“Tech and forestry: the Uruguayan way”

Ferrando, Santiago – F&A

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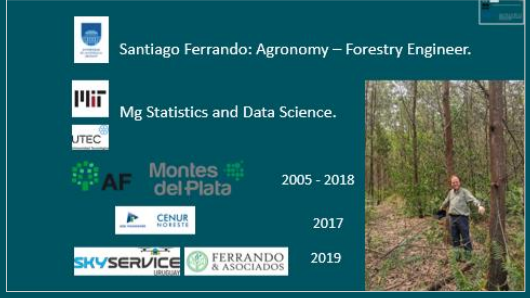
FERRANDO & ASOCIADOS


Who we are
Uruguayan Forestry
Tech and forestry
Future challenges



Who we are

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Santiago Ferrando: Agronomy – Forestry Engineer.

Mg Statistics and Data Science.

2005 - 2018

2017

2019

WE ARE

FERRANDO & ASOCIADOS

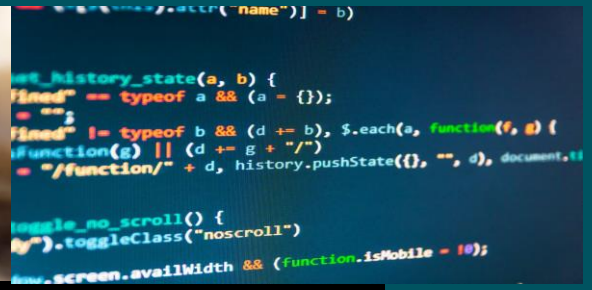
“ A bridge between Tech & People with a forestry focus”.

Find the best solution to complex problems

From the nursery to the industry, we are motivated to find the best solution to the problems that the different actors in the forest chain need to solve, regardless of the type and size of the problem to be solved.

A bridge between Tech & People

We seek to be a leading company in the forestry sector providing services in Data Science, Software and Technology at scale.



Digitalization, Data Science and Machine Learning

Consultancy and R+D+i

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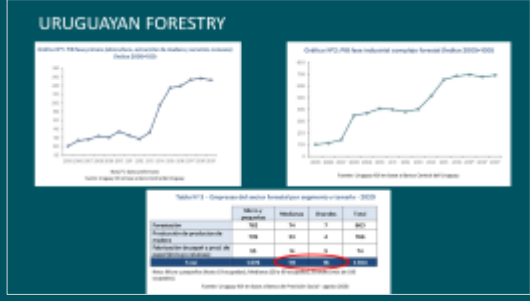
UAV experts

Logistics systems



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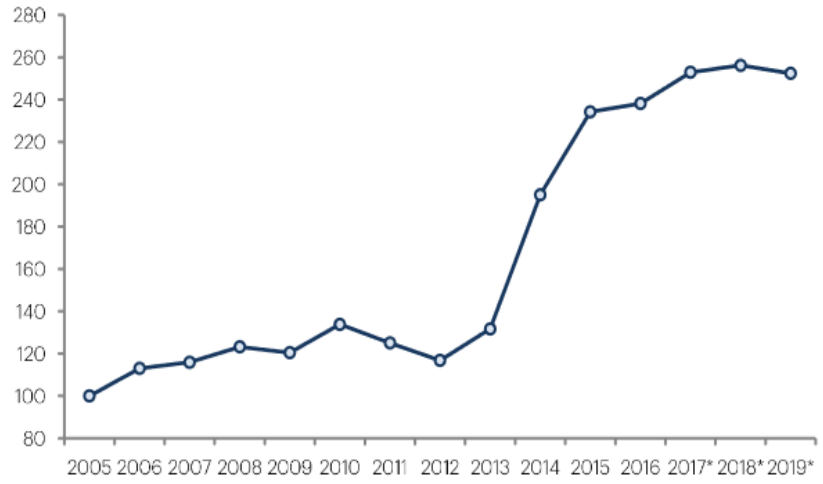
URUGUAYAN FORESTRY

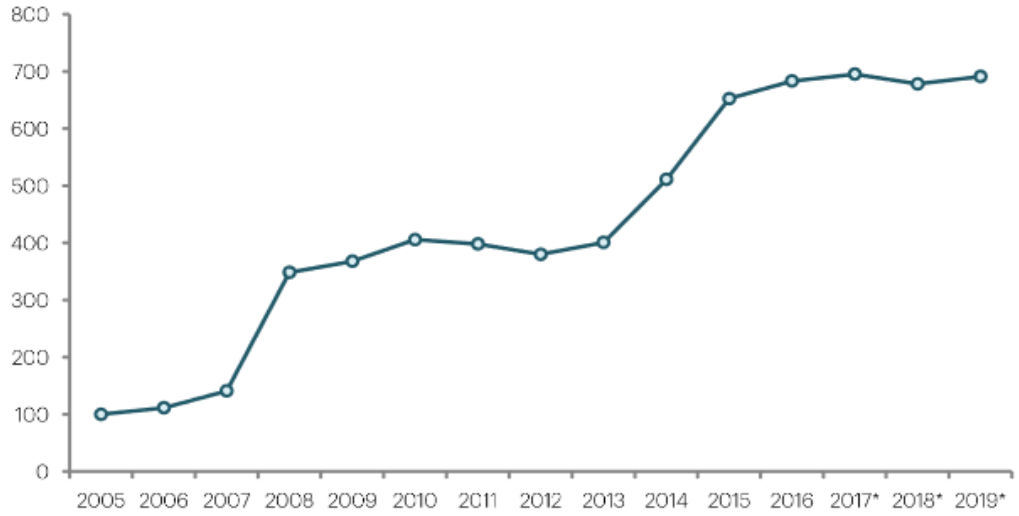
Gráfico Nº1: PIB fase primera (silvicultura, extracción de madera y servicios conexos) (Índice 2005=100)



Nota (*): Datos preliminares

Fuente: Uruguay XXI en base a Banco Central del Uruguay.

Gráfico Nº2: PIB fase industrial complejo forestal (Índice 2005=100)



Fuente: Uruguay XXI en base a Banco Central del Uruguay.

