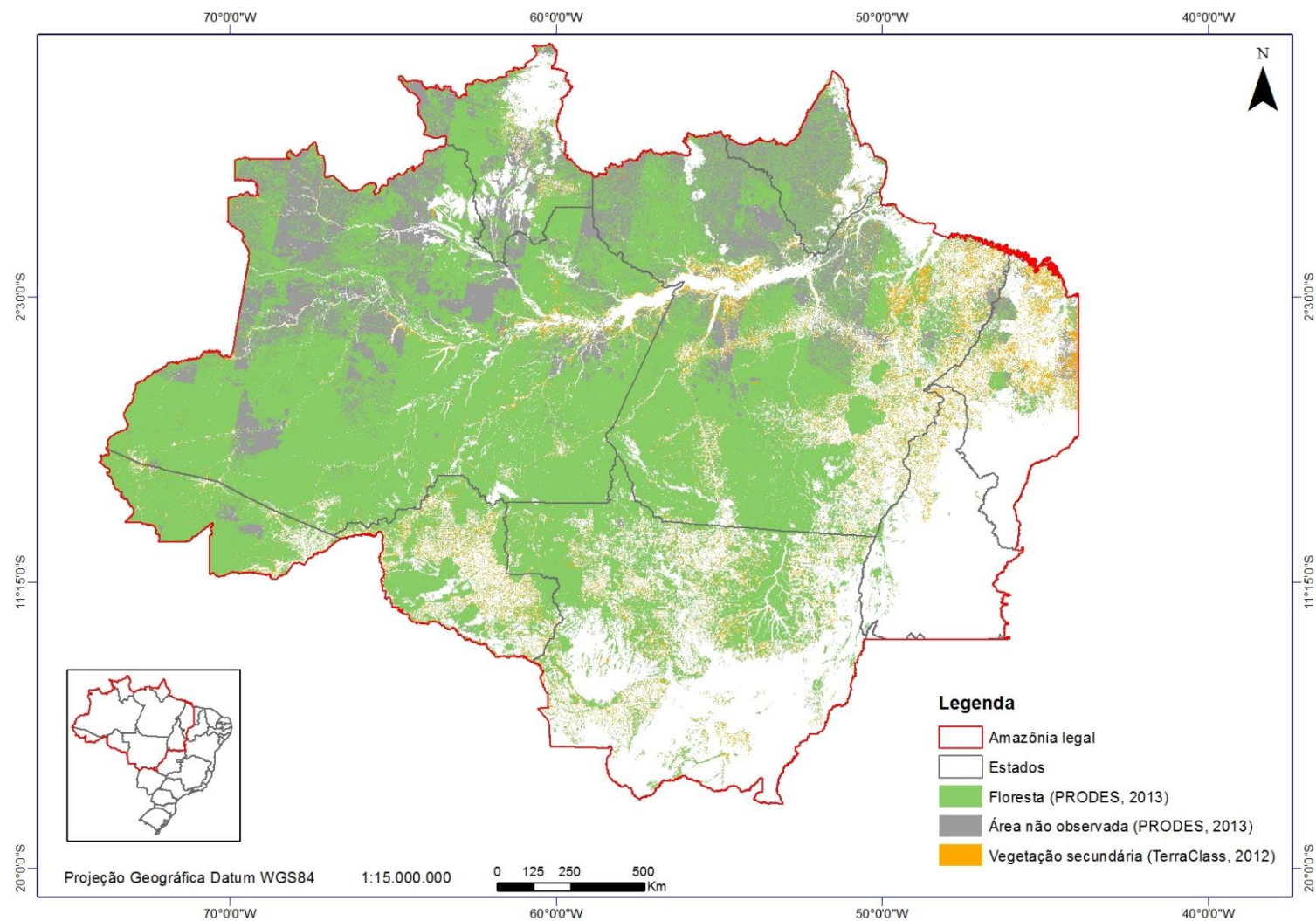
Eric Bastos Gorgens



Challenges



Amazon Limits + PRODES + TerraClass



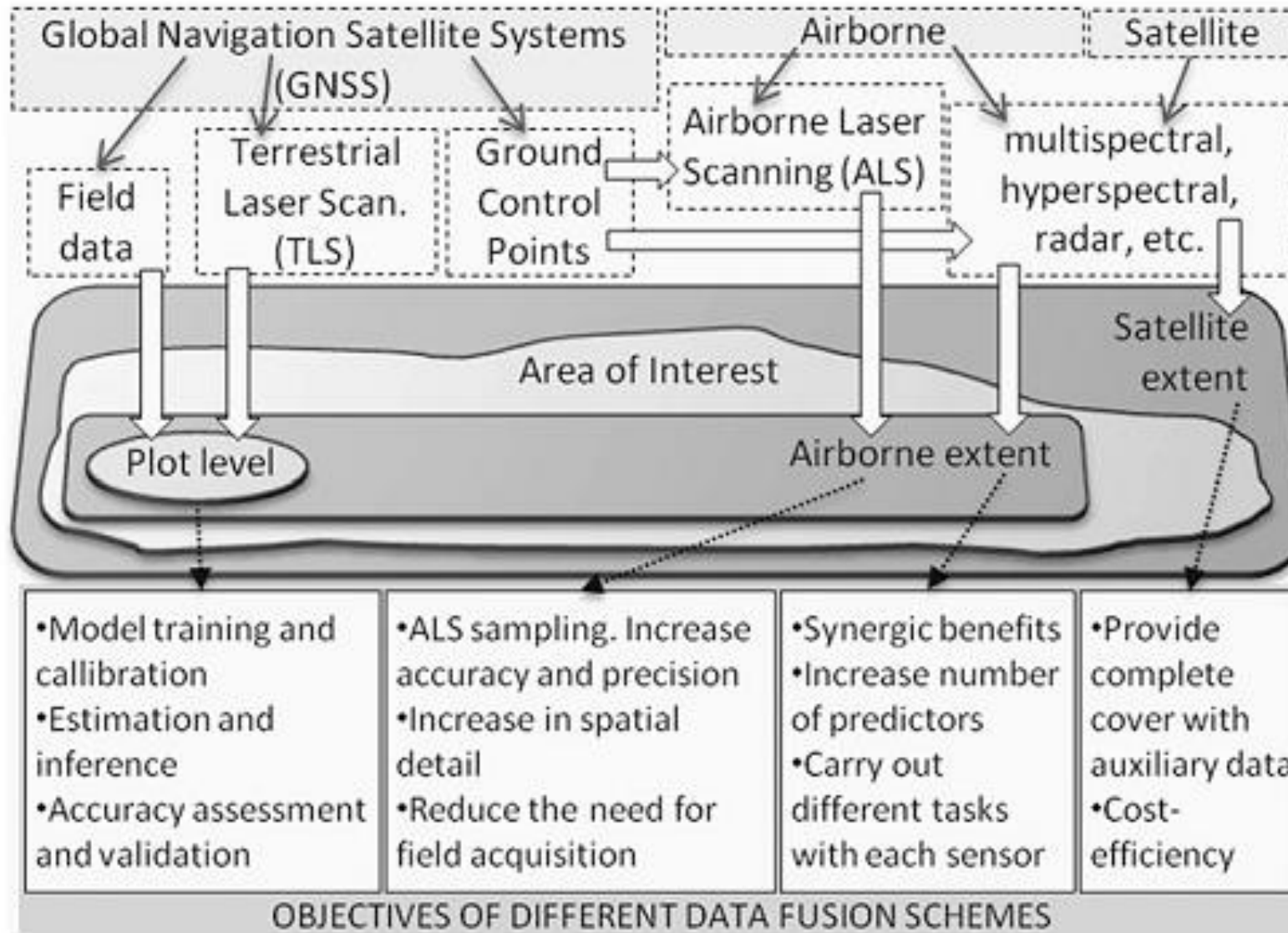


Fig. 4.1 Levels of data combination involved in multisource ALS forest inventory projects. From *top to bottom*: platforms for data acquisition, sensors and types of information, spatial scale of each of them, and objectives achieved by data fusion

MALTAMO, Matti; NÆSSET, Erik; VAUHKONEN, Jari. **Forestry Applications of Airborne Laser Scanning: Concepts and Case Studies**. Springer Science & Business Media, 2014.

Asner et. Al. (2012)

