Collection and use of data for precision agriculture, experiences from SqM-Farm

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SDU Drone Center

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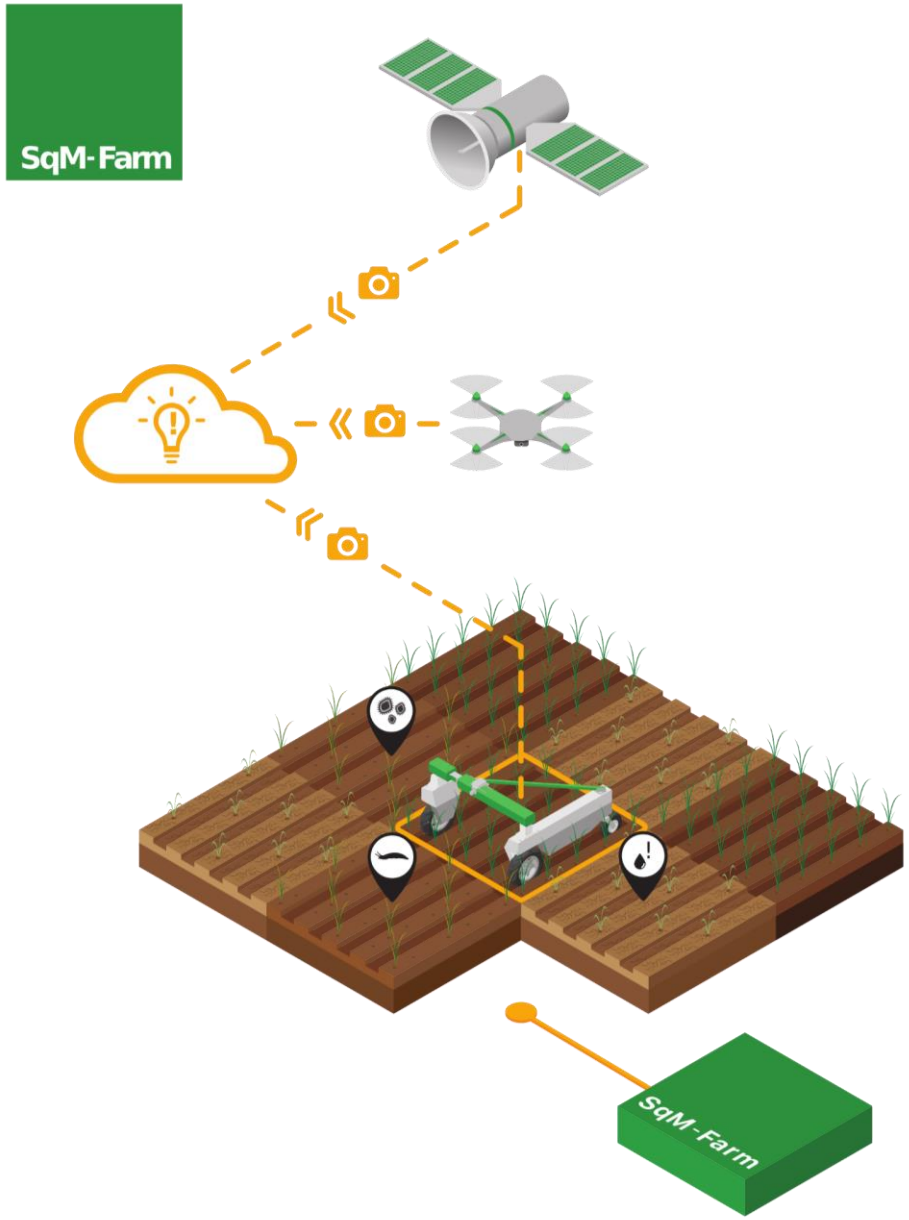
Square Meter Farm

- GUDP Project, 2018 – 2022
- Decision Support on Square Meter Scale

- AgroIntelli
- Conpleks Innovation
- FieldSense
- University of Southern Denmark
- Aarhus University
- Gyldensteen



Why drones?

