



EO for Africa Symposium 2024

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Using Copernicus to monitor deforestation in Sahel

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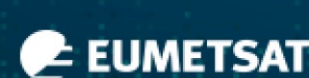


Land Degradation in Sahel



© FAO/Giulio Napolitano

The FONABES and Bois Energie Sahel projects



- Logging activities contribute deforestation
- 90% domestic energy comes from wood
- Two projects to promote sustainable wood sourcing
- FONABES (CIRAD): Mali, Burkina Faso, Niger
- Bois Energie Sahel (AFD)
- GOAL: 50% logging from sustainable sources



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Develop a platform leveraging on open access data to monitor deforestation

Introducing Masae Analytics



Working globally
in a wide array of sectors

Finance

Infrastructure

Agriculture

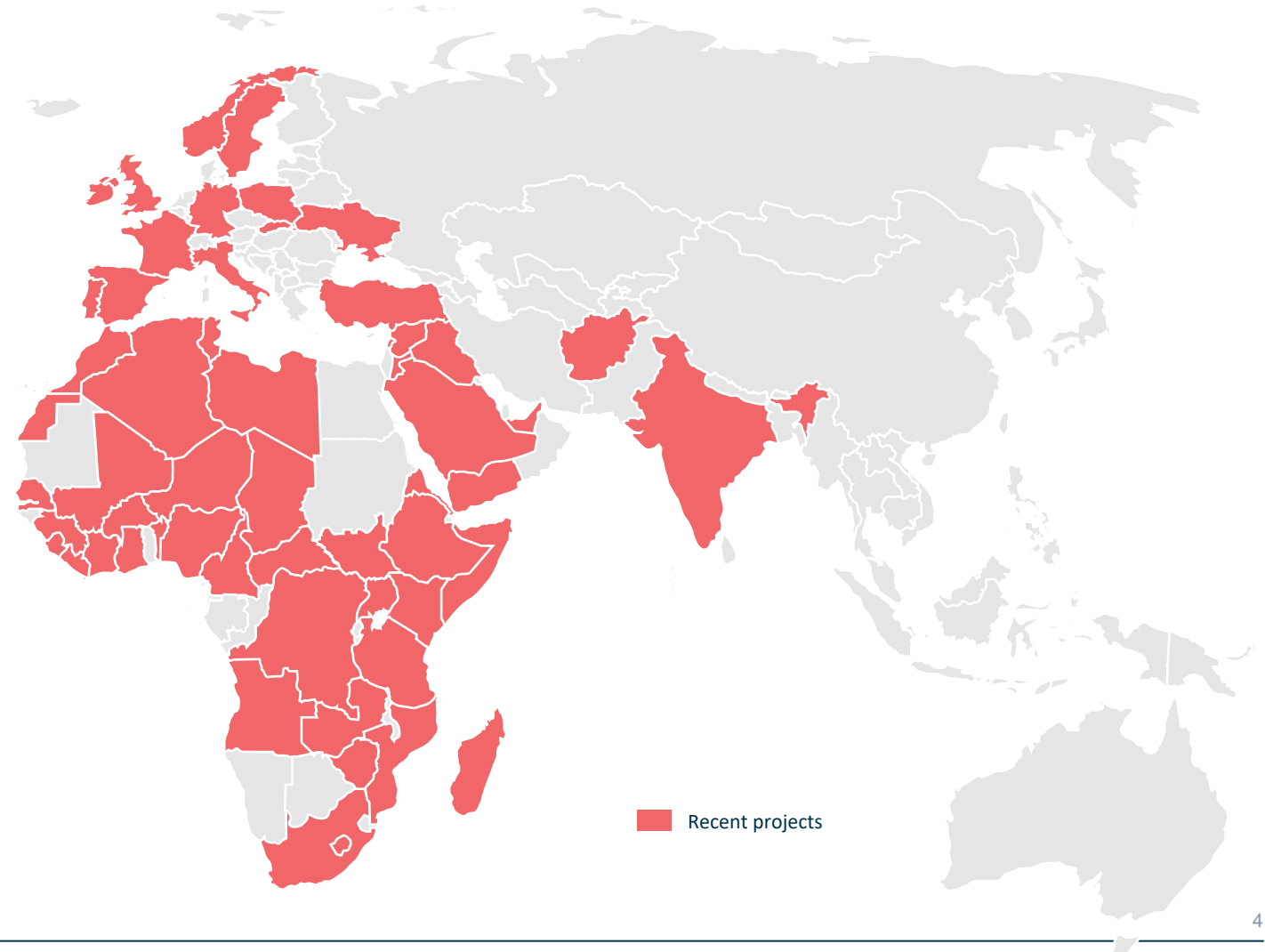
Climate Change

Digital Transformation

Impact Evaluation

Monitoring & Learning

Media



A sister company of Altai Consulting

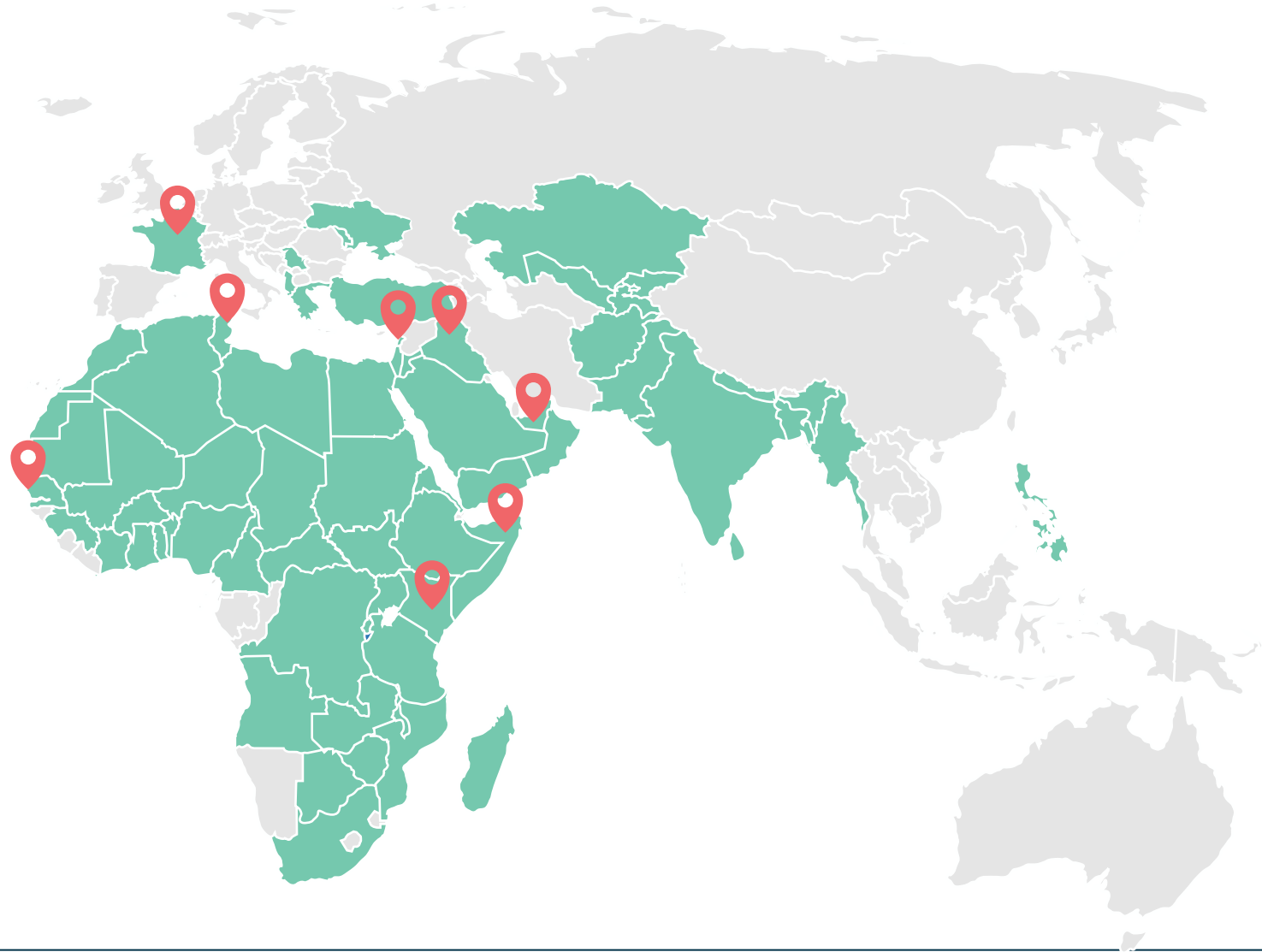


**Leading Management
Consultancy focusing on the
emerging world**

9 offices

90+ consultants

**300+ consulting, research &
evaluation projects**



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Leading management consultancy focusing on the emerging world

