

The image is a vertical composition. The left half is a dark, semi-transparent overlay of a forest scene. The right half shows a vibrant, sunlit forest with a stream flowing through it. A large white circular graphic is positioned in the upper right corner, containing the text '1.5°C'.

# um grau e meio

Intelligence Applied to Reduce Wildfires

1.5°C

# The Urgency of the Challenge

1

In the last 2 years, wildfires around the world had the highest intensity and CO2 emissions within the last 18 years.

Source: uol

13



2

The loss of biodiversity in the Amazon forest will take decades to recover.

Source: Brasil de Fato

15



3

The toxic smoke from wildfires aggravates respiratory health problems.

Source: Governo MT

3



4

The financial losses from forest fires are 6 times more expensive than the cost of prevention.

Source: Quercus & Acrécimo

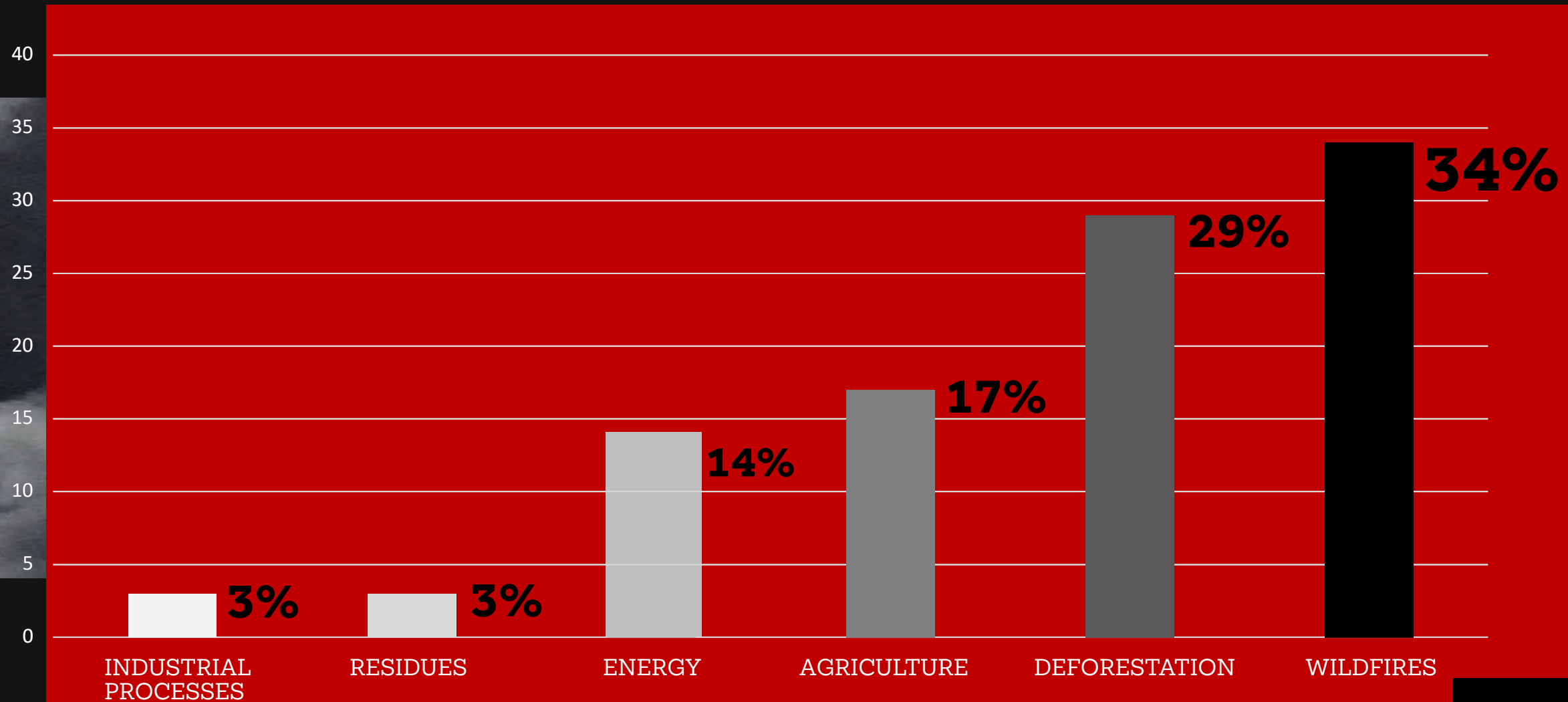
8



# CO2 Emissions Brazil Dryer Years

Data: Amazon

Source e: Aragão 2018, SEEG



1.5°C



# PANTERA

Fire Management as a Platform

# Pantera<sup>®</sup> framework

Pantera<sup>®</sup> platform framework translates the foundations of fire fighting into tech solutions to provide operational and SDG impact indicators by tackling wildfires in their early stages.

- Prevention & Preparation
- Early Detection & Fast Response
- Operational & SDG Impact Indicators

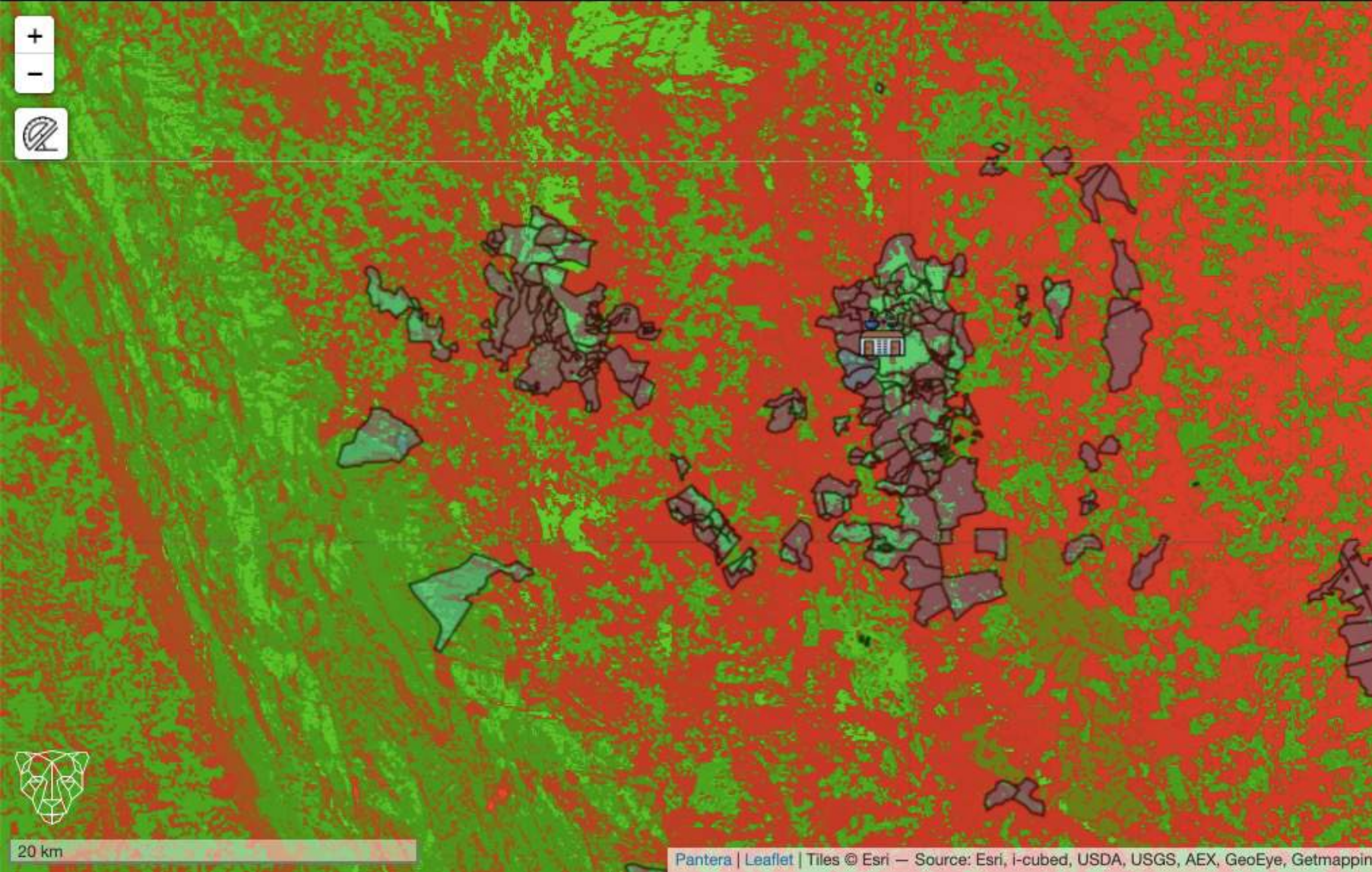
#humantech

#climatech

1.5°C

# Risk Maps





Mapas de base

umgrauemeio

Limites

Infraestrutura

Risco de incêndio

- ugm : Alta temporada
- ugm: Mapa de risco - Hoje
- Inpe: Hoje
- Inpe: 1 dia
- Inpe: 2 dias
- Inpe: 3 dias
- FWI
- mark5