Tabla N°3 – Empresas del sector forestal por segmento y tamaño - 2020

	Micro y pequeñas	Medianas	Grandes	Total
Forestación	782	74	7	863
Producción de productos de madera	739	23	4	766
Fabricación de papel y prod. de papel (incluye celulosa)	55	14	5	74
Total	1.576	111	16	1.703

Nota: Micro y pequeñas (hasta 19 ocupados); Medianas (20 a 99 ocupados); Grandes (más de 100 ocupados).

Fuente: Uruguay XXI en base a Banco de Previsión Social - agosto 2020.

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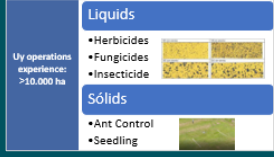
UAVexpo
2019 第四届深圳国际无人机展览会
入口
ENTRY


SINOCHIP
鼎峰无限


SMART FORESTRY: SILVICULTURE UAV

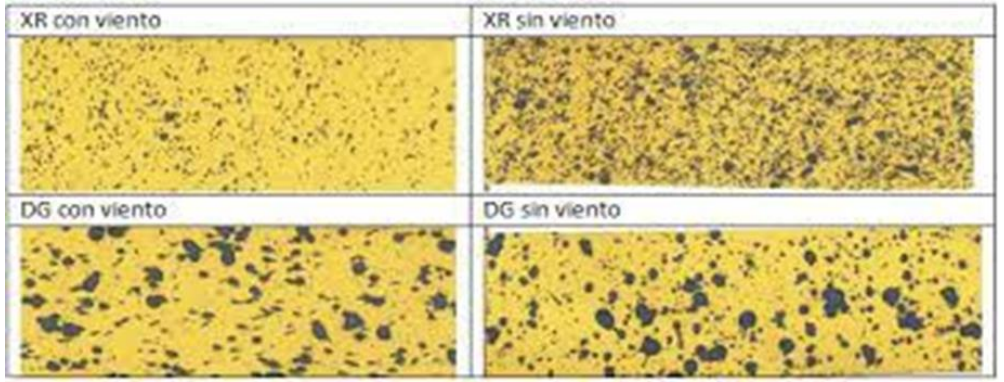


- Started in 2020.
- No drones operating in Uy Forestry.
- Exceptical to UAV tech

Uy operations experience: >10.000 ha

Liquids

- Herbicides
- Fungicides
- Insecticide



Sólids

- Ant Control
- Seedling

SILVICULTURE UAV

- **Spraying**: drop dimentions, drops/cm2, wind speed & direccion, optimal height, coverage, type of nozzles & work pressure, dosage and speed of work. Chemicals and mixing.

- **Spreading**: dosage, width, height , calibration.

Training

SILVICULTURE UAV

“COMBIDRON”

Equipment for Drone logistic.

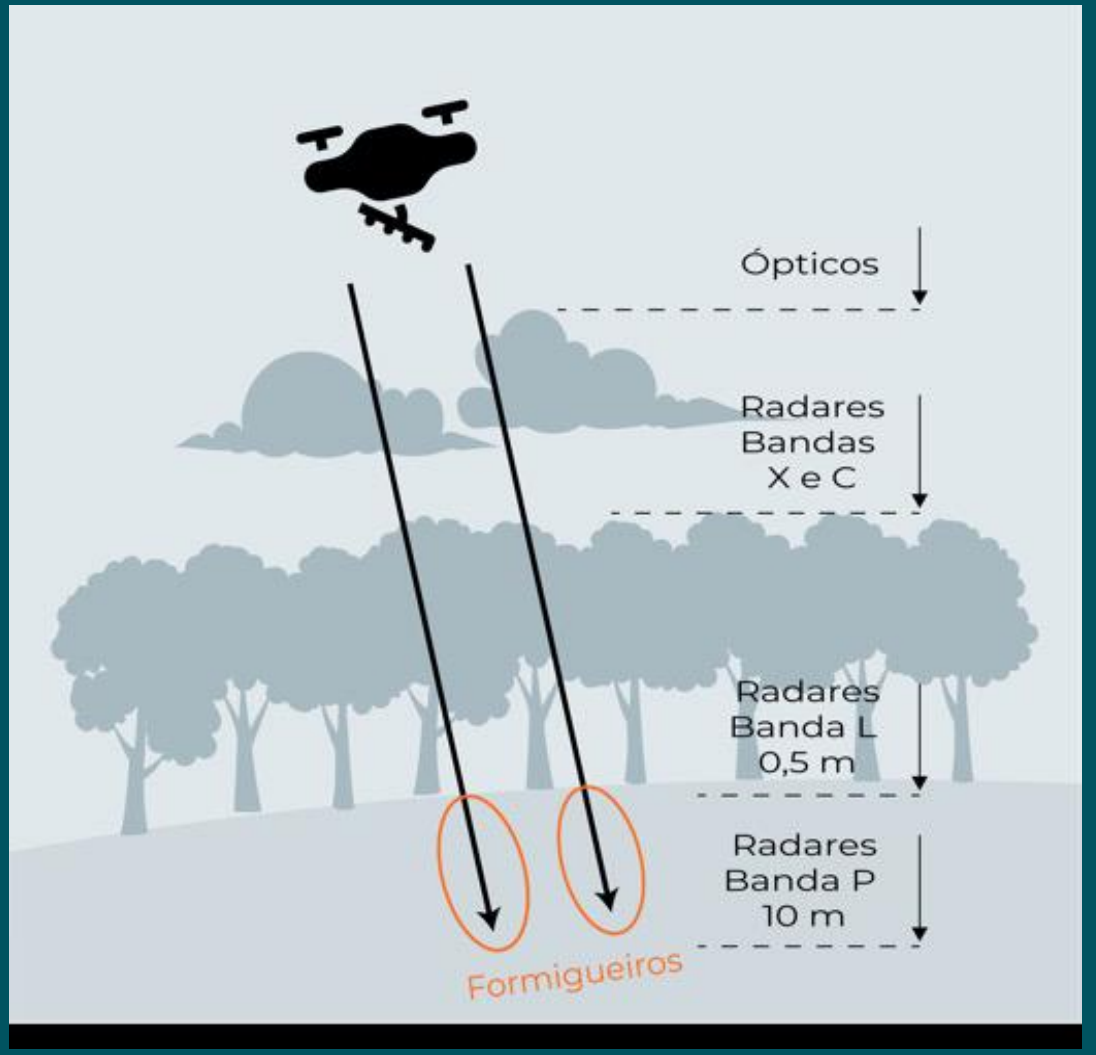

win10.io

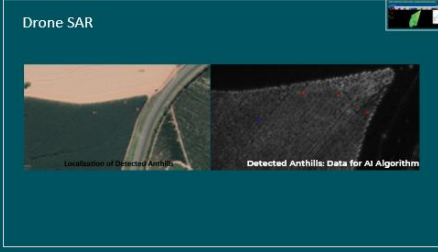
LiDAR: M300 with L1

- Determination of dasometric variables in stands of Eucalyptus dunnii
- Measure variables: height, basal area and diameter of trees and crowns.
- Relate quality of the site with survival.
- Validate tech for young Euca (<1 year):
  - reduce costs?
  - improve data quality?
  - reduce time?
  - improve accuracy?

