



QUIRON

DIGITAL FORESTRY



WHO WE ARE

Quiron Digital develops algorithms to monitor and predict threats using **artificial intelligence** and data from **satellites** and **nanosatellites**.

Through **machine learning**, our algorithms analyze patterns of vegetative growth, identifying land use, fire hazard, pest, diseases, harvest, and deforestation for any place on earth.

WHERE WE ARE ALREADY





**GIL
PLETSCH**
CEO

Administrator



**MARCOS
SCHIMALSKI**
CRO

Ph.D Geodetic Sciences



**LEONARDO
HAMPEL**
CTO

Software Engineer



**DIOGO
MACHADO**
CMO

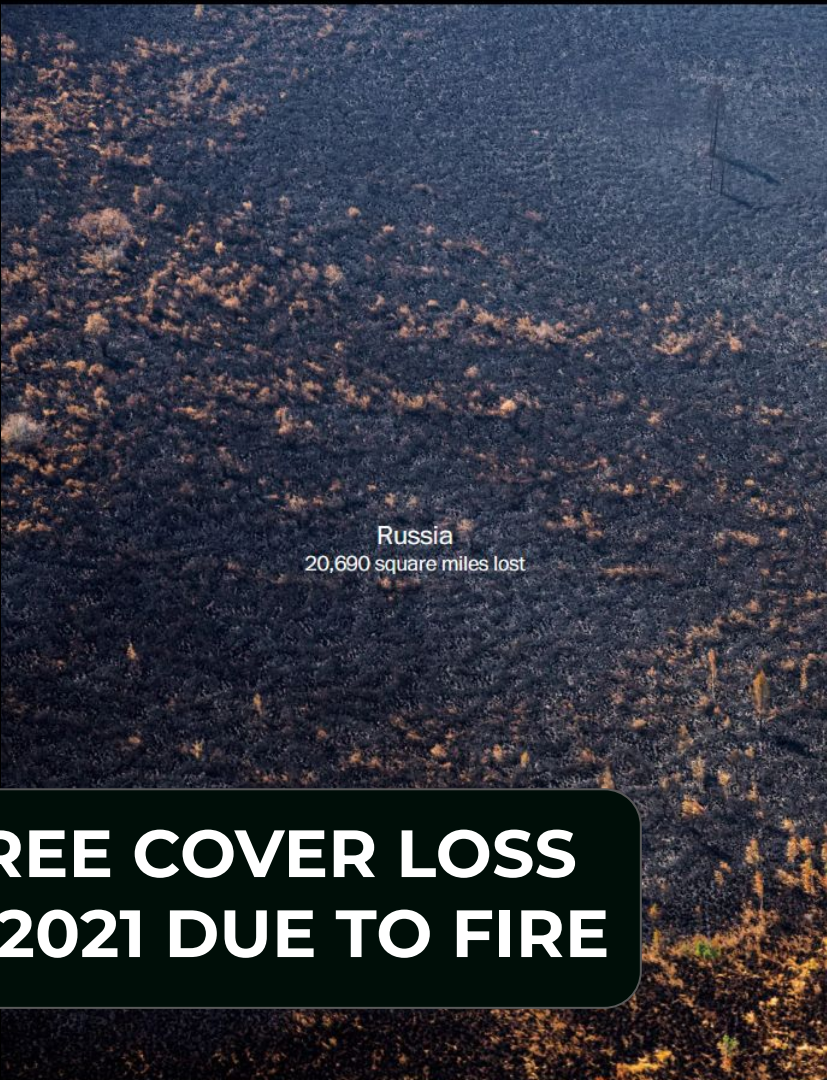
Administrator



**And professionals working in
technology, research and sales**

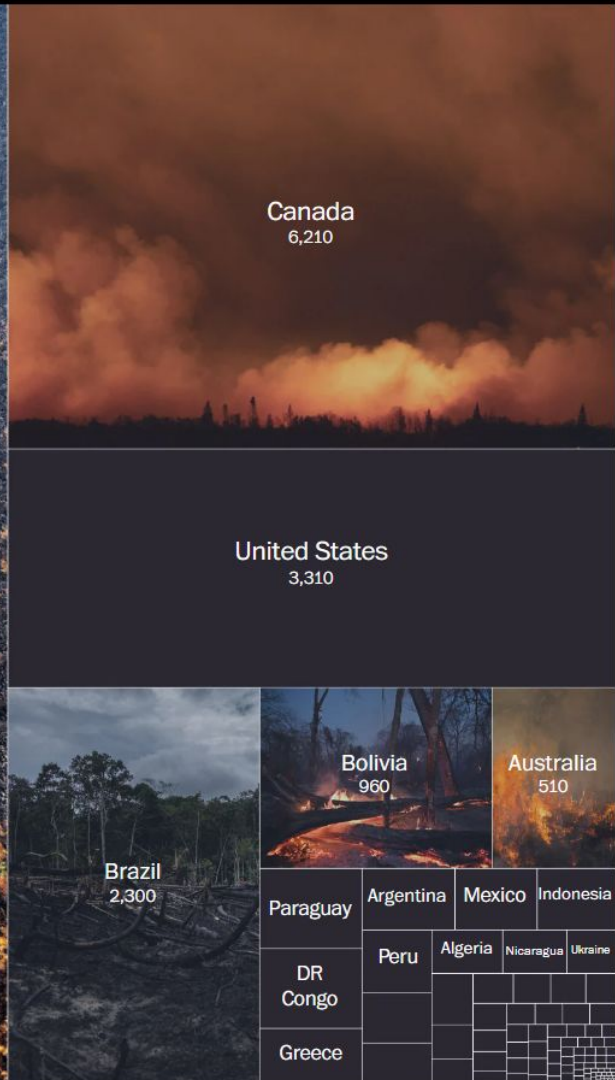


**WILDFIRES ARE A
GLOBAL PROBLEM**



Russia
20,690 square miles lost

TREE COVER LOSS IN 2021 DUE TO FIRE



**US\$ 148.5 BILLION IN COSTS
FOR THE US ECONOMY IN 2018**



CHAIN OF SOLUTIONS

WILDFIRES

PREDICTION



**SOLUTION
FOCUSED ON
PREDICTION!**

DETECTION



REACTION



BEHAVIOR



CONTROL



BURN SCAR





FLARELESS

Predictive wildfire hazard

- ◆ 10-days in advance
- ◆ 10 meters resolution
- ◆ Anywhere in the world
- ◆ No hardware in the field
- ◆ Highly scalable
- ◆ 6x cheaper than suppression
- ◆ Property algorithms
- ◆ SaaS charged per area

DAILY MONITORING BY THE FLARELESS PLATFORM

Satellite monitoring with daily calculations of the imminent risk of fire, with a forecast of the next 10 days of risk.



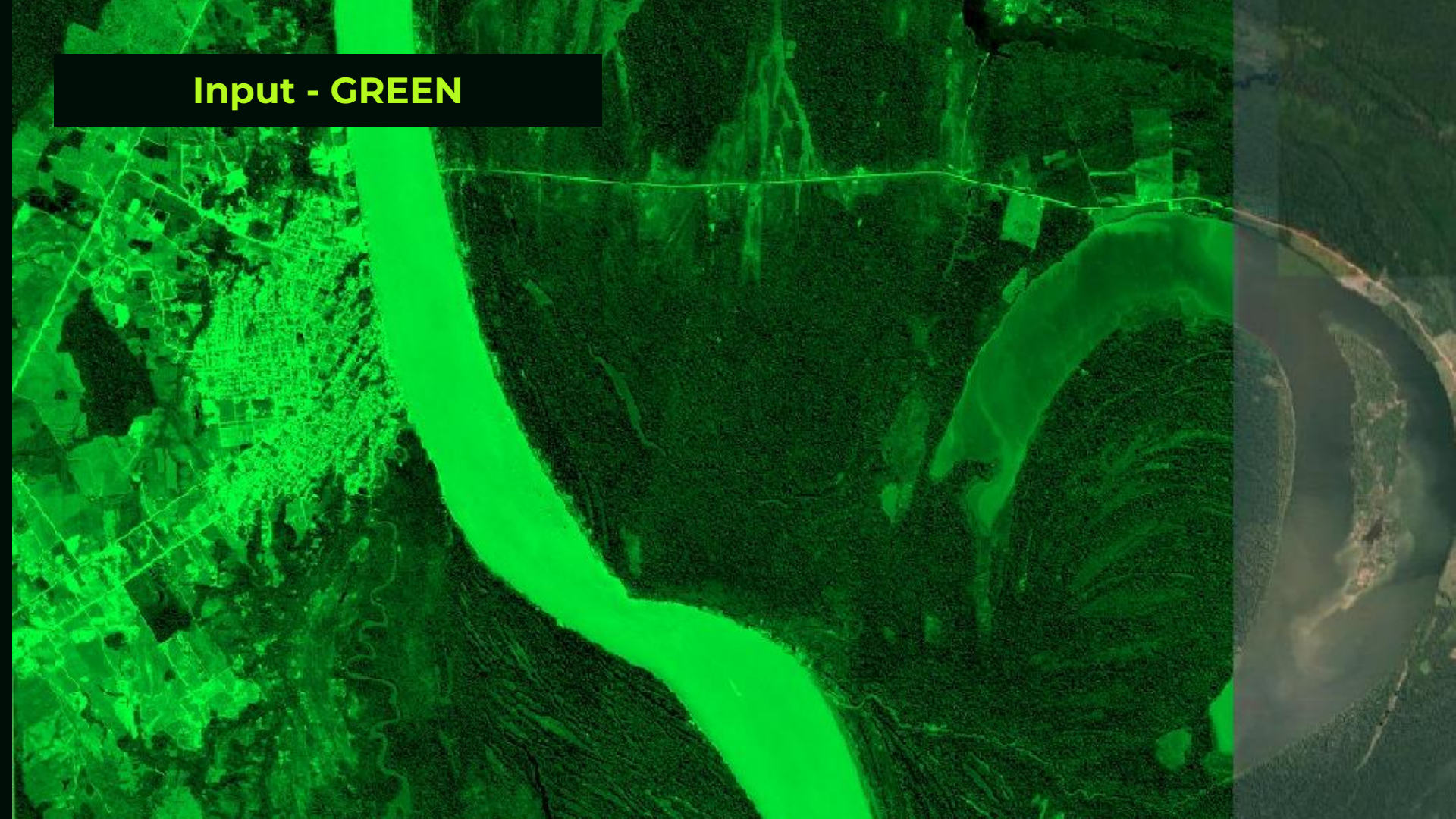
DAILY WILDFIRE HAZARD FORECAST

+90% ACCURACY!