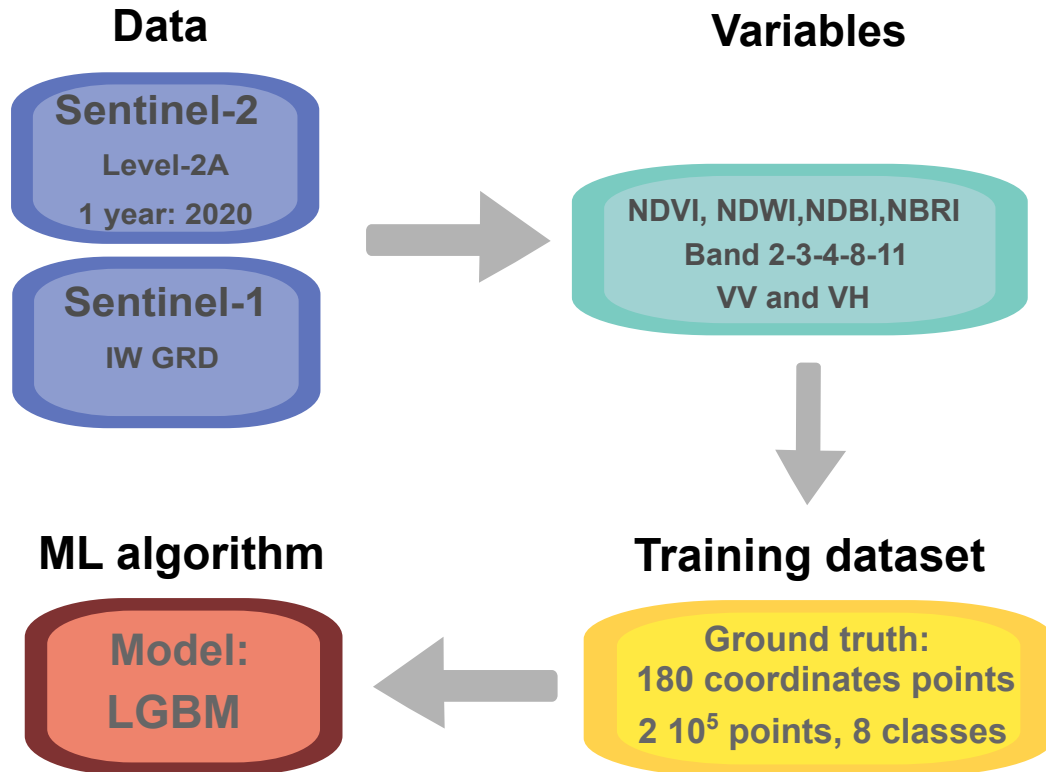
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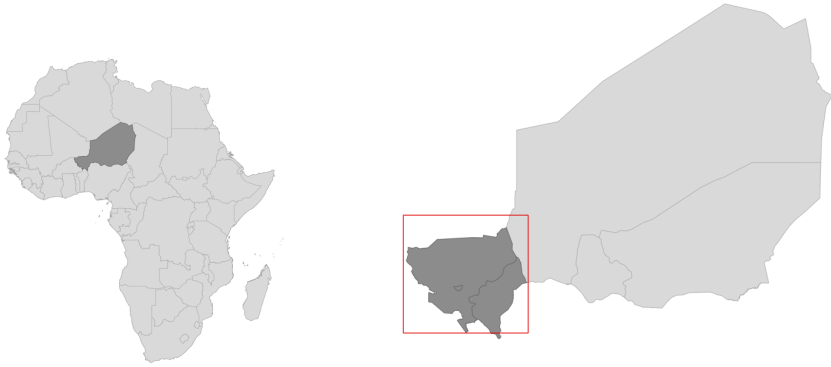
How to monitor deforestation in Sahel using remote sensing data?