Drone SAR


P band
L band
C band
Radar

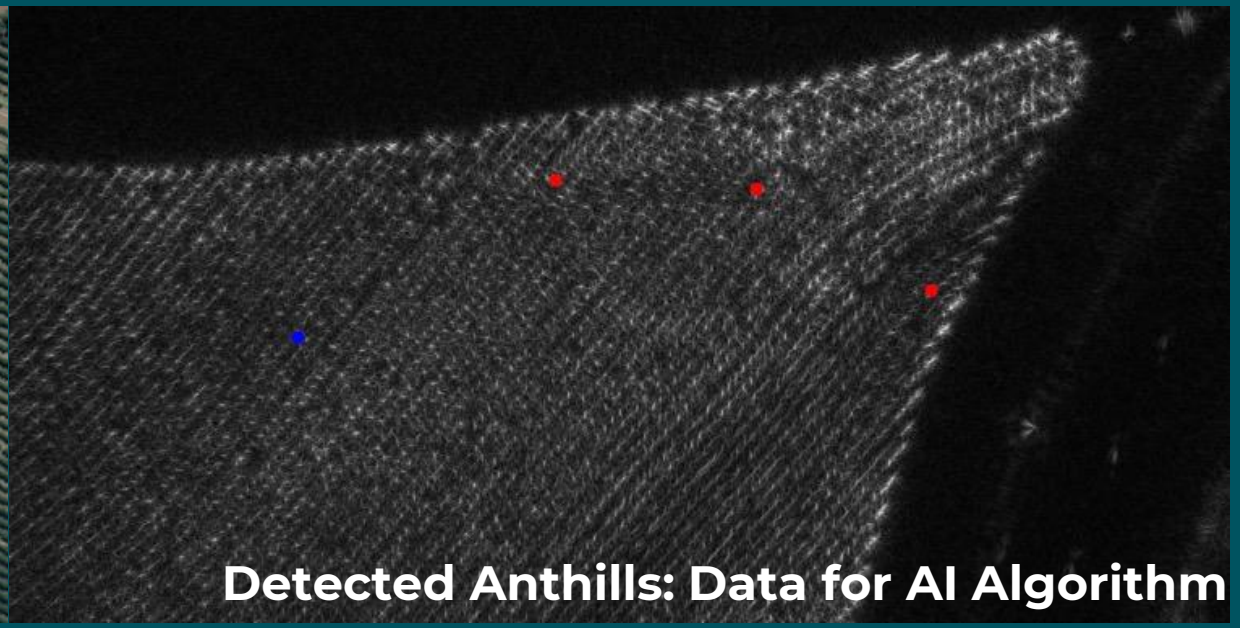

Ópticos
Radares
Bandas
X e C
Radares
Banda L
0,5 m
Radares
Banda P
10 m
Formigueiros


