Assimilation of PALSAR data into INPE's Amazon Program

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INPE's Amazon Program

PRODES – Amazonian Deforestation Monitoring Project

DETER – Real Time Detection of Deforestation in the Amazon Region Project

DETEX – Detection and Monitoring of Selective Logging Activities in the Amazon

INPE's Amazon Program

PRODES – Yearly inventory of deforestation rate

- –High resolution optical data (Landsat, CBERS, DMC, Spot)
- –15% of remaining cloud cover -some permanent areas

- Application: Assessment of the effectiveness of deforestation control policies, public awareness

- Potential applications: Carbon emission reports for Kyoto Protocol, REDD, Estimation of Biodiversity Loss

(www.obt.inpe.br/prodes)

INPE's Amazon Program

DETER – Fast detection of deforestation events

–Moderate resolution optical data (Terra/MODIS, CBERS/WFI)

–High level of cloud cover - very limited in the rainy season

–Survey intensity (2/month, starting 3/month this year)

•Applications:

–Law enforcement

–Early warning for policy makers

–Public awareness

•Main user: IBAMA. Interest from State level authorities

(www.obt.inpe.br/deter)

Reasons for application of ALOS/PALSAR data

|	aug/07	sep/07	oct/07	nov/07	dec/07	Total
AC	8	5	29	7	28	78
AM	11	18	33	59	42	163
AP						
MT	93	210	238	707	538	1786
PA	75	294	109	68	45	591
RO	54	84	32	67	295	533
RR				66		66
TO	2	0	16			18
Total	**243**	**632**	**515**	**989**	**948**	**3327**

Product Box F-4 – Deforestation Monitoring

K&C product(s): (FCM2) (1) Completion of INPE's yearly updates of forest cover and deforestation map done within the Amazonian Deforestation Monitoring Project (PRODES) through the analysis of ALOS/PALSAR data in areas where cloud cover does not allow the application of optical data. (2) Assessment of the extent of forest cover mapped as deforestation in PRODES due to regeneration and commission errors. (3) Detection of new deforestation during the rainy season within INPE's Real Time Deforestation Detection Project (DETER).

Intended use: Product #1: Assessment of the efficiency of the Brazilian deforestation control policies. Products #1 and #2: Support for regional carbon budget and carbon balance surveys for Kyoto Protocol National Reports and potential REDD surveys; provision of basic data for land use/land cover change modelling to support policy making for the Brazilian Legal Amazon Region. Product #3: Support for law enforcement to control illegal deforestation in the Amazon Region conducted by IBAMA.

Prototype areas: The Brazilian Amazon

Input data: ALOS PALSAR Path Images, 50 m resolution
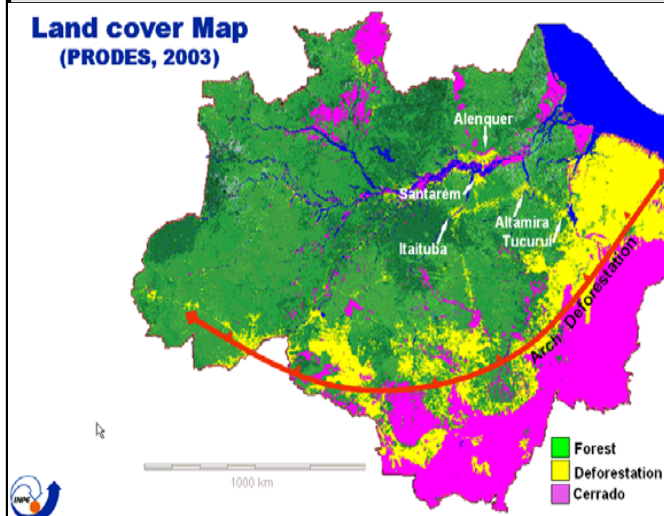
Deforestation maps of the Brazilian Legal Amazon generated through the PRODES project using Landsat, CBERS, DMC and SPOT data. ALOS/PALSAR will be used to refine these maps with information about annual changes, particularly in areas of persistent cloud cover, and thus provide a complete assessment of the dynamics of deforestation. The moderate resolution satellite data based detection of new deforestation done within the DETER Project is aimed at the support of law enforcement to control illegal deforestation. Presently it is based on Terra/MODIS and CBERS/WFI data. The use o ALOS/PALSAR data from the rainy season will complete this fast assessment of the deforestation process which is very limited with the use of optical data.