Confusion Matrix

	FFTC PB	FFR BF	FFCP	FFCG	FFM	FFL	FFJ AR	EAU
FFTC PB	3544	2	4	2	0	1	0	0
FFR BF	4	1292	3	1	1	3	0	0
FFCP	7	1	4198	0	1	8	0	0
FFCG	1	0	0	2471	0	14	0	0
FFM	1	0	0	2	2546	0	0	0
FFL	1	0	3	7	0	3883	0	0
FFJ AR	1	0	1	0	0	0	522	0
EAU	0	1	0	0	0	0	0	2295

Monitoring land cover in Kirtachi

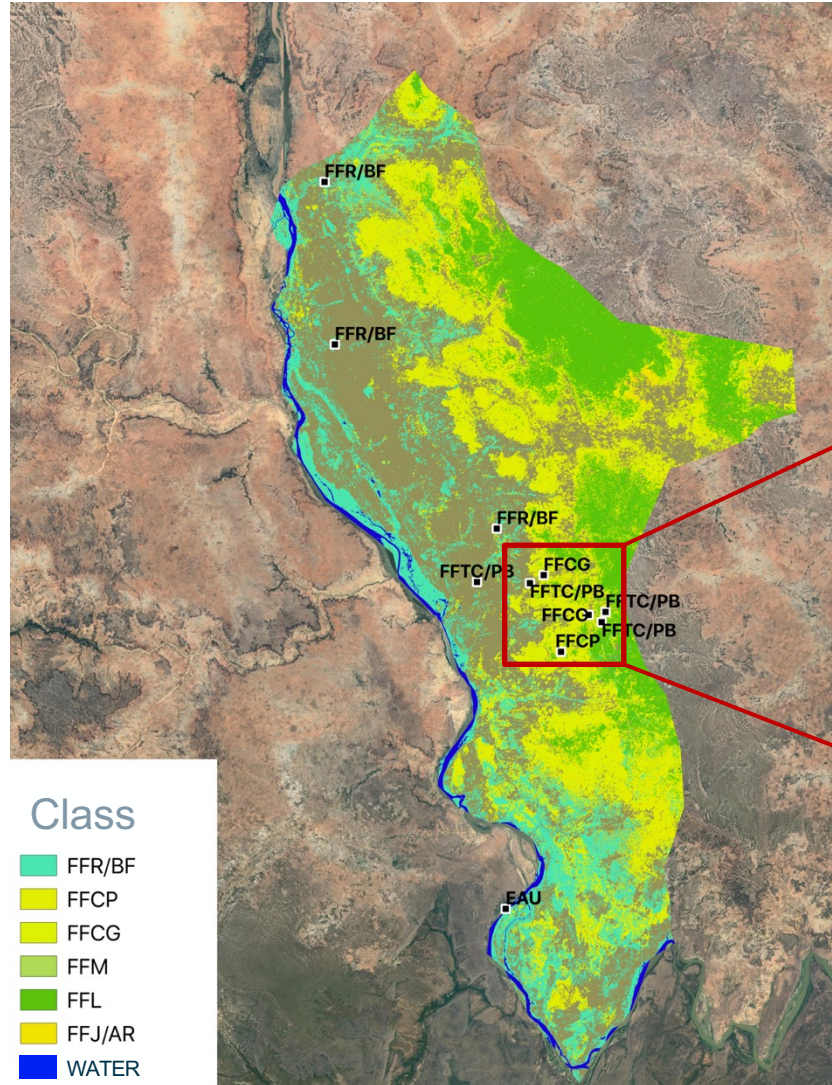


F1score, precision, recall exceed 99 %

Classes:

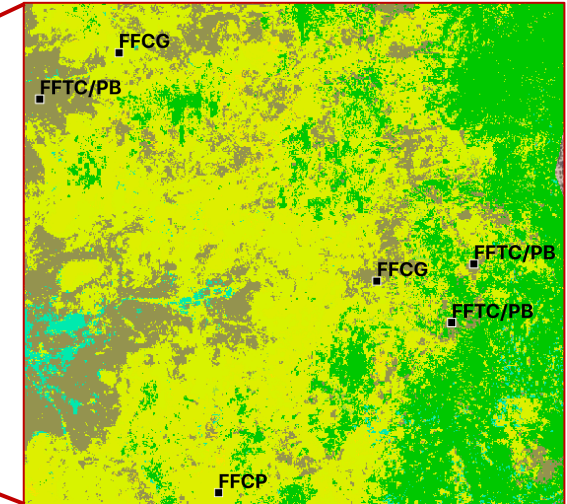
- Cultivated areas
- Fayas
- Bare soils
- ...