Drone SAR
Detected Anthills: Data for AI Algorithm

Drone SAR

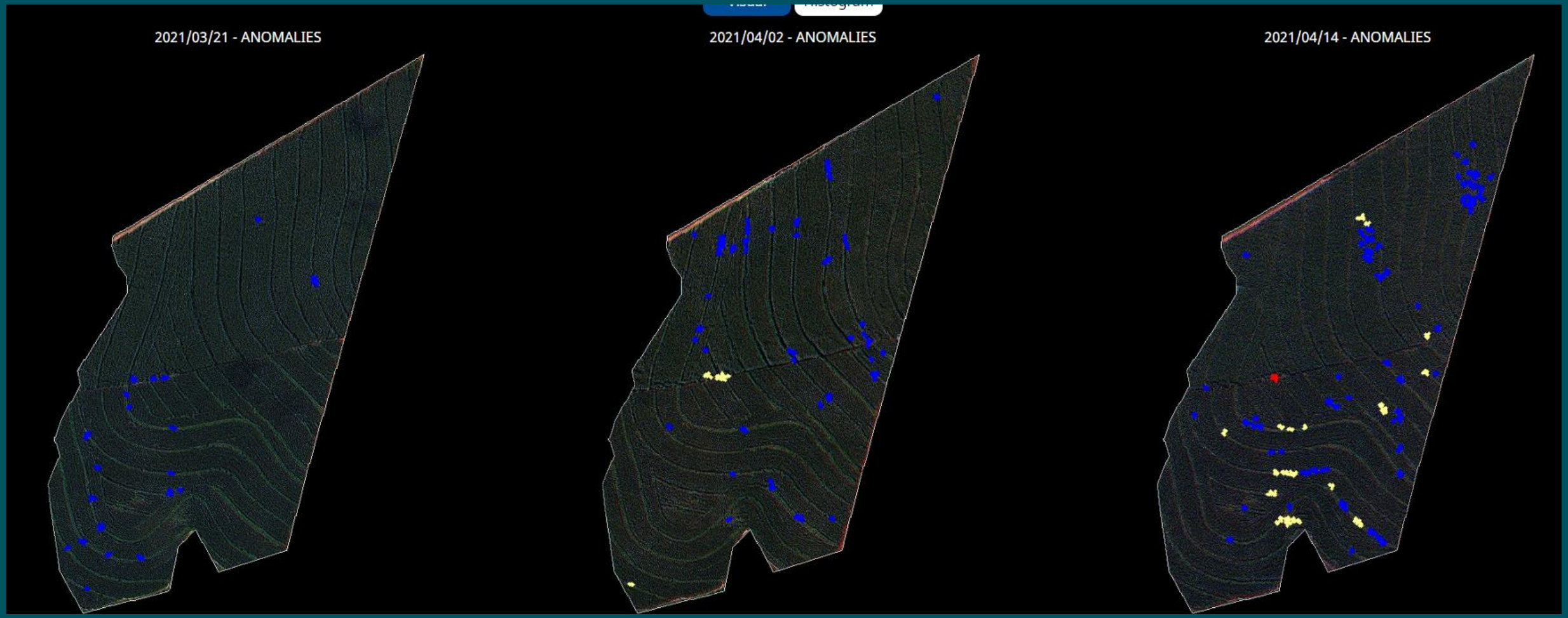

Tools to scale forest remote sensing – complementing forest inventory


Localization of Detected Anthills

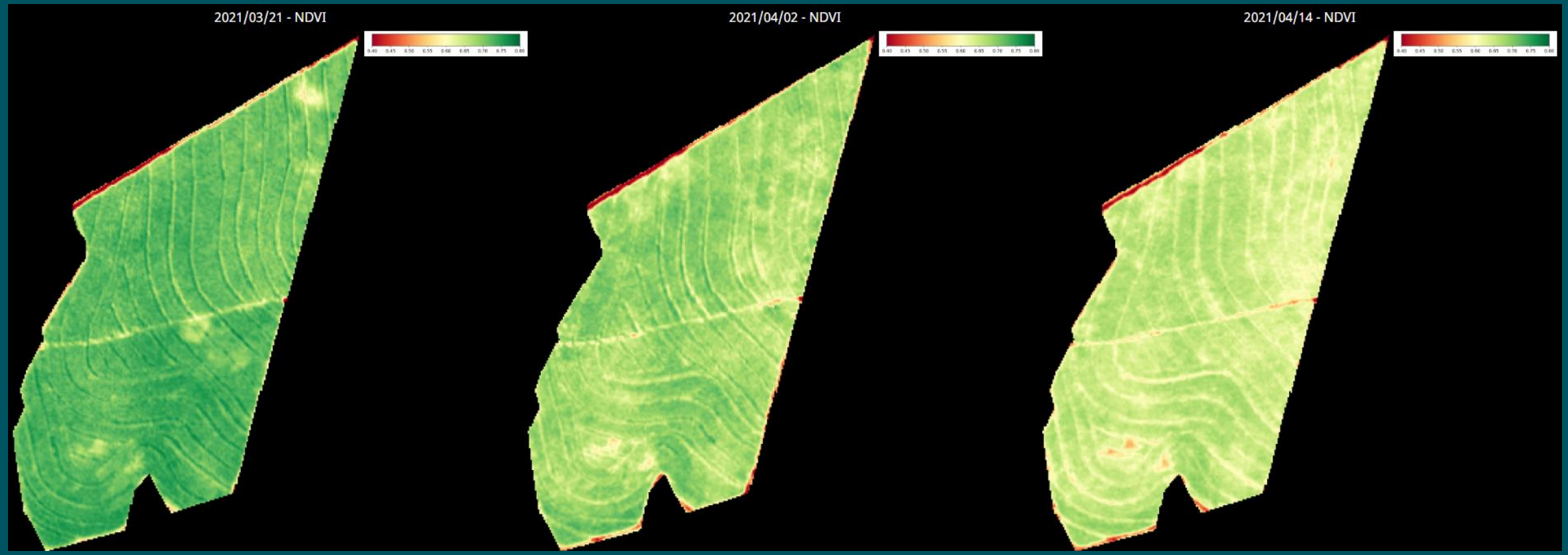

Detected Anthills: Data for AI Algorithm