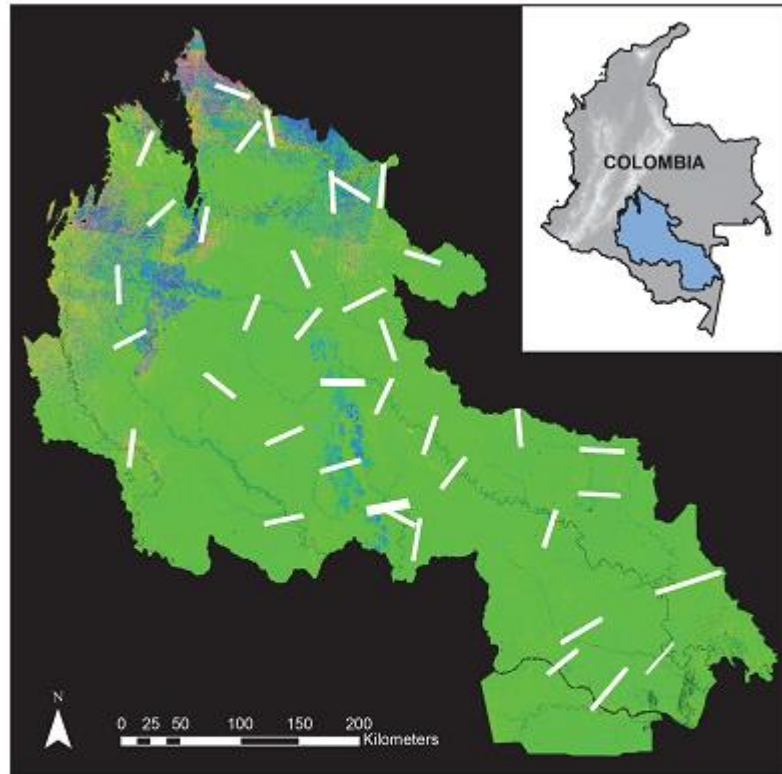


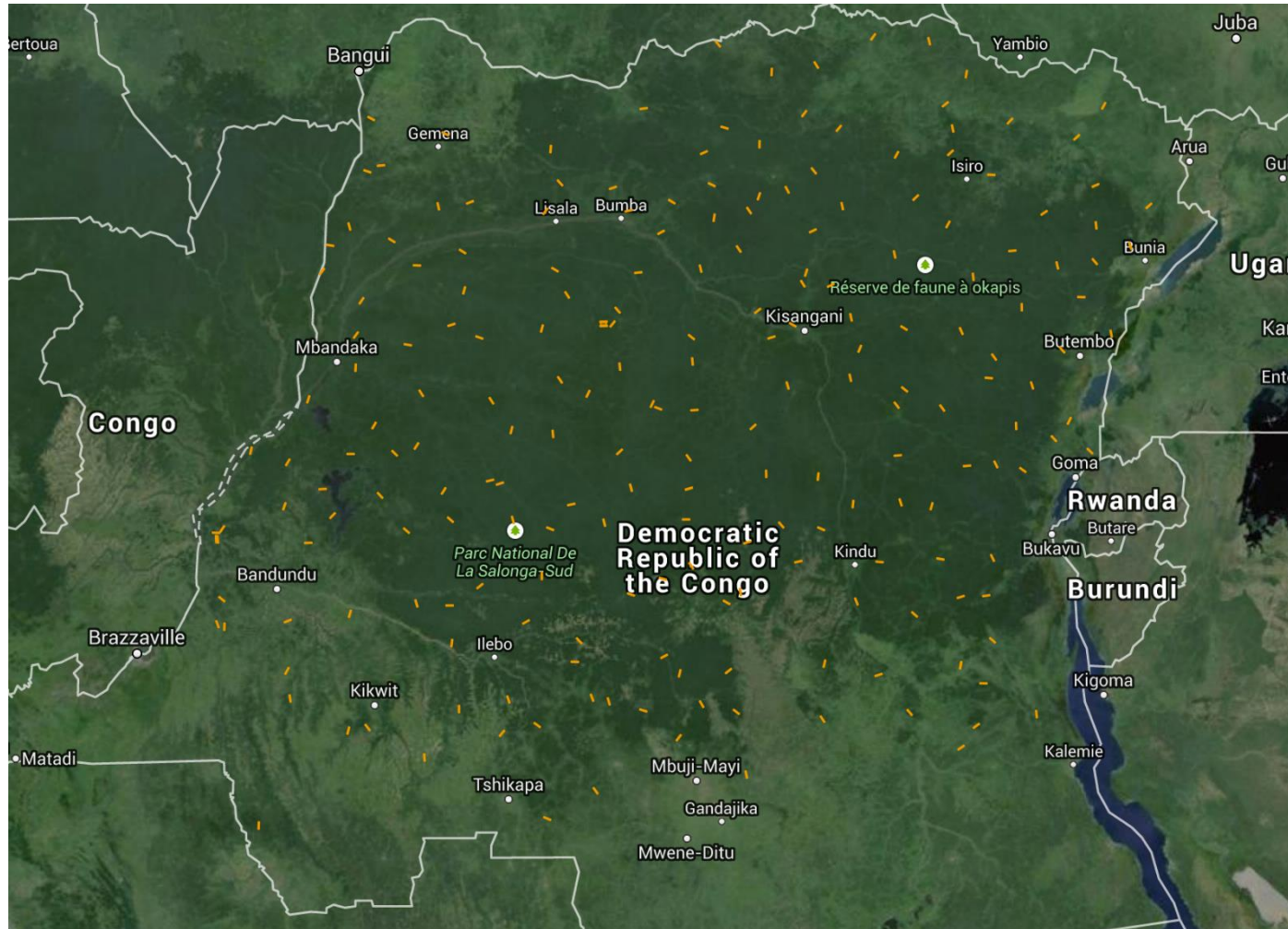
Fig. 1. A map showing the fractional cover of photosynthetic vegetation (PV; green), non-photosynthetic vegetation (NPV; blue) and bare soil (pink-red) throughout the 16.5 million ha study region in the Colombian Amazon (see inset). White polygons indicate 38 areas of airborne LiDAR samples, each up to 30 000 ha in size.

ASNER, G. P. et al. High-resolution mapping of forest carbon stocks in the Colombian Amazon. **Biogeosciences**, v. 9, n. 7, p. 2683-2696, 2012.

38 transects

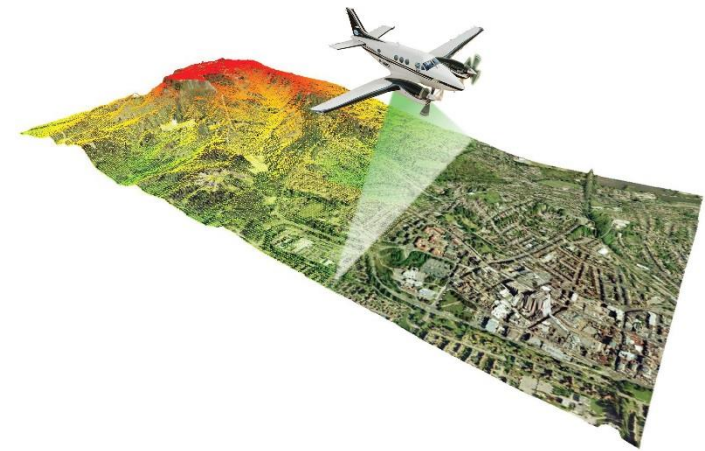
Up to 30.000 ha each transect

Pers. Comm. Saatchi (2015)



