LOKI

AT EARTH

Adrielly Inocencio
Bruno Alves Comitre
Edgar Miyamoto
Fernanda Cristina Guerra
Silvia Cristina de Jesus
Vinicius Loiola Beserra

ANHANGÁ

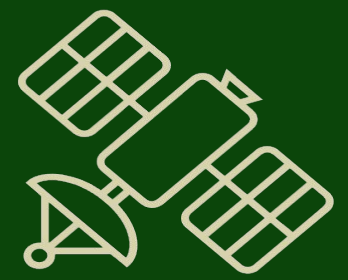
Citizen Science for Fire Alert

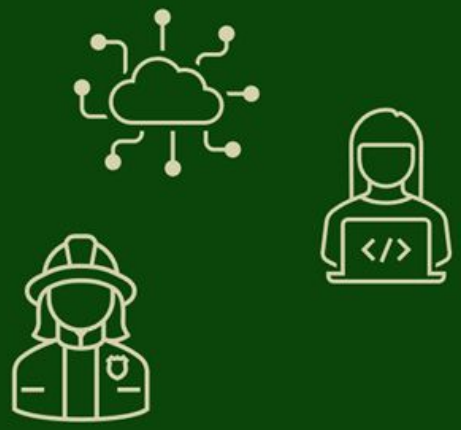
WARNING: THINGS ARE HEATING UP!

NASA SPACE APPS CHALLENGE

BACKGROUND

Satellite-based products for monitoring forest fires are very useful for various purposes



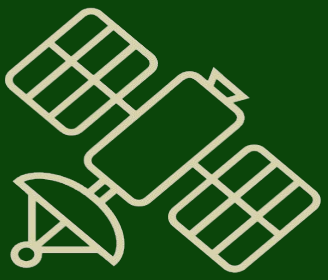


BACKGROUND

They can help to prevent damage to ecosystems, biodiversity and the safety and health of the human population.

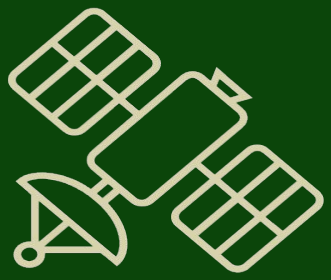
BACKGROUND

There are several very useful satellite-based products for monitoring forest fires



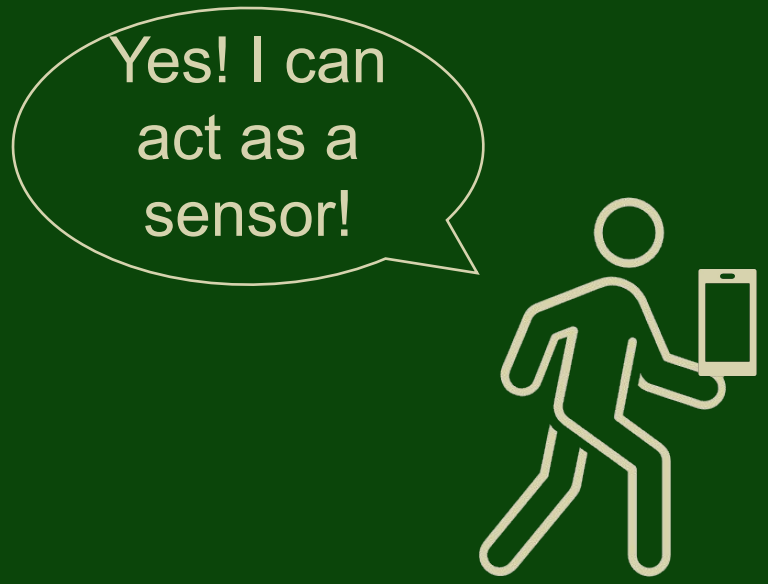
BUT...

In some cases, satellites can’t detect fires



SOLUTION

citizens with a cell phone in hand
are a great way to get data



OUR GOAL

Develop an application for citizens to send geolocated photos of fires

FOR WHAT?