Product Developer:

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Collaborator	
Humberto Navarro Mesquita Junior	Brazilian Institute for Environment and Natural Renewable Resources (IBAMA).

K&C Proposed products

1. Completion of INPE's yearly updates of forest cover and deforestation map done within the Amazonian Deforestation Monitoring Project (PRODES) through the analysis of ALOS/PALSAR data in areas where cloud cover does not allow the application of optical data.

2. Assessment of the extent of forest cover mapped as deforestation in PRODES due to regeneration and commission errors.

3. Detection of new deforestation during the rainy season within INPE's Real Time Deforestation Detection Project (DETER).

BRAZIL

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STATE

ALOS PALSAR

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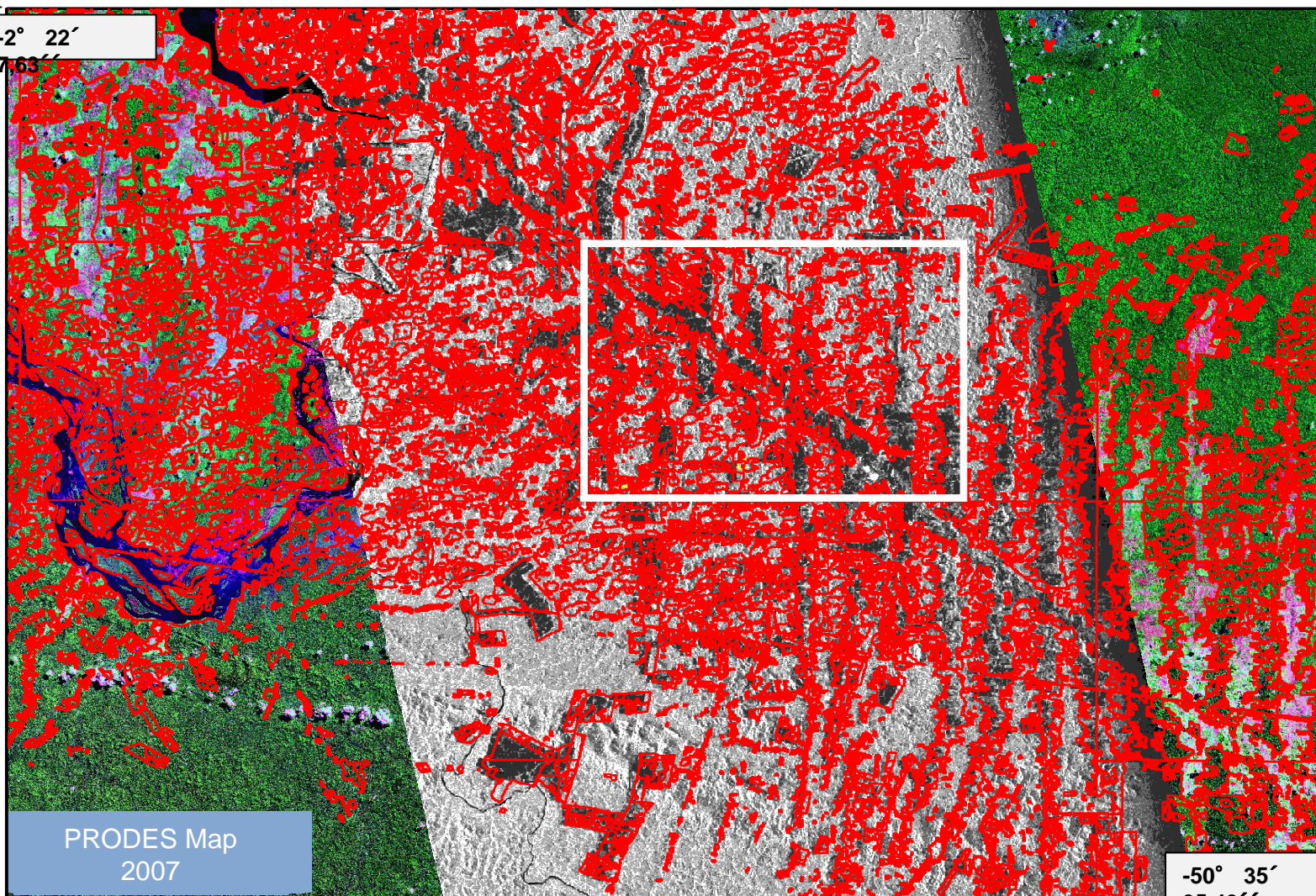
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-2° 22´ 7,63´´
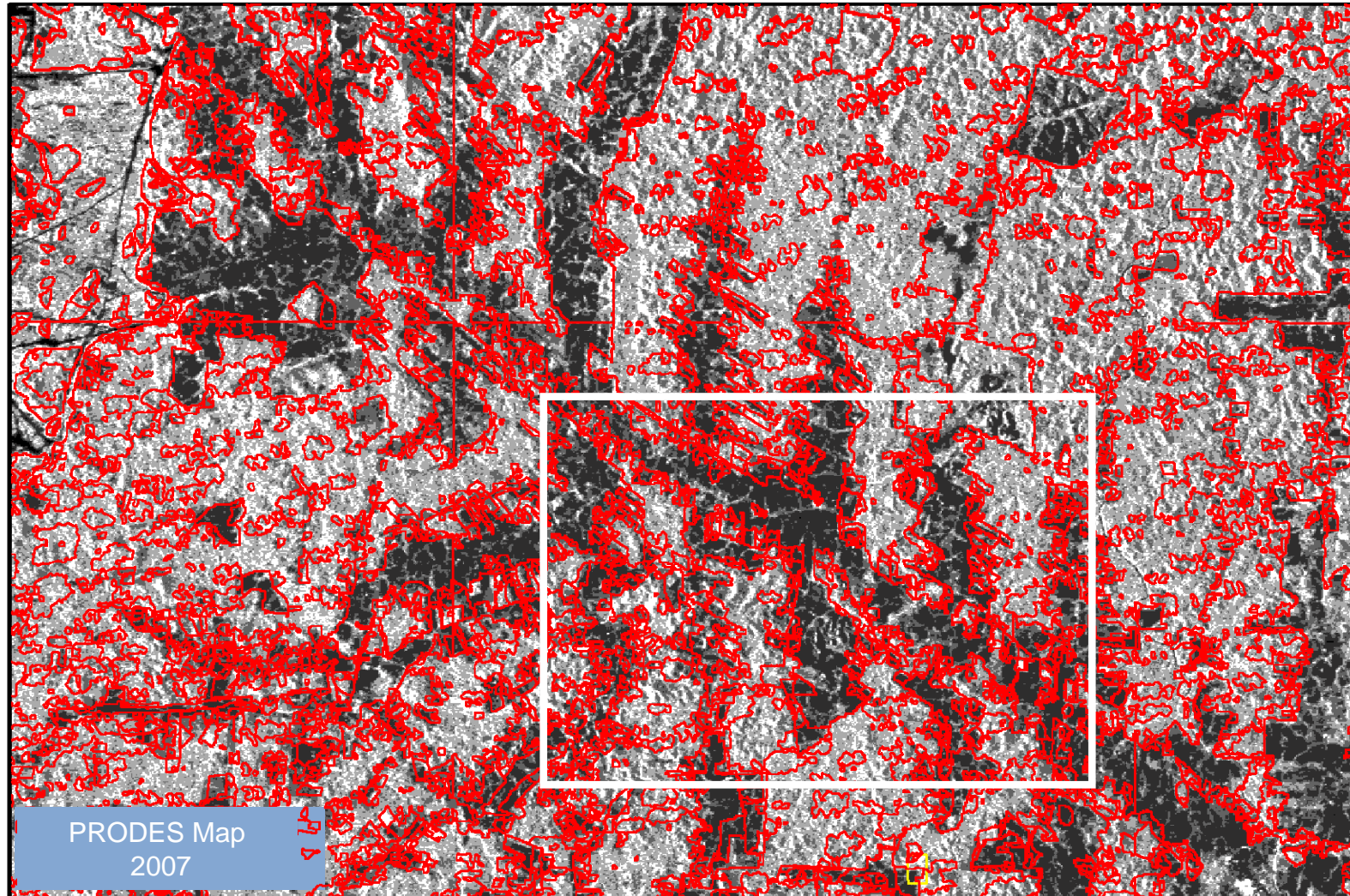
-50° 35´ 35,43´´