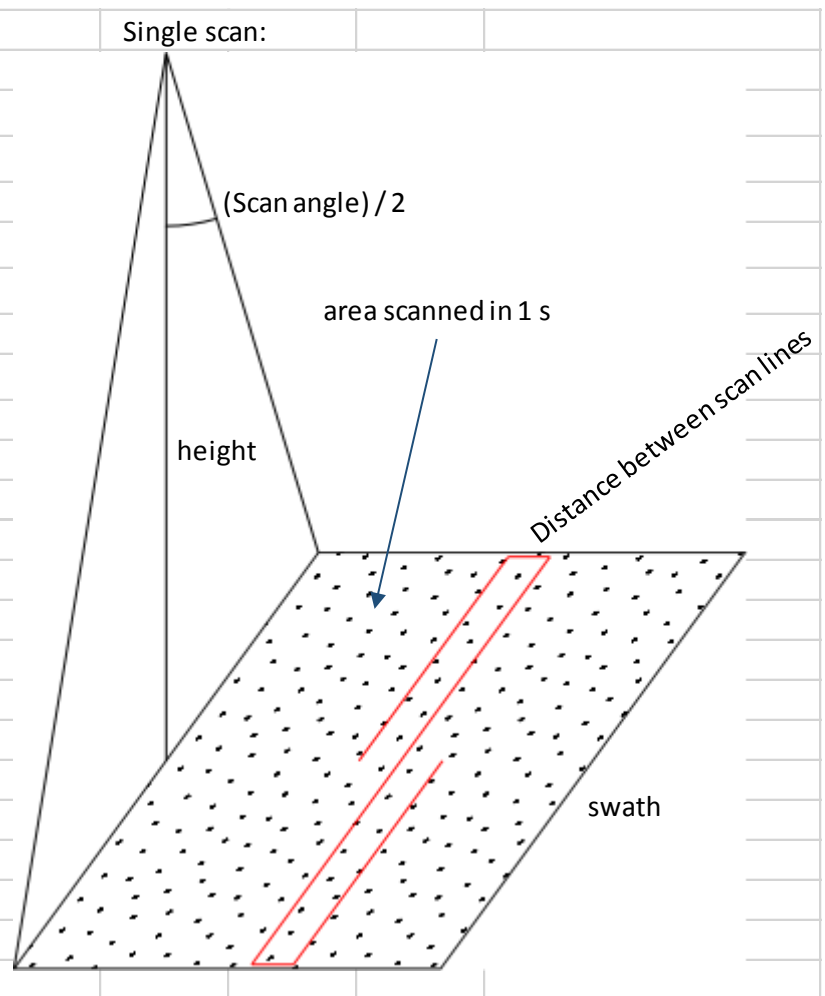
216 transects (1 x 20 km)
2000 ha / transect