Send fire alerts from satellite and citizen science data

and

Use citizen science data to validate fire products

ANHANGA APP

RESOURCES

MYD09Q1 product

Aqua Surface Reflectance 8-Day L3 Global 250 m

MYD14A1.006 product

Aqua Thermal Anomalies & Fire Daily Global 1km

MYD09GQ product

Aqua Surface Reflectance Daily L2G Global 250m

MYD04_L2 product

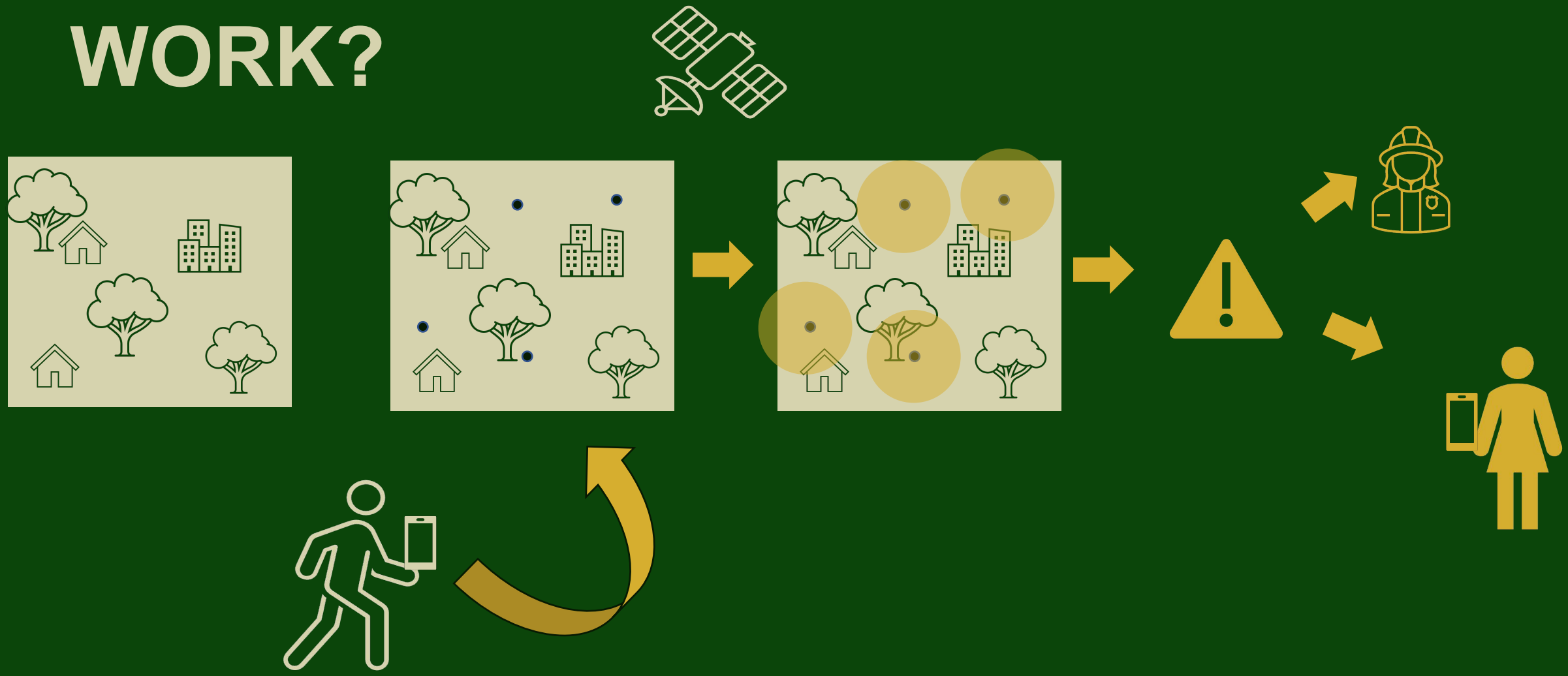
Aqua Aerosol 5-Min

Vegetation fire points

provided by INPE

OpenStreetMap

HOW DOES IT WORK?