-4° 31´ 58,96´´

PRODES Map
2007

ANAPU
PARÁ STATE - BRAZIL

PRODES Map
2007

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PARÁ STATE - BRAZIL
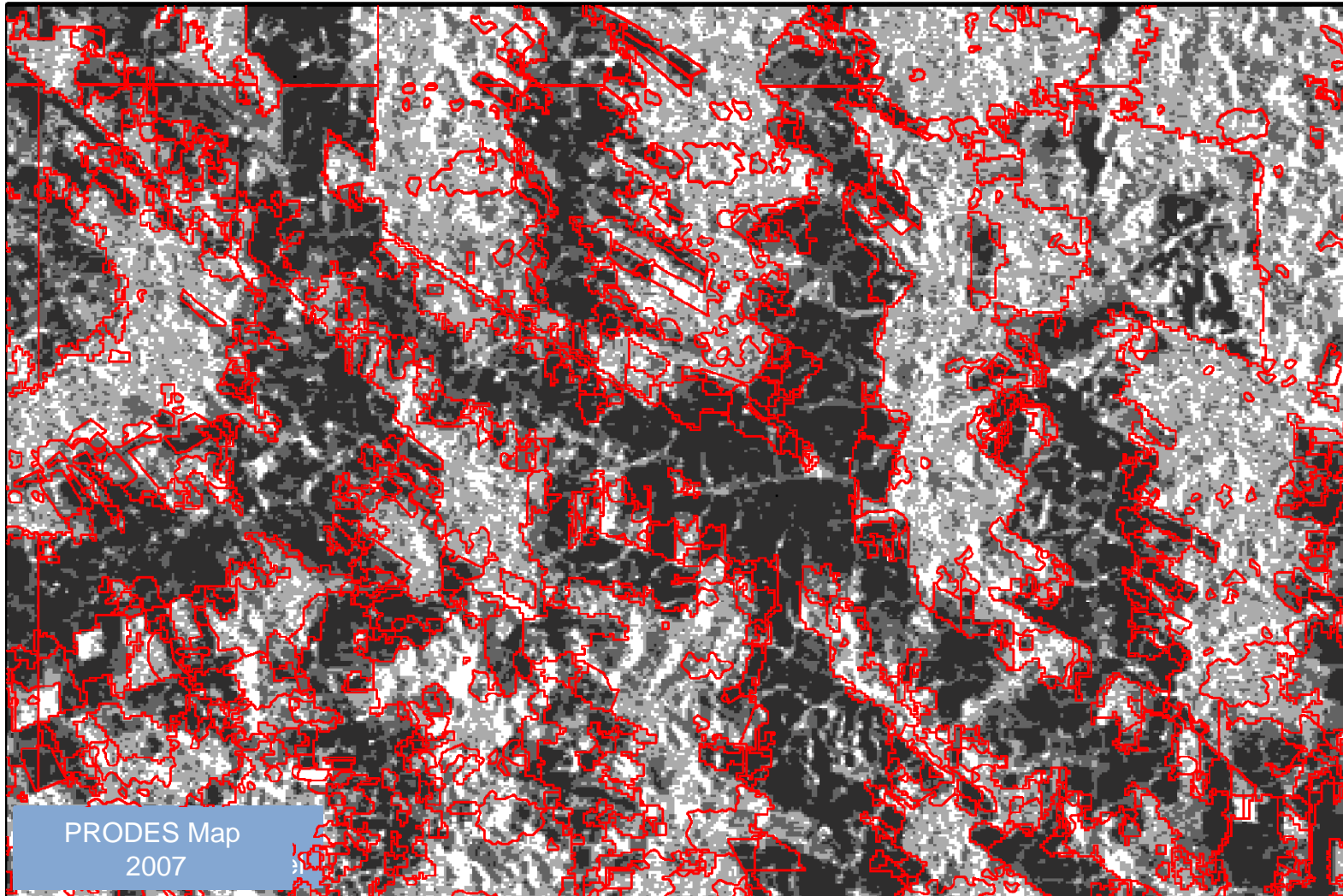
PRODES Map
2007