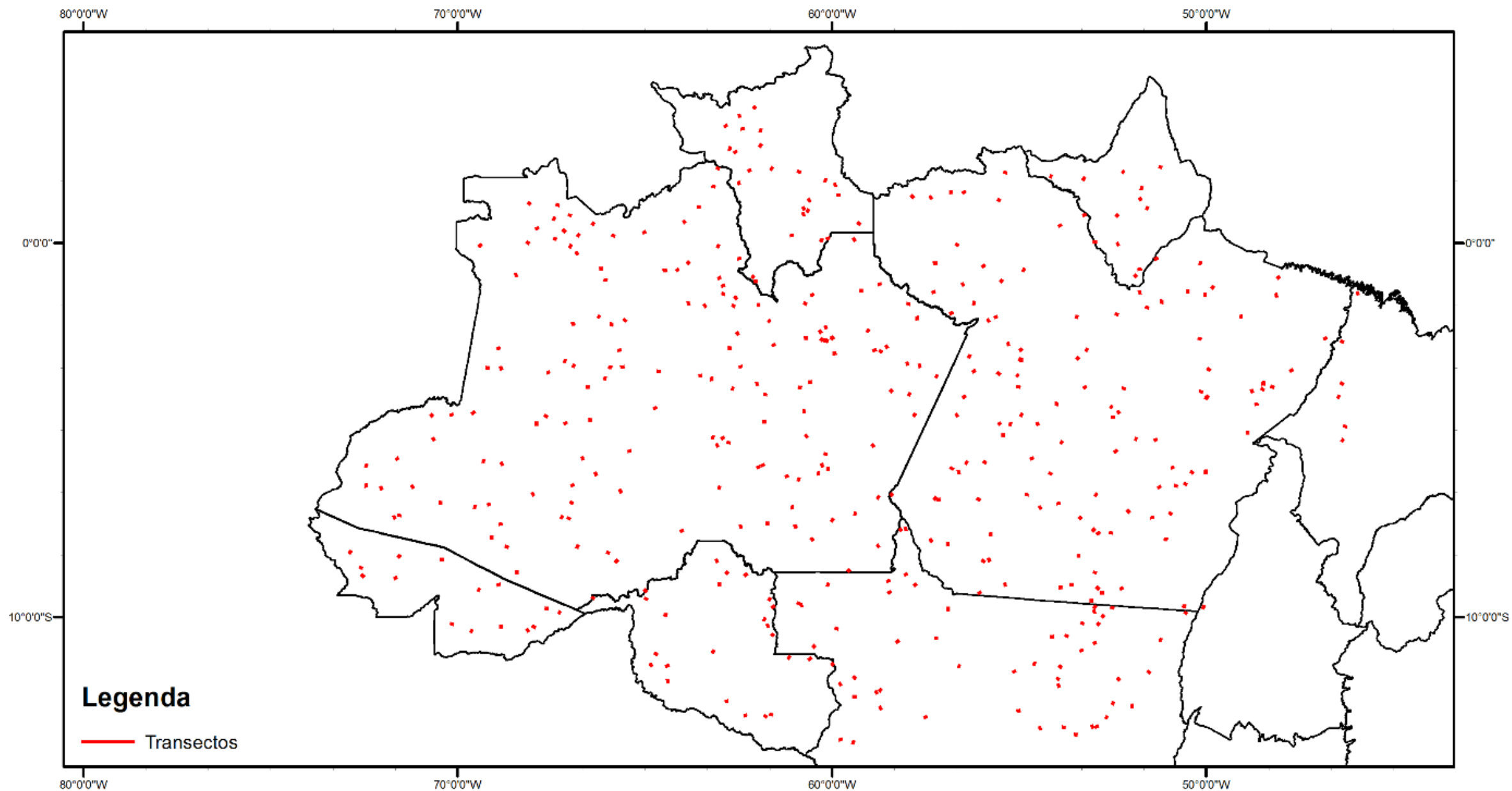
ALS campaign



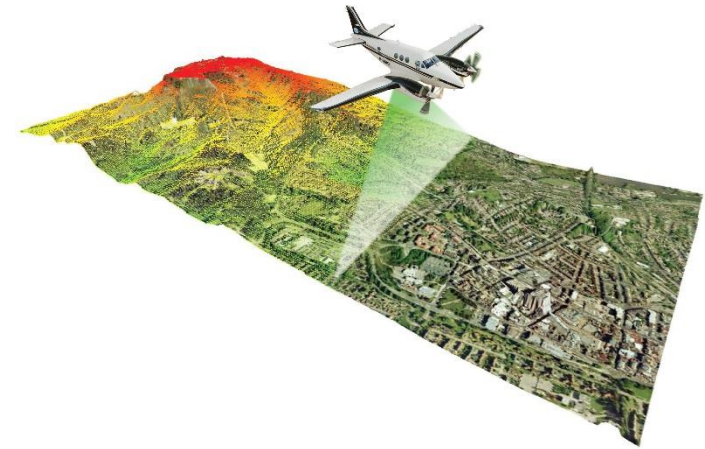
Package 1		
Amazon limits	km ²	5,217,423
Forested area	km ²	4,100,894
Secondary forest	km ²	172,189
Transect width	m	300
Transect length	km	12.5
Transect area	ha	375
Number of transects	transects	417
Area covered	ha	156,522
Full scan angle	°	15
Pulse density	pulses/m ²	4
Footprint	cm	15 a 30

Parametrização do voo							
aircraft speed	220	km h ⁻¹		aircraft height in m	950	1200	1500
	61.11111	m s ⁻¹		Single scan:			
				swath in m	250.1397454	315.9659942	394.9574928
scan angle	15	°		area scanned in m ² s ⁻¹	15286.31778	19309.03298	24136.29122
2 x tan(7.5) =	0.263305			pulse density in pts m ⁻²	5.23343824	4.143138607	3.314510886
				Overlapping scans:			
incident pulse rate	80	kHz		average pulse density in pts m ⁻²	5.23343824	4.143138607	3.314510886
scan frequency	1.5	Hz					
number incident pulses per cycle							
	53333.33						
average angle increment between pulses							
	0.000563	°					
Lateral overlap	0	%					
coverage factor	1						