Tools to scale forest remote sensing – complementing forest inventory

Tools to scale forest remote sensing – complementing forest inventory

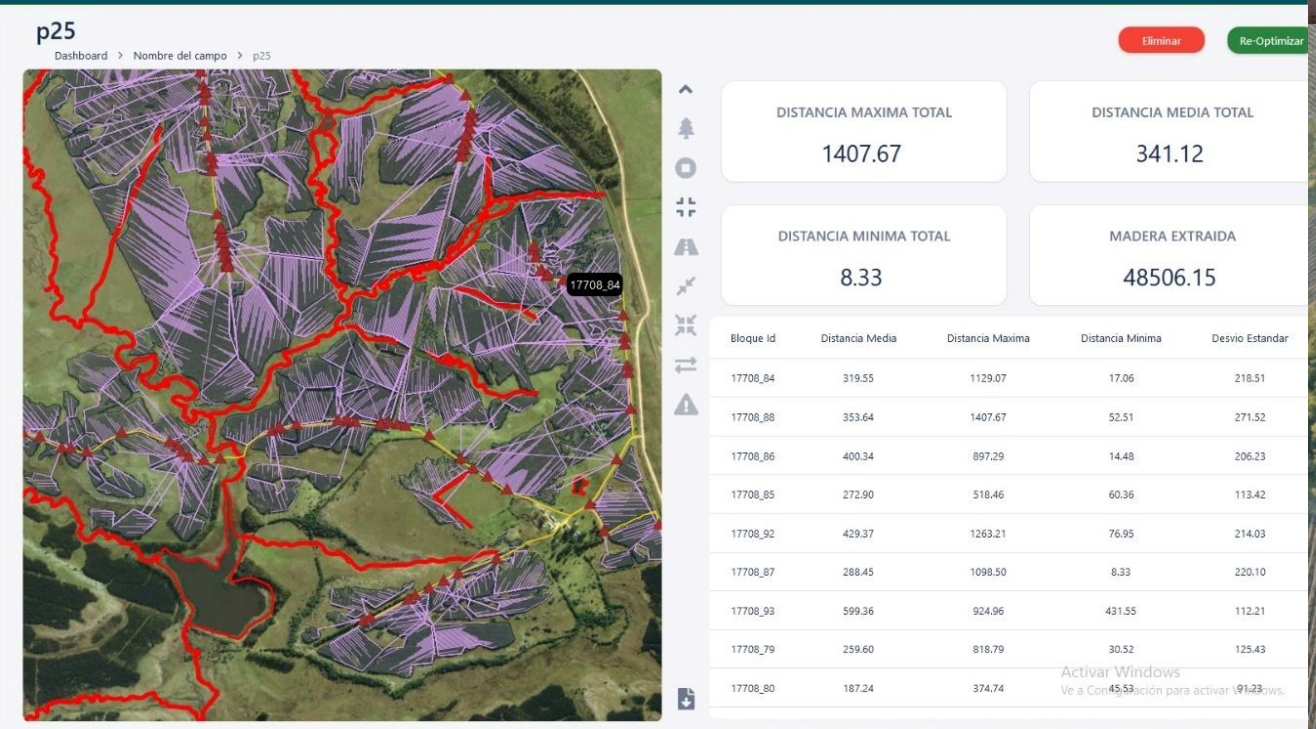


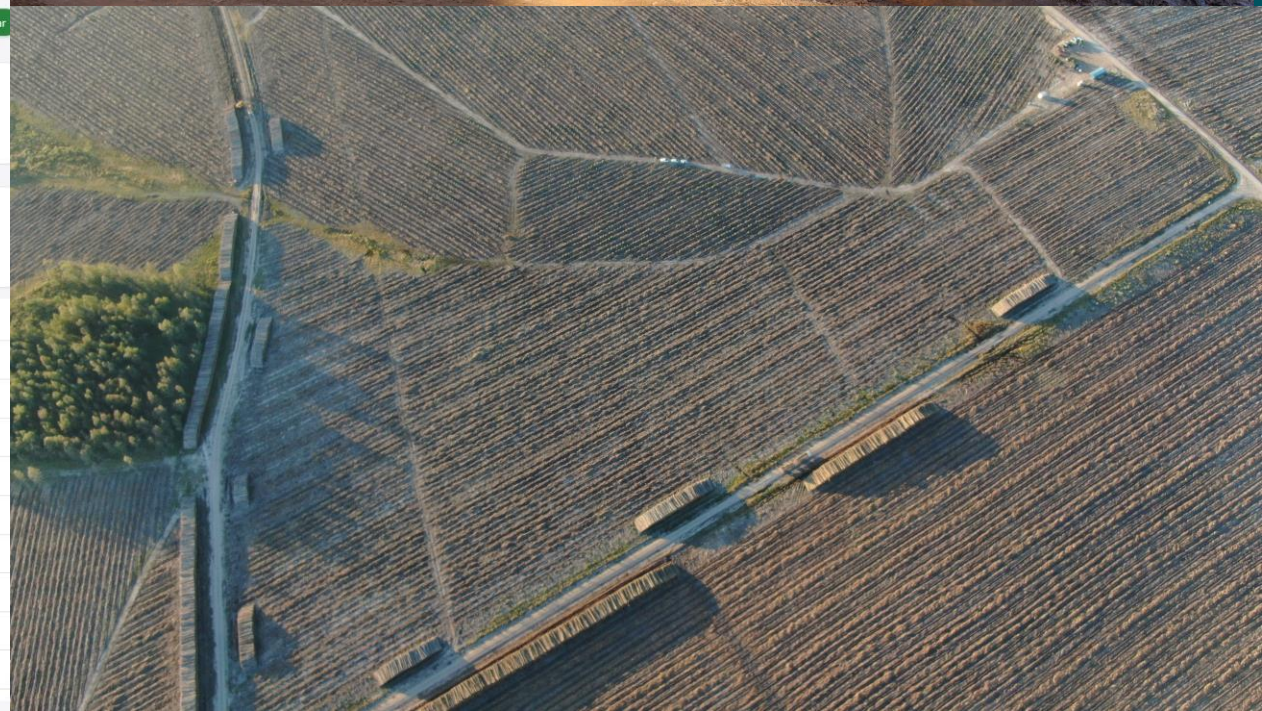
Tools to scale forest remote sensing – complementing forest inventory