ALOS PALSAR

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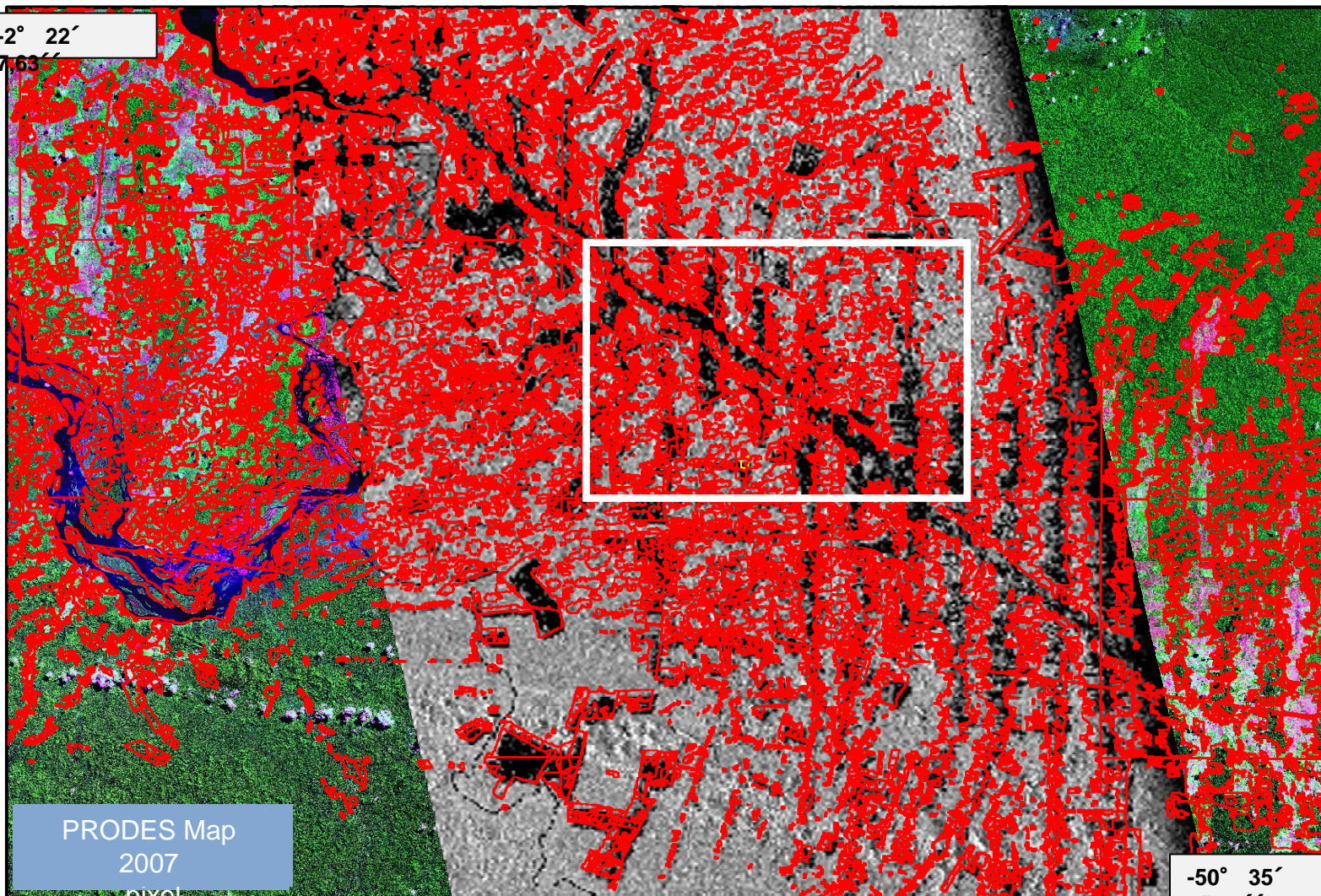
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