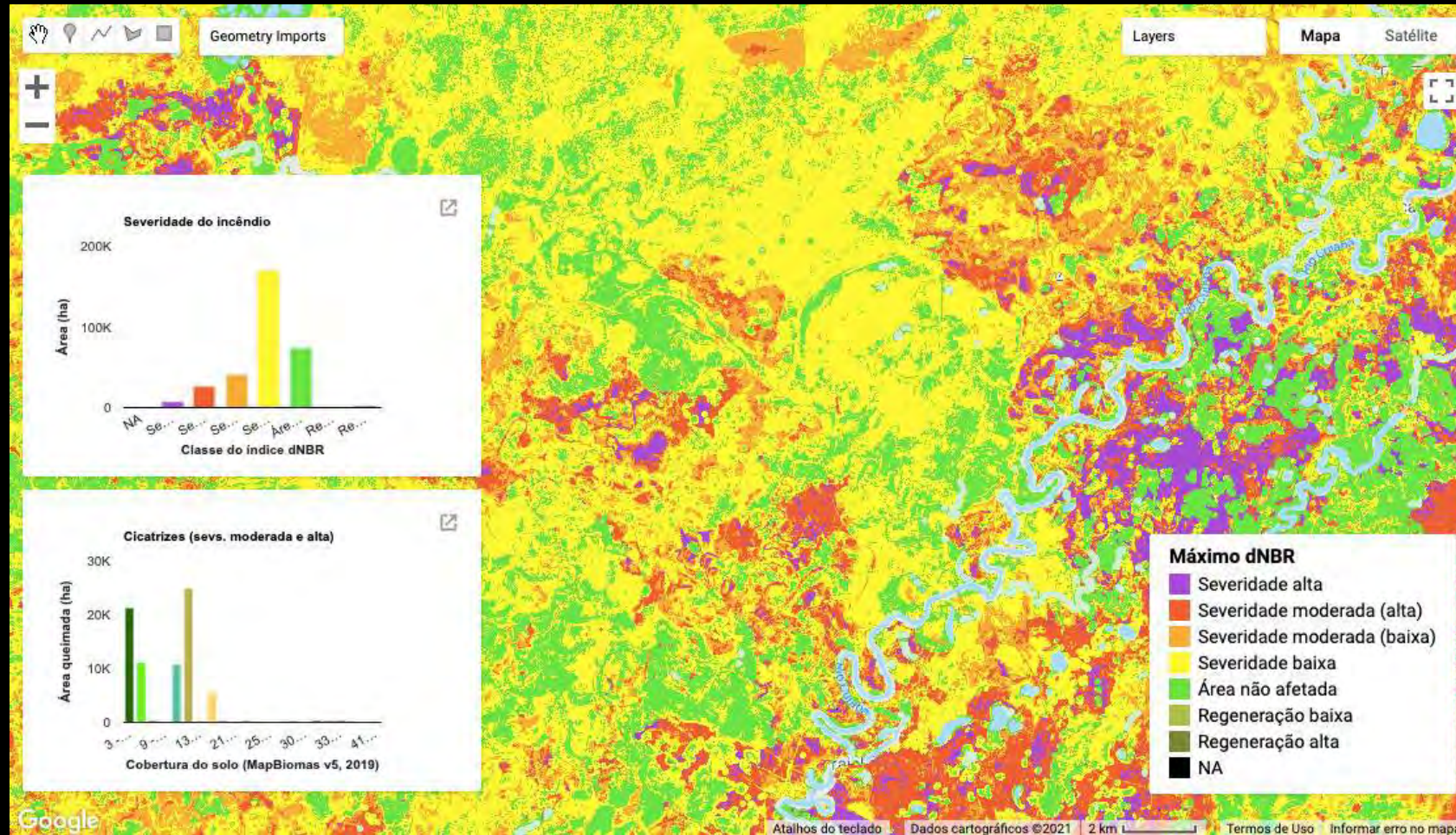
Clima

Desmatamento



20 km

# Scar Maps



**um grau e meio**

gavião-fumaça

Encontre cicatrizes de incêndio.

1a. Escolha um modo de desenho:

- Retângulo
- Polígono

2. Desenhe a geometria sobre a área de interesse

1b. (ou) Selecione um polígono de interesse:

- Áreas protegidas (IBGE, 2019)

3. Defina o período da análise.  
obs: dados disponíveis a partir de 2019.

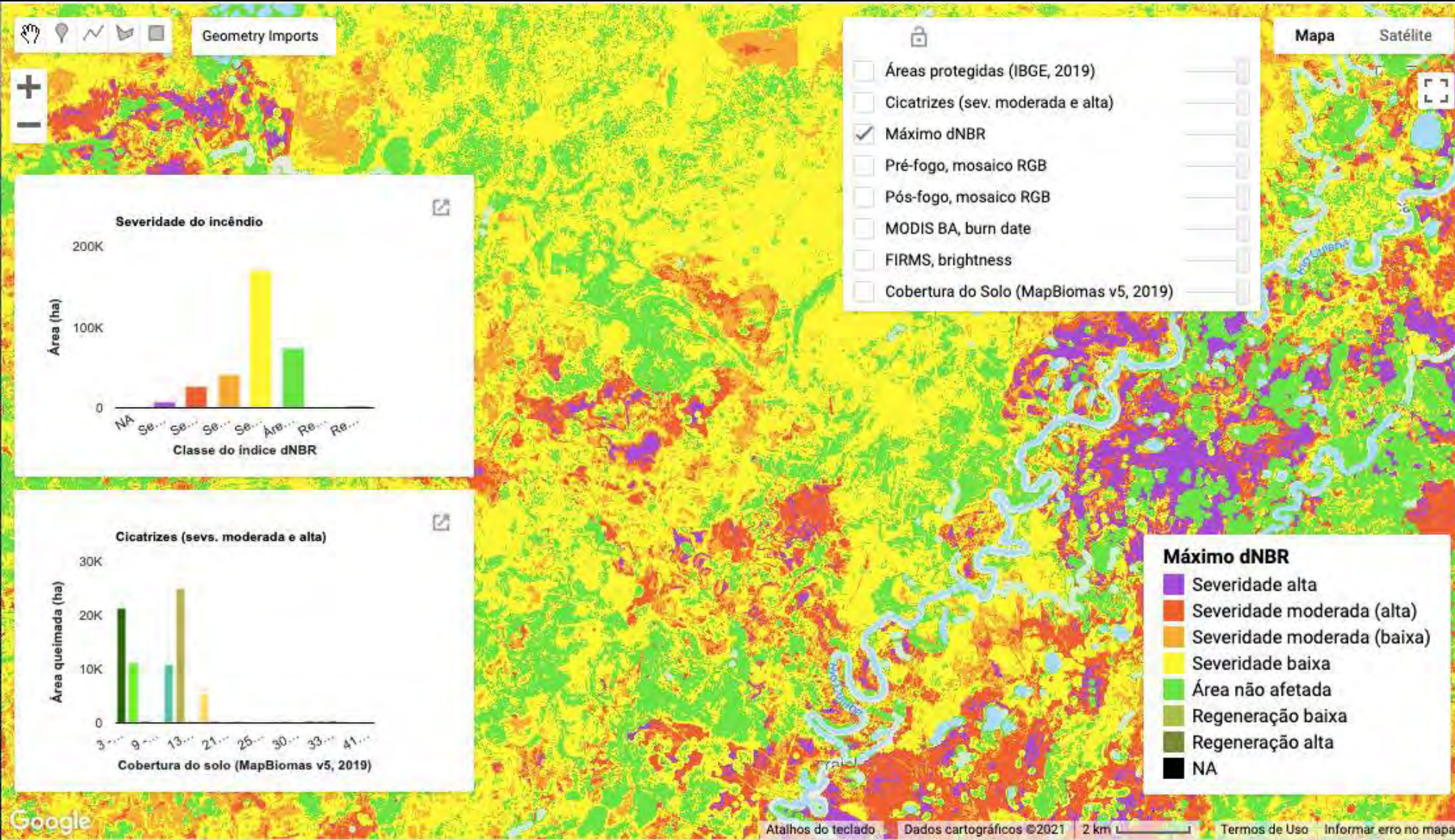
Data de início:

Data de término:

4. Aguarde o término da análise e visualize os resultados no mapa.

5. Repita os passos de 1 a 3





# um grau e meio

gavião-fumaça

Encontre cicatrizes de incêndio.