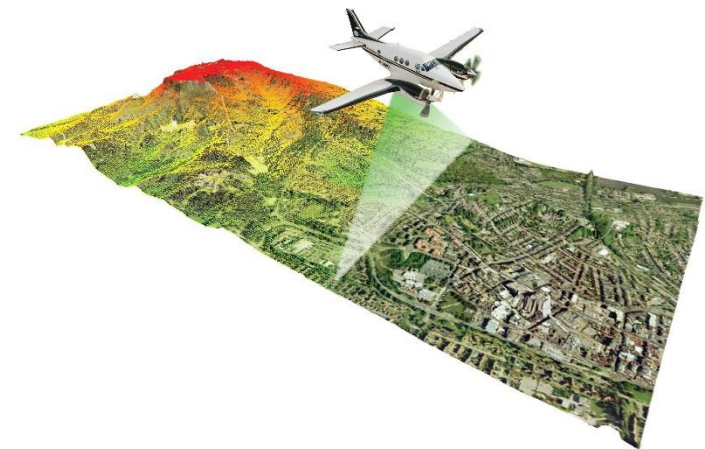


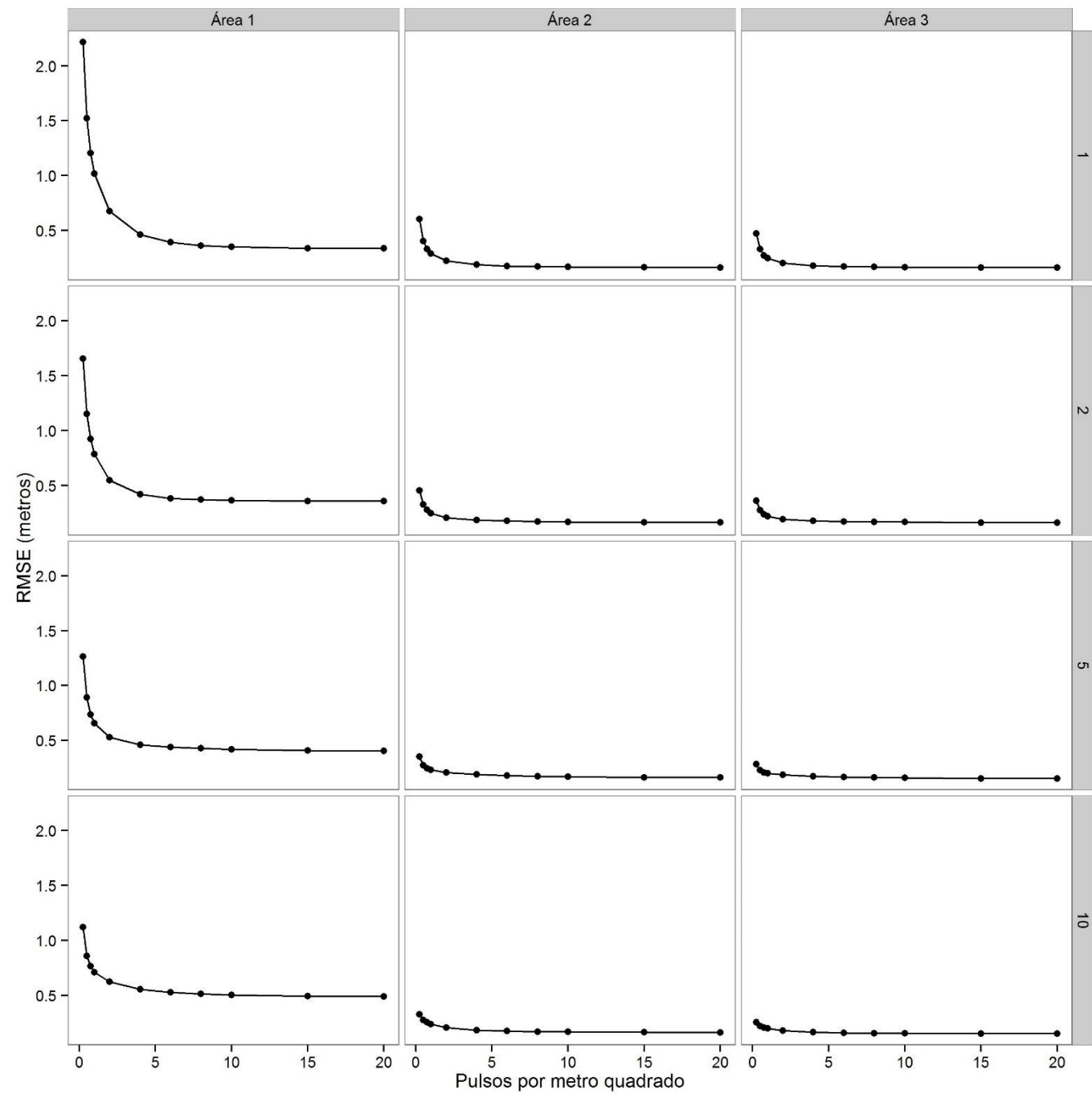