HOW WE BUILD THE MODEL?

Input - GREEN



Input - BLUE



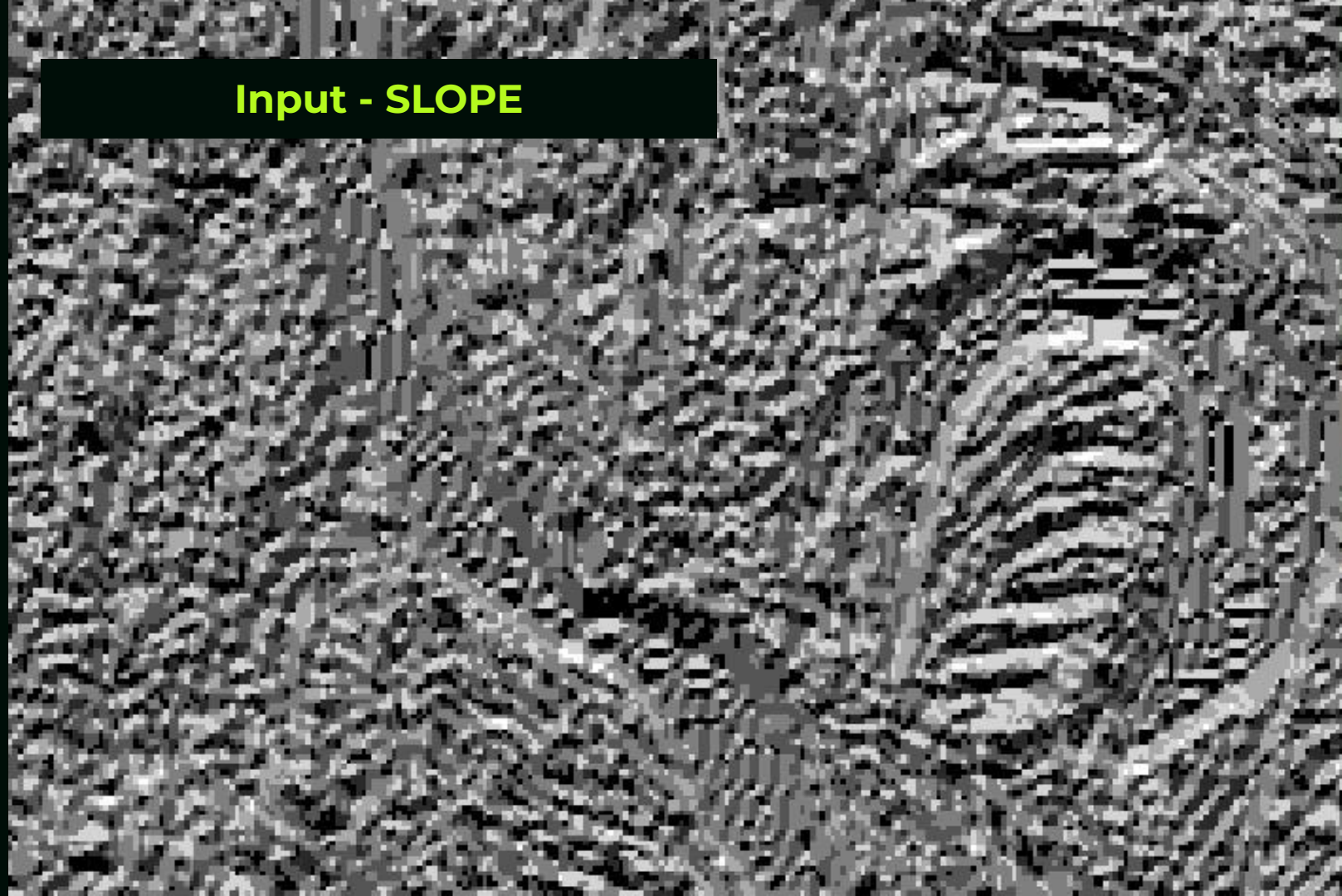
Input - RED



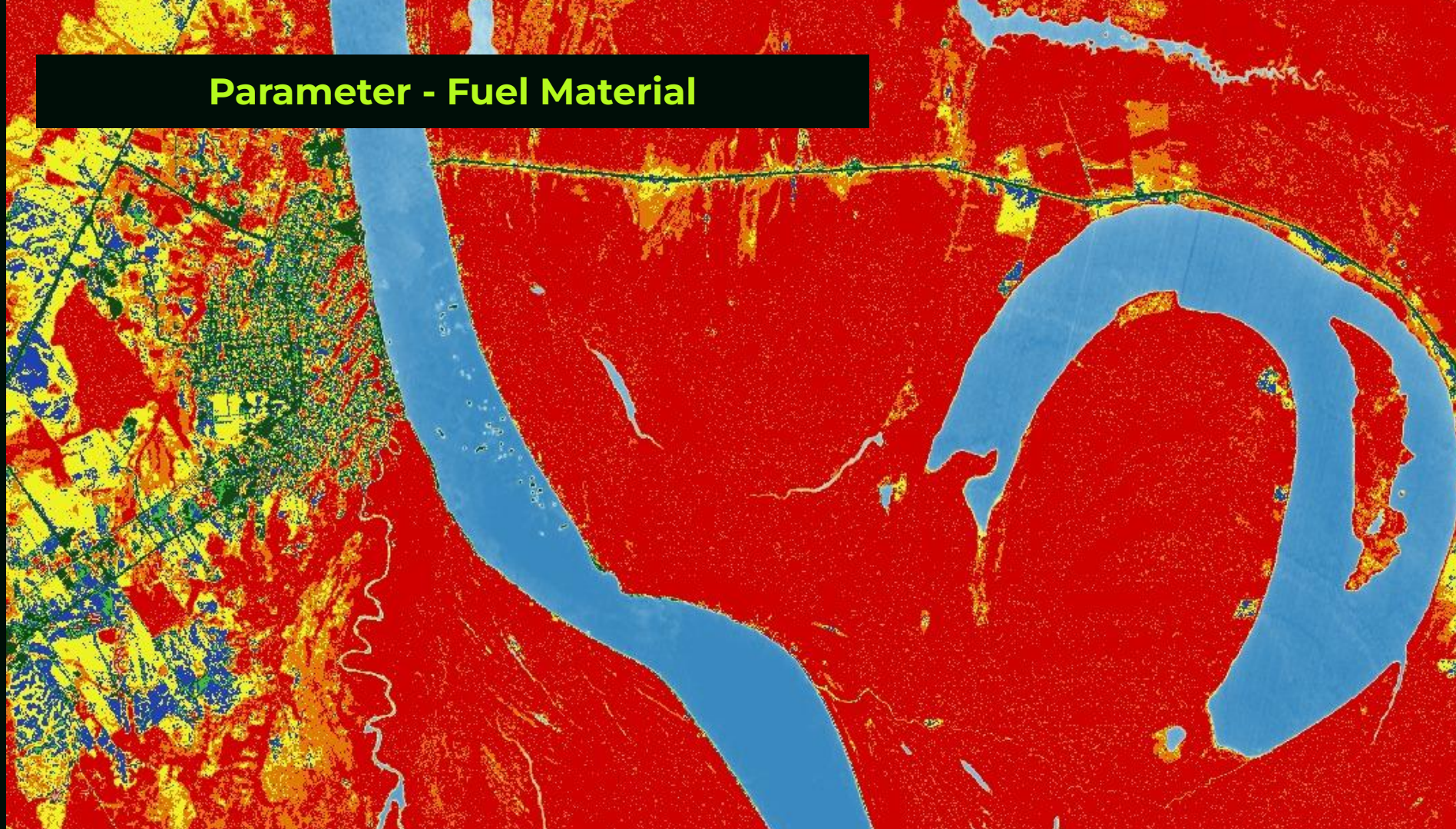
Input - IR



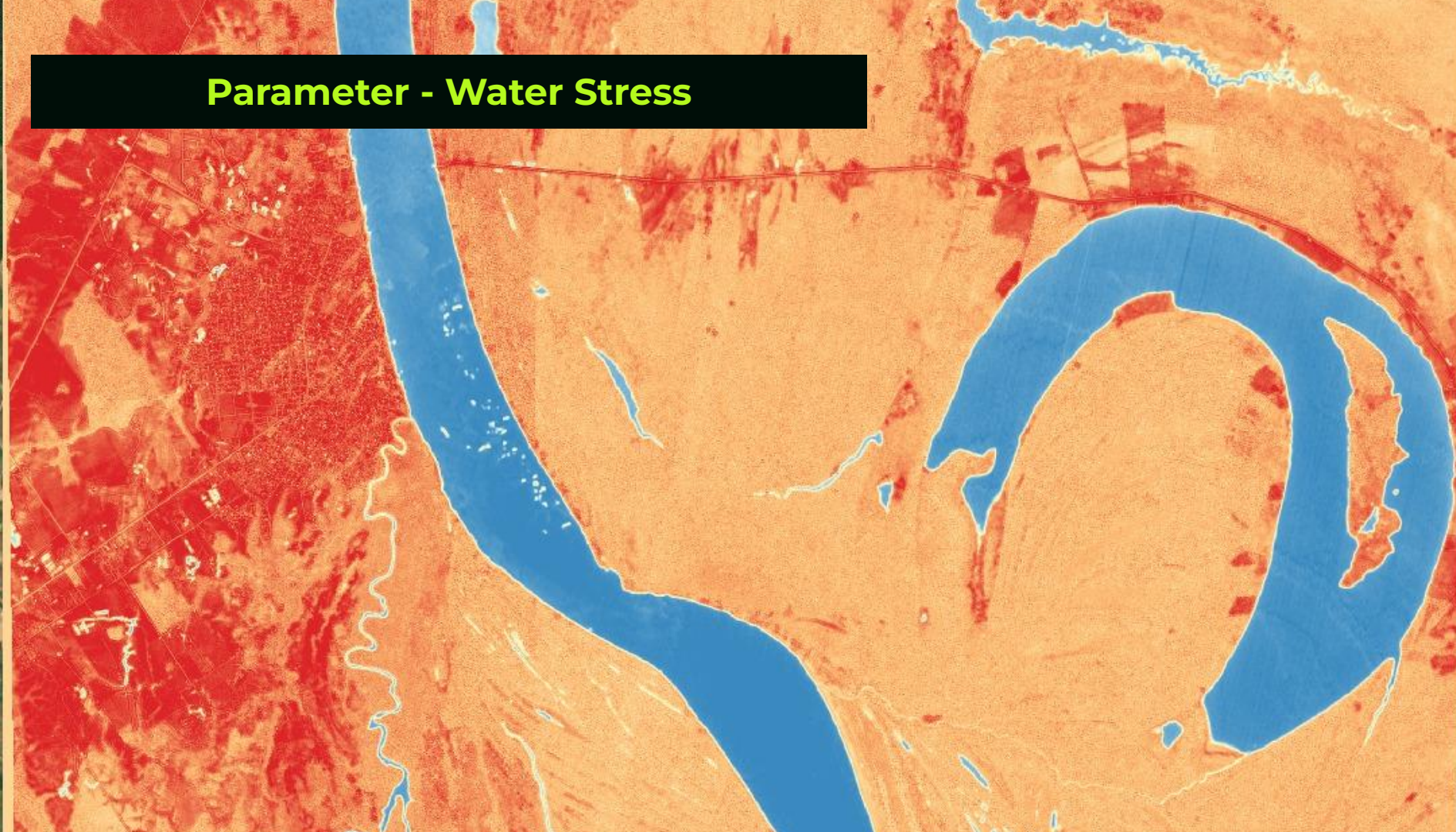
Input - SLOPE



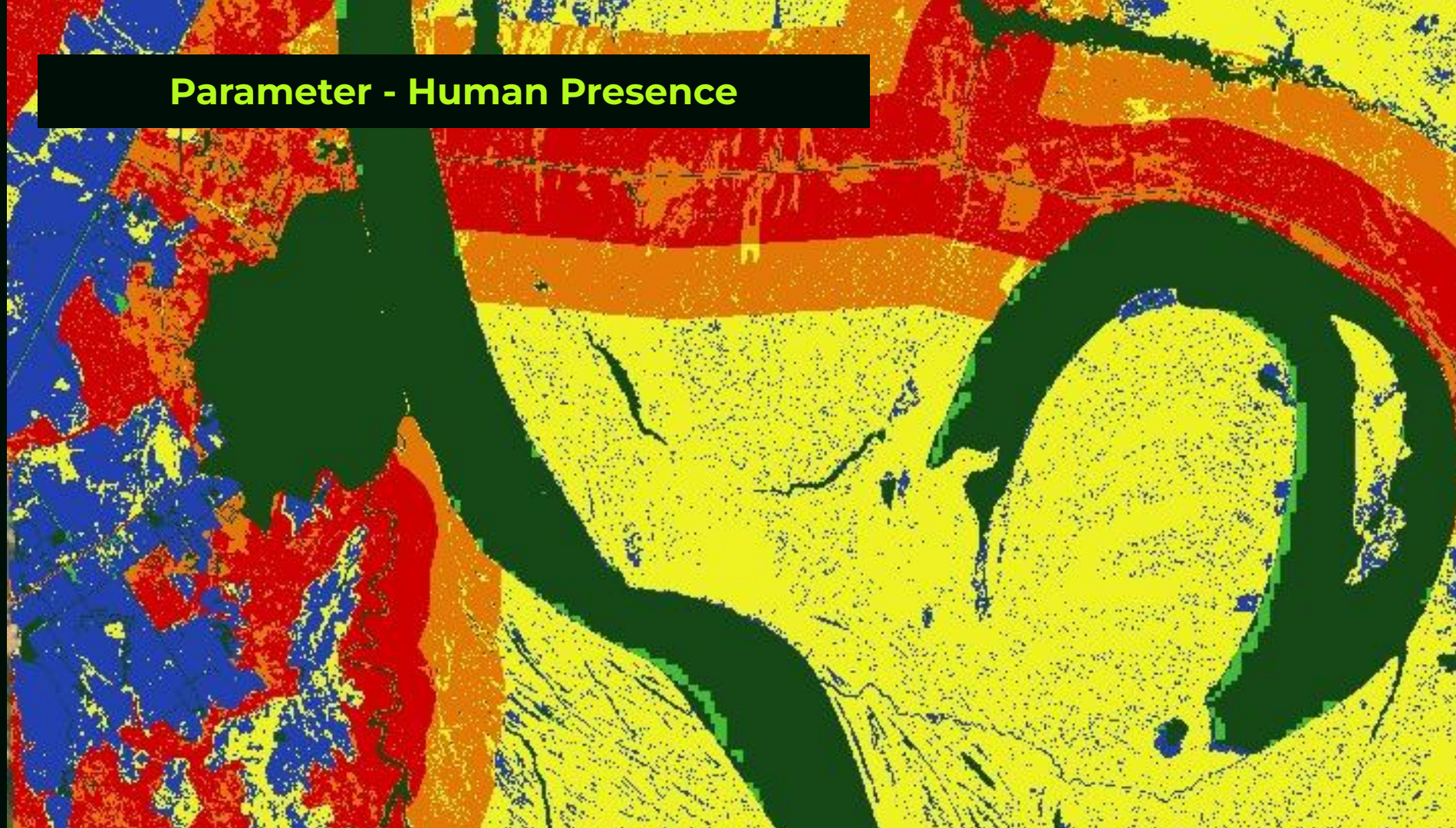
Parameter - Fuel Material



Parameter - Water Stress



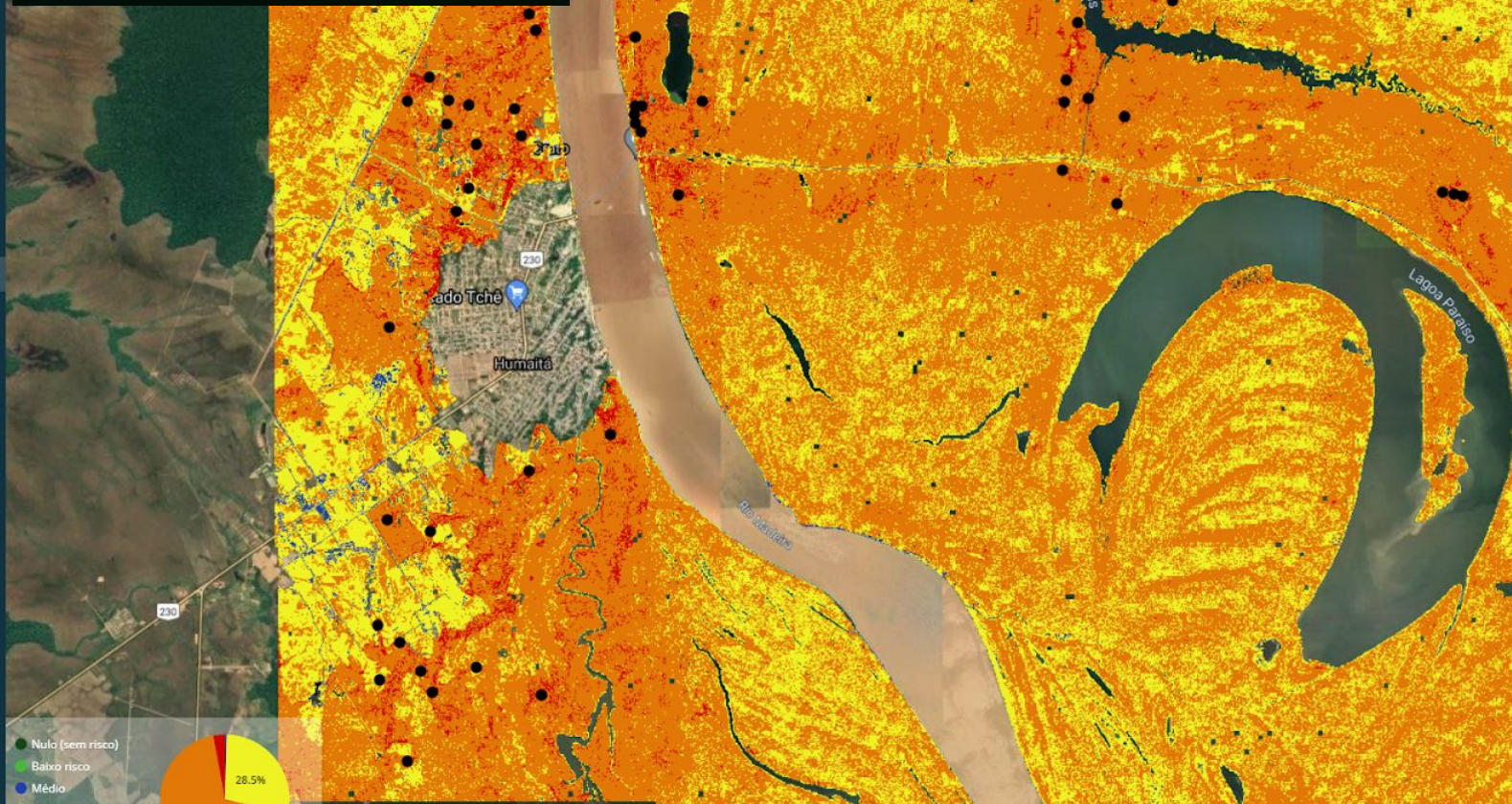
Parameter - Human Presence



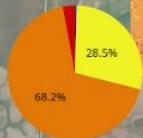
Humaitá

Humaitá

Final Prediction



- Nulo (sem risco)
- Baixo risco
- Médio
- Alto
- Muito alto
- Extremo



12/08/2021 - 00:00

18/08/2021 - 00:00

100%

Satélite

+

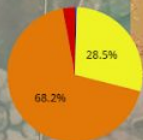
1 km

Humaitá

Humaitá

Prediction 21.08.05-12