Classification needed to calculate deforestation by category

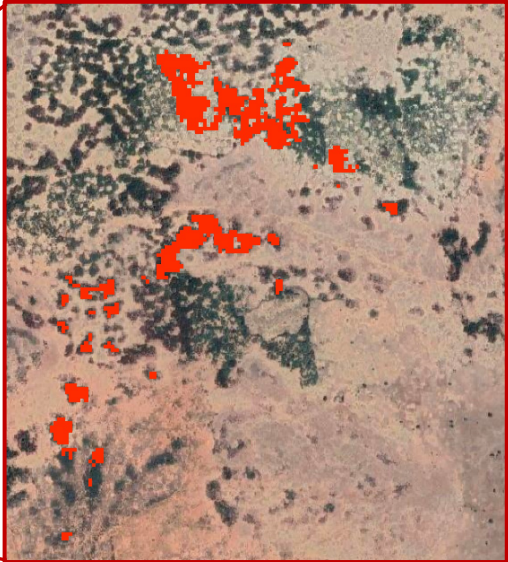
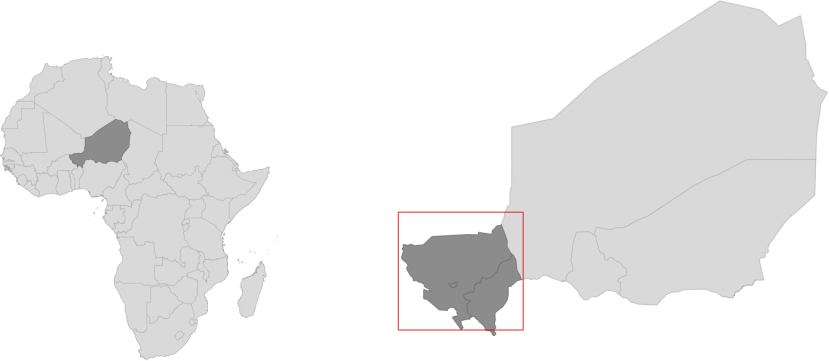


Class

- FFR/BF
- FFCP
- FFCG
- FFM
- FFL
- FFJ/AR
- WATER



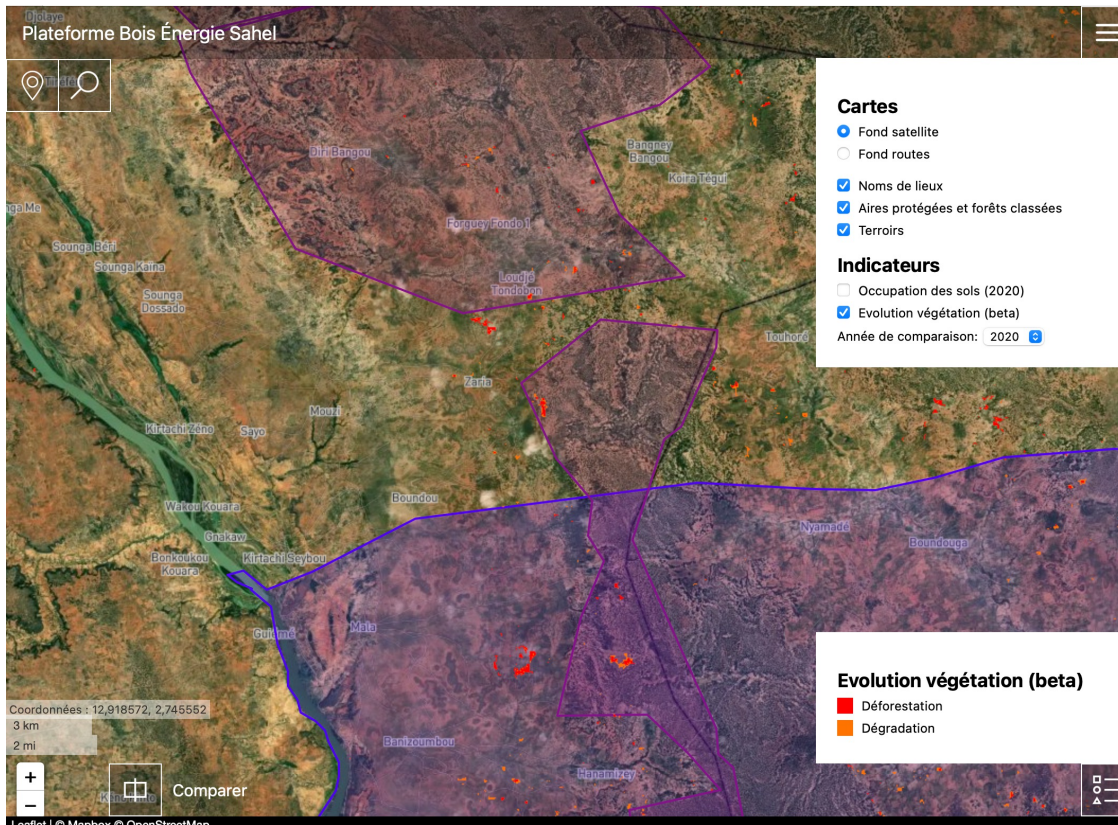
Tracking Deforestation



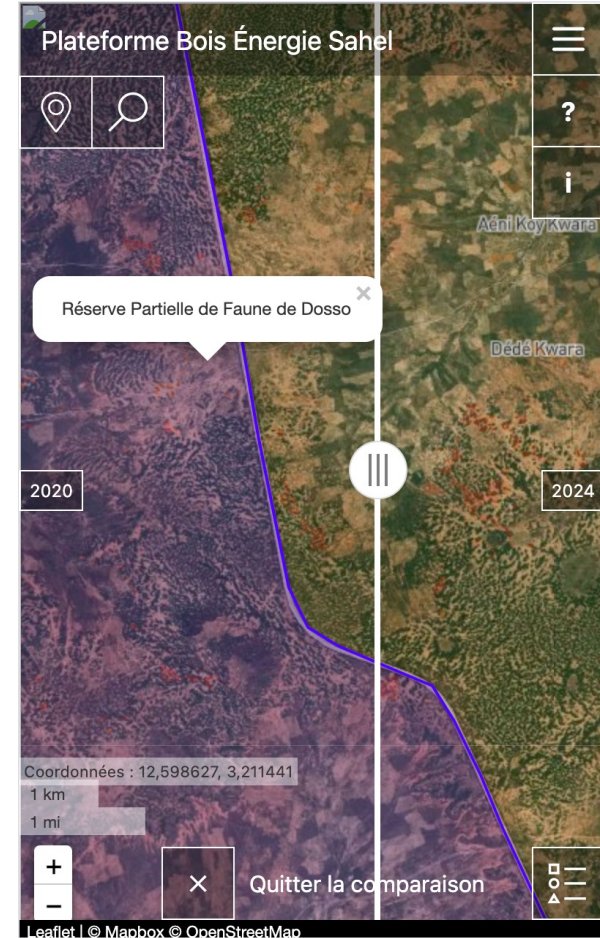
Deforestation_y { $NDVI_y > 0.2$
 $NDVI_{y-1} - NDVI_y > 0.1$



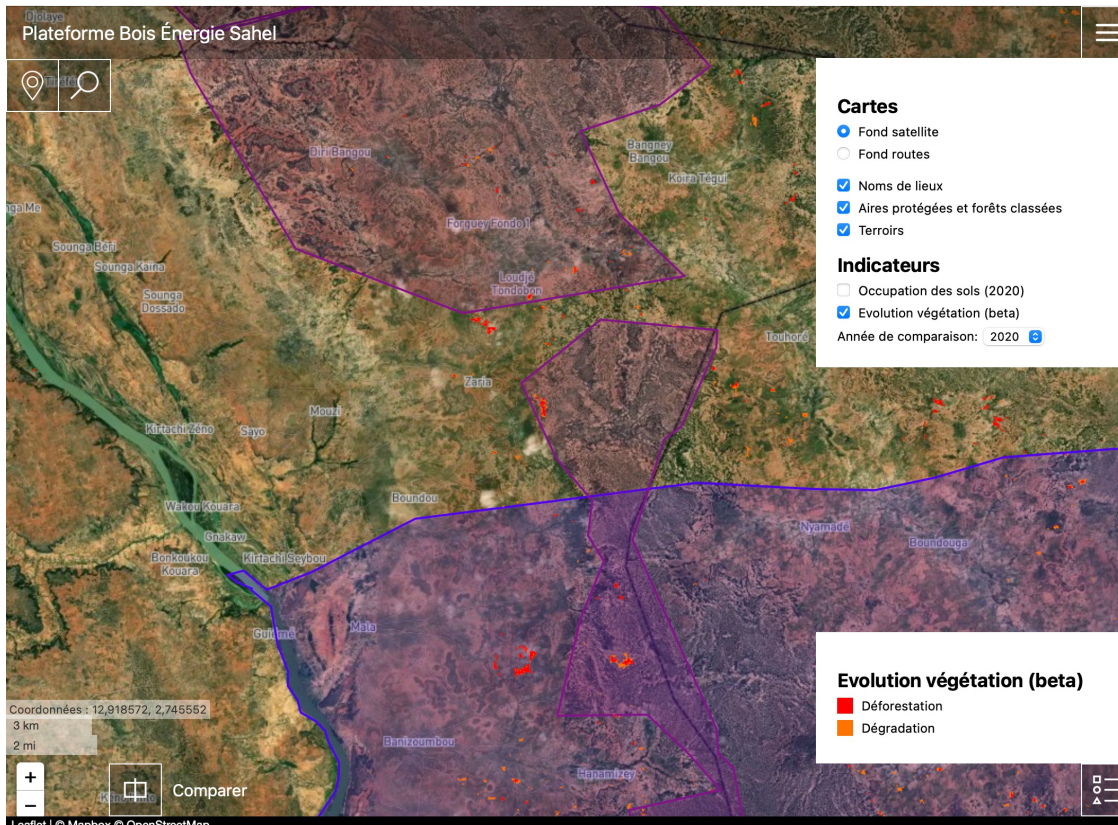
Desktop Platfom



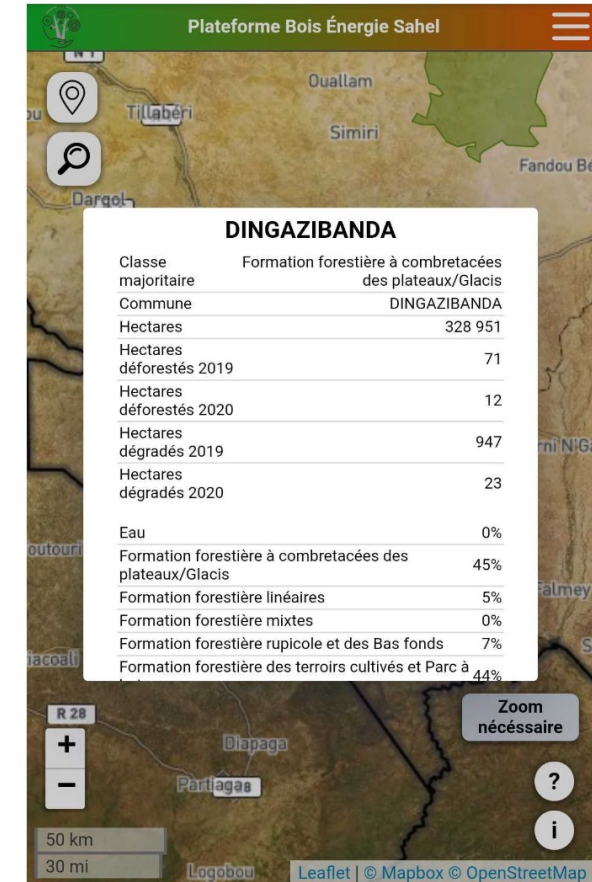
Mobile Platfom



Desktop Platfom



Mobile Platfom



- Deforestation is a major issue in Sahel
- It is possible to build simple, **custom, end-to-end solutions to track deforestation**
- Designing solutions that are **less resources demanding** allow to promote **both top-down but also bottom-up technology adoption**
- Even simple solutions can be fragile: their sustainability still depends on the local context