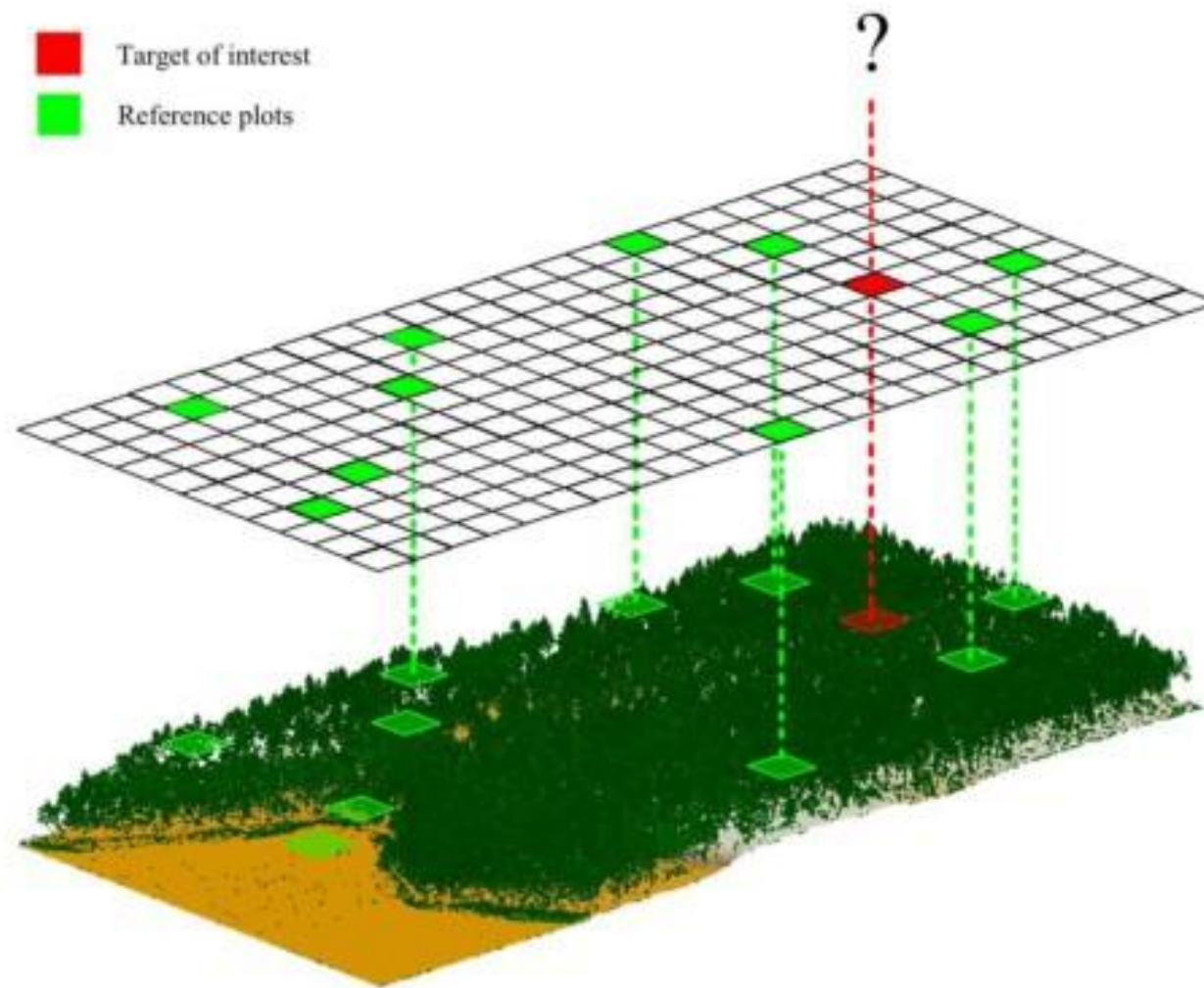
Thank you!