ALERT LEVELS

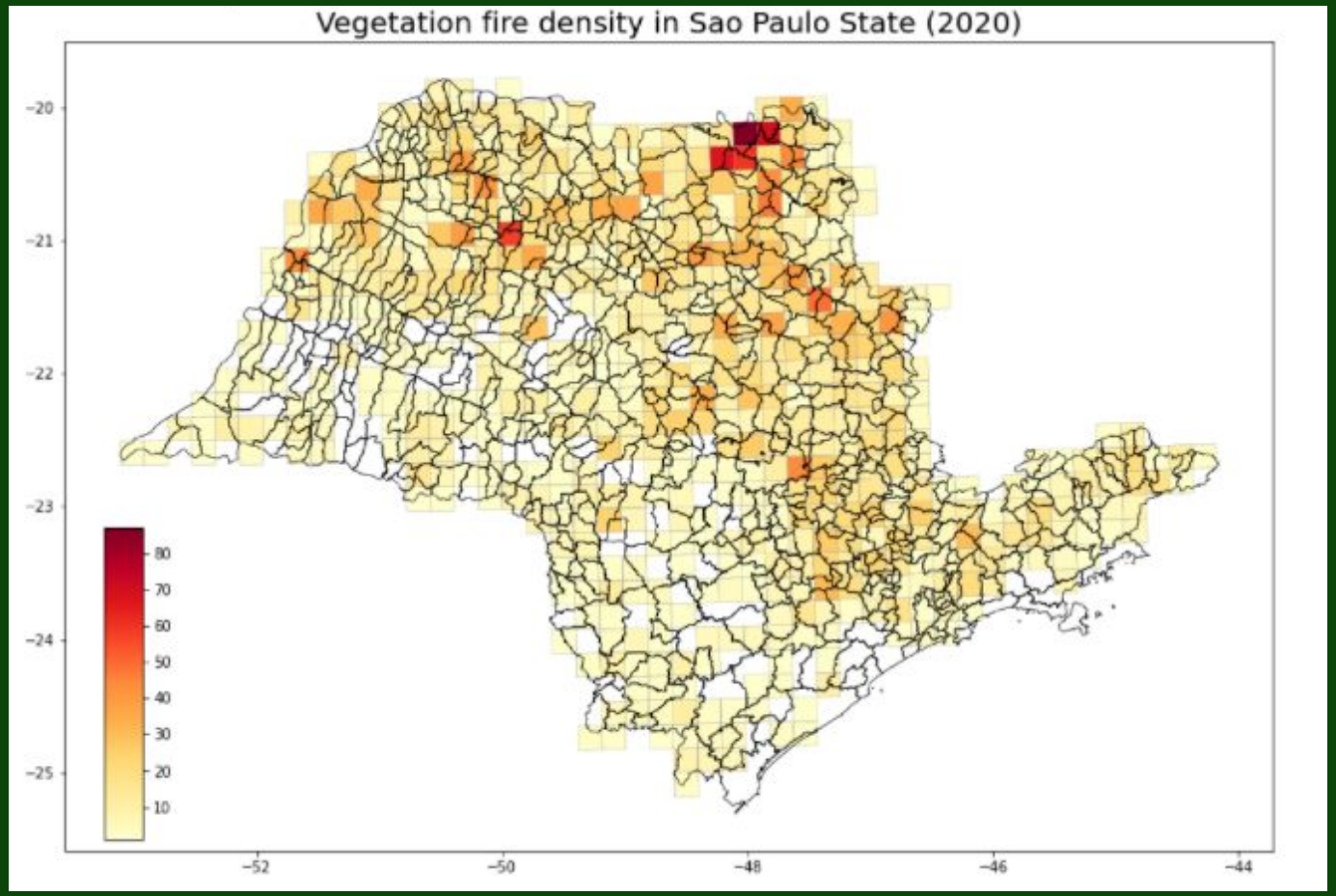
Place	Days without rain	Fire density (100m x 100m)
Protected areas	> 90 days	> 10 fire points per hectare
Rural areas	60 – 90 days	5 – 10 fire points per hectare
Urban perimeter	< 60 days	< 5 fire points per hectare

