



19.01.22
12:00

WE SHAPE TECH

LUNCH^{AND}LEARN

Drones to the Rescue

Stephanie Lambert

Founding Employee & Global Sales Operations
Wingtra

Share your thoughts
🐦 @weshapetech



Melanie Gabriel

Co-Founder & CMO at Yokoy

Board Member WE SHAPE TECH

@melanieXgabriel



PLATFORM

for greater diversity and inclusion in tech



60

Role Models

6

Board Members

75

Events

1,806

Members

7,169

Followers



Support female talent through our network and empowerment.



Make women in tech visible providing inspiration and role models.



Share and transfer knowledge to learn from each other.



Create social awareness and fuel the dialogue on diversity.

  @weshapetech



weshape.tech/newsletter



Stephanie Lambert

Founding Employee & Global Sales Operations
Wingtra

Drones to the Rescue

How new technologies help to solve some of the world's hardest problems.

Stephanie Lambert



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

**Swiss Agency for Development
and Cooperation SDC**



University of St.Gallen



Pontificia Universidad Católica Argentina



TEL AVIV UNIVERSITY

Stephanie Lambert



Founding Employee & Global Sales Operations at Wingtra
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Drones: Better data to solve the world's most challenging problems



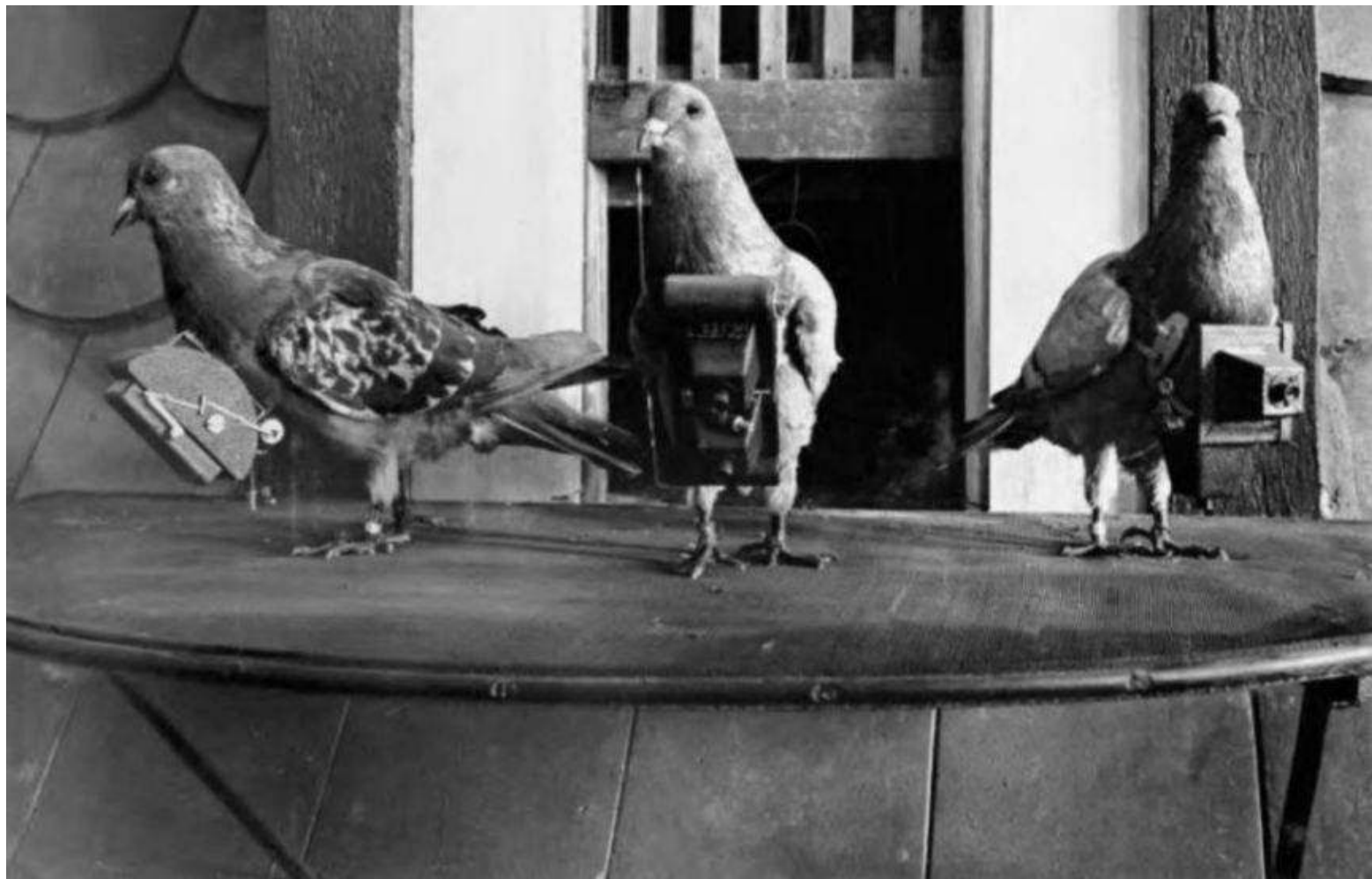
Climate Change

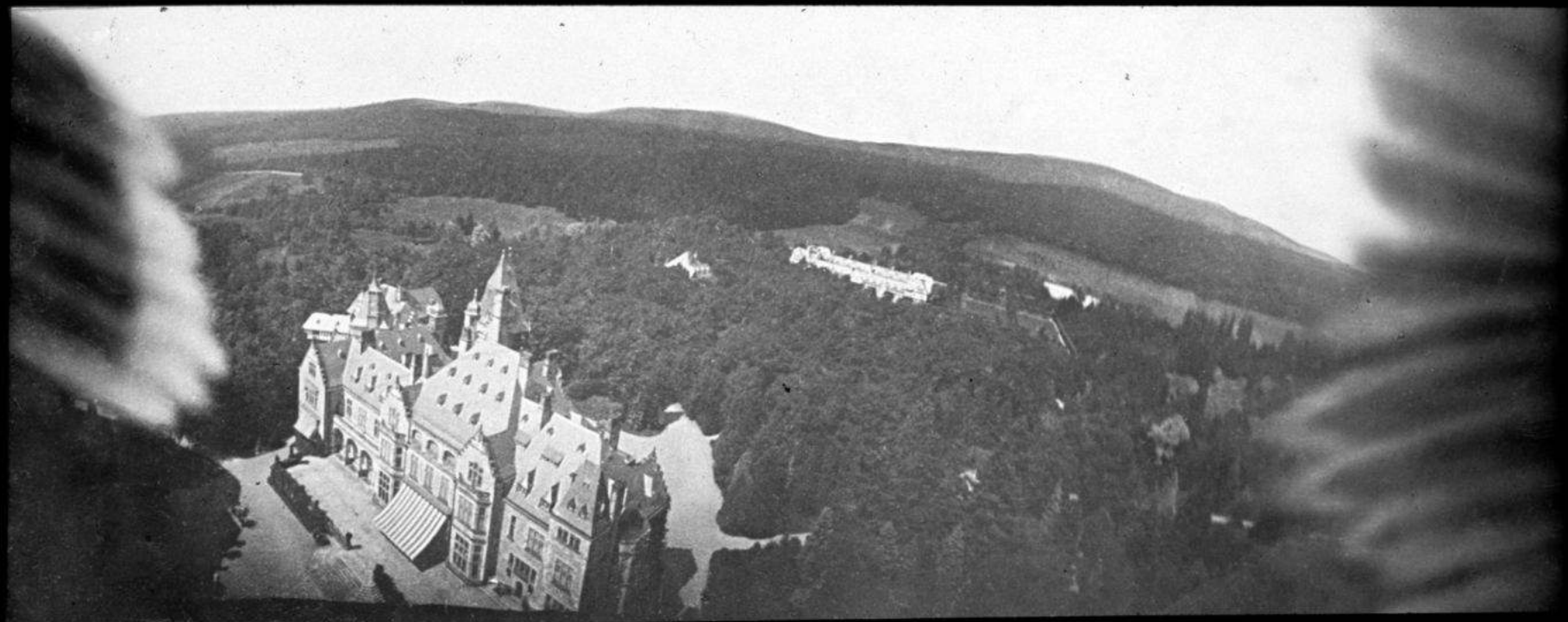


Global Food Security



Infrastructure Maintenance





*Autonomous
Light weight
Easy to use*

*Short setup time
Intuitive mission
planning*

Safe

Quick

Discreet

*Small
Silent*

Versatile

Cheap

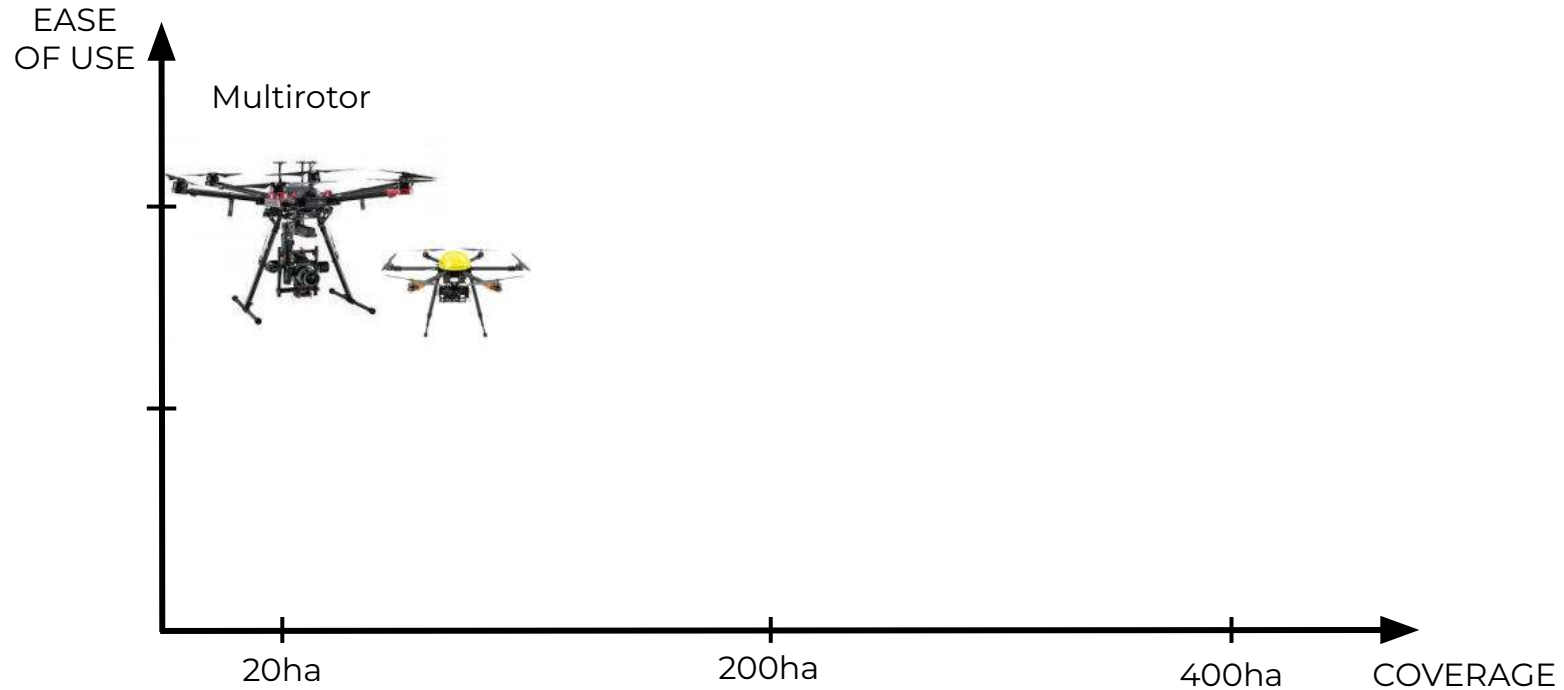
*Modular cameras
Various outputs*

*CHF 2k-30k
No infrastructure needed
1 operator*

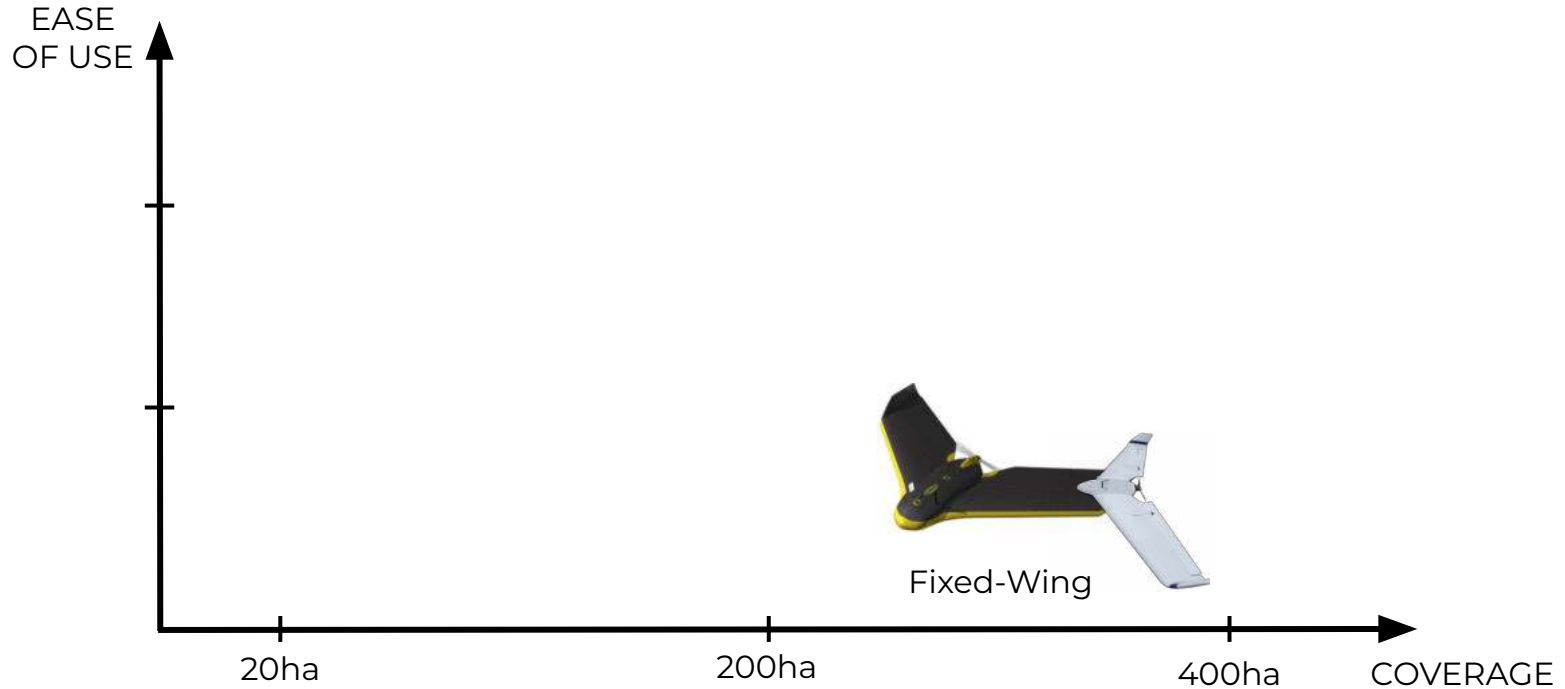
The quality and volume of data collected by drones is unprecedented