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Áreas protegidas (IBGE, 2019)

3. Defina o período da análise.  
obs: dados disponíveis a partir de 2019.

Data de início: 2020-05-01

Data de término: 2020-09-30

4. Aguarde o término da análise e visualize os resultados no mapa.

5. Repita os passos de 1 a 3

# Early Detection

PANTERA



Torre [2] 13:21:28

1. Detecção

Torre [2] - antiga Sintecsys : 8.13 km

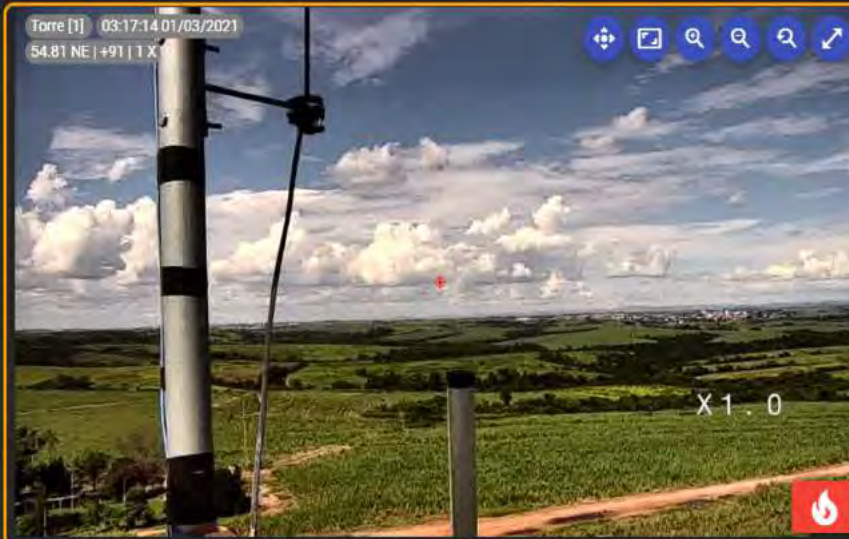
04/05/21 16:22:28

pan : 287° | zoom : [3.6x]



Torre [1] 03-17-14 01/03/2021

54.81 NE | +91 | 1 X



Torre [2]  
15:41:08

Torre [1]  
13:09:10

Torre [1]  
12:30:09

Torre [2]  
11:36:17

Torre [1]  
20:23:34

Torre [1]  
18:14:57

Torre [1]  
16:55:06

Torre [1]  
16:48:12

Torre [1]  
16:15:30



15°C

03/09/21 13:58:20

60.88 %

pan : 180° | zoom : [1x]



1

Detecção

T5-Boi Preto : 11.47 km

03/09/21 12:46:48

pan : 327° | zoom : [1x]

81.22 %



1

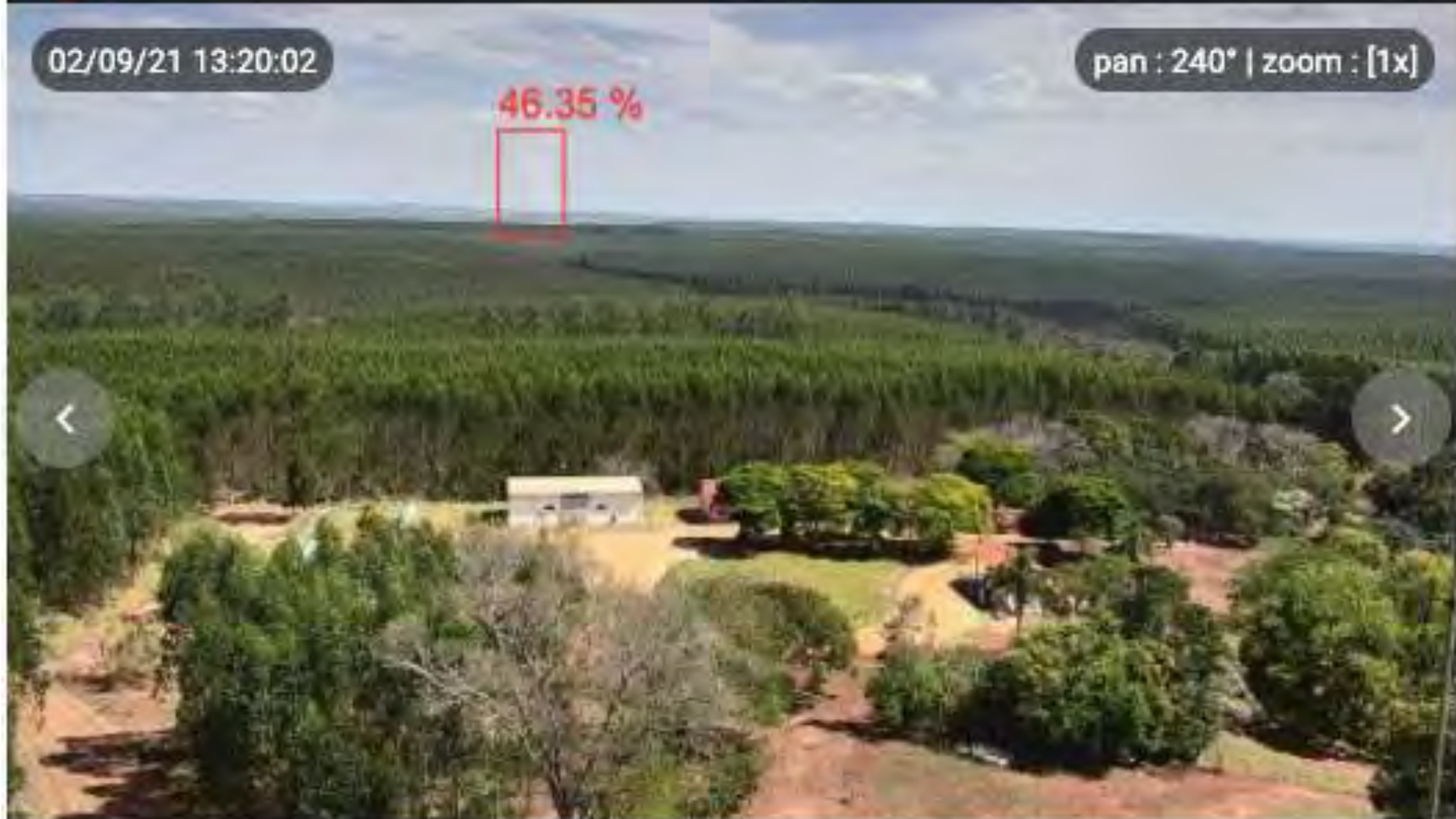
Detecção

SP-03 : 25.01 km

02/09/21 13:20:02

pan : 240° | zoom : [1x]