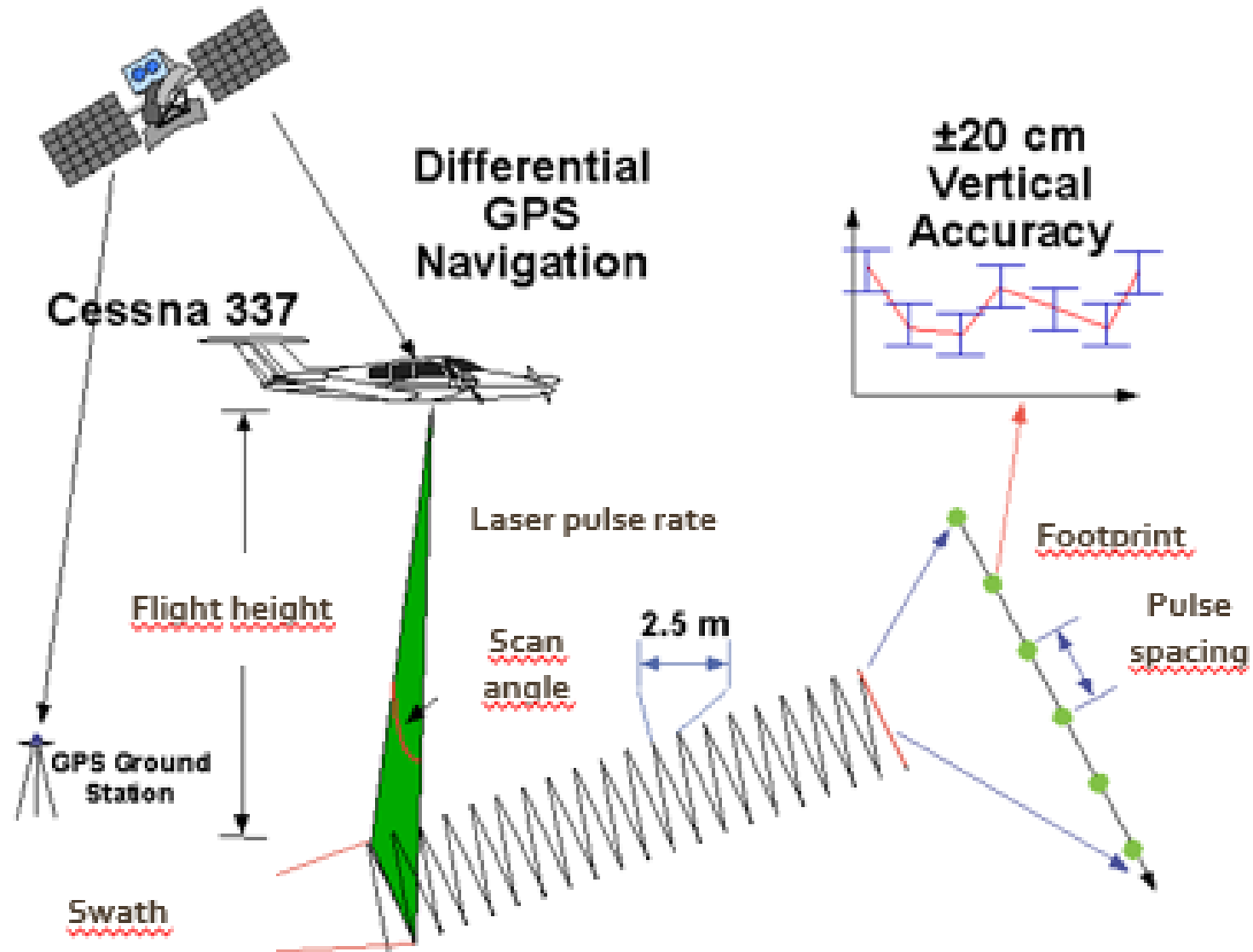


Extras

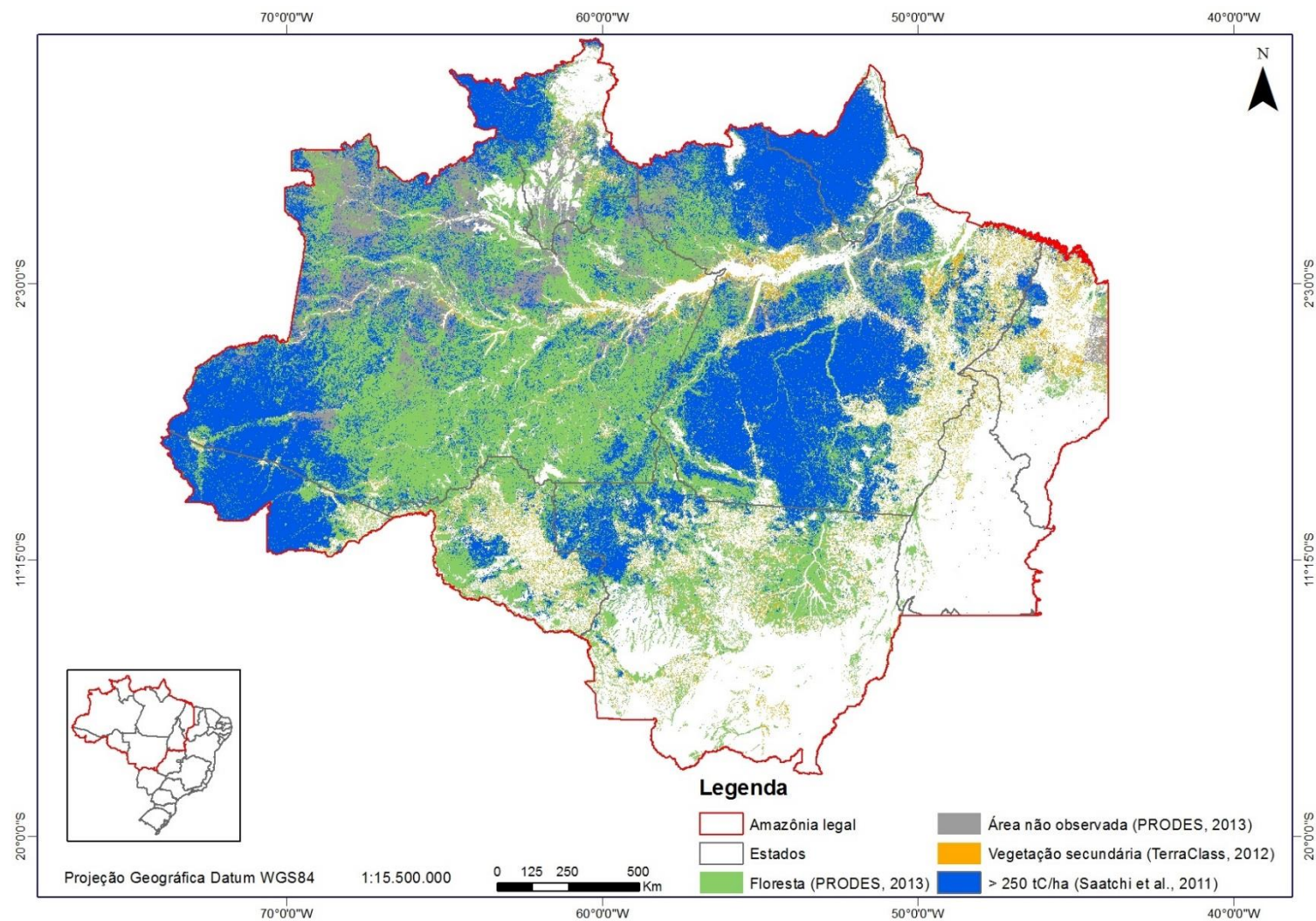








Estratificação 1: Biomassa > 200 Mg/ha



Estratificação 2: Diferença entre Baccini e Saatchi