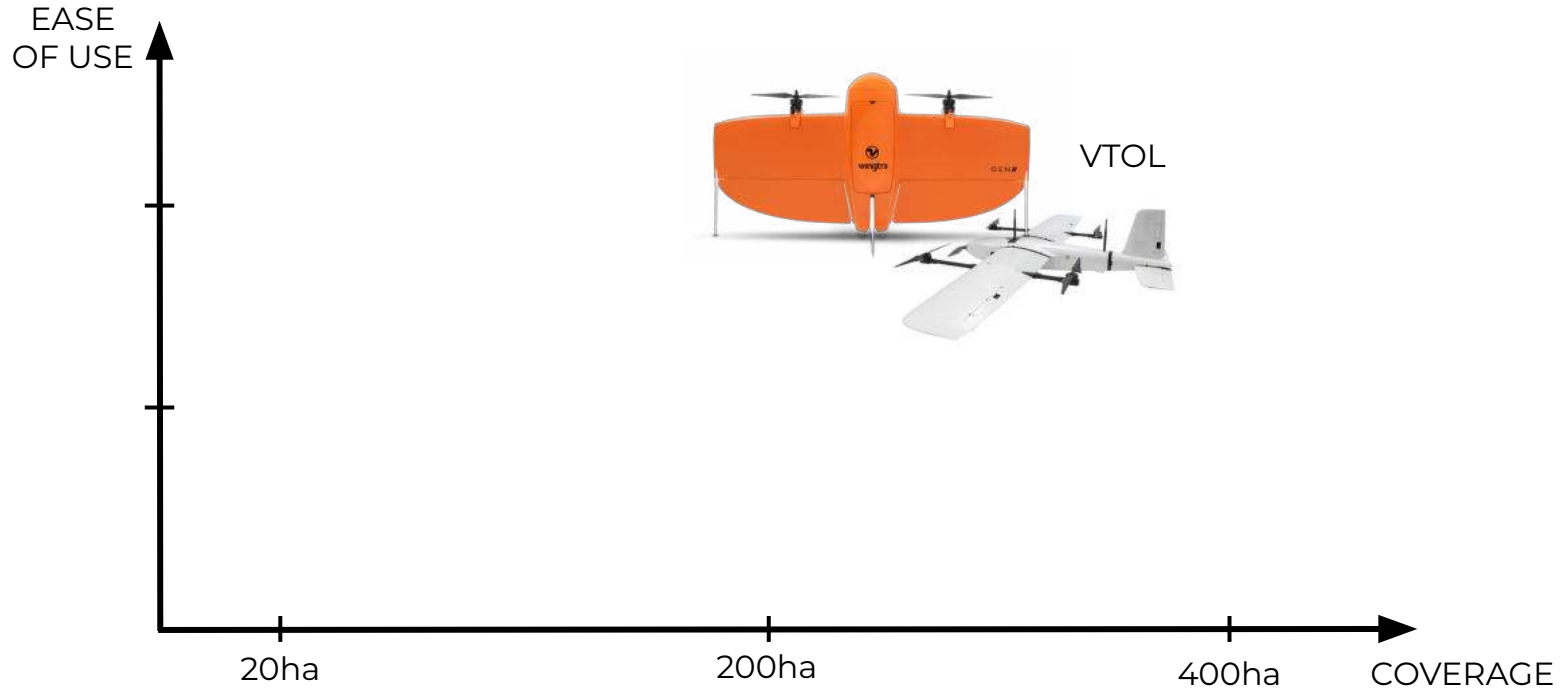
Type of drones



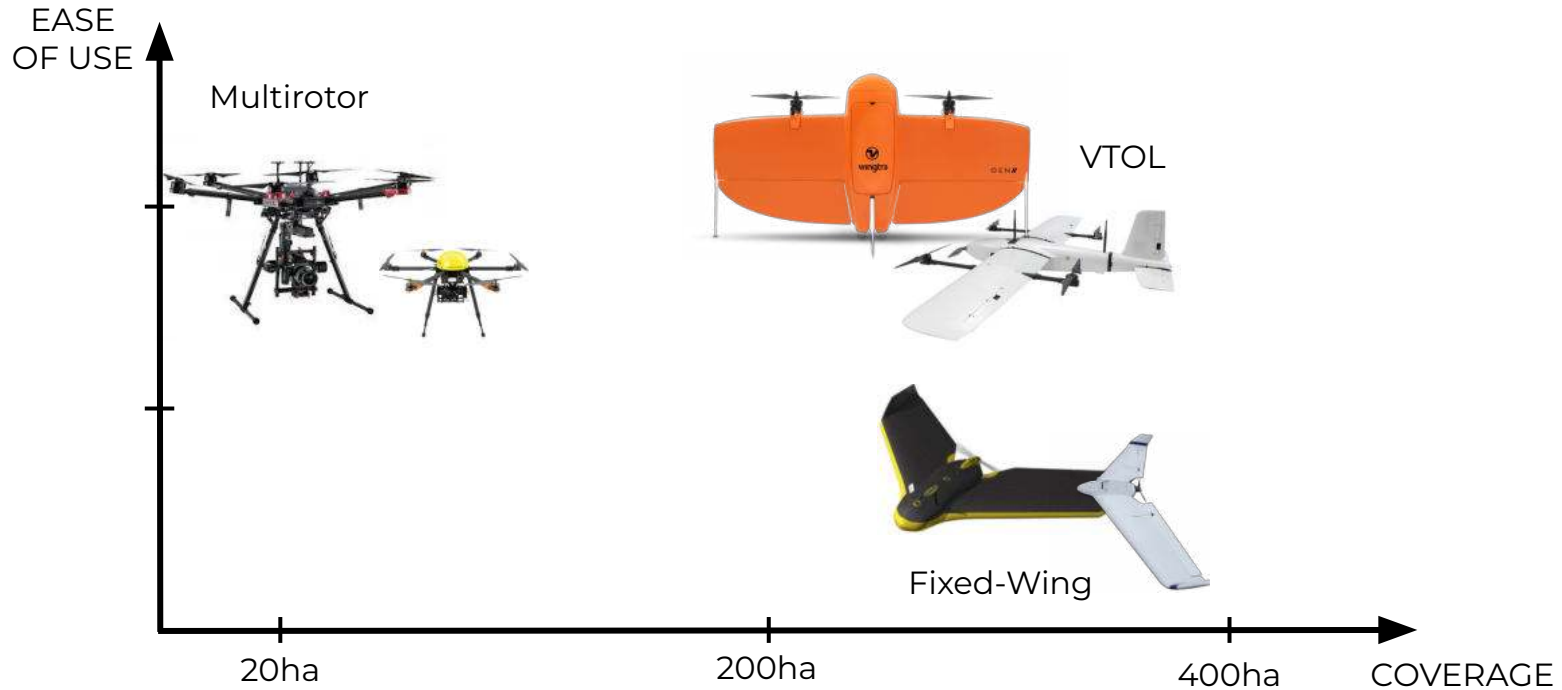
Type of drones



Type of drones

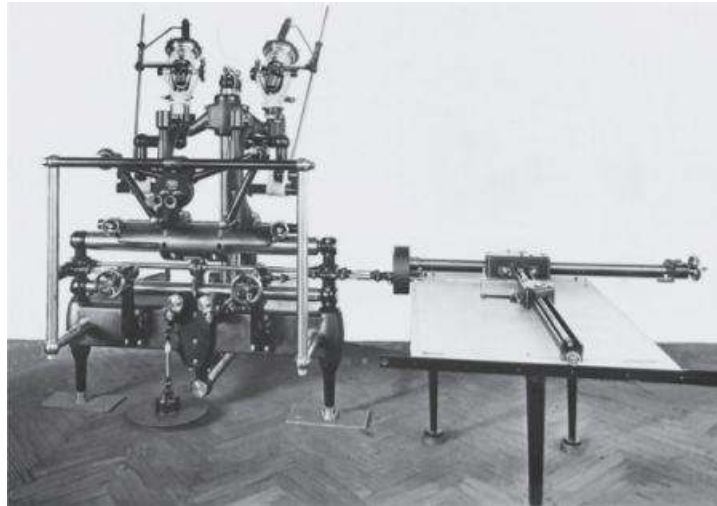