46.35 %



1

Detecção

SP-05 : 8.44 km

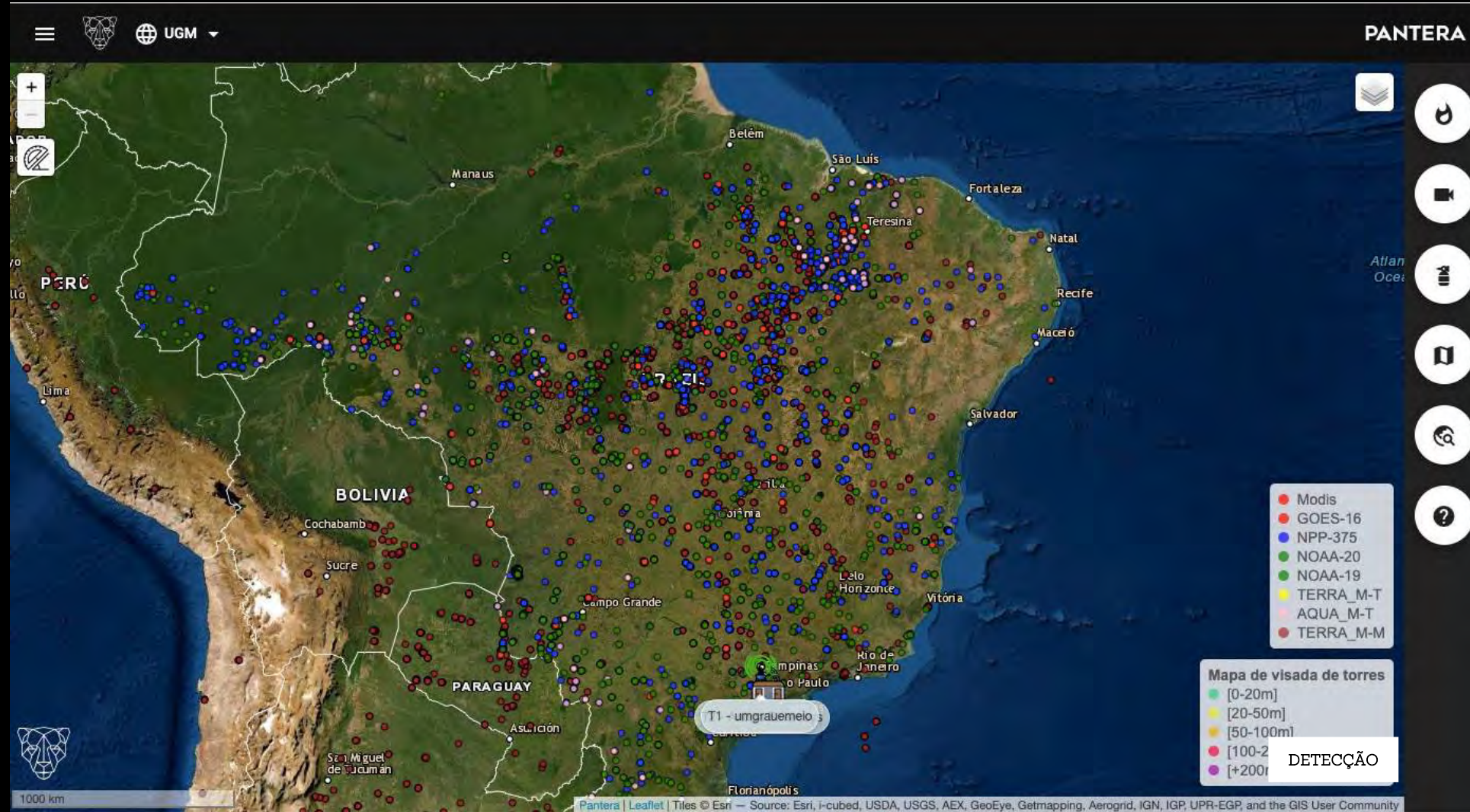
01/09/21 12:07:49

pan : 300° | zoom : [1x]

40.17 %



# Satellite Backup Detection





🔥 40 -- 03/09 12:55

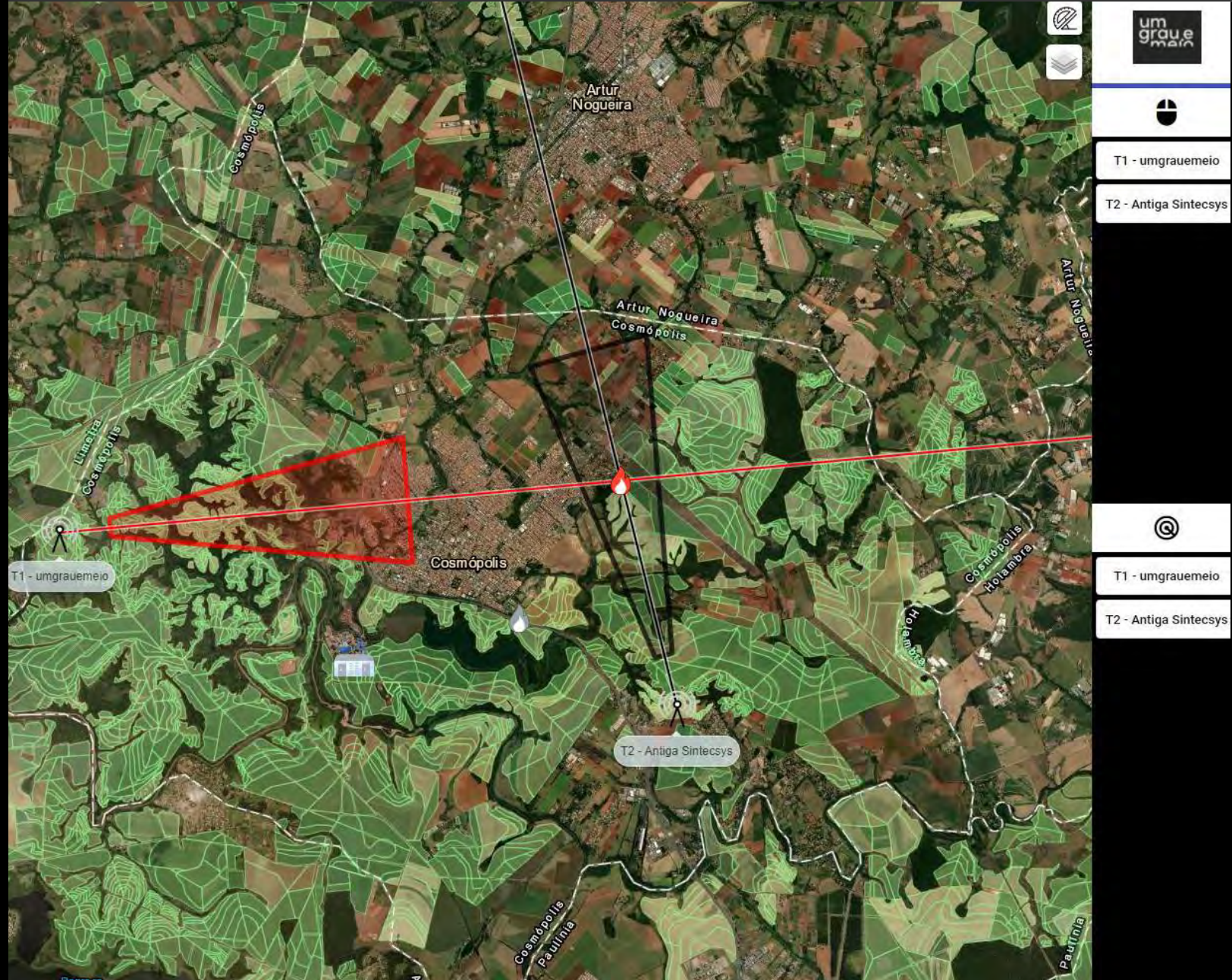


**Foco Dentro da Propriedade**

Projeto\_nome Santa Luzia



# Operational Module



PANTERA



T1 - umgrauemeio  
16:38:18

Torre [2]  
14:07:07

Ocorrência N° 24-03-21\_14-07-07\_753

Distância da Propriedade 0.05 Km

Nome	OC-2 km
Fundo	30808 - FAZENDA FUNIL km
Região_1	OC - ONÇA km
Quadra	2 km

Acionamento

- CarroB | 2 | 16:40 - 16:55
- CaminhãoA | 2 | 19:23 - 20:00

Combate

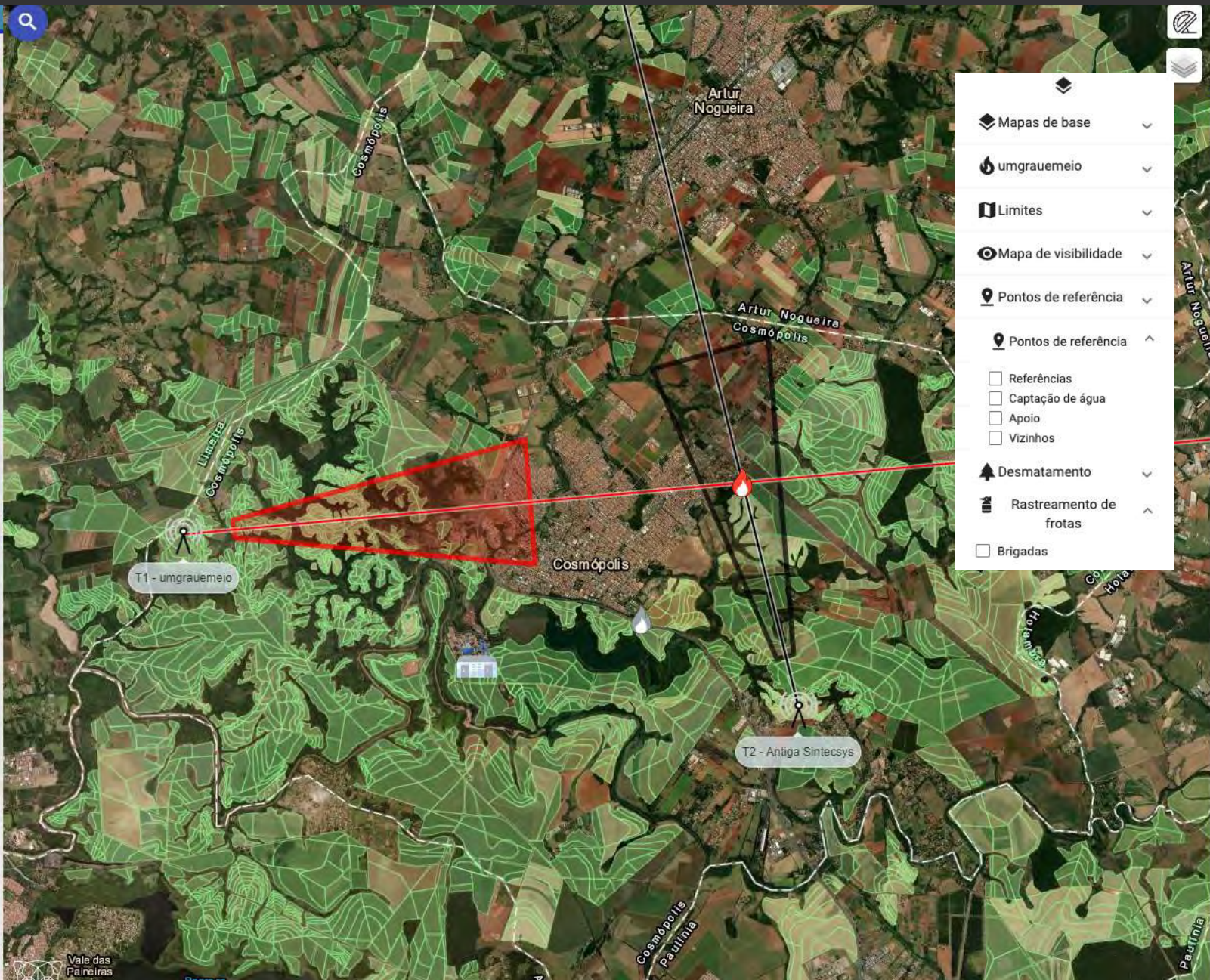
- Combate | 17:35 - 19:23
- Rescaldo | 20:00 - 22:00