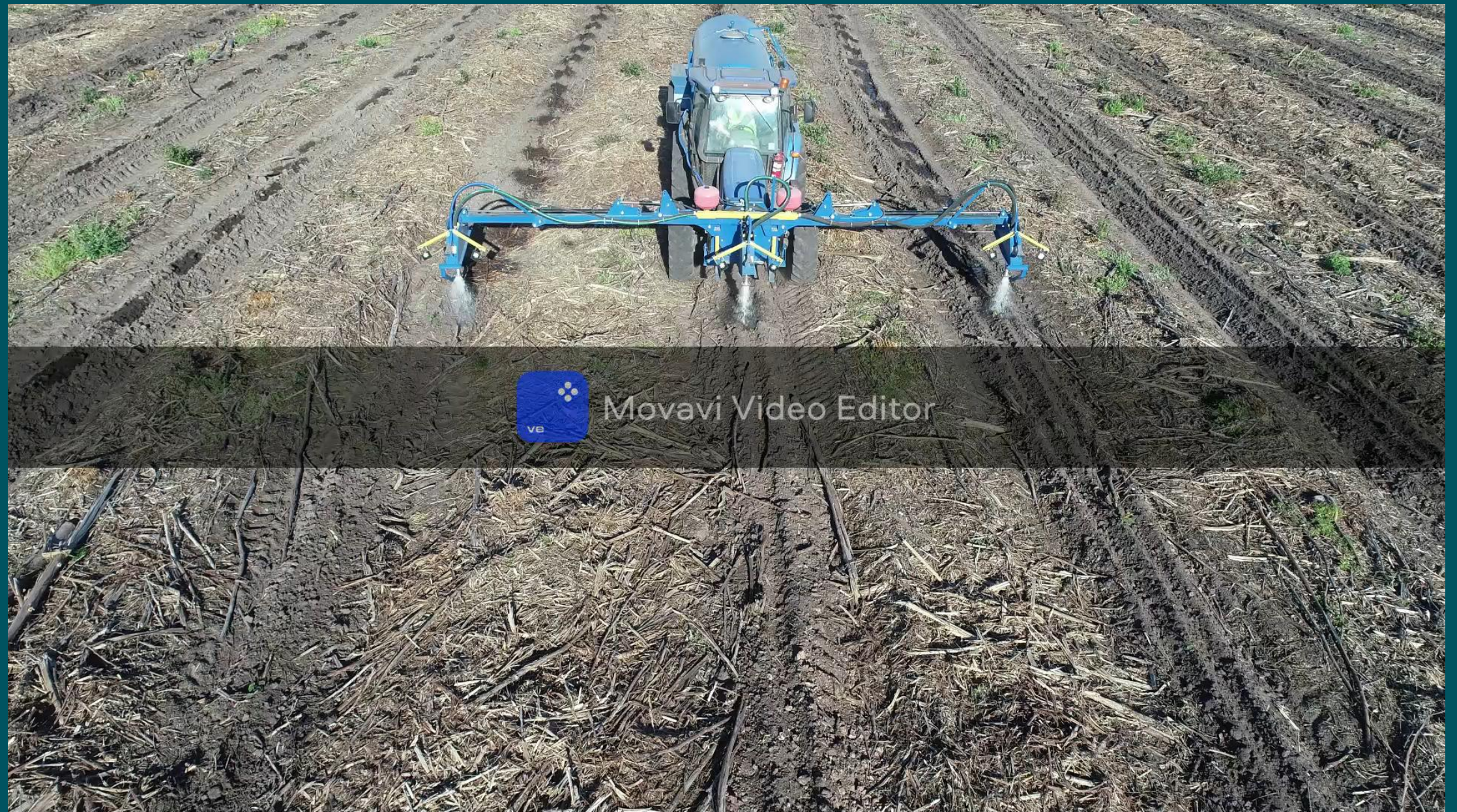
Logging

- Machine learning: Clustering.
- Micro planning.

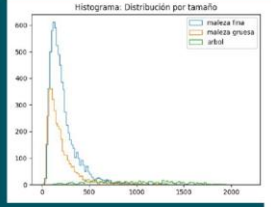


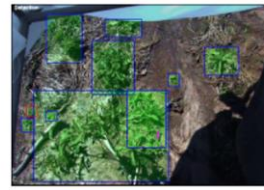


AI: irrigation



AI: weed control

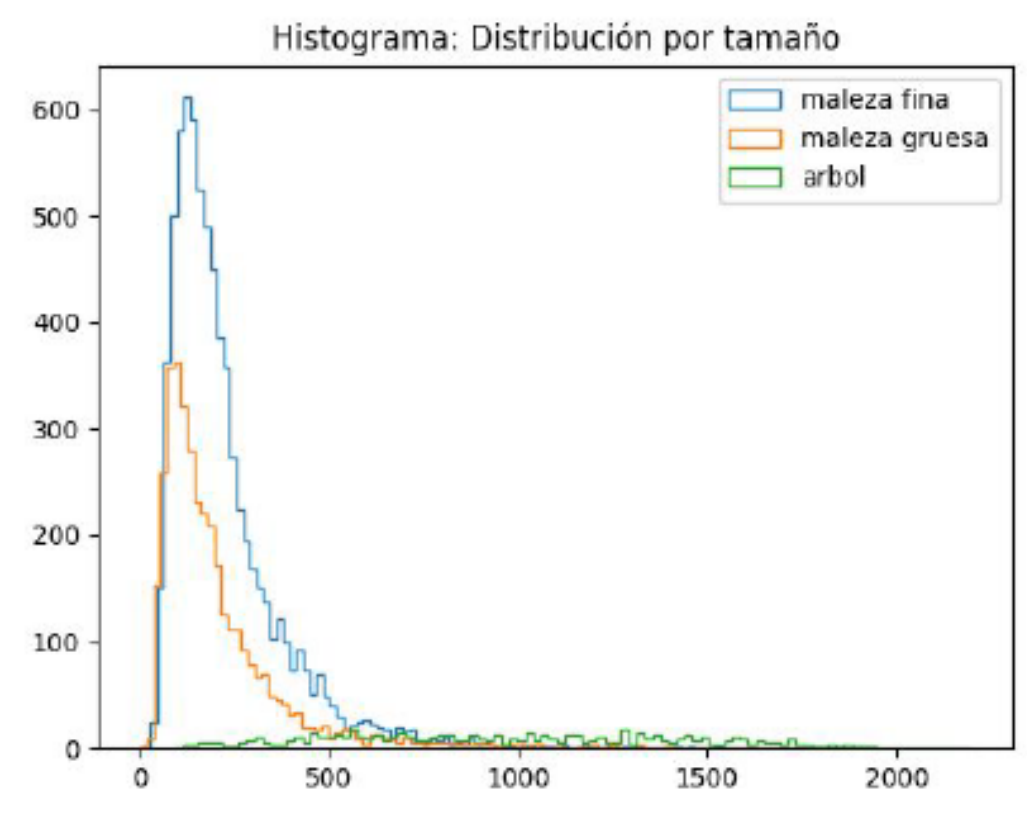


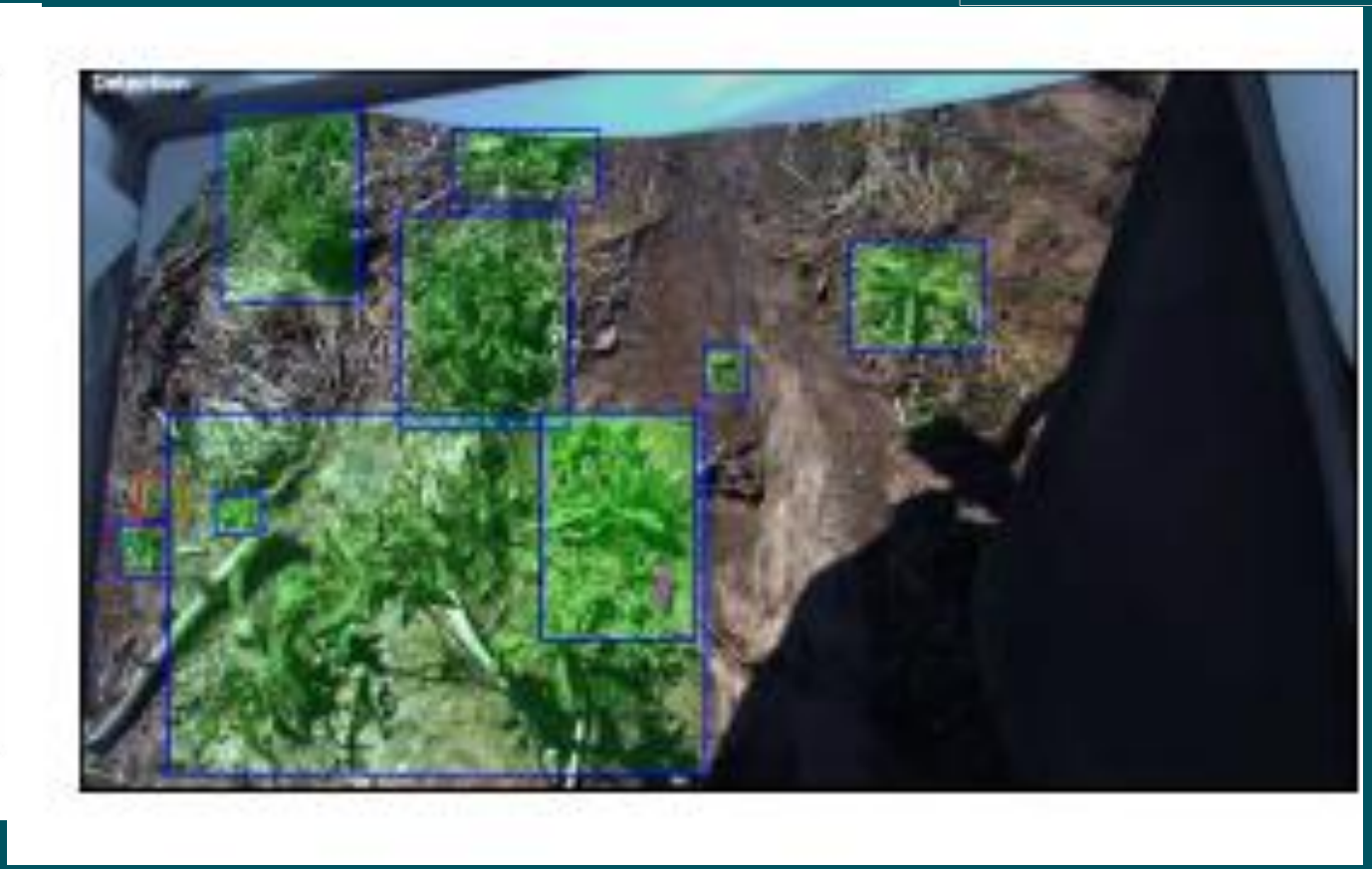


Colocación del módulo dentro de la cabina de la máquina de riego

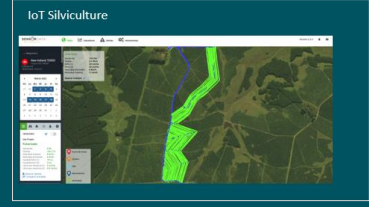
Módulo de procesamiento: placa y pantalla

AI: weed control



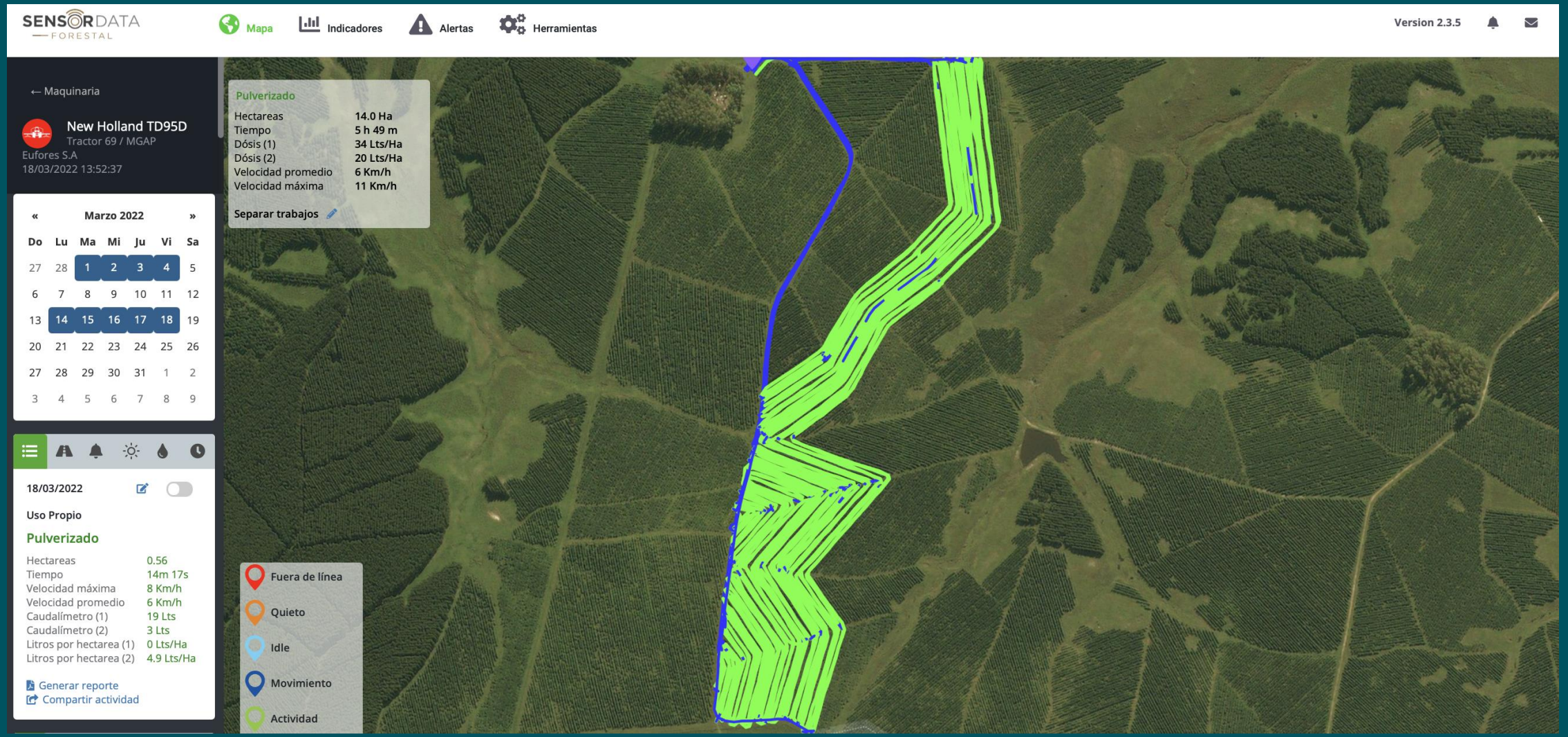


IoT Silviculture



- **Easy use.**
- **Low cost**
- **Data**
  - **Monitoring**
  - **Dosage control**
  - **Operational control**
- **Information to Data**

IoT Silviculture

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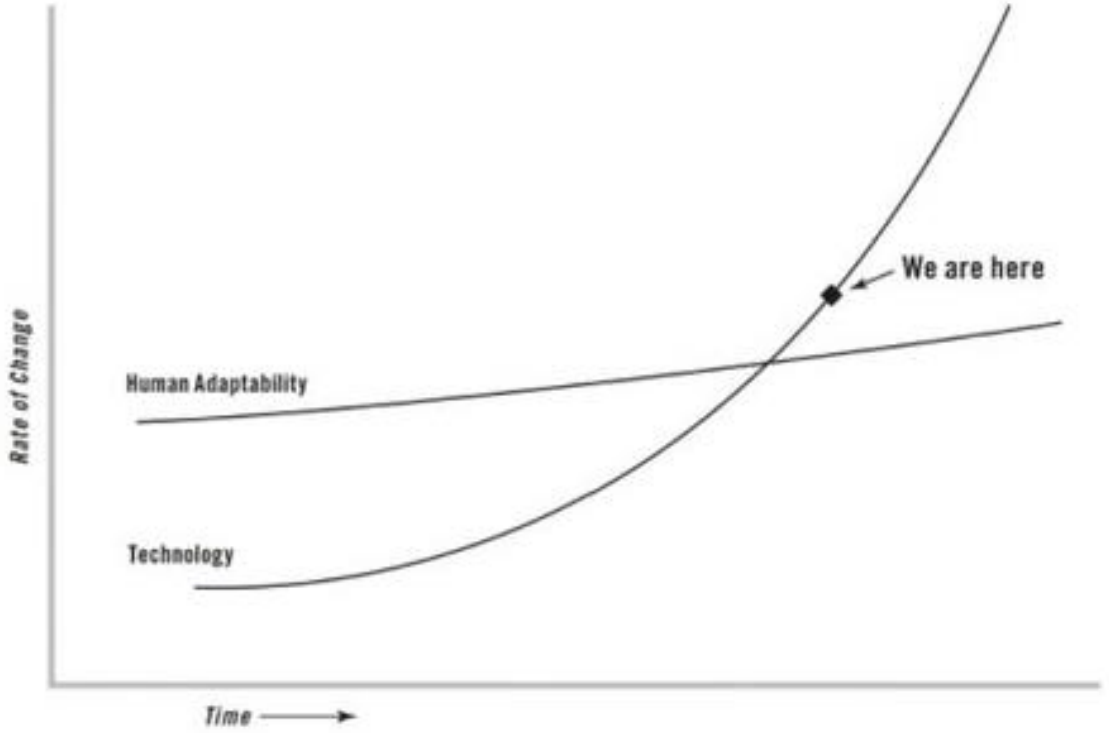
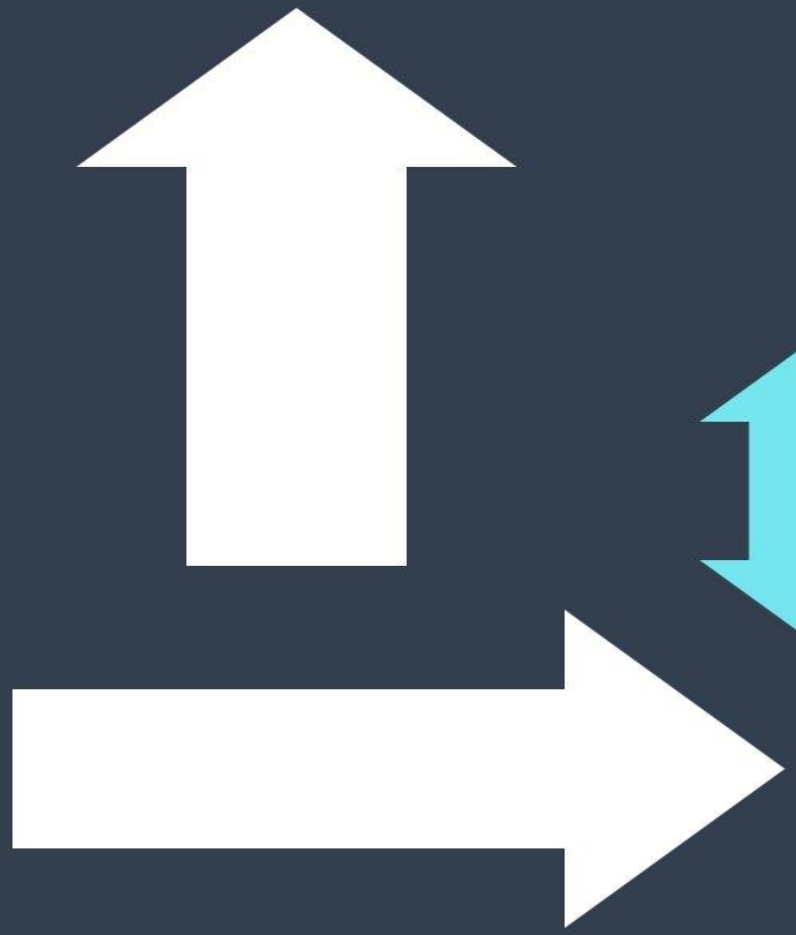


Fuente. Friedman,T. L. (2016) 'Thank you for being late: An optimist's guide to thriving in the age of accelerations', Penguin Group, London, p. 32.

Today, humanity takes an average of 7-10 years to adapt to the scientific and technological changes that make the world a different and more advanced place.

The rate of technological change has accelerated so rapidly that it has increased in speed above the average rate at which most people can absorb these changes.

Challenges



TECHNOLOGÍAS FÍSICAS

Internet, Big Data, Inteligencia Artificial/Machine Learning, Nano Tecnología, IoT, Robótica y automatización...

BRECHA CRECIENTE

TECHNOLOGÍAS SOCIALES

Administración Públicas, Gobiernos, Educación, Cultura, Instituciones, Leyes...

By Manuela Battaglini

Thanks

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