Type of drones

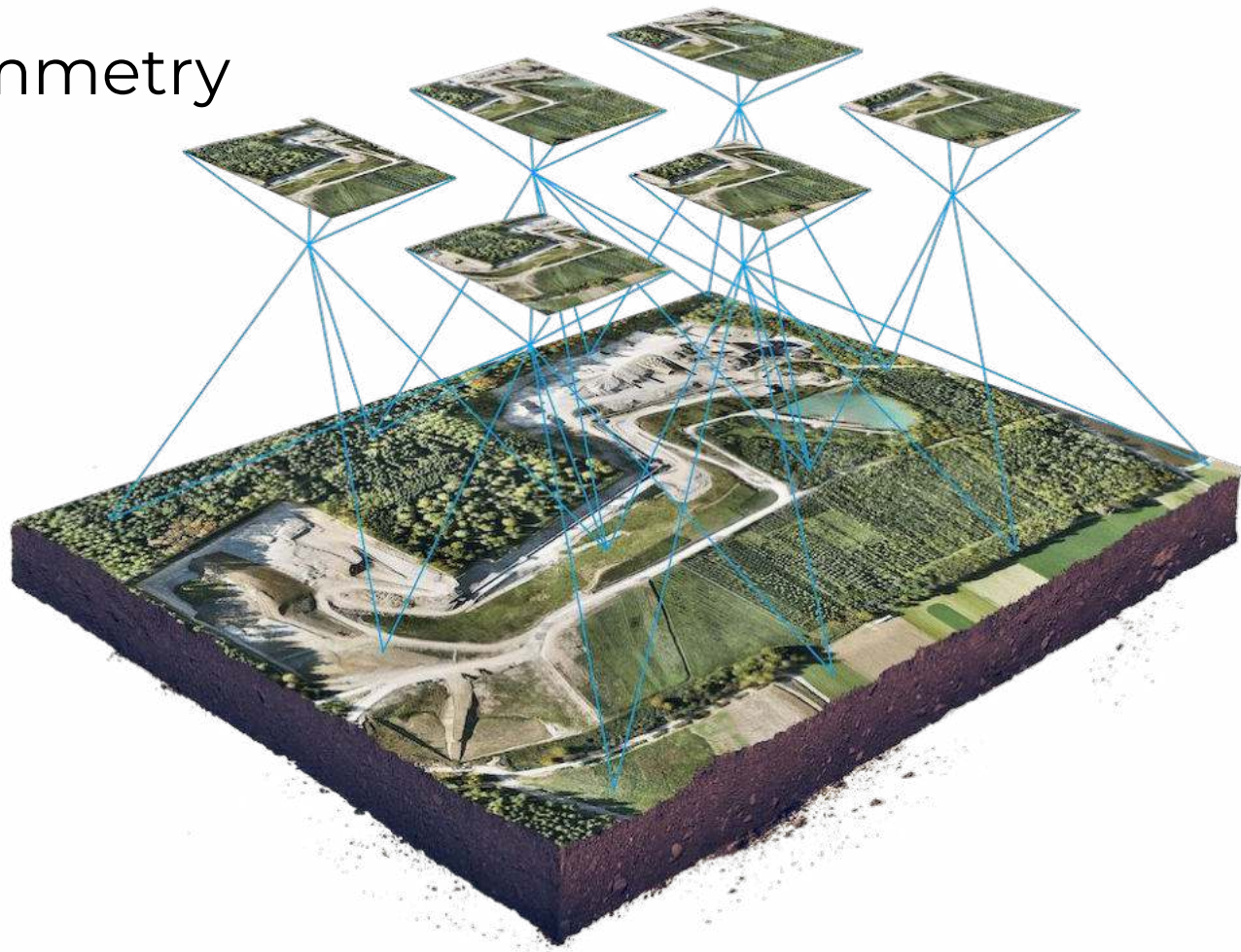


Photogrammetry

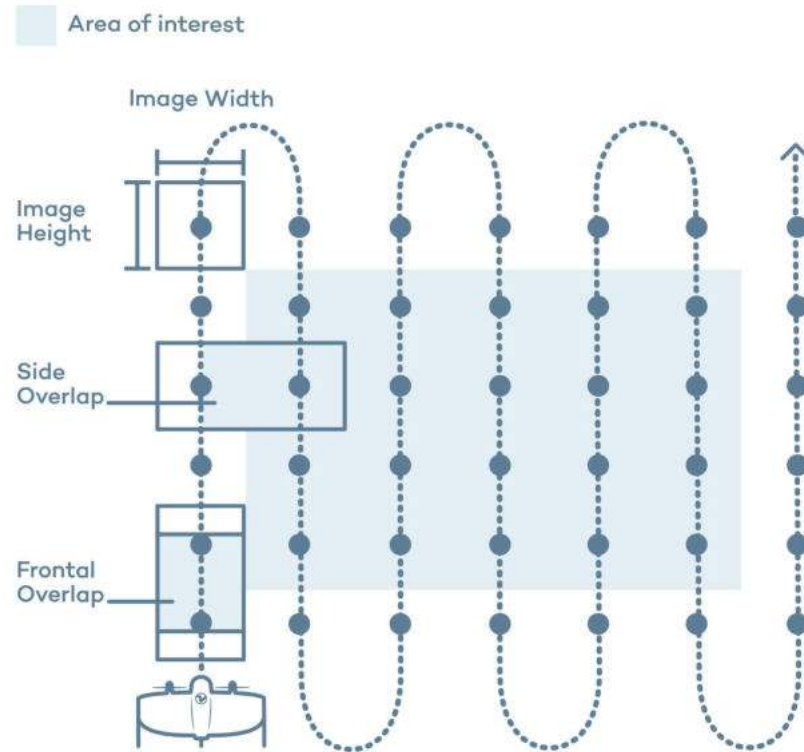
“Photogrammetry is the science and technology of obtaining reliable information about physical objects and the environment through the process of recording, measuring and interpreting photographic images [...]”