Danos

- Plantio: 10 t
- Plantio: 12 ha

Comentários

ESGOTOU A ÁGUA DO PRIMEIRO CAMINHÃO PIPA AS 19:23. ACIONADO O SEGUNDO CAMINHÃO PARA RESCALDO.



- Mapas de base
- umgrauemeio
- Limites
- Mapa de visibilidade
- Pontos de referência
- Pontos de referência
  - Referências
  - Captação de água
  - Apoio
  - Vizinhos
- Desmatamento
- Rastreamento de frotas
- Brigadas



T1 - umgrauemeio

T2 - Antiga Sintecsys

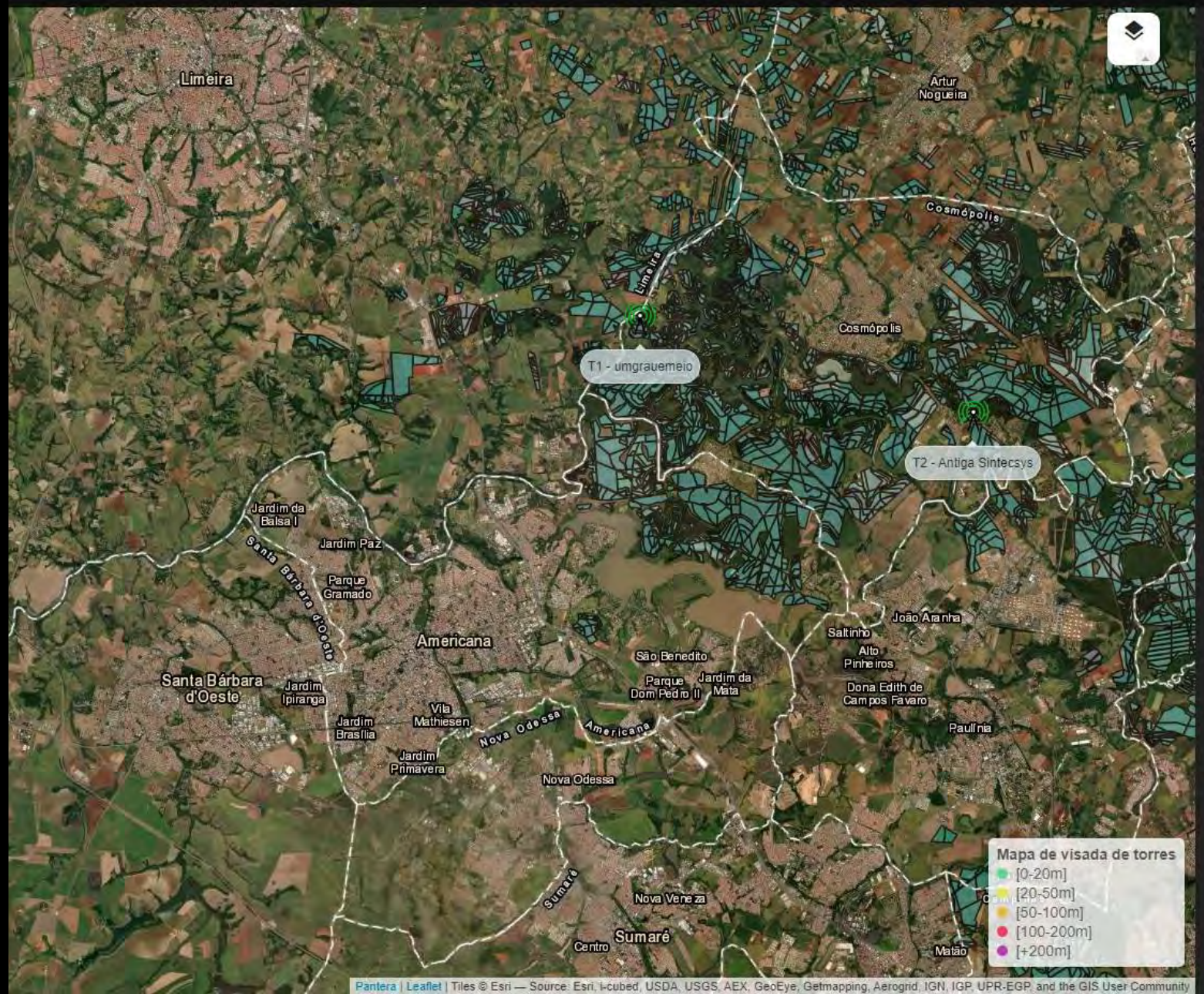


T1 - umgrauemeio

T2 - Antiga Sintecsys



# Management Module



# Analytics

A) Alerts

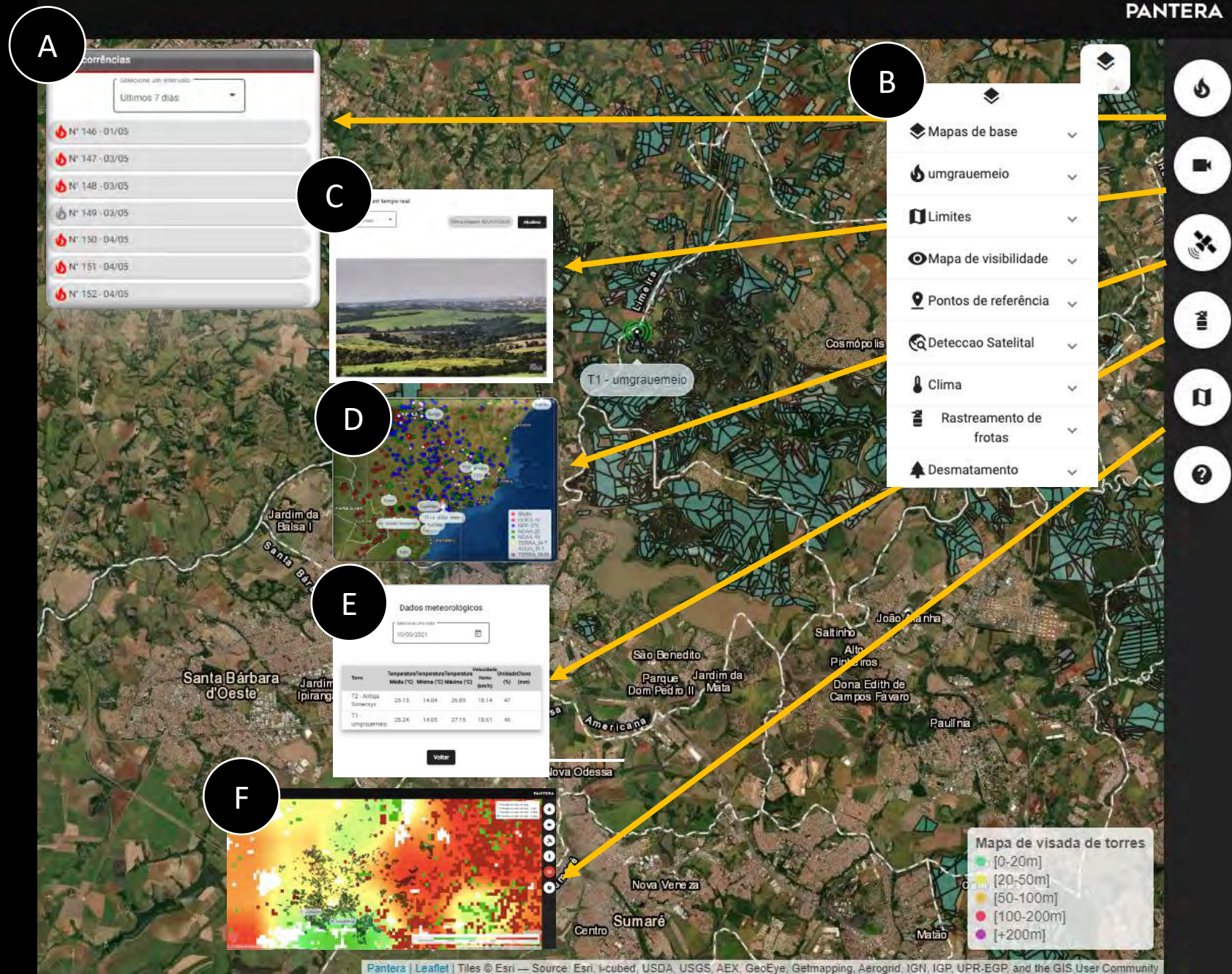
B) Multiple Data

C) Camera Image

D) Satellite Detection

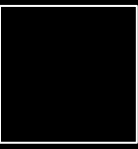
E) Weather Data

F) Risk Map



# Traceability Integrations

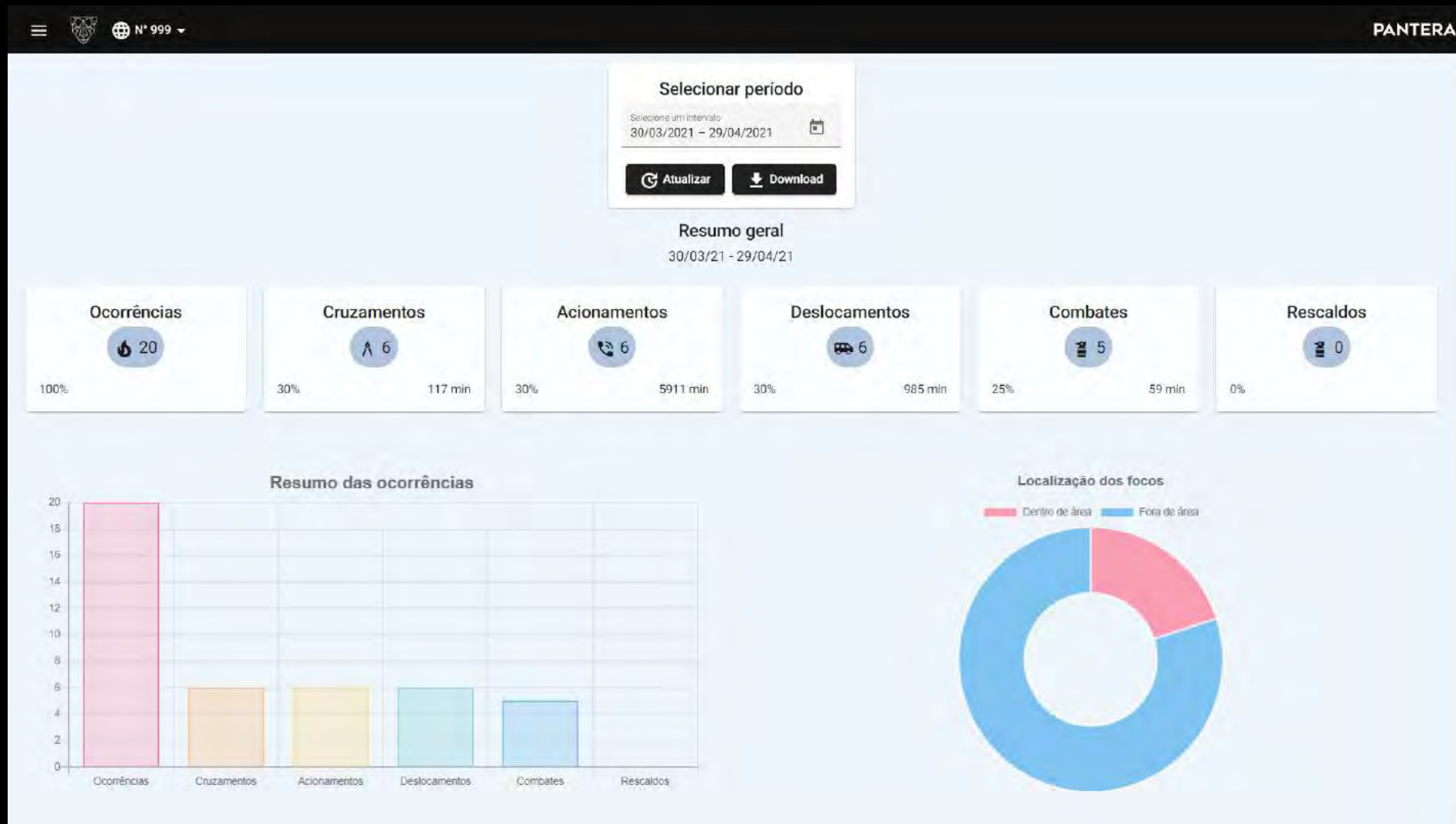




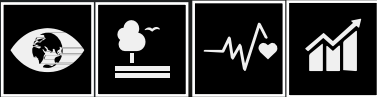
## Other Integrations



# Operational Impact



# SDG Impacts



13

15

3

8

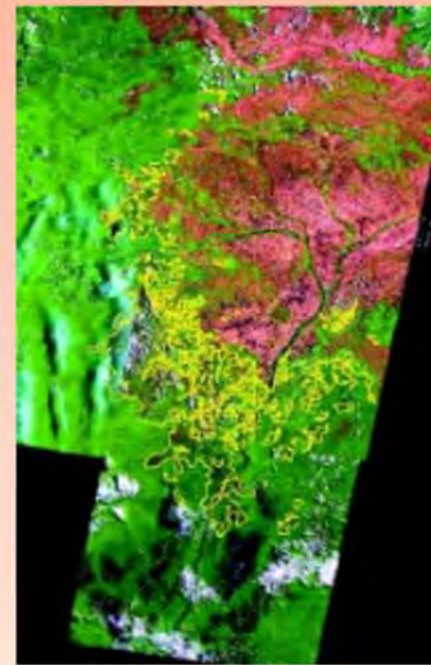


Figura 4. Os limites das áreas de floresta atingidas pelo fogo (em amarelo), mapeado no estudo, podem ser bem identificados nesse mosaico de imagens do sensor TM do Landsat com as florestas (em verde) e as savanas (em marrom) de Roraima

avaliar, com pequena margem de erro, a área de floresta realmente afetada pelo incêndio (figura 4).

Os resultados finais, baseados na interpretação visual de imagens, método que assegurou a análise de um conjunto mais amplo de dados, apontam que o incêndio de Roraima atingiu 11.730 km<sup>2</sup> de área coberta por floresta naquele estado. Foi