- Cumulus V1 / Heidrun fixed wing drone, 2 hour flight time
- High resolution (20 mm / pixel)
- Multispectral camera (MicaSense RedEdge-M)

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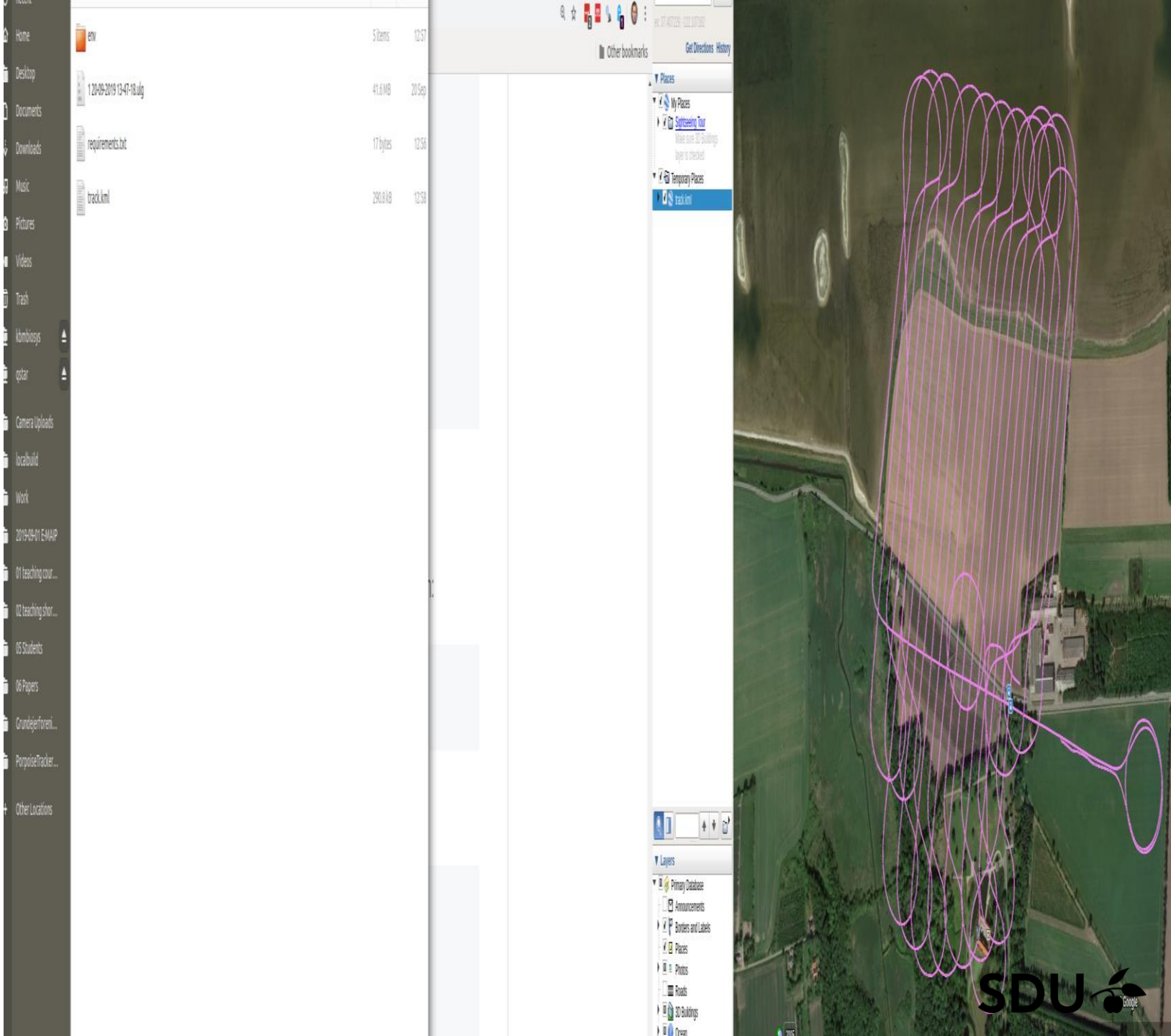
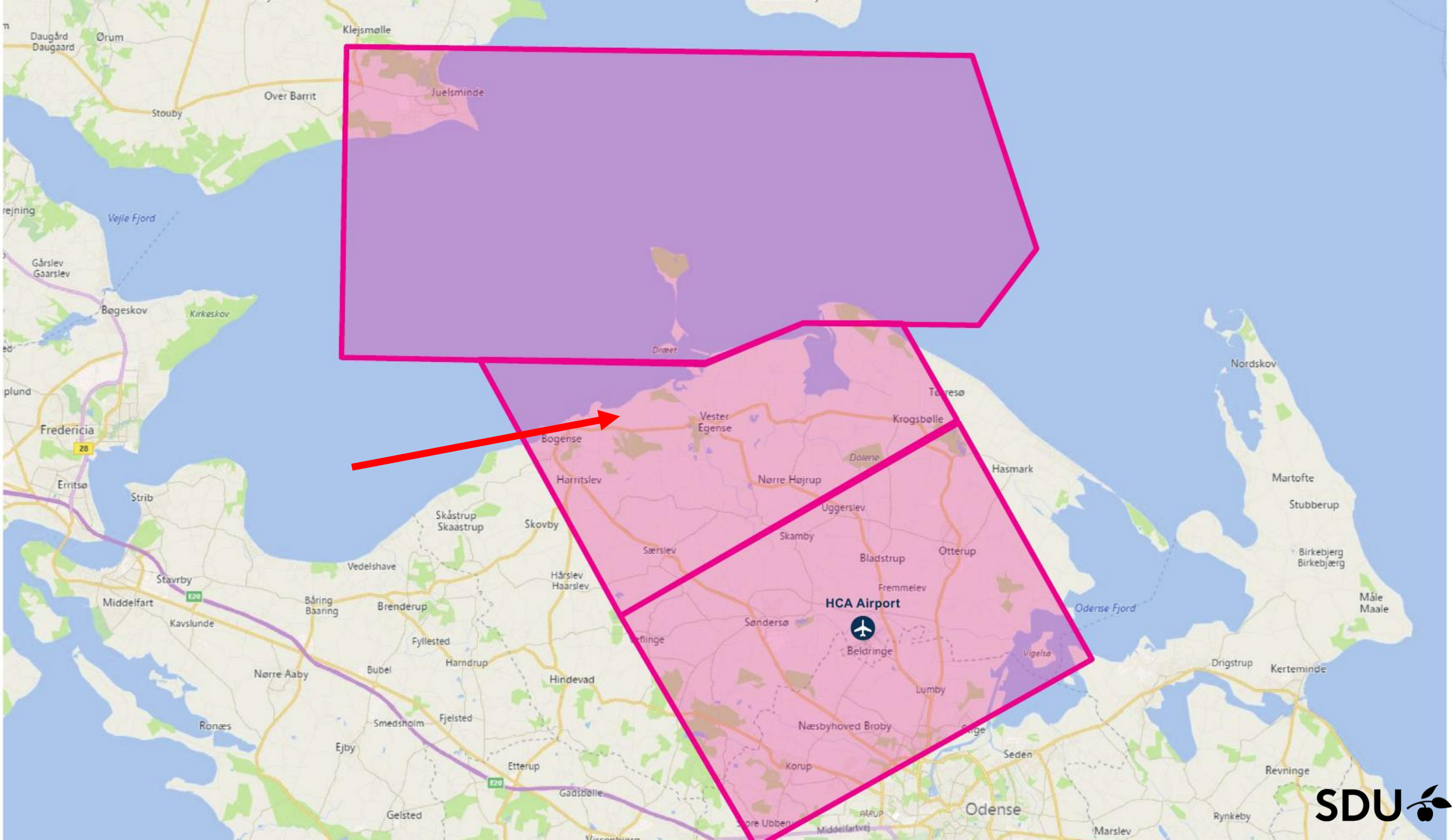
Standard flight