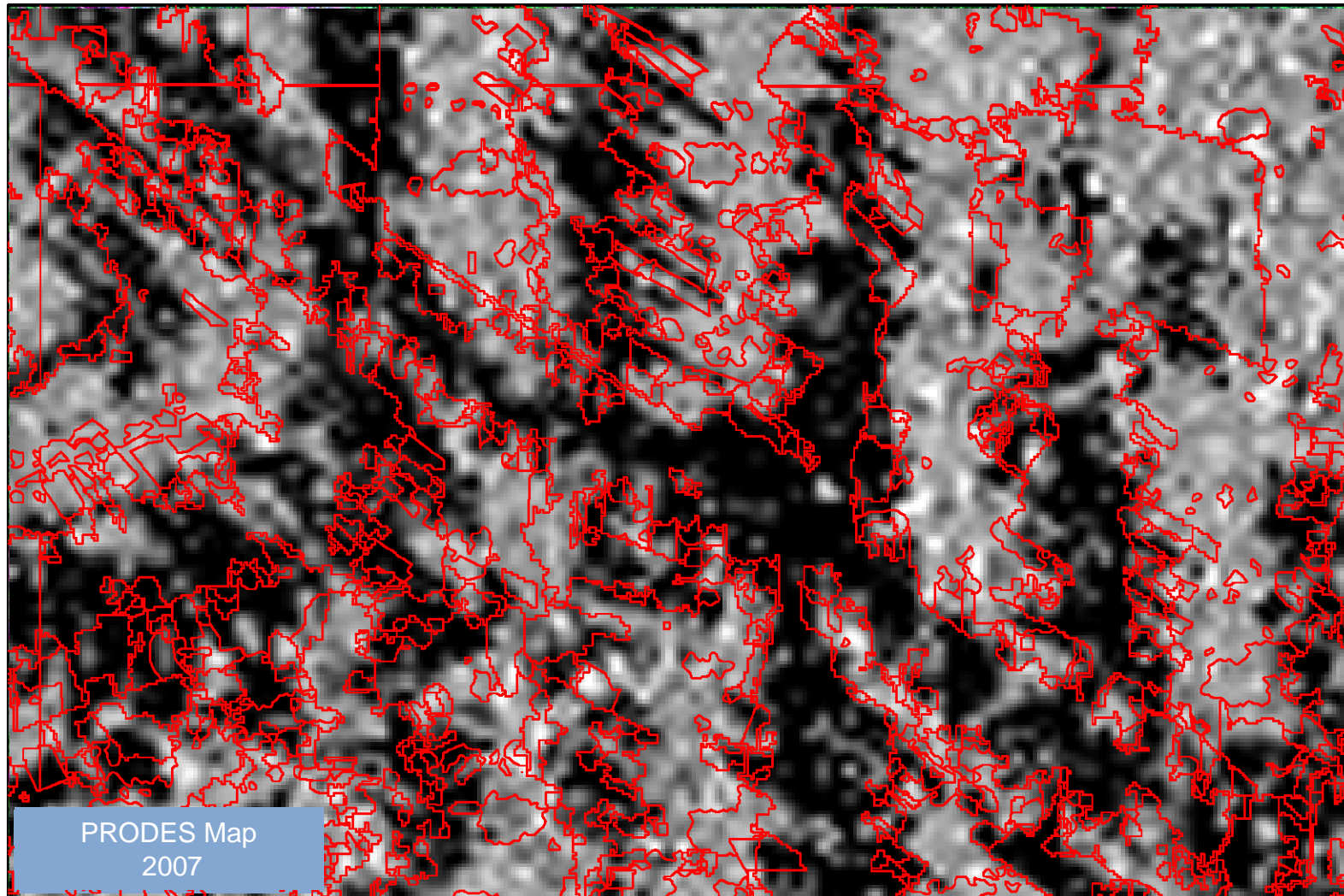
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PRODES Map
2007
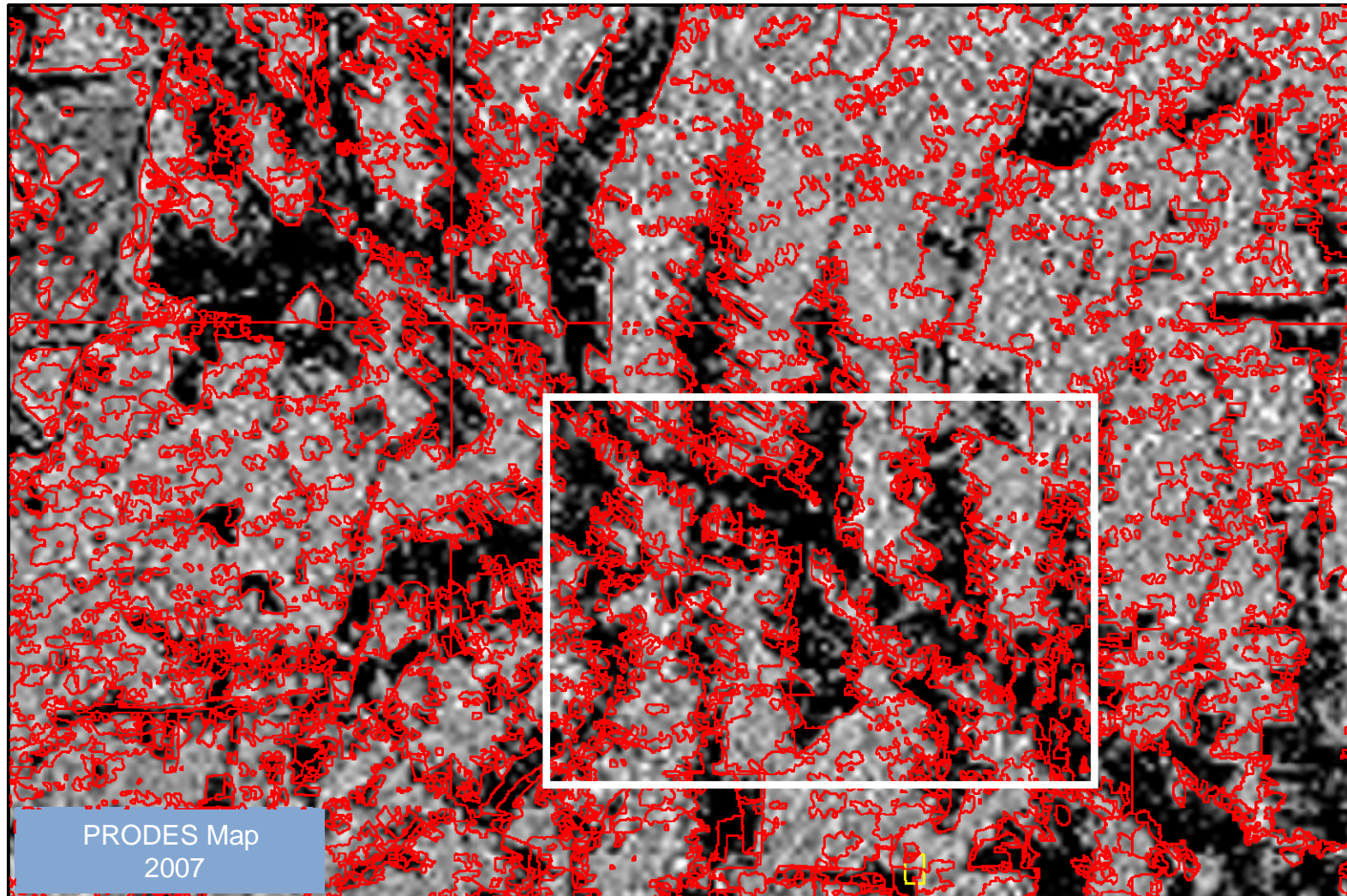
Long term objectives of PALSAR assimilation into INPE's Amazon Program:

- Create a RADAR culture in Brazilian society

- Prepare grounds for MAPSAR mission