avaliada ainda a área atingida em cada formação florestal (figura 5), mas não foi possível caracterizar a extensão total de savanas atingidas pelo fogo, já que as cicatrizes do incêndio nesse tipo de vegetação não eram mais visíveis nas imagens de agosto. Esse dado, porém, não estava sendo investigado, já que as queimadas em regiões de savana são típicas na estação seca.

Da área total atingida, 25% eram de floresta ombrófila densa submontana (fechada, com árvores de porte alto, situada na base de áreas montanhosas) e 64% ficavam na região de contato entre floresta ombrófila e floresta estacional (com árvo-

CLASSE DE FLORESTA	ÁREA QUEIMADA (km <sup>2</sup> )
Floresta ombrófila densa montana	282,99
Floresta ombrófila densa submontana	3.024,55
Floresta ombrófila aberta submontana	3,61
Floresta estacional semidecidual submontana	43,61
Campinarana florestada	498,17
Campinarana arborizada	26,06
Campinarana gramíneo-lenhosa	35,69
Savana parque	41,31
Savana gramíneo-lenhosa	96,51
Área de tensão ecológica (savana-floresta ombrófila)	14,64
Área de tensão ecológica (floresta ombrófila-f. estacional)	7.560,67
Área de tensão ecológica (campinarana-f. ombrófila)	301,95
<b>TOTAL</b>	<b>11.929,76</b>

Figura 5. Área queimada por classe de vegetação – o cálculo da área de floresta atingida exclui as savanas e as campinaranas arborizada e gramíneo-lenhosa

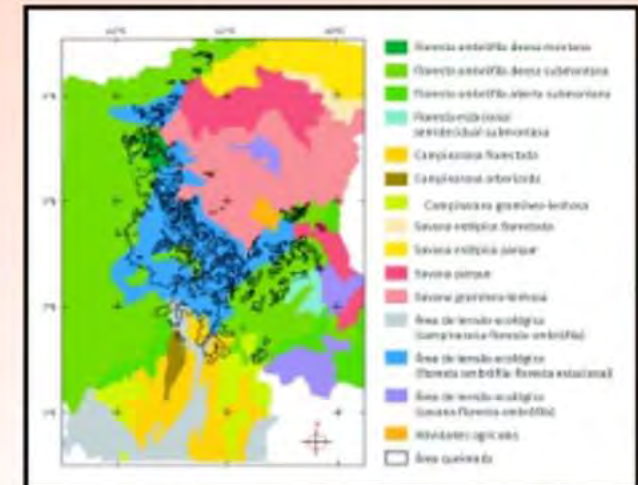


Figura 6. Área florestal afetada pelo fogo (em preto), mapeada a partir de imagens TM-Landsat, superposto ao mapa de vegetação de Roraima