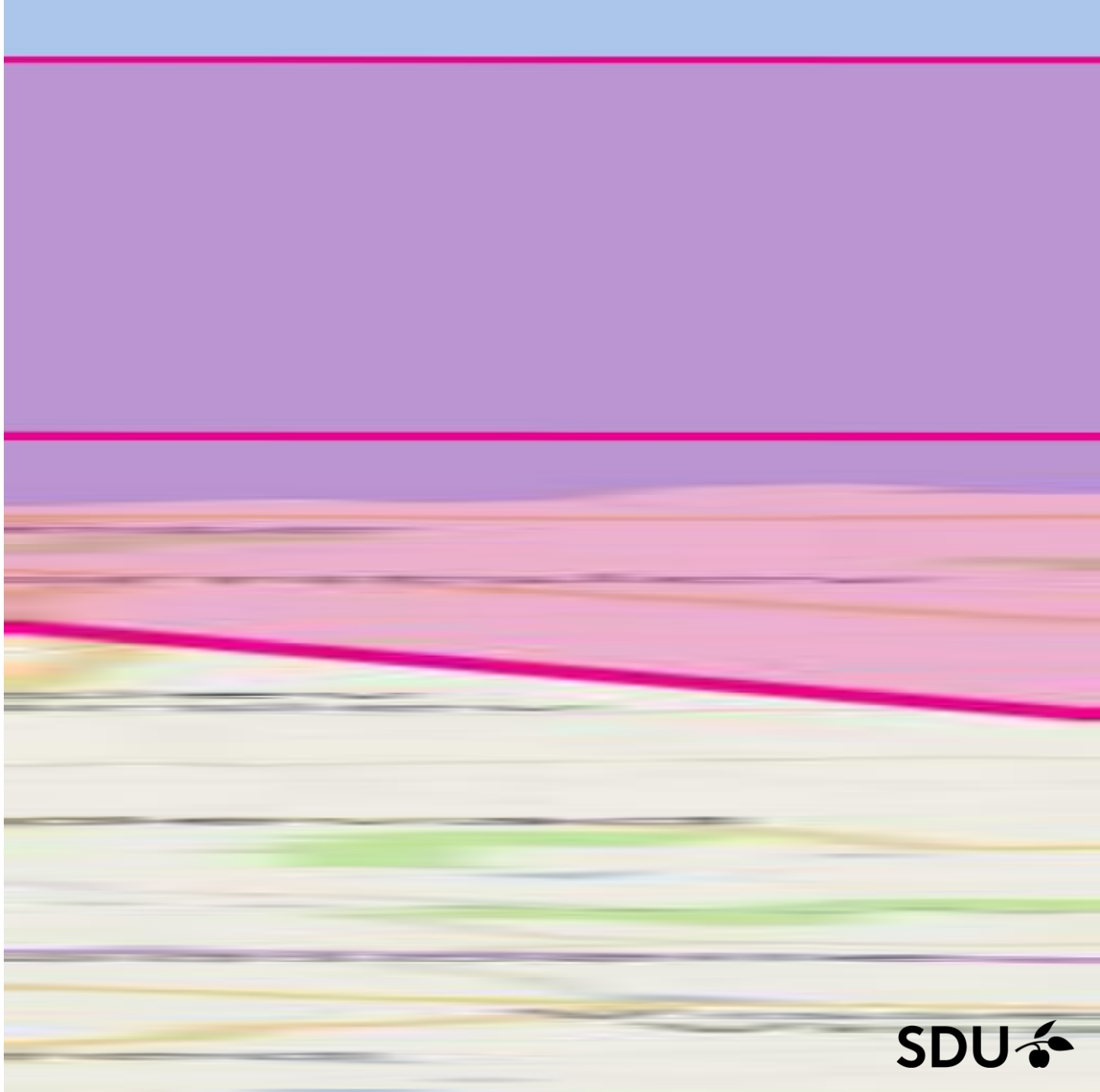
- Visual Line of Sight
- Operator present at field
- A few takeoff and landings might be needed to cover a large field