Photogrammetry



Photogrammetry



Keypoint extraction



Keypoint matching

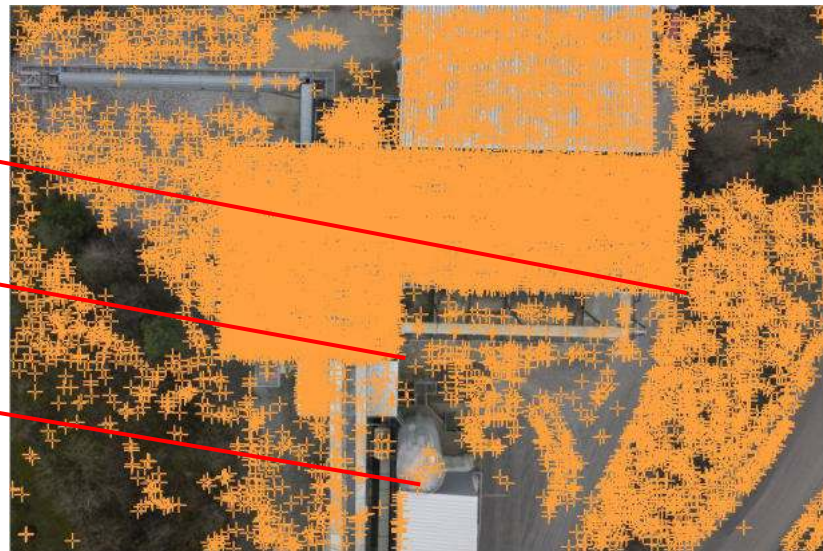
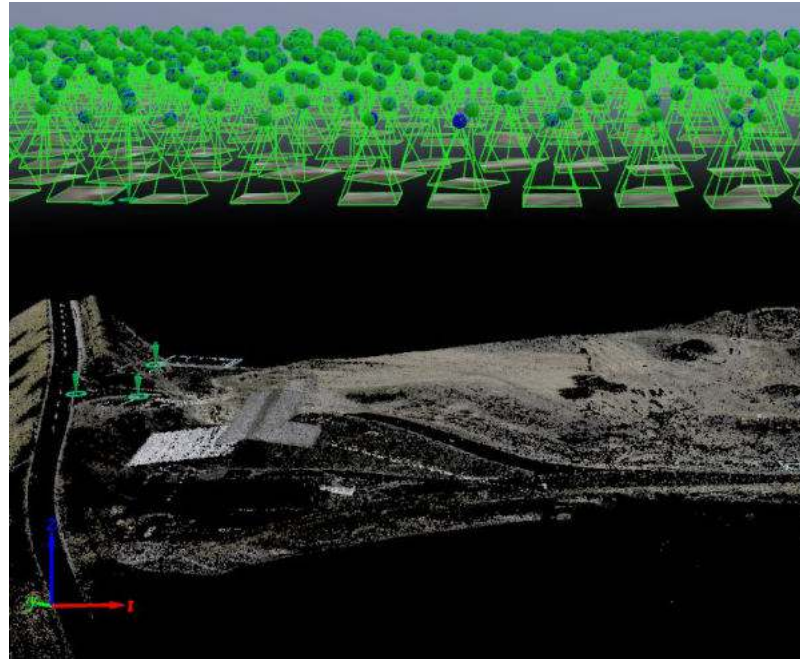


Image processing

Internal & External parameters



Point cloud



Digital elevation model



Orthomosaic



- + Create georeferenced orthomosaics, 3D point clouds & digital elevation models
- + Run volume calculations, display contour & 3D textured models



Drones to the rescue

Applications

Cleaning up a world heritage site

Planning emergency
response for an UNESCO
World Heritage Site



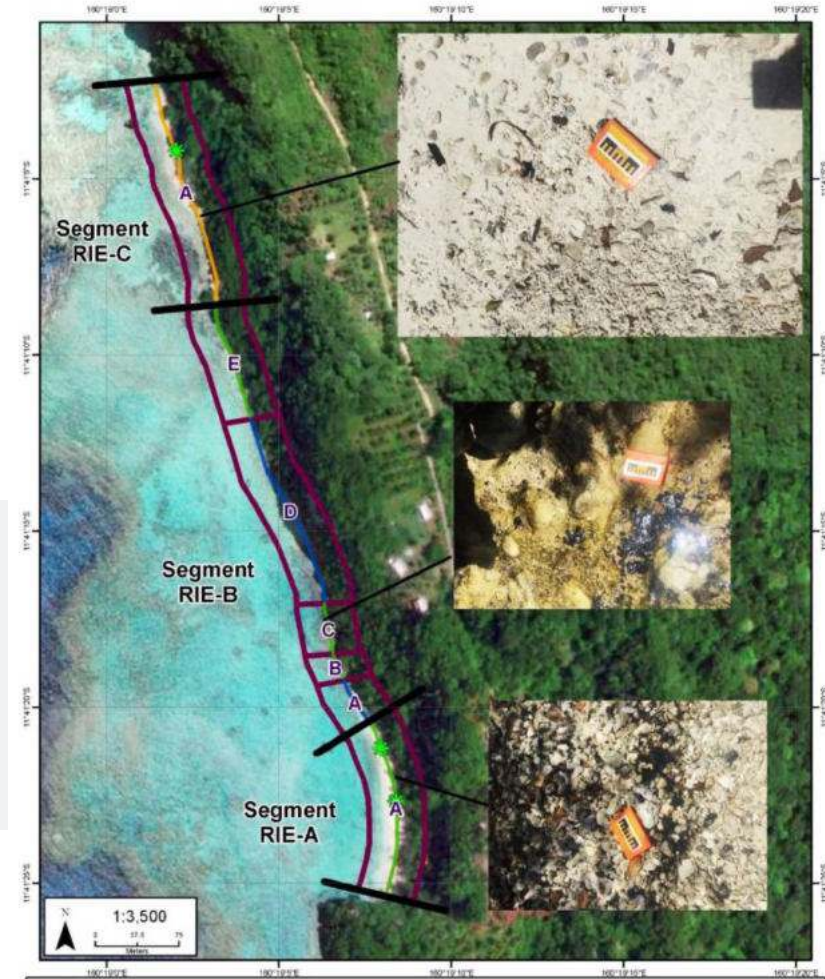


- Generate a precise orthomosaic
- Divide the beach into segments
- Classify and prioritize areas
- Define level of oiling, topographical features and substrate