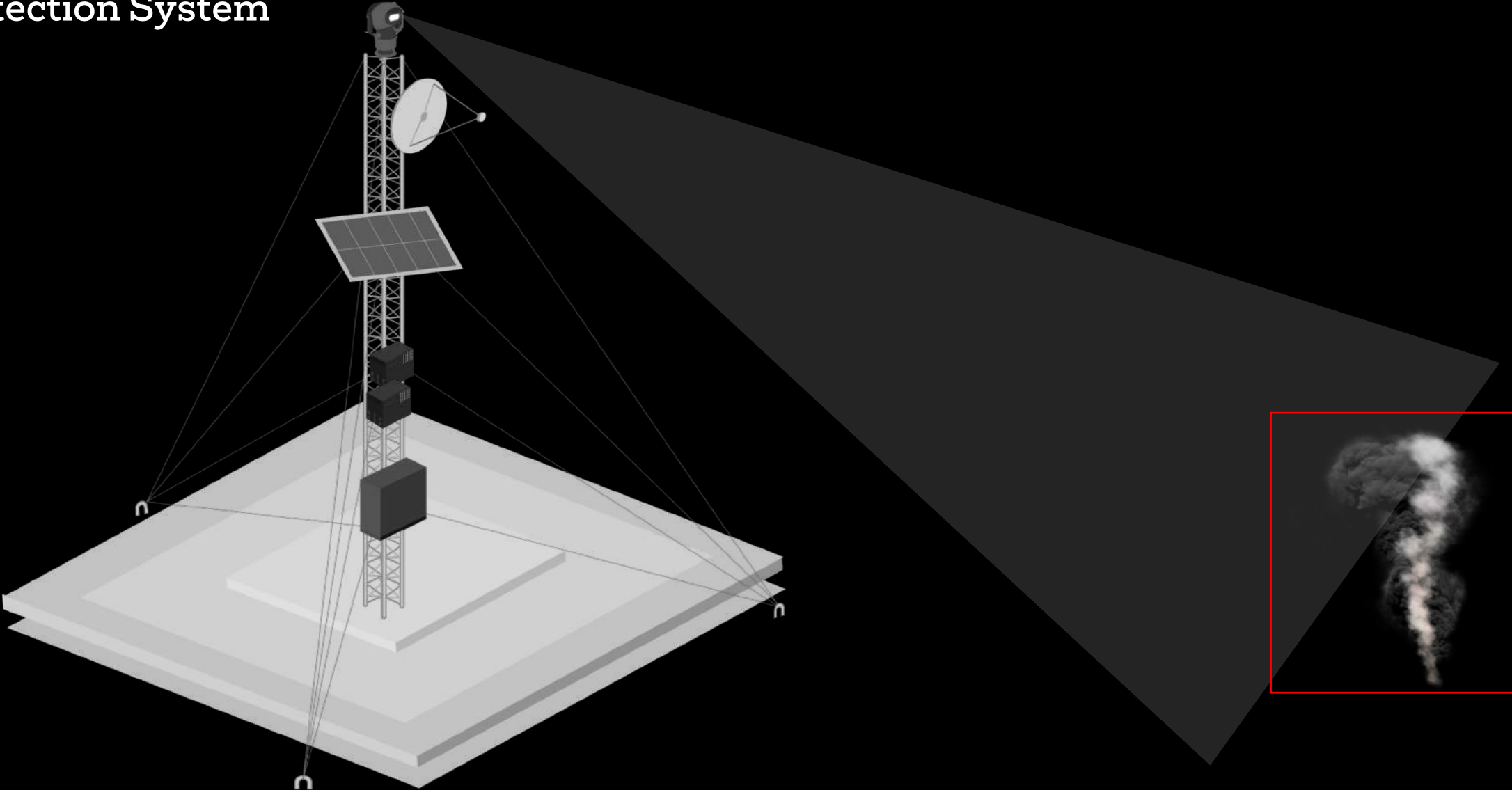
res que perdem as folhas em certos períodos do ano), como pode ser verificado na superposição dos resultados do estudo ao mapa de vegetação de Roraima (figura 6). Esses resultados indicam uma seca excepcional provocada pelo El Niño, que fechou a floresta estacional uma "porta" de acesso tipicamente ombrófila, facilitando a propagação do fogo em áreas de maior umidade, que são mais imunes a incêndios.



# Situation Room



# Early Detection System



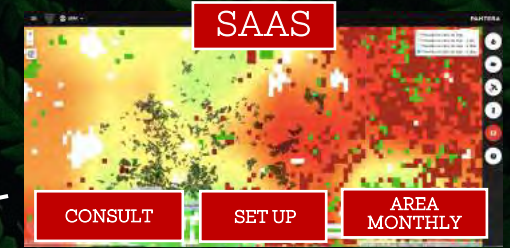
# A.I EARLY DETECTION SYSTEM



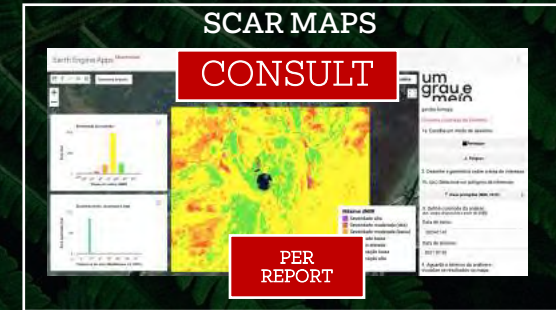
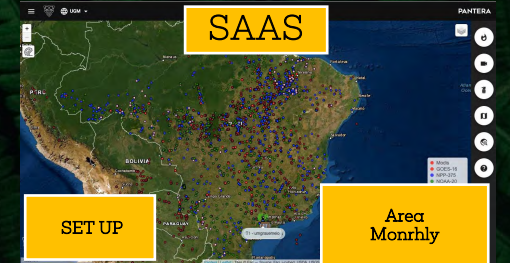
## FIRE MANAGEMENT AS A PLATAFORM

- PREVENTION
- DETECTION
- FAST RESPONSE
- IMPACT INDICATORS & HAAS

## RISK MAPS



## SATELLITE DETECTION BACKUP



## IMPACT INDICATORS

## OPERATIONAL IMPACT

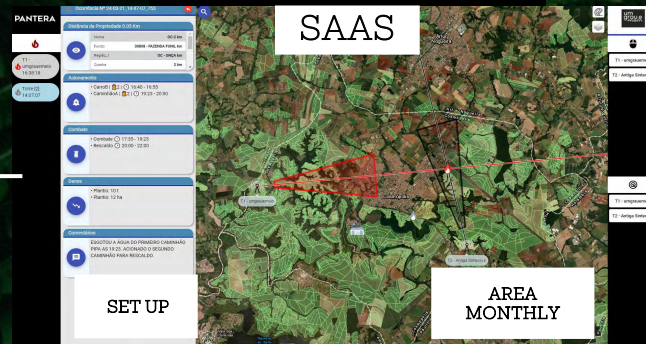
## SDG IMPACT

## CONSULT



PER REPORT

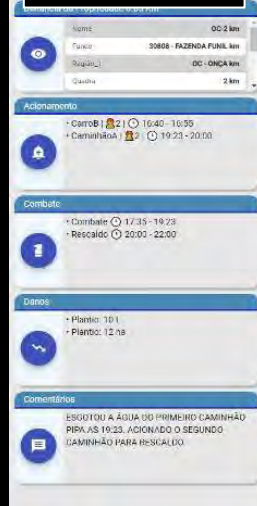
## OPERATIONAL MODULE



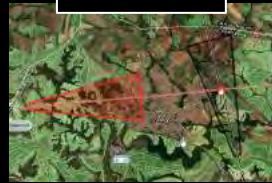
## MANAGEMENT MODULE



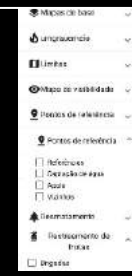
## MOBILIZATION



## LOCATION



## LAYERS & DATA



## CLIMATE



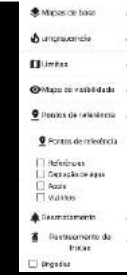
## INCIDENT IMAGE



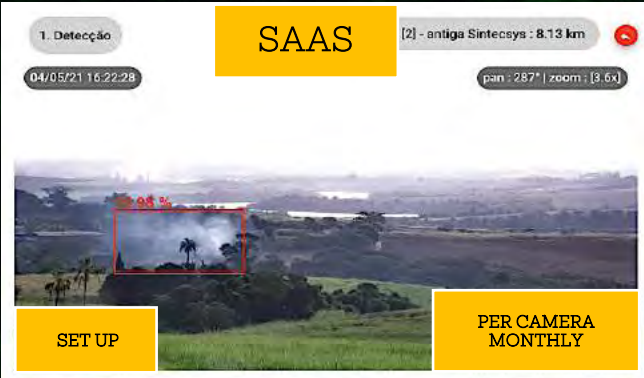
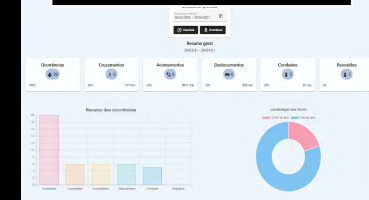
## INCIDENTS



## LAYERS & DATA



## OPERATIONAL DATA



## INTEGRATIONS



## TOWERS & CENTRALS



# CO2 Emissions Report

15°C



# Mesuring CO2 Emissions from avoided wildfires

- Comparative Analysis
- Historical Data
- Operation Results.