Land cover data

Precipitation data

Fire points data

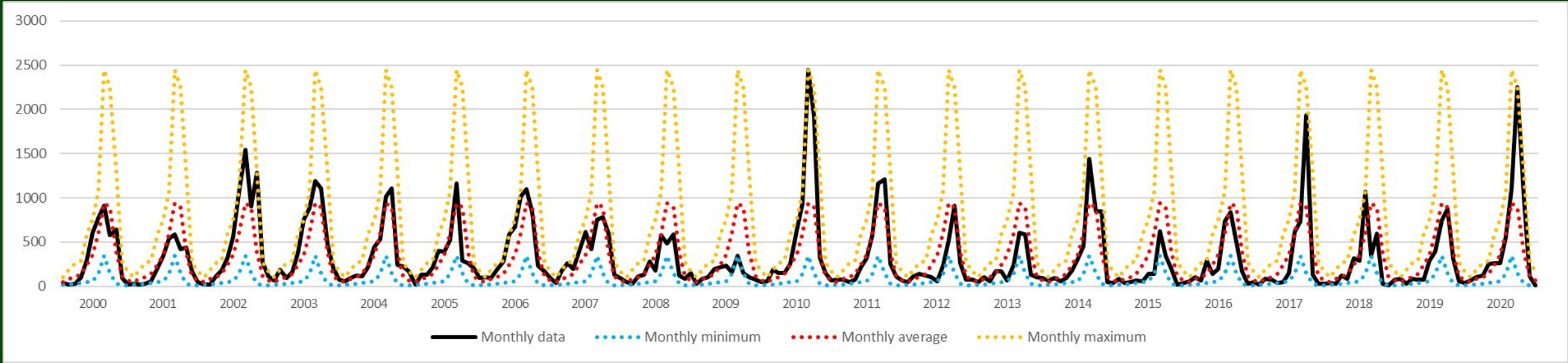
ALERT LEVELS



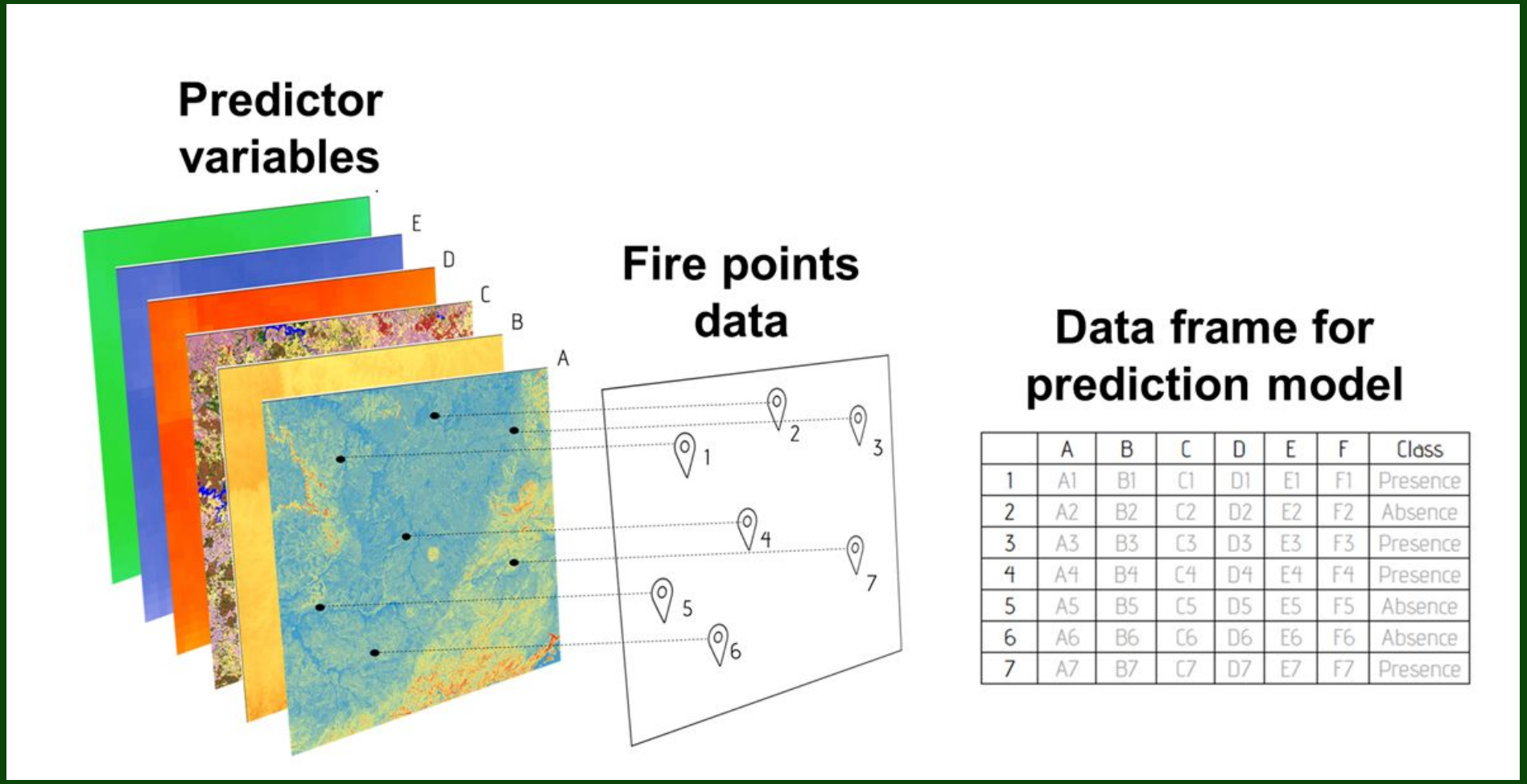
Fire density
5km x 5km
(Large scale)

SAZONALITY

For states and municipalities



FIRE RISK MODEL



Data frame for prediction model

	A	B	C	D	E	F	Class
1	A1	B1	C1	D1	E1	F1	Presence
2	A2	B2	C2	D2	E2	F2	Absence
3	A3	B3	C3	D3	E3	F3	Presence
4	A4	B4	C4	D4	E4	F4	Presence
5	A5	B5	C5	D5	E5	F5	Absence
6	A6	B6	C6	D6	E6	F6	Absence
7	A7	B7	C7	D7	E7	F7	Presence

THANKS