

K&C Phase 4 – Status report

***Detecting new deforested areas in the Brazilian Amazon using ALOS-2 PALSAR-2 imageries
(follow-up of K&C Phase 3 proposal)***

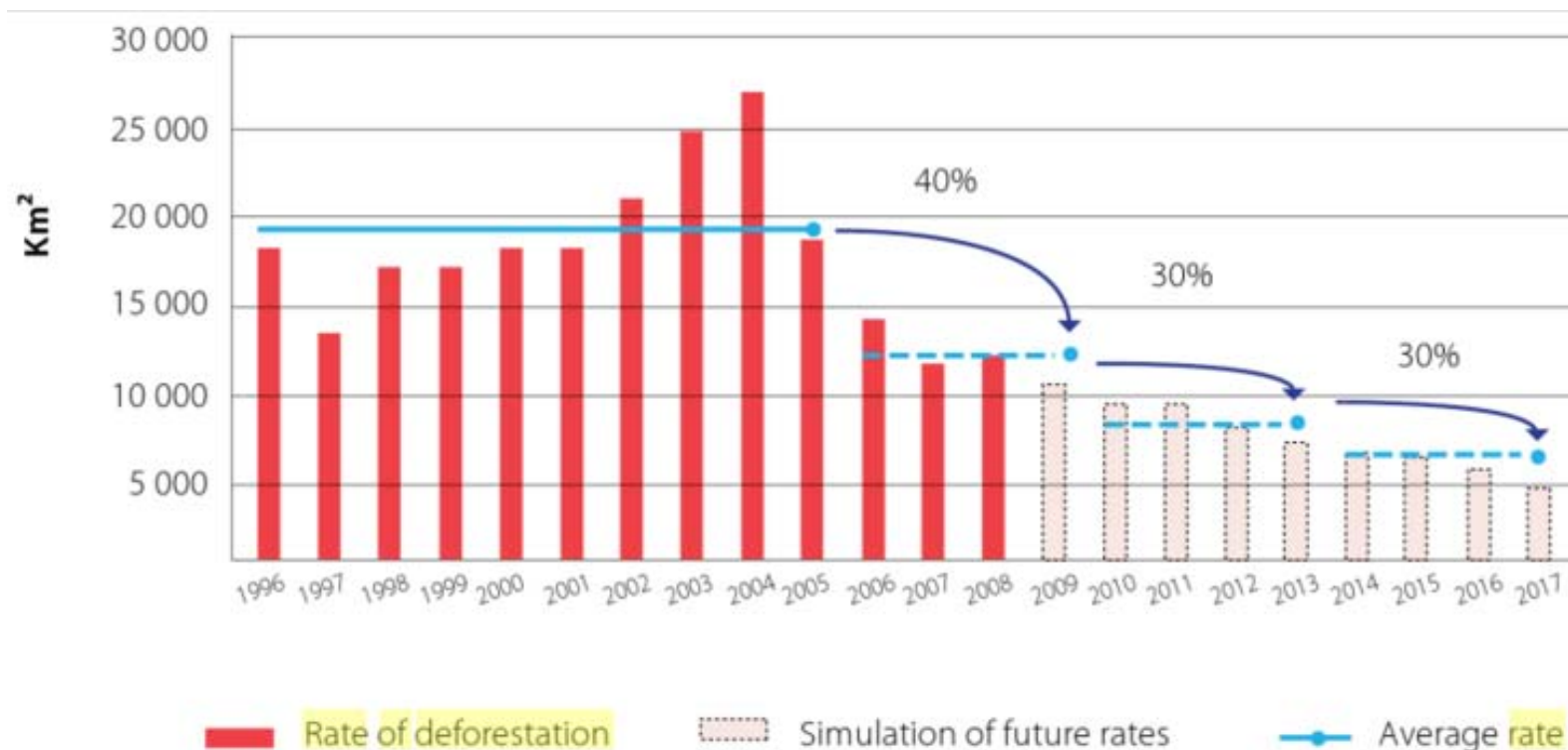
*Edson Sano
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Collaborators (IBAMA)

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K & C Thematic Drivers

Brazil's National Plan for Climate Change (COP 15, Copenhagen):
Reduction of 80% in the Brazilian Amazon deforestation rate by 2020 in relation to 1996-2005 baseline (19,500 km²)



K&C:

carbon

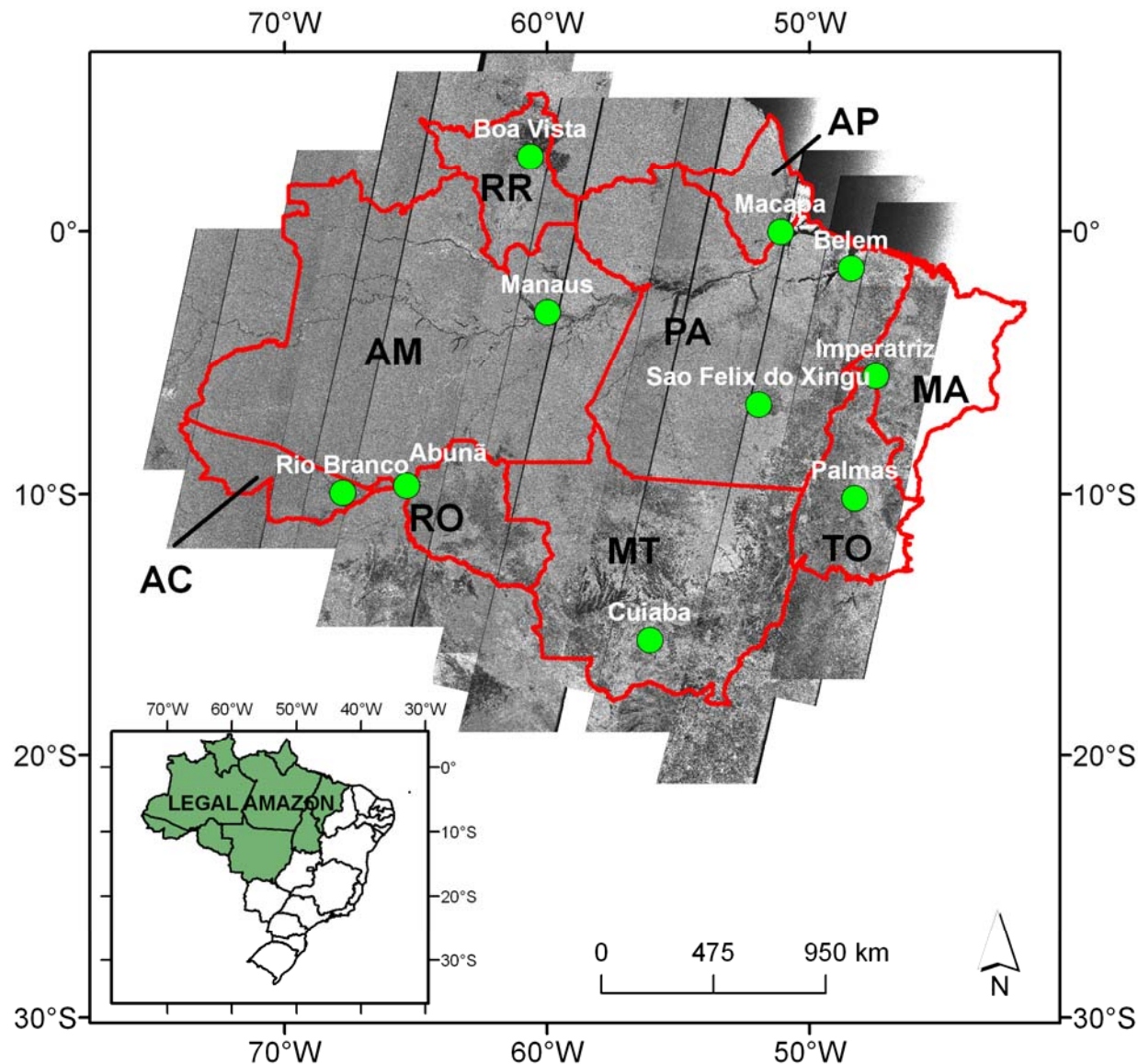
cycle science

environmental

conservation

Source:

May et al. (2011)



Project objective

To detect new deforested areas in the Brazilian Amazon using ScanSAR Wide mode data (60-m resolution, dual-pol) for law enforcement procedures

ALOS ScanSAR can cover the entire Brazilian Amazon every 45 days

POTENCIAL OF L-BAND

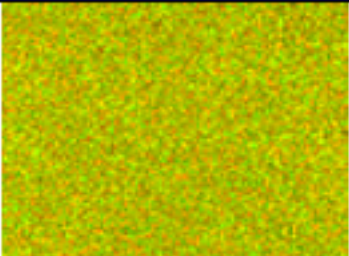



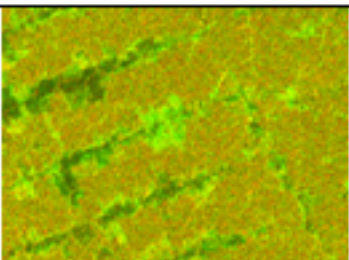

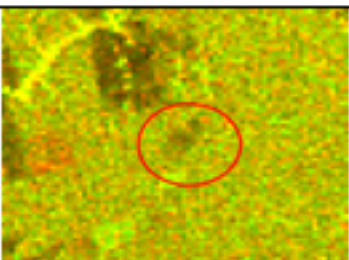

Detecting deforestation in southeastern Para State by airborne L-band and Resourcesat-2 AWiFS (nov/2014)

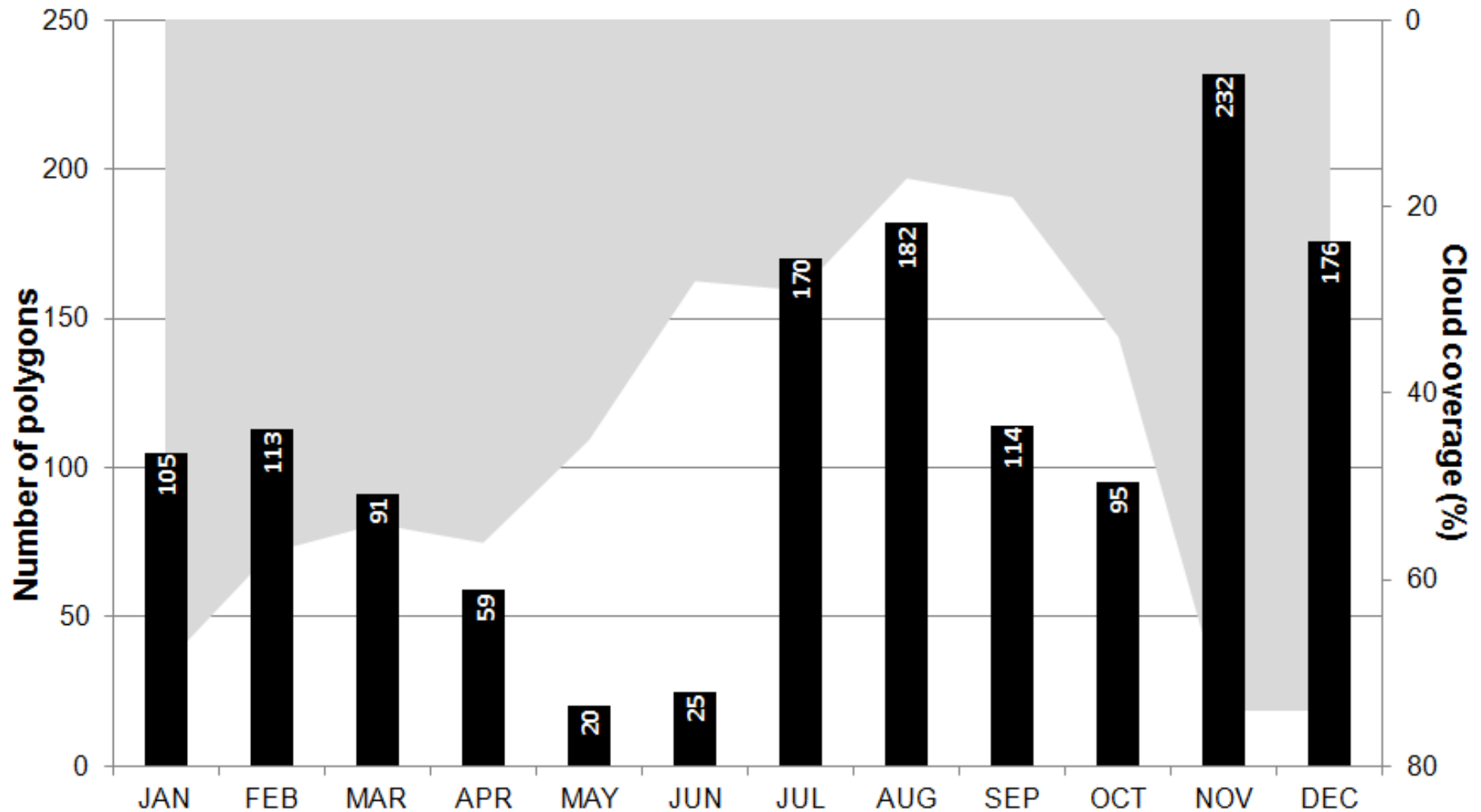
| Parameters | L-Band SAR (18-m) | AWiFS (56-m) |
|------------------------|------------------------------|-------------------------|
| # Poligons | 1,198 | 154 |
| Total area (ha) | 14,000 | 2,100 |
| Mean size (ha) | 12 | 14 |

PREVIOUS ANALYSIS OF PALSAR

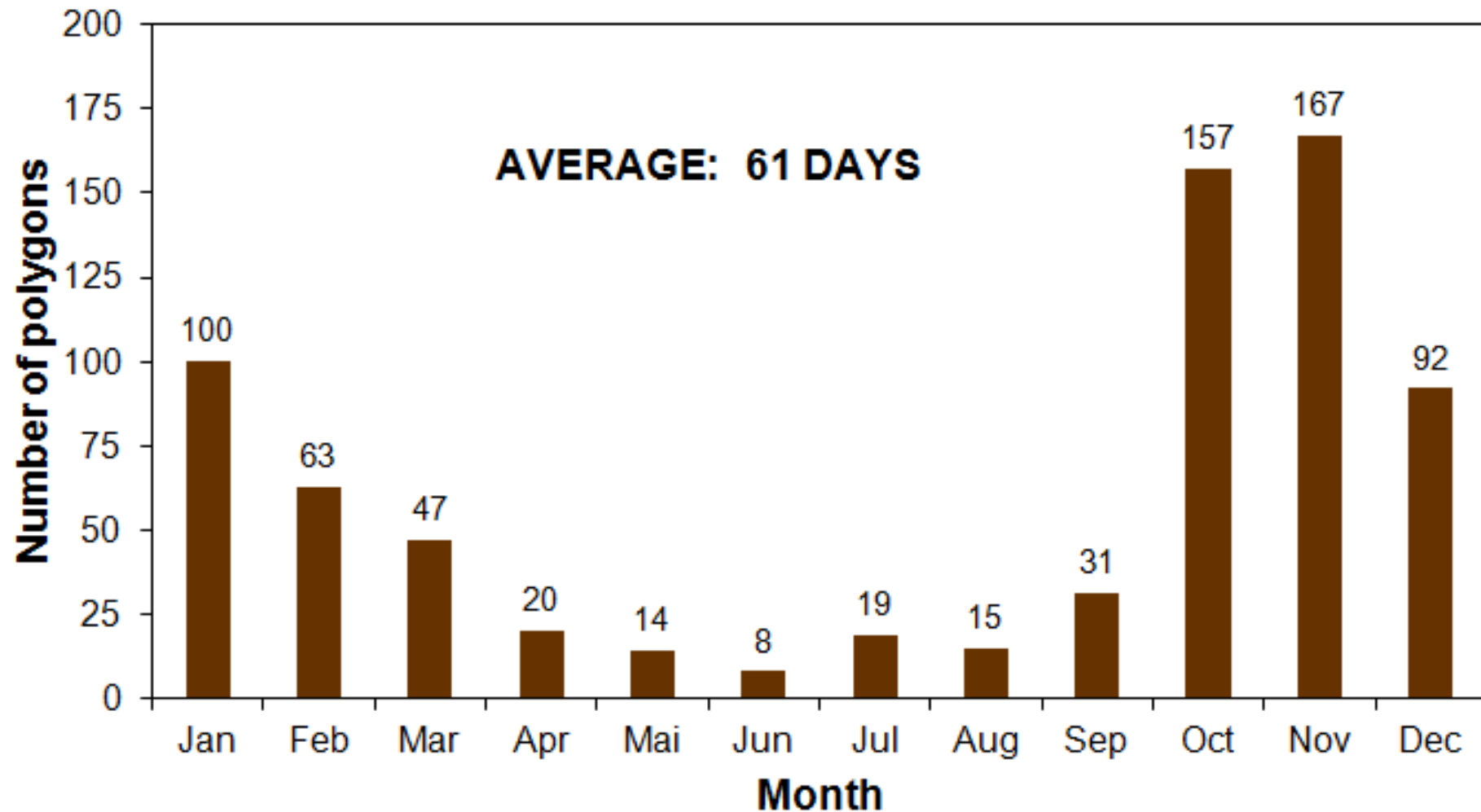
| CYCLE | YEAR | TIME PERIOD | MEAN RAINFALL (mm) |
|-------|-----------|-----------------------------|-----------------------|
| 30 | 2009 | September, 12 - October, 27 | 143.6 |
| 31 | 2009 | October, 28 - December, 12 | 197.1 |
| 32 | 2009/2010 | December, 13 - January, 27 | 370.6 |
| 33 | 2010 | January, 28 - March, 14 | 366.3 |
| 34 | 2010 | March, 15 - April, 29 | 403.1 |
| 35 | 2010 | April, 30 - June, 14 | 227.0 |
| 36 | 2010 | June, 15 - July, 30 | 145.5 |
| 37 | 2010 | July, 31 - September, 14 | 95.1 |
| 38 | 2010 | September, 15 - October, 30 | 146.5 |
| 39 | 2010 | October, 31 - December, 15 | 196.1 |
| 40 | 2010/2011 | December, 16 - January, 30 | 395.6 |
| 41 | 2011 | January, 31 - March, 17 | 497.8 |



| LAND COVER | RGB COLOR COMPOSITE | FIELD PICTURE |
|----------------------------|--|---|
| Primary Forest |  |  |
| Consolidated Deforestation |  |  |
| New Deforestation (bright) |  |  |
| New Deforestation (dark) |  |  |



Deforestations detected by the INPE's DETER and PRODES systems were masked



**A new deforestation detected by the PALSAR
will be seen 61 days after by the MODIS-based detection system**

ISSUES TO BE ADDRESSED

1. JAXA/JICA cooperation for generating polygons of deforestation in Tokyo: need for near real-time data for law enforcement procedures in the field
2. Accuracy: feedback from IBAMA field agents + two-site intensive field validation (under the RA-6 proposal)
3. Publications: need for Sigma nought or Gamma nought data.

SINOP/MT (BR-163)

Along BR-163 (Cuiabá/Santarém) Highway

Dry & wet seasons

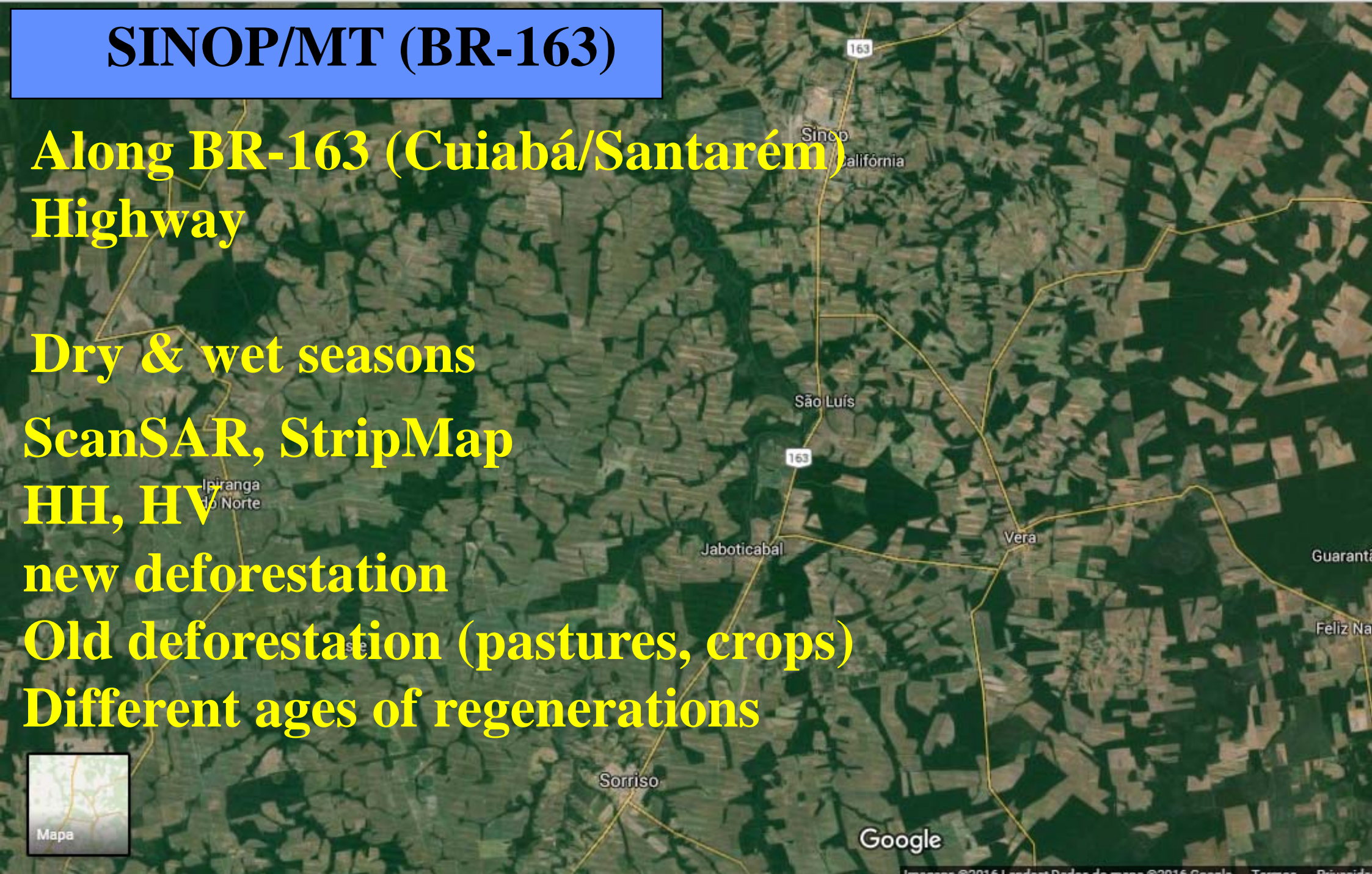
ScanSAR, StripMap

HH, HV

new deforestation

Old deforestation (pastures, crops)

Different ages of regenerations



RÉM/PA (BR-163)



1592-8495-2-RV.doc

Mostrar

The bottom of the image shows a Windows taskbar with several application icons, including a file explorer, a browser, and other standard Windows icons. The taskbar is blue and contains icons for various applications.

Project milestones, Data sharing & Deliverables

Maps of new deforested areas in the Brazilian Amazon per cycle

Validation of deforestation detection based on IBAMA's ground truth data and detailed field validation fro two sites