**1. Build the historical baseline of the average CO2 emissions on the project area**

**2. Monitors new fire events during the project period**

**3. Compare the emissions scenario before and after the project implementation**



Embrace the Forest

um  
grau e  
meio

1.5°C

# Embrace Pantanal

## Milestones:

### 2021 Phase 1

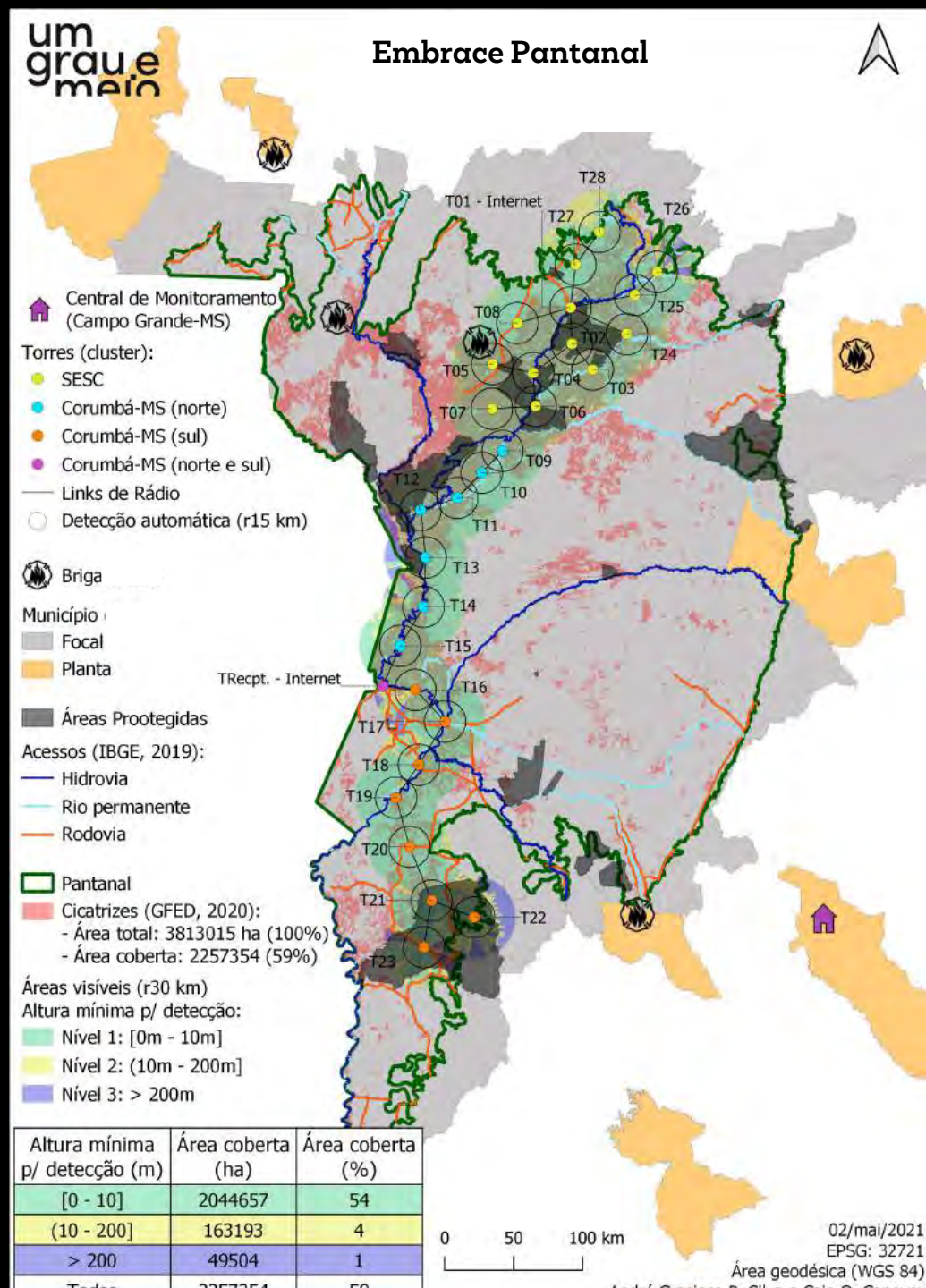
- 11 Towers
- 3 – Clusters – Situation Rooms
- North – Central - South

### Total Area Coverage Phase A:

2,500,004 hectares

### 2022 Phase 2

Reach 28 Towers



# Benefits of Embracing the Forest

Support Conservation Projects

Act-on Fire Impacted Areas

Assist Fire Brigades

Reduce and Measure CO2 Emissions

Protect Peoples Respiratory Health from toxic smoke.

Avoid Environmental a Private Losses.

Trace Operational and Impact Data







Hyper-T  
Blockchain Stamp

A path to Zero Deforestation  
Collaborative Initiative

um  
grau e  
meio

# Hyper T (transparency ) Initiative

For any productive land and forest owner willing to keep the forest standing up and make money in the process.



Redd+.

Mitigation and Adaptation to Climate Change  
Forests and Biodiversity Conservation  
Financial Fluxes from Carbon Markets



Fire Management

Fire Management as a Platform  
Risk Maps  
Reduce Emissions from Avoided Wildfires



Farmer ID

Sustainable Origin Supply Chain Tracking  
Smart ESG - Supply Chain Monitoring



Blockchain.

Agriculture Products Tracking  
Blockchain Platform  
Operational Efficiency,  
Data Transparency



Hyper-T  
Blockchain Stamp

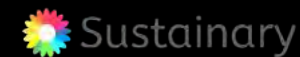
social data & certifications  
environmental data & carbon credits volume  
deforestation & wildfire mitigation data

# About umgrauemeio

## Our commitment to life on land is not negotiable.

### Our purpose

We understand the urgency needed to mitigate the effects of climate change. We brought our mission to the front line of our name which is the goal to keep Earth's temperature below 1.5°C avoiding the irreversible consequences to the Planet.



# About umgrauemeio

We are guided by the best practices in ESG (Environmental, Social, and Governance) and the Sustainable Development Goals (SDG)

## Direct Impact indicators



CO2 emissions reduction



Biodiversity Protection



Reduction of Respiratory Diseases



Reduction of Losses

## Indirect Impact indicators



Support Scientific Research



Protect Waterbeds



Foster Environmental Education



Assist Sustainable Production



Partnerships with private and public sectors



# Brazil

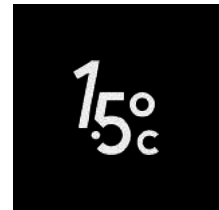


- 230k ha Amazon
- 2k ha Caatinga
- 1.8MI ha Cerrado
- 2.2MI ha Mata Atlântica
- 137k ha Pampa
- 2.5MI ha Pantanal

17 Situation Rooms  
9 MI ha monitored  
4 MI ha reserves  
11 States  
6 Biomes  
86 Towers



USINA DE AÇÚCAR SANTA TEREZINHA



# Heads



**Rogerio Cavalcante**  
CEO & Founder



**Antônio Leblanc**  
CTO & Co-Founder



**Eimi Arikawa**  
GM & Co-Founder



**Emerson Ribeiro**  
CFO & Co-Founder



**Osmar Bambini**  
CIO & Co-Founder



**Maira Domene**  
Head of Legal  
& Co-Founder



**Daniella Borghi**  
Head of Marketing



**Diego Debruyne**  
COO & Co-Founder



# Advisors



**Luke Szyrmer**  
Launch Tomorrow



**Bruno Brazil**  
BRCarbon



**Leticia Méo**  
Legal Sustainability



**Laury Cullen**  
IPÊ



**José Méo**  
Concretizes



**André Gracioso**  
umgrauemeio



**Renan Kamimura**  
BRCarbon



**Alexandre Alvim**  
GEF



**Lourenço Bustani**  
Mandalah



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Thanks\_

15°C