*"Having the ortho helps to communicate this to not only our own field staff but also to other stakeholders that may be off-site at the time."
Mike Morellato*



- Generate a precise orthomosaic
- Divide the beach into segments
- Classify and prioritize areas
- Define level of oiling, topographical features and substrate



Glacier Monitoring

Monitor glacier lake
flooding in Alaska,
United States



"This flooding potentially threatens a bridge that is connected to the road system [...]. And this is the only road that would connect residents on the north side to hospitals and other vital facilities [...]"
Gabriel Wolken

- Drone data to visualize and predict a glacier and a glacial lake's activities
- Digital elevation model and volume calculations



Managing Locust Invasion

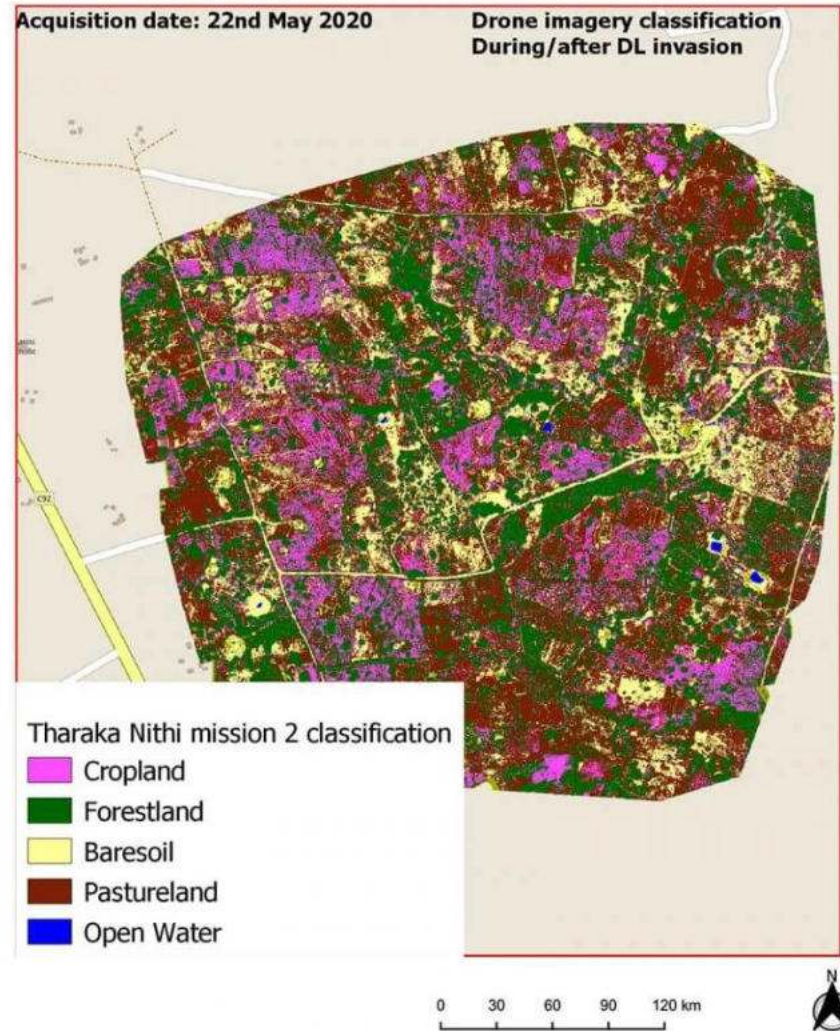
In 2020, in Northern Kenya, one swarm was reported to be 24 times the size of Paris.



“FAO can also correlate observations back to areas that were sprayed to see effects, because we got feedback from the communities that birds were dying and the livestock seemed unwell due to the spraying.”

Safia Verjee

- Use multispectral images to perform plant analysis
- gather evidence to estimate damage
- Analyse if used sprays work



CZU Fire Disaster Response

In 2020, 11,000 bolts of lightning started hundreds of fires throughout California.



*"I've seen about half a dozen GoFundMe website fundraisers that have our maps associated with them."
Dr. Greg Crutisinger*

- Map large scale hilly area
- Generate Orthomosaic
- Situational awareness for owners, authorities and insurance



Key Takeaways

- ***#freethepigeons***
- Photogrammetry exists since mid 19th century, but only now we can fully leverage it with high quality data from drones
- Drones are a cheap, safe and versatile to map large areas
- Disaster response has many faces – drones help mitigate environmental and social damage all around the globe
- Crucial collaboration between NGOs, authorities and private sector

The background of the slide is a dark blue-grey color with a pattern of white, concentric, wavy lines that resemble topographic map contour lines. These lines are more densely packed in some areas and more spread out in others, creating a sense of depth and movement.

Thank you!

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Q&A

NEXT EVENTS

www.weshape.tech/events

WE SHAPE TECH



**International Women's
Day | Collab with
TechFace
#WeTechTogether**

Stay tuned!

March 8, 2022

  @weshapetech



weshape.tech/newsletter



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**Share your feedback
with us!**

melanie@weshape.tech

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Thank You & Enjoy Lunch @home!