

## **K&C Phase 3 – Brief project essentials**

*Validation of JAXA's Forest/Non-Forest and Forest Cover  
Change Maps from Amazonia and Cerrado*

*Edson Sano  
IBAMA/Brazil*

## Project areas



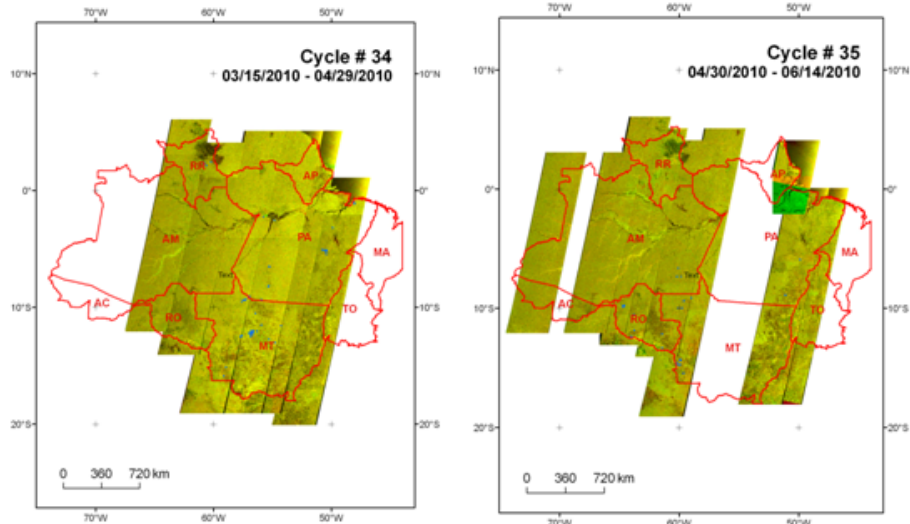
## Project objectives

**Provide most updated LULC maps and field information from Amazonia and Cerrado to validate:**

- a) the JAXA's forest and non-forest (FNF) global maps**
- b) the forest cover change maps.**