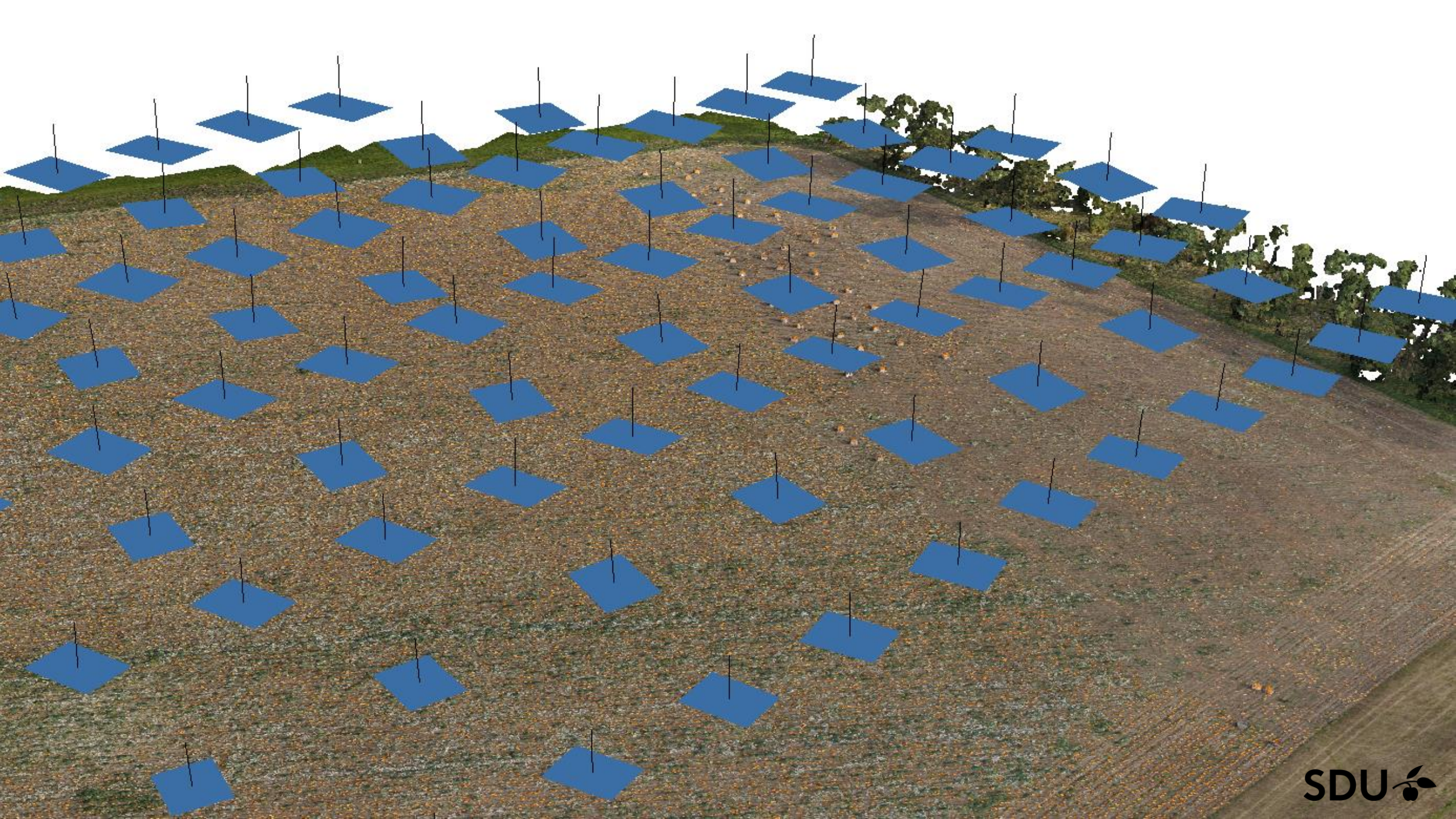

Daugård
Daugaard
Ørum
Klejsmølle
Juelsminde
Over Barrit
Stouby
Vejle Fjord
Gårslev
Gaarslev
Bøgeskov
Kirkeskov
Fredericia
28
Erritsø
Strib
Skåstrup
Skaastrup
Skovby
Vedelshave
Stavrby
Middelfart
E20
Båring
Baaring
Brenderup
Kavslunde
Fyllested
Harndrup
Bubel
Nørre Aaby
Hindevad
Hårslev
Haarslev
Ronæs
Smedsholm
Fjelsted
Ejby
Etterup
Gadsbølle
Gelsted
Drået
Vester
Egense
Bogense
Harritslev
Nørre Højrup
Dalene
Krogsbølle
Hasmark
Uggerslev
Skamby
Særslev
Bladstrup
Otterup
Fremmelev
HCA Airport
Søndersø
Beldringe
Vigelsø
Lumby
Næsbyhoved Broby
Korup
Seden
Odense
Marslev
Rynkeby
Revninge
Drigstrup
Kerteminde
Odense Fjord
Nordskov
Martofte
Stubberup
Birkebjerg
Birkebjærg
Måle
Maale

BVLOS Mission

- Beyond Visual Line Of Sight
- Close airspace
- Launch from HCA Airport
- Data collection
- Landin at HCA Airport



ayvri
Honduras Mapping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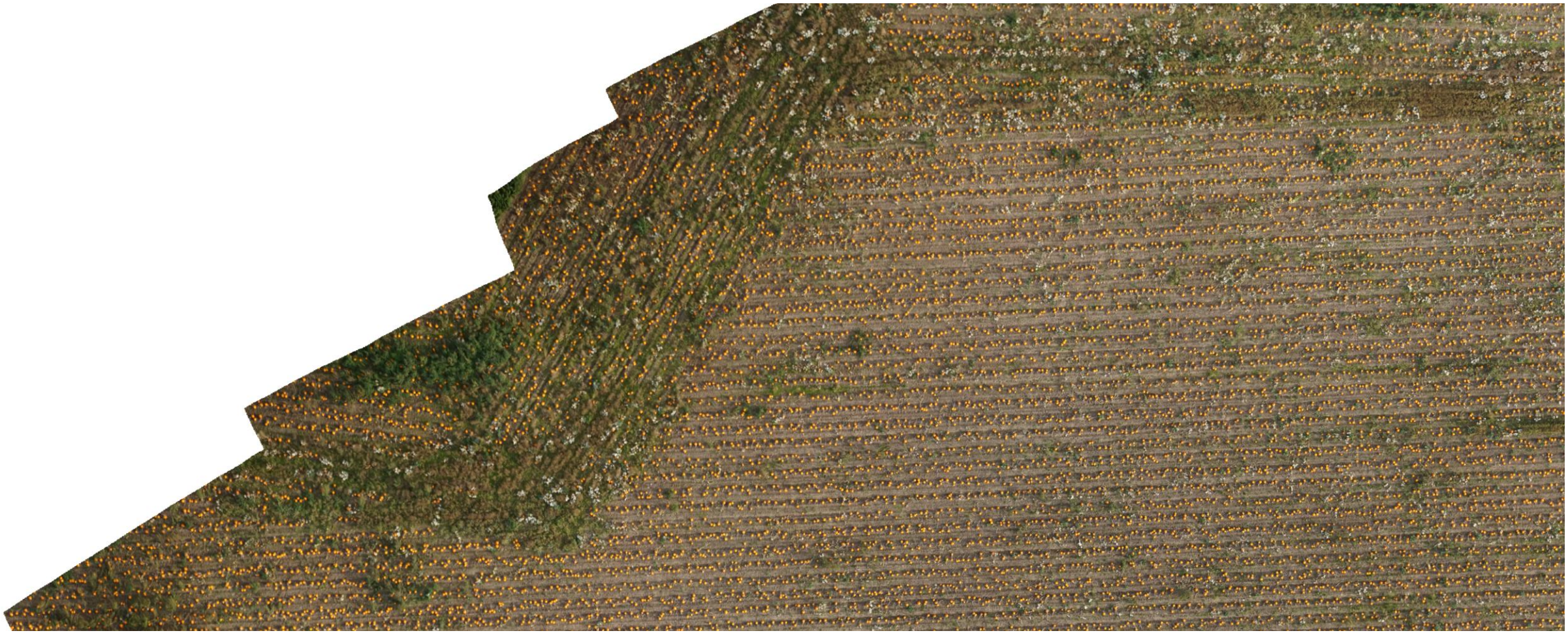

Yield estimation

- Color based segmentation
- Shape based object analysis

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