- Nulo (sem risco)
- Baixo risco
- Médio
- Alto
- Muito alto
- Extremo



12/08/2021 - 00:00

18/08/2021 - 00:00

70%

Satélite

+

-

1 km

Fires 21.08.05-12





Prediction 21.08.11-18

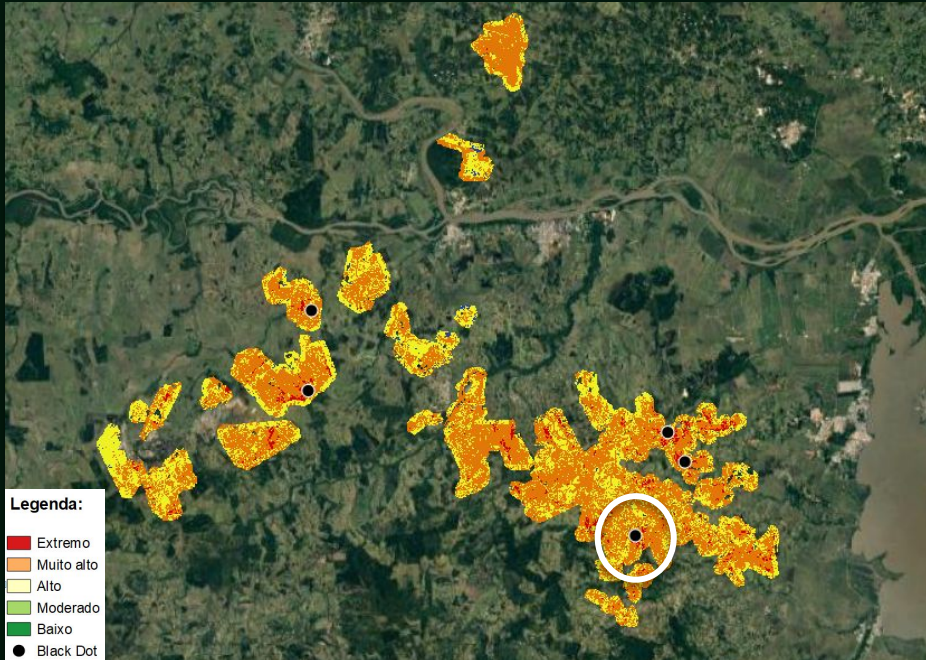


Fires 21.08.11-18



REAL CASES

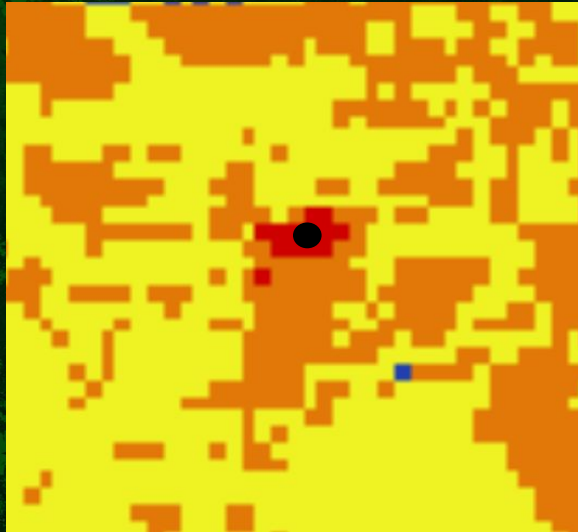
RISK ALERTS ON MAP



01.17 Flareless Risk Alert



UNIQUE VALUE PROPOSITION | EXAMPLE



Critical point
identified
- Blackdots -



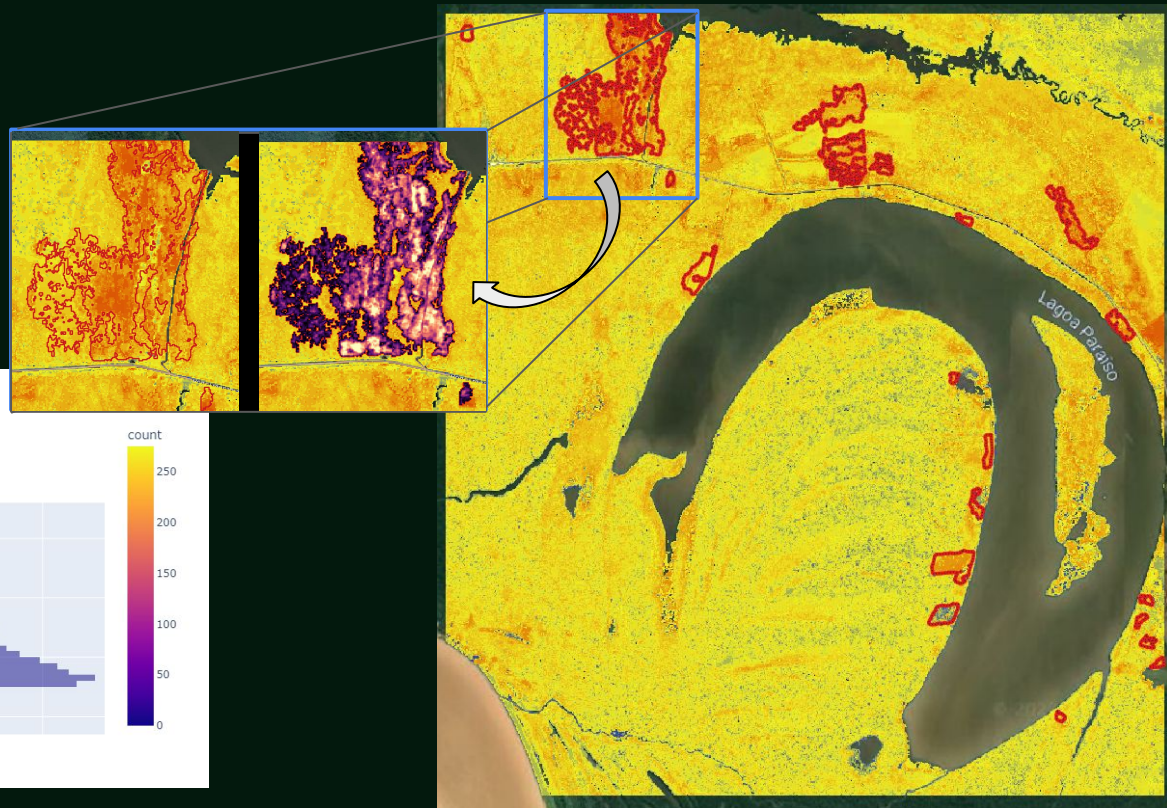
Generated work order



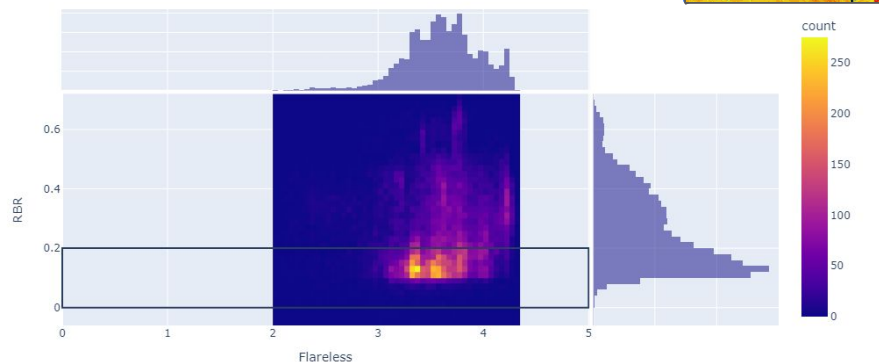
Preventive measure
Cleaning

COMPARATIVE BETWEEN HAZARD X FIRE BURN SCAR

Case Amazon - More than 90%
area burned inside high risk



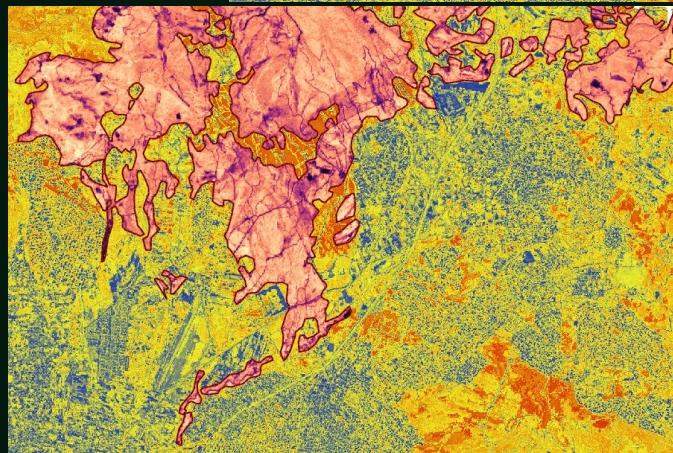
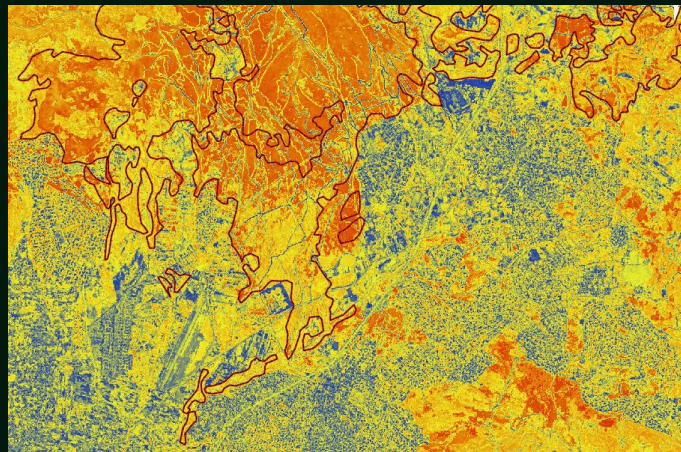
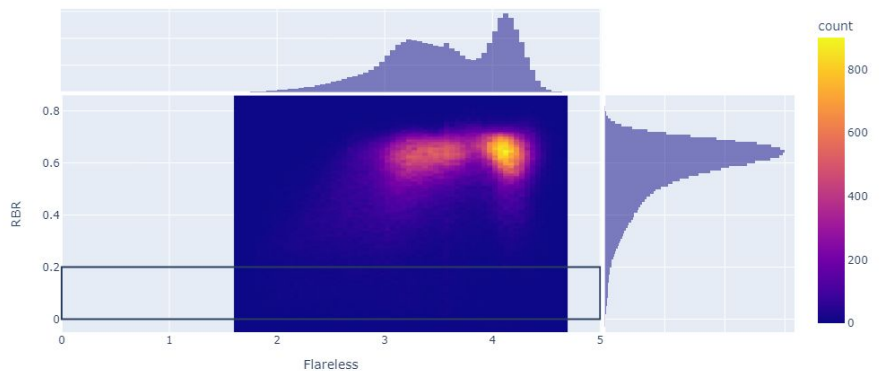
Perigo Flareless x Severidade RBR



COMPARATIVE BETWEEN HAZARD X FIRE BURN SCAR

Case Greece - More than 80% area burned inside high risk

Perigo Flareless x Severidade RBR



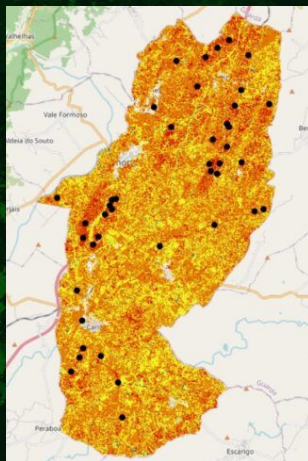
CASE STUDIES



Luís Carvalho,
Belmonte Civil
Protection
Coordinator



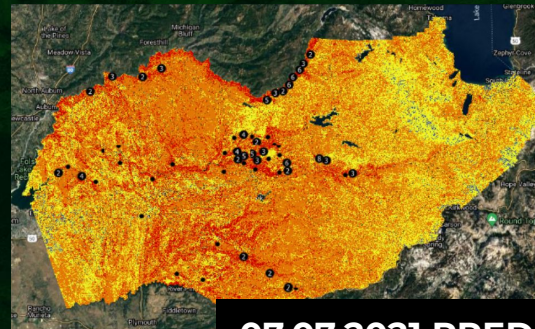
“The current forecast data shows the region as a whole, with Flareless, I can see at the pixel level, so even in small territories I can see the variations and make the decision more assertively”



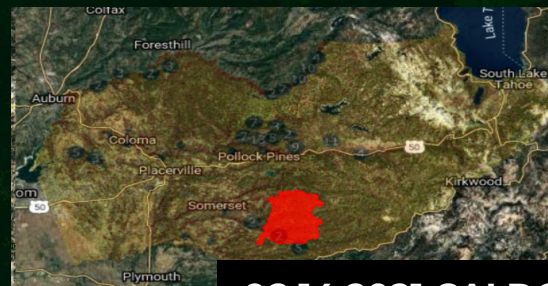
Region with a history of recurrent fires.

After the implementation of the tool, it achieved the goal of zero burned areas in this critical period.

EL DORADO COUNTY, CA



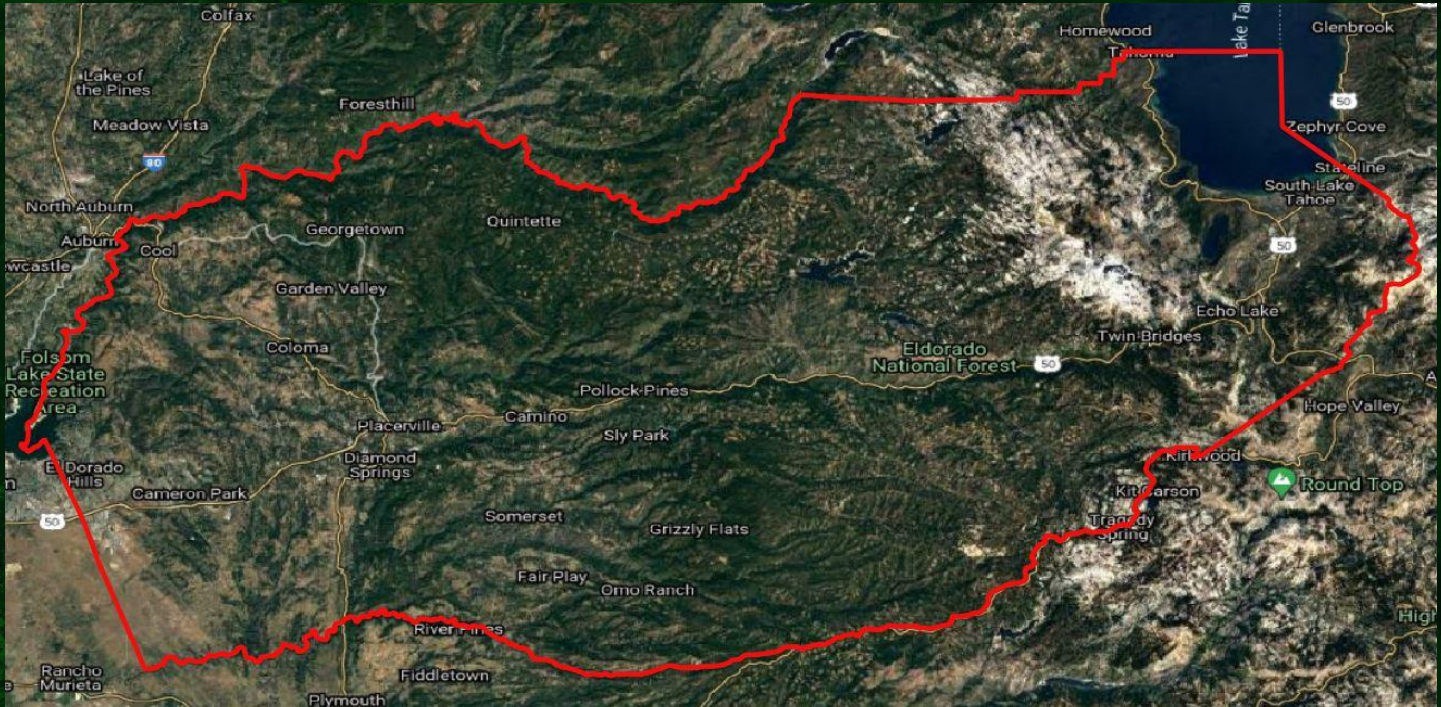
07.07.2021 PREDICTION



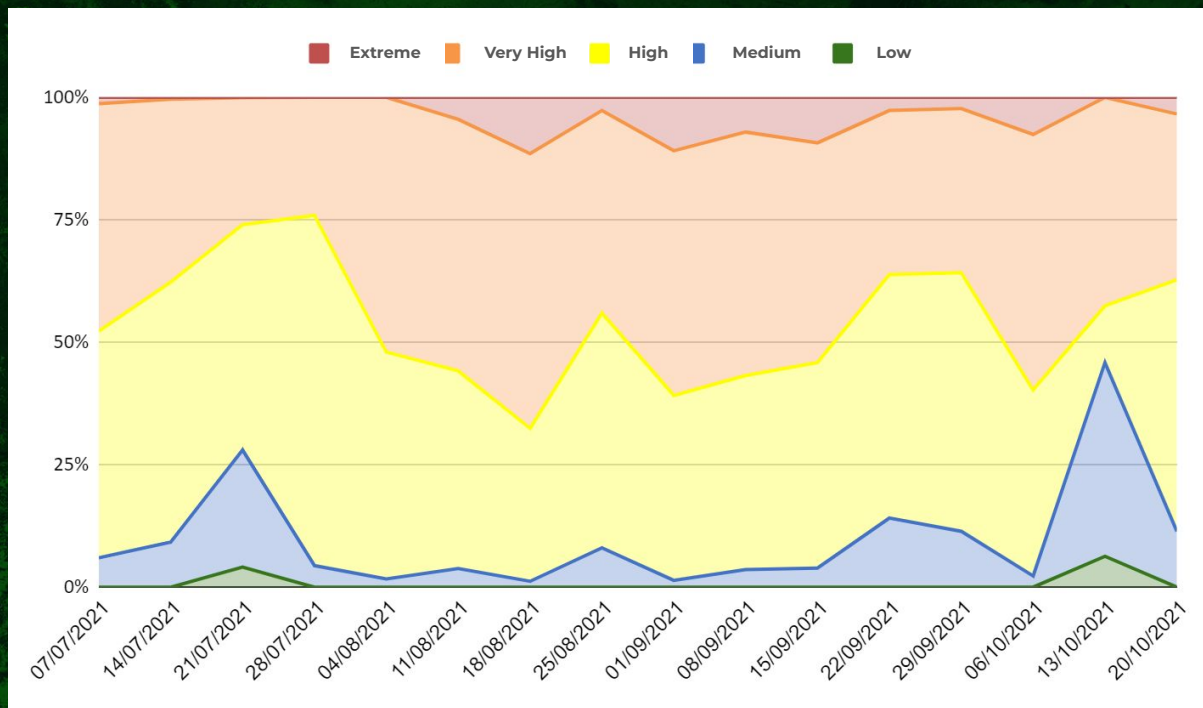
08.14.2021 CALDOR FIRE

**CASE CALDOR FIRE
EL DORADO COUNTY, CALIFORNIA
45-DAYS IN ADVANCE PREDICTION**

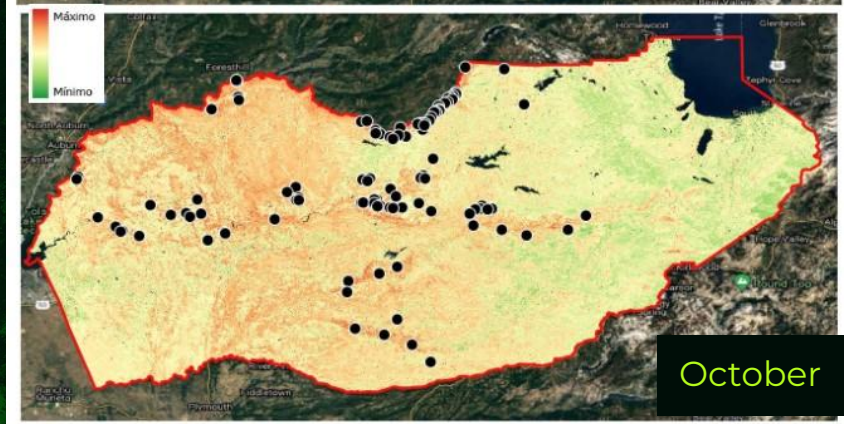
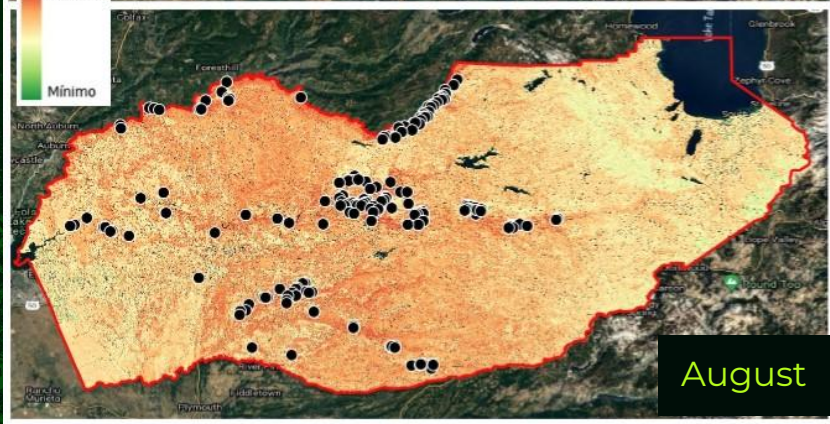
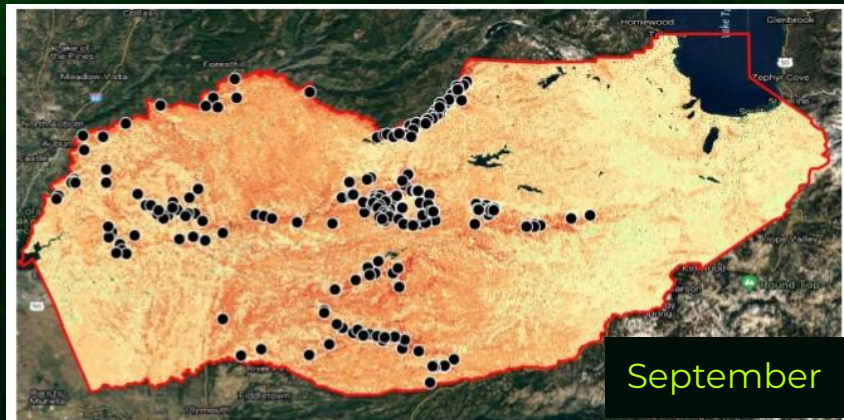
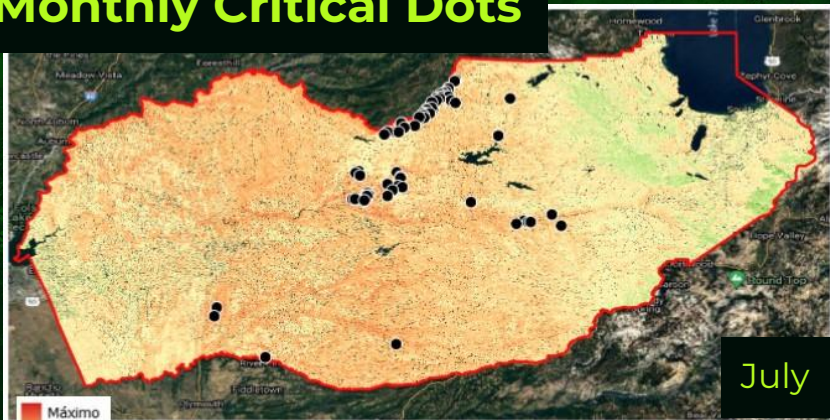
El Dorado County



Weekly fire hazards in the area



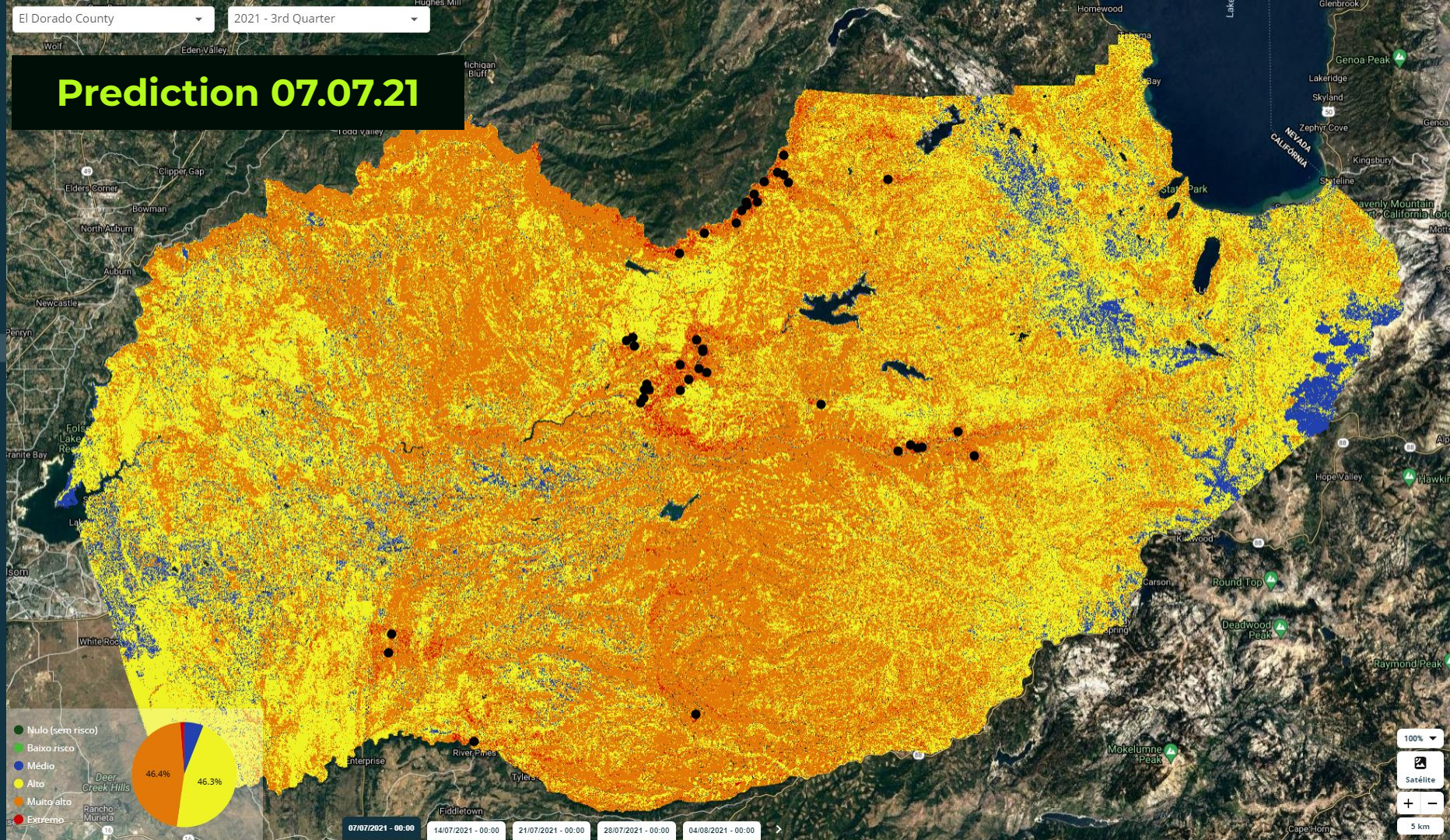
Monthly Critical Dots



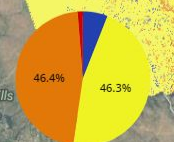
El Dorado County

2021 - 3rd Quarter

Prediction 07.07.21



- Nulo (sem risco)
- Baixo risco
- Médio
- Alto
- Muito alto
- Extremo



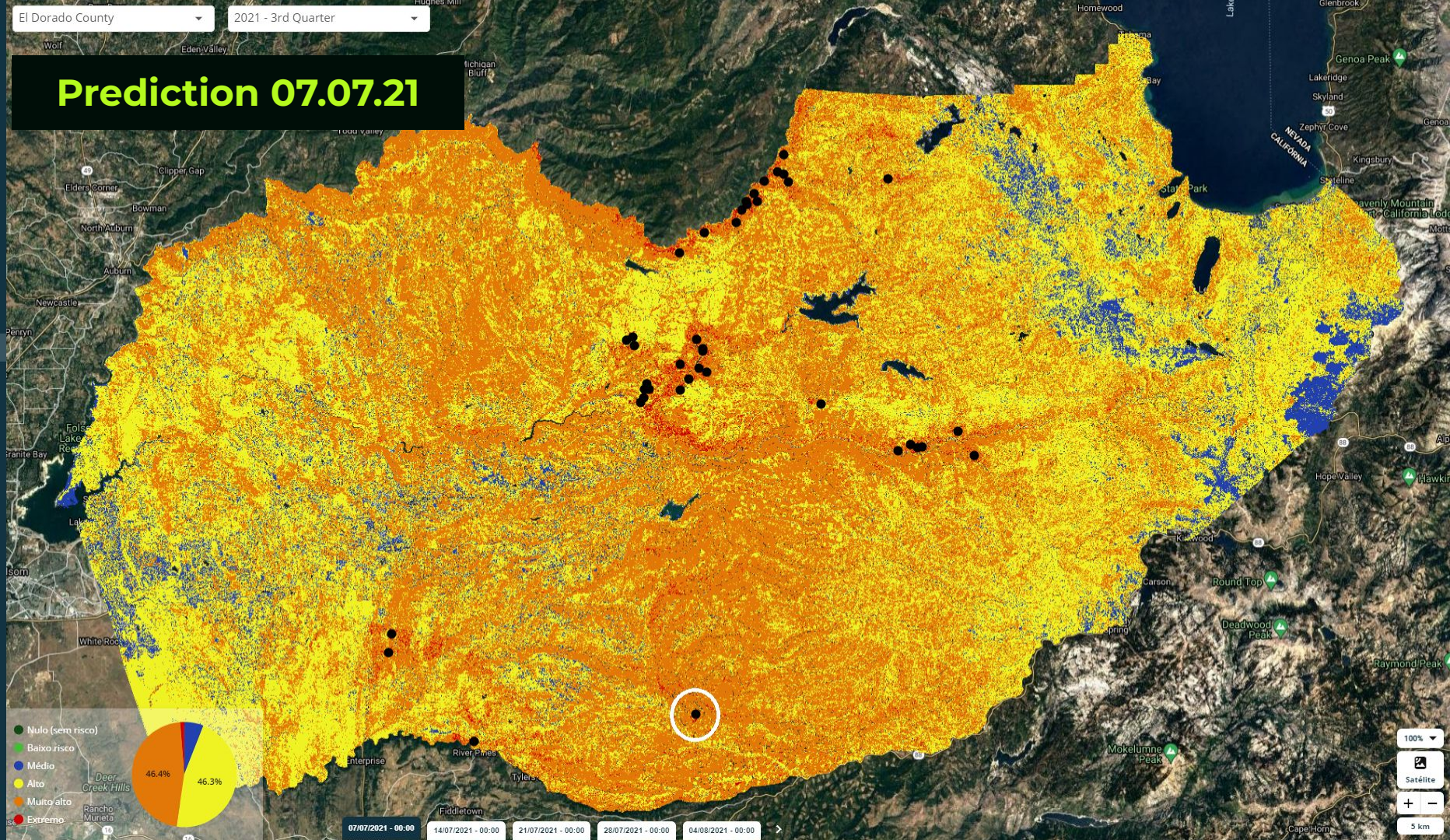
07/07/2021 - 00:00 14/07/2021 - 00:00 21/07/2021 - 00:00 28/07/2021 - 00:00 04/08/2021 - 00:00

100%
Satélite
+ -
5 km

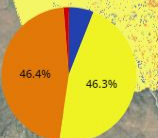
El Dorado County

2021 - 3rd Quarter

Prediction 07.07.21



- Nulo (sem risco)
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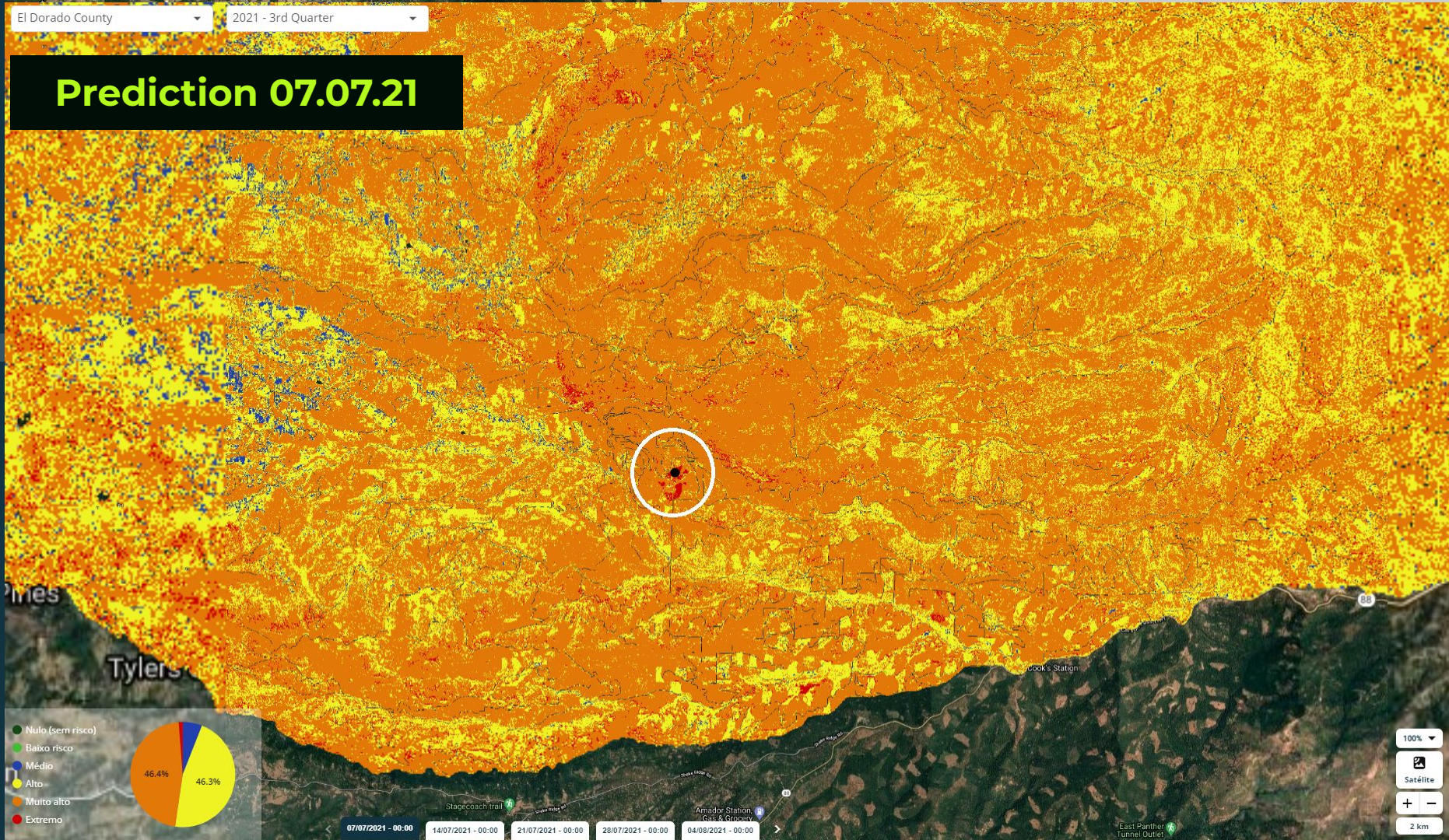
07/07/2021 - 00:00 14/07/2021 - 00:00 21/07/2021 - 00:00 28/07/2021 - 00:00 04/08/2021 - 00:00

100%
Satélite
+
-
5 km

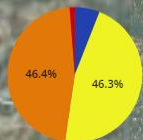
El Dorado County

2021 - 3rd Quarter

Prediction 07.07.21



- Nulo (sem risco)
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- Extremo



07/07/2021 - 00:00 14/07/2021 - 00:00 21/07/2021 - 00:00 28/07/2021 - 00:00 04/08/2021 - 00:00

100%

Satélite

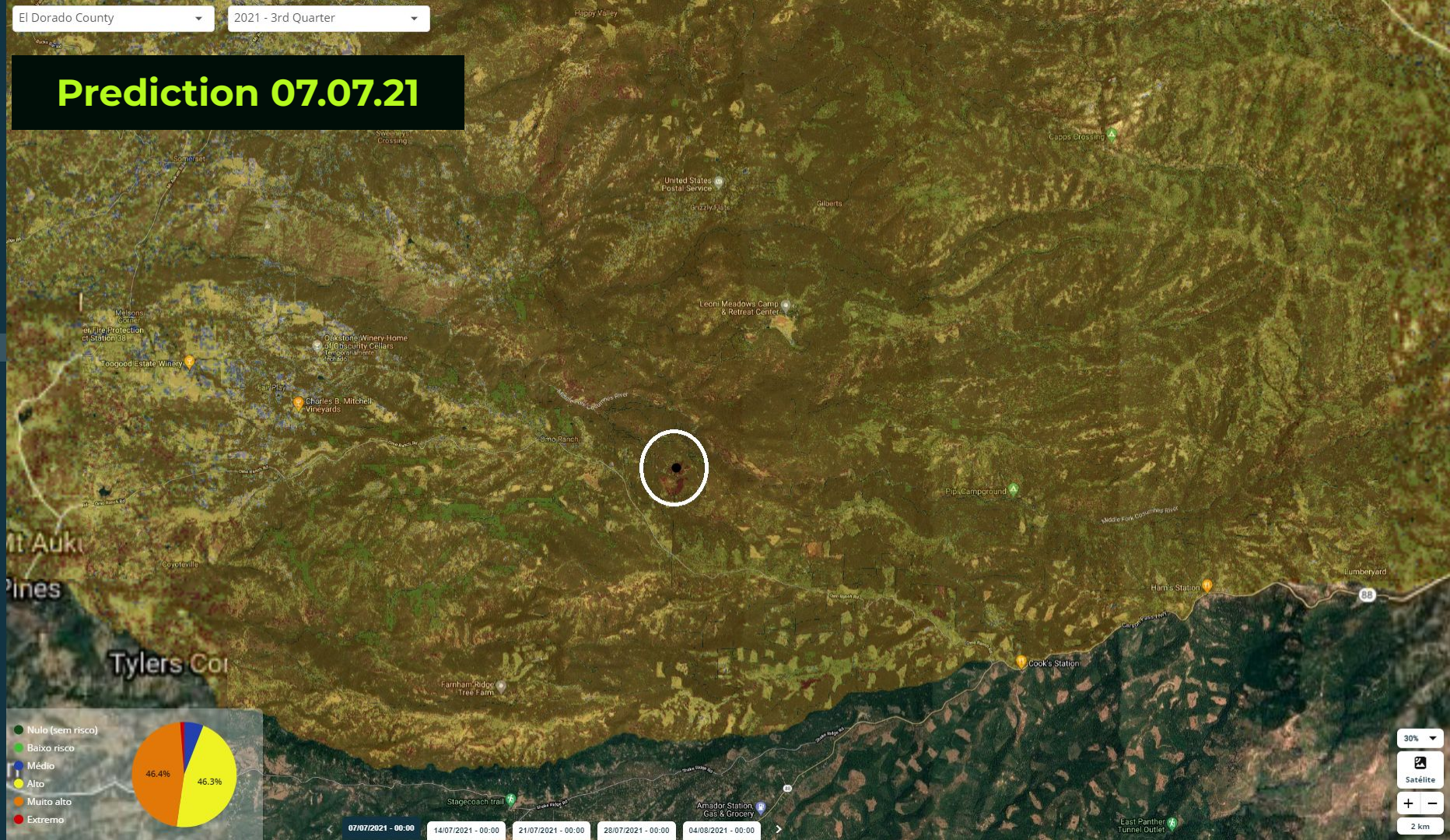
+

2 km

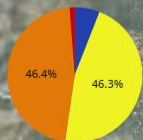
El Dorado County

2021 - 3rd Quarter

Prediction 07.07.21



- Nulo (sem risco)
- Baixo risco
- Médio
- Alto
- Muito alto
- Extremo



07/07/2021 - 00:00 14/07/2021 - 00:00 21/07/2021 - 00:00 28/07/2021 - 00:00 04/08/2021 - 00:00

30%
Satélite
+ -
2 km

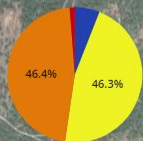
El Dorado County

2021 - 3rd Quarter

Prediction 07.07.21

Omo Ranch Rd Fancher Christmas Tree Farm

- Nulo (sem risco)
- Baixo risco
- Médio
- Alto
- Muito alto
- Extremo



07/07/2021 - 00:00

14/07/2021 - 00:00

21/07/2021 - 00:00

28/07/2021 - 00:00

04/08/2021 - 00:00

0%

Satélite

+

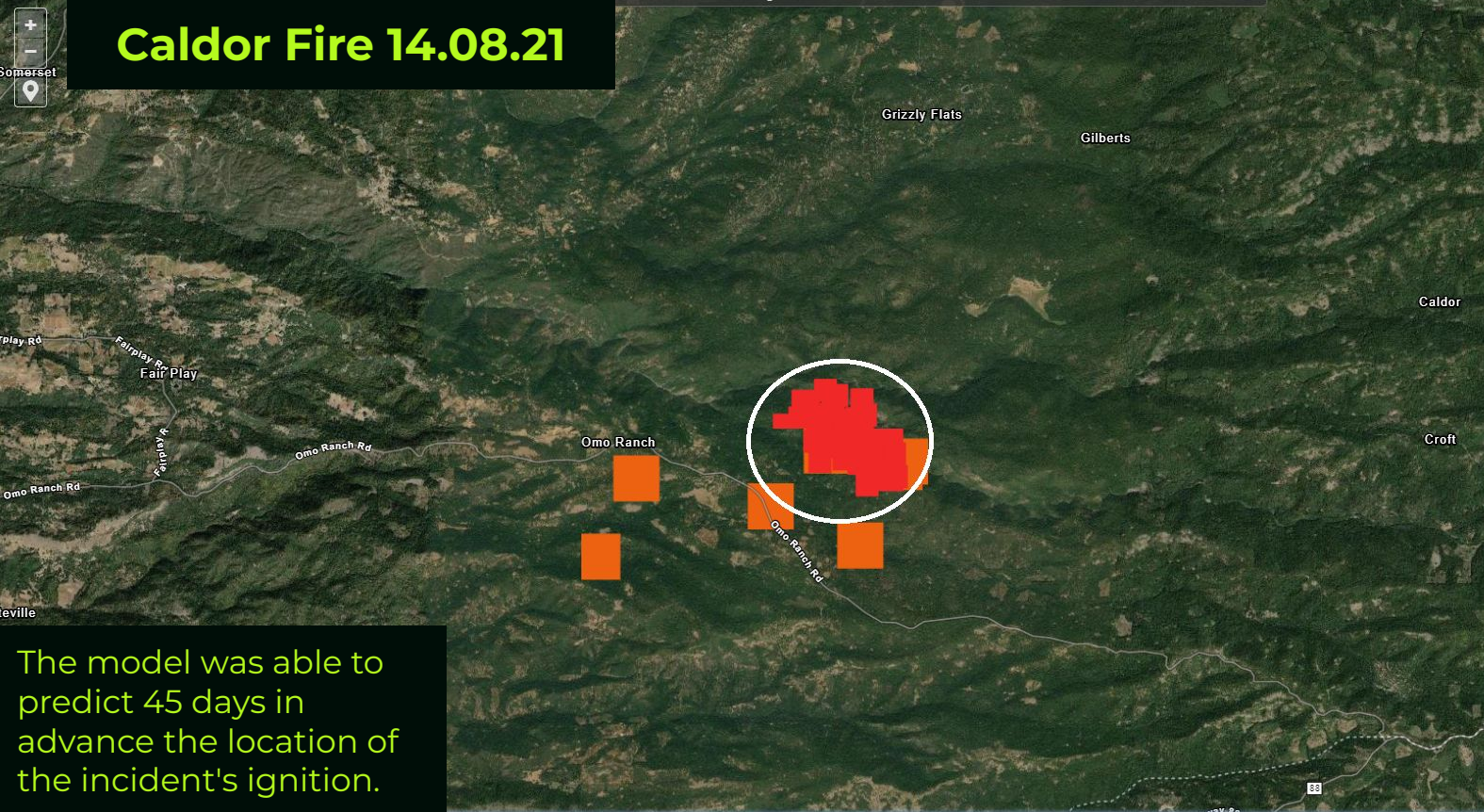
-

500 m



Caldor Fire 14.08.21

Lat: 38.556° Lon: -120.563° Fires: Aug 15 2021



The model was able to predict 45 days in advance the location of the incident's ignition.

CURRENT HISTORICAL

Aug 15 2021 1 day

BASIC MODE ADVANCED MODE

2021-08-28 - present

USA FIRE AVAILABLE 2021-08-22 - present

Overlays

Coastlines / Borders / Roads - BASIC

Coastlines / Borders / Roads - DETAILED

Dynamic Imagery

VIIRS NOAA-20 Corrected Reflectance (true color)

VIIRS S-NPP Corrected Reflectance (true color)

MODIS/Terra Corrected Reflectance (true color)

Static Backgrounds

Blue Marble

Streets

Topographic

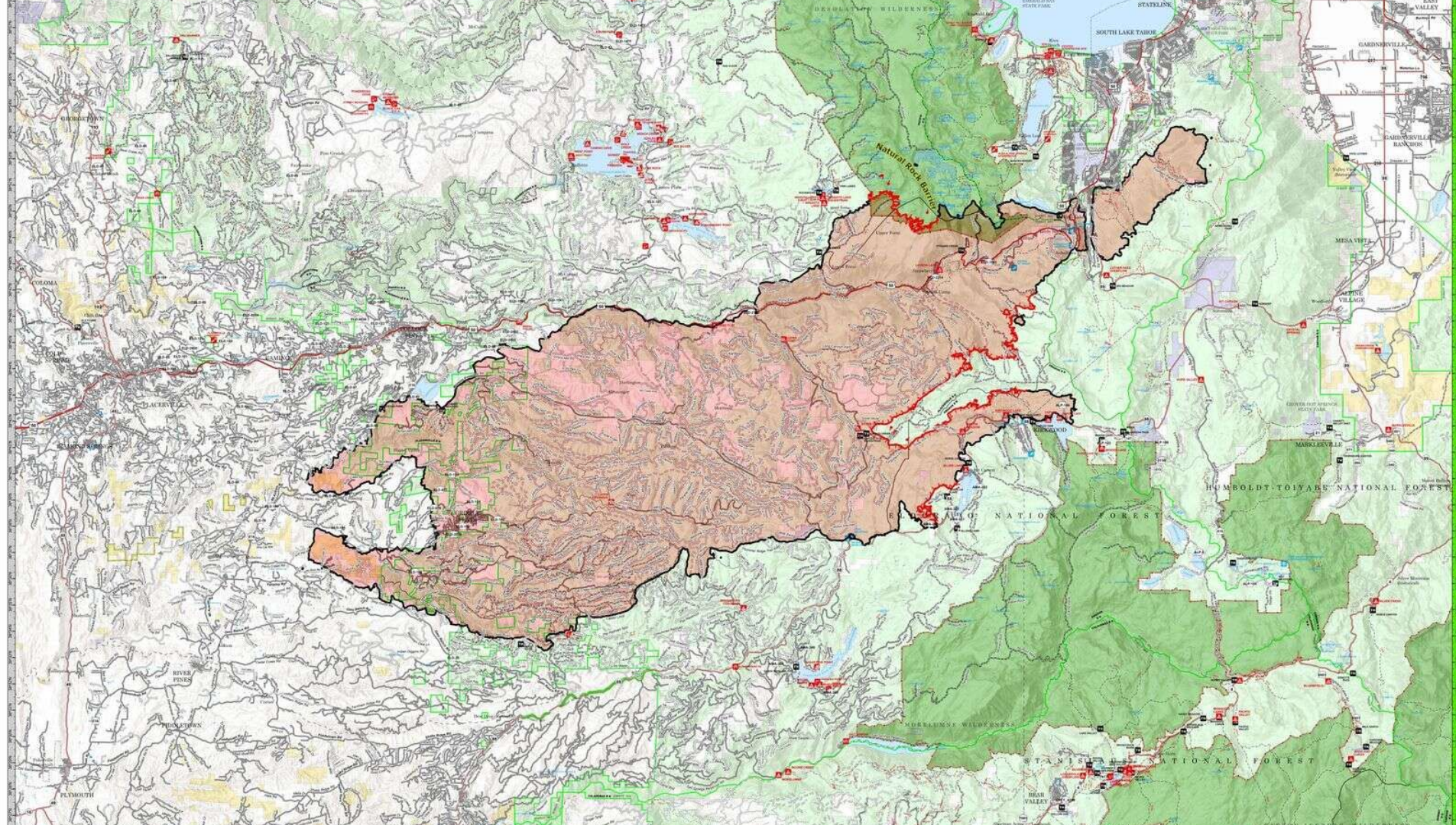
NOTE: CLOUD COVER MAY OBSCURE ACTIVE FIRE DETECTIONS



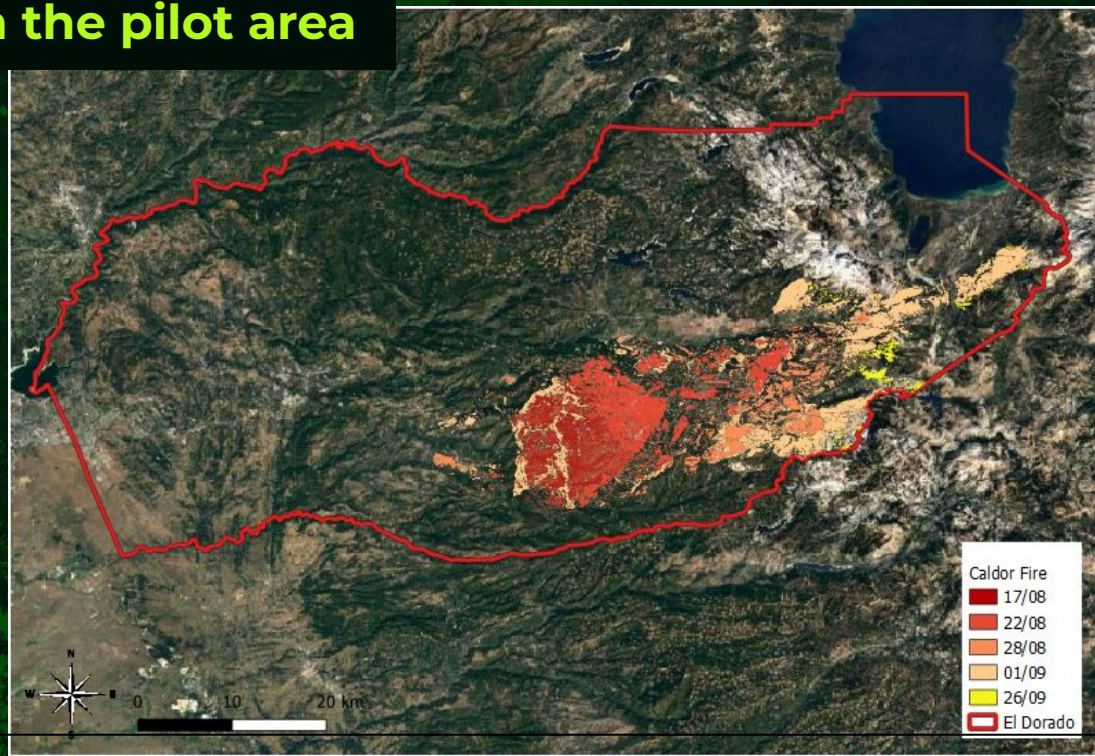
2 km



Copernicus
Europe's eyes on Earth



Fire scars in the pilot area



Total	08.17	08.22	08.28	09.01	09.26
134,949.68 (acres)	20,671.60 (acres)	31,997.18 (acres)	20,530.25 (acres)	57,101.60 (acres)	4,649.04 (acres)

JOIN US!
HERE, WE FIGHT FIRES
BEFORE THEY HAPPEN.

diogo.machado@quiron.digital
WWW.QUIRON.DIGITAL/EN

ALIGNMENT WITH THE SDGs:

3 GOOD HEALTH
AND WELL-BEING



9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE



11 SUSTAINABLE CITIES
AND COMMUNITIES



12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION



13 CLIMATE
ACTION



15 LIFE
ON LAND