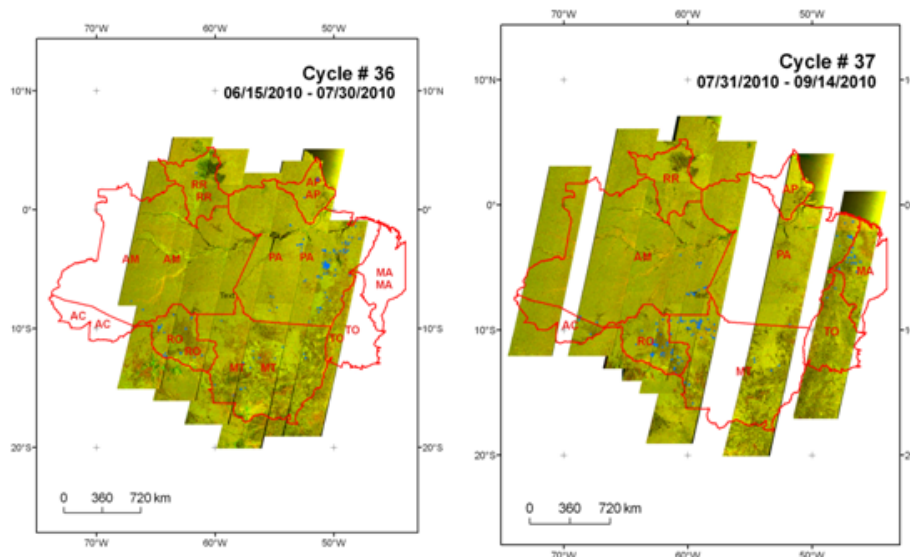
# ALOS

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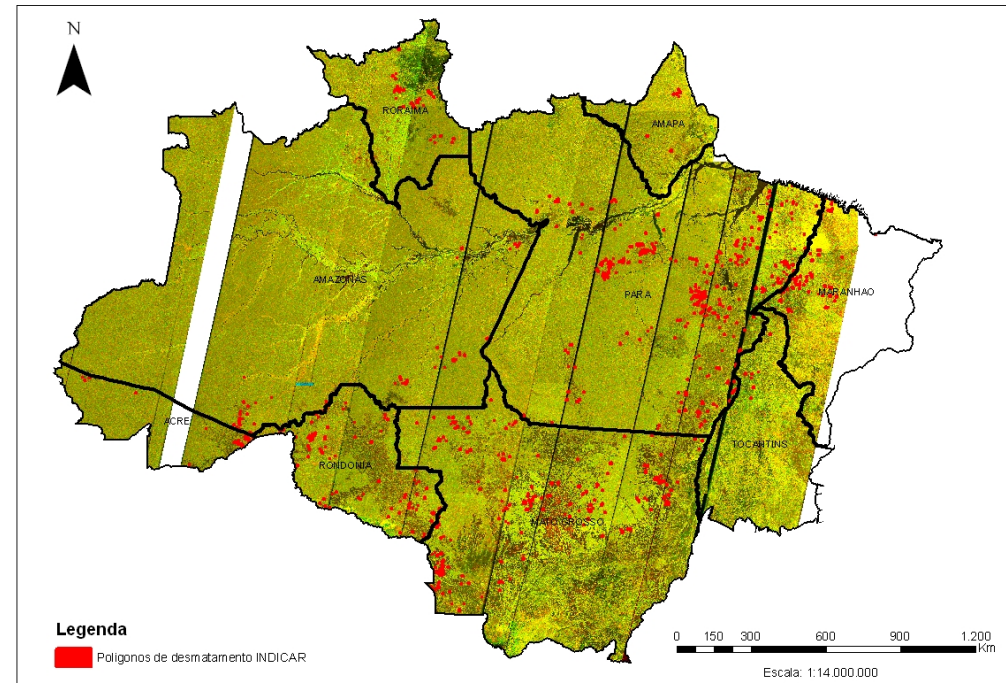


(a)

(b)

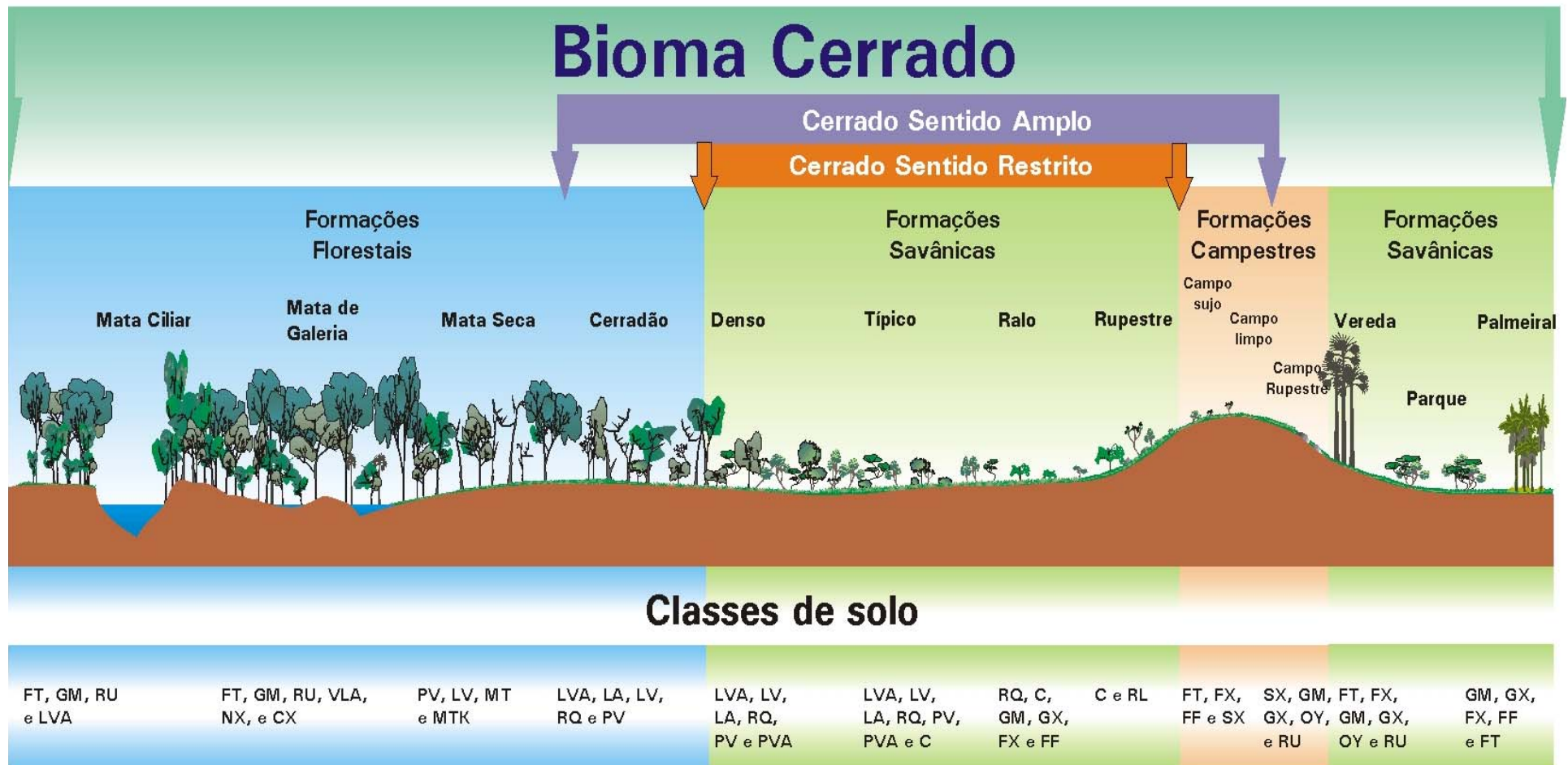


## Usefulness of PALSAR Amazônia: unquestionable !



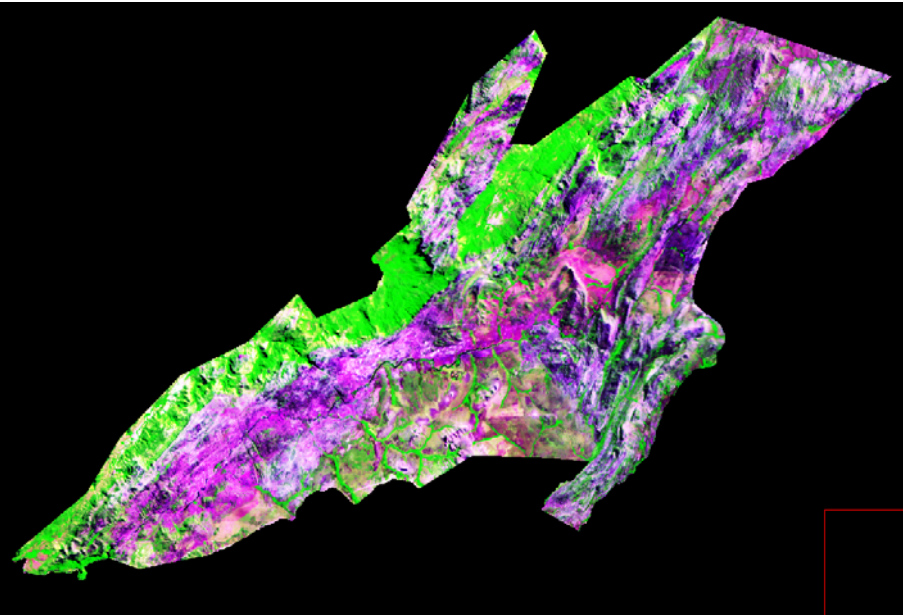
**INDICAR project @ IBAMA:**  
ScanSAR covers entire Amazonia every 45 days  
2,000 polygons of potential deforestation detected  
in 2010

## Usefulness of PALSAR Cerrado: challenging !



ALOS

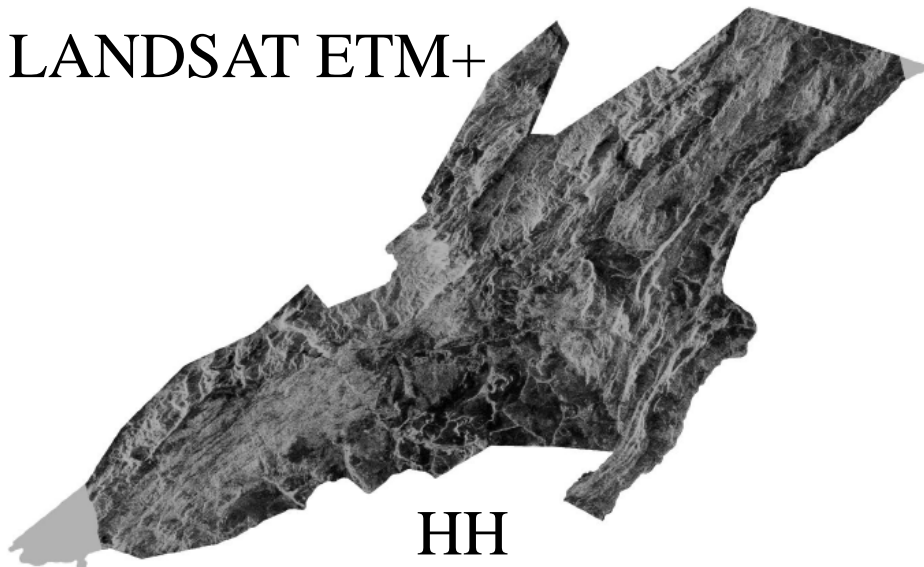
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**Usefulness of PALSAR**  
**Cerrado: there is information**  
**on PALSAR images.**

Chapada dos Veadeiros  
National Park

LANDSAT ETM+



HH



RGB/HH HV VV

## K & C Thematic Drivers

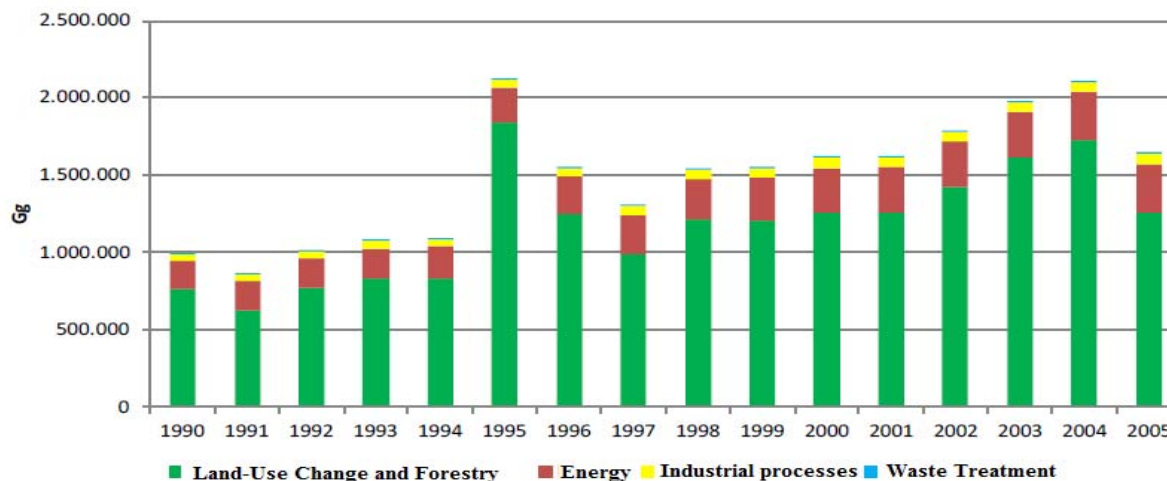
### K&C:

- contributions in carbon cycle science and environmental conservation

### Brazil (Nationally Adapted Mitigation Actions):

- Reduce in 80% the average CO<sub>2</sub> emission over the Amazonia in 2020.
- Reduce in 40% the average CO<sub>2</sub> emission over the Cerrado in 2020.

Emissions of CO<sub>2</sub> in Brazil





## Support to JAXA's global forest mapping effort

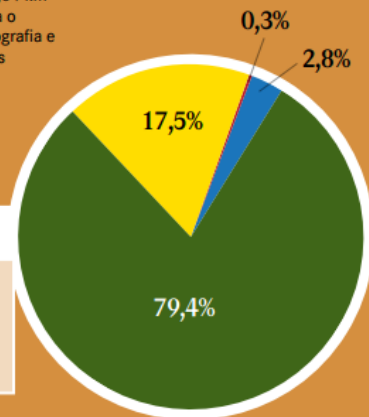
# Apresentação dos resultados

Os dados do PRODES para a Amazônia Legal apresentaram 3.214.300,37 km<sup>2</sup> de cobertura de floresta, 707.752,35 km<sup>2</sup> de desflorestamento acumulado até o ano de 2007, 11.458,64 km<sup>2</sup> em extensão de desflorestamento para o ano de 2008, 114.938,01 km<sup>2</sup> de hidrografia e 953.262,50 km<sup>2</sup> de áreas denominadas como não floresta.

### PRODES 2008

#### Domínio de Floresta Tropical

- Floresta
- Desflorestamento acumulado
- Hidrografia
- Desflorestamento 2008



O projeto TerraClass restringiu-se a qualificar os 707.752,35 km<sup>2</sup> de desflorestamento acumulado até o ano de 2007, mapeados pelo PRODES, considerando as onze classes temáticas apresentadas anteriormente.

Os resultados oriundos da quantificação das classes mapeadas pelo TerraClass são apresentados na tabela da página ao lado:

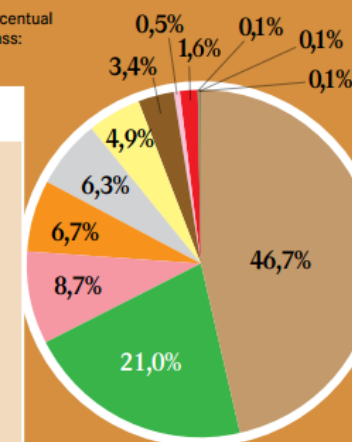
CLASSE	TOTAL	FREQUÊNCIA	FREQUÊNCIA ACUMULADA
Pasto Limpo	335.714,94	46,7%	46,7%
Vegetação Secundária	150.815,31	21,0%	67,6%
Pasto Sujo	62.823,75	8,7%	76,4%
Regeneração com Pasto	48.027,37	6,7%	83,1%
Área Não Observada	45.406,27	6,3%	89,4%
Agricultura Anual	34.927,24	4,9%	94,2%
Mosaico de Ocupações	24.416,57	3,4%	97,6%
Área Urbana	3.818,14	0,5%	98,2%
Mineração	730,68	0,1%	98,3%
Pasto com Solo Exposto	594,19	0,1%	98,3%
Outros	477,88	0,1%	98,4%
Desflorestamentos 2008	11.458,64	1,6%	100,0%
<b>TOTAL (Km<sup>2</sup>)</b>	<b>719.210,99</b>		

O gráfico a seguir apresenta a distribuição percentual das classes temáticas mapeadas pelo TerraClass:

### TERRACLASS 2008

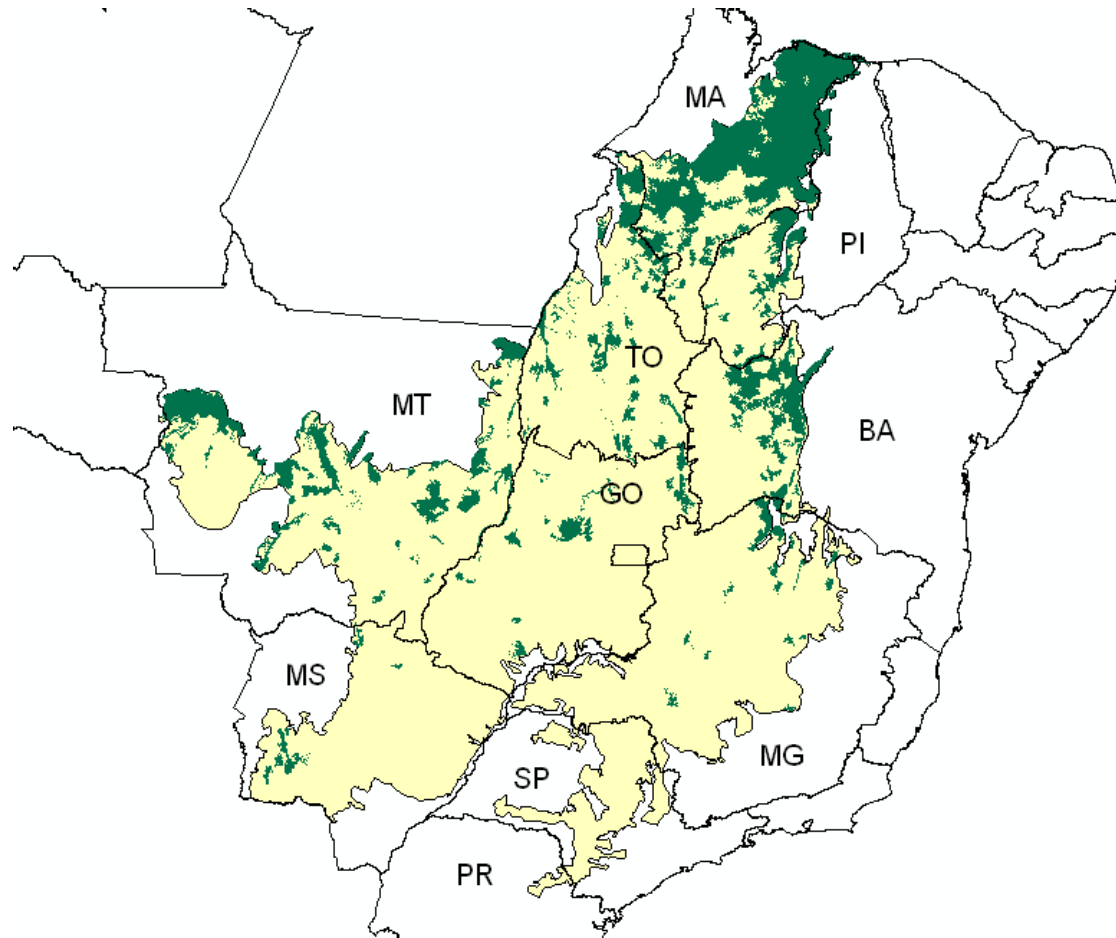
#### Classes de Uso e Cobertura da Terra nas áreas desflorestadas da Amazônia

- Pasto Limpo
- Vegetação Secundária
- Pasto Sujo
- Regeneração com Pasto
- Área Não Observada
- Agricultura Anual
- Mosaico de Ocupações
- Área Urbana
- Mineração
- Pasto com Solo Exposto
- Outros
- Desflorestamento 2008





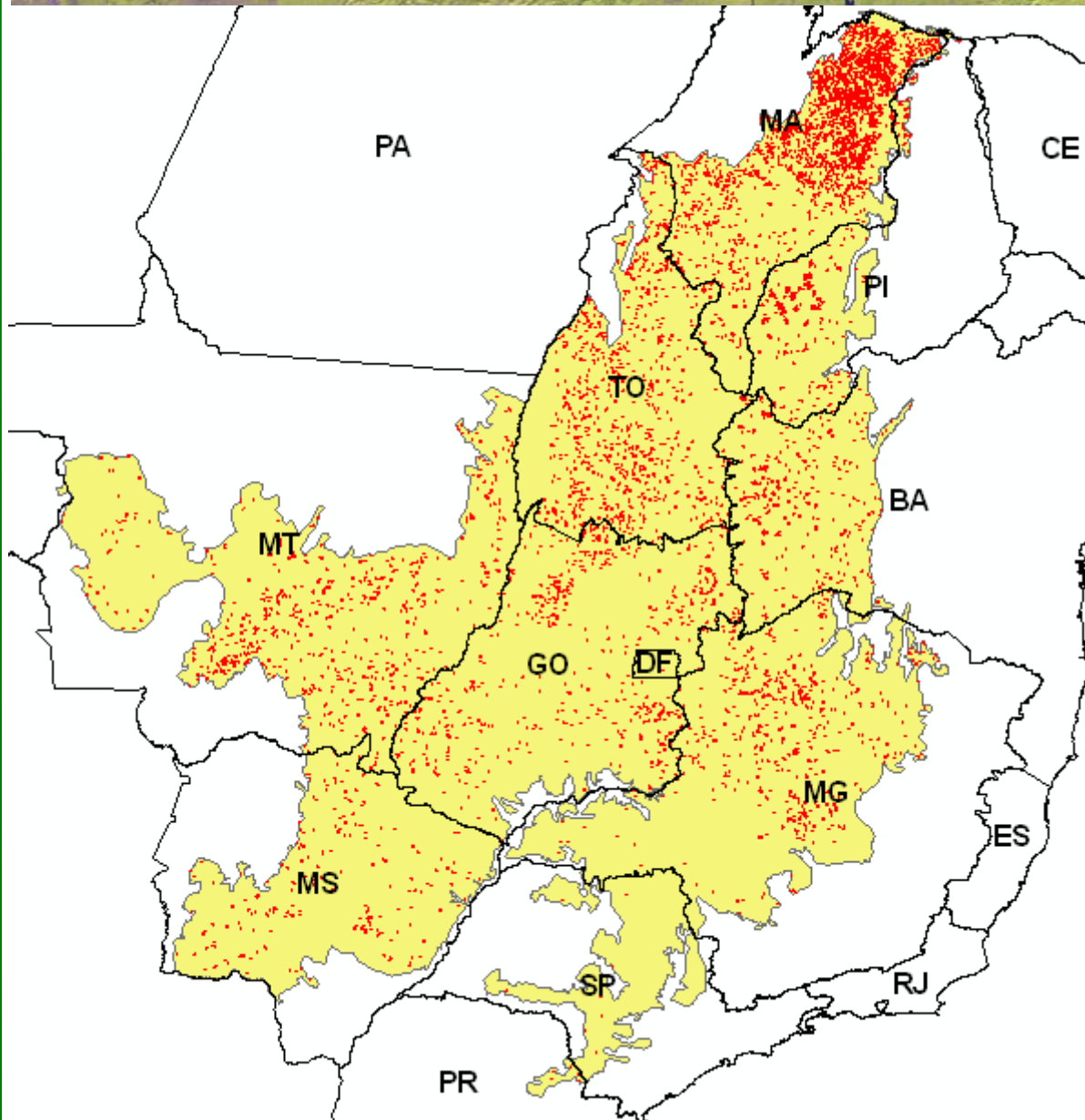
## Support to JAXA's global forest mapping effort



Forestlands in Cerrado  
(2002)

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Deforestation in 2009-2010:  
646,900 hectares

Polygon sizes are  
exaggerated for viewing  
purpose

## Deliverables

- **July/2013:** Validated FNF map of Amazonia (baseline: 2008)
- **July/2013:** Validated FNF map of Cerrado (baseline: 2008)
- **Mar/2014:** Validated forest-cover change of Amazonia (time periodo: 2008-2010)
- **Mar/2014:** Validated forest-cover change of Cerrado (time period: 2008-2010)

## Sharing Ground Truth Data

- **Field digital photos, at least 30 sites per State, with varying number of photos.**
- **Georeferenced, low altitude, oblique, digital photos from helicopters, along ongoing deforestation mainly in the States of Rondonia (RO), Mato Grosso (MT), and Para (PA).**

## Request for Satellite Data

- **PALSAR FBD (HH+HV) mosaics at 25-m pixel spacing from Amazonia and Cerrado.**
- **Time period: 2008-2010**

## Issues to be addressed

- Accuracy of existing natural vegetation classes mapped over Amazonia and Cerrado.
- Definition of forest.

**Are these forests?**



## Team Members

- Daniel Freitas de Moraes
- Emerson Luiz Servello
- **Edson Eyji Sano (coordinator)**
- Felipe Luis Lacerda de Carvalho Cidade Matos
- George Porto Ferreira
- Marcelo Cabral de Aguiar
- Rodrigo Antonio de Souza
- Silvia Nascimento Viana
- Werner Luis Ferreira Gonçalves
- Remote Sensing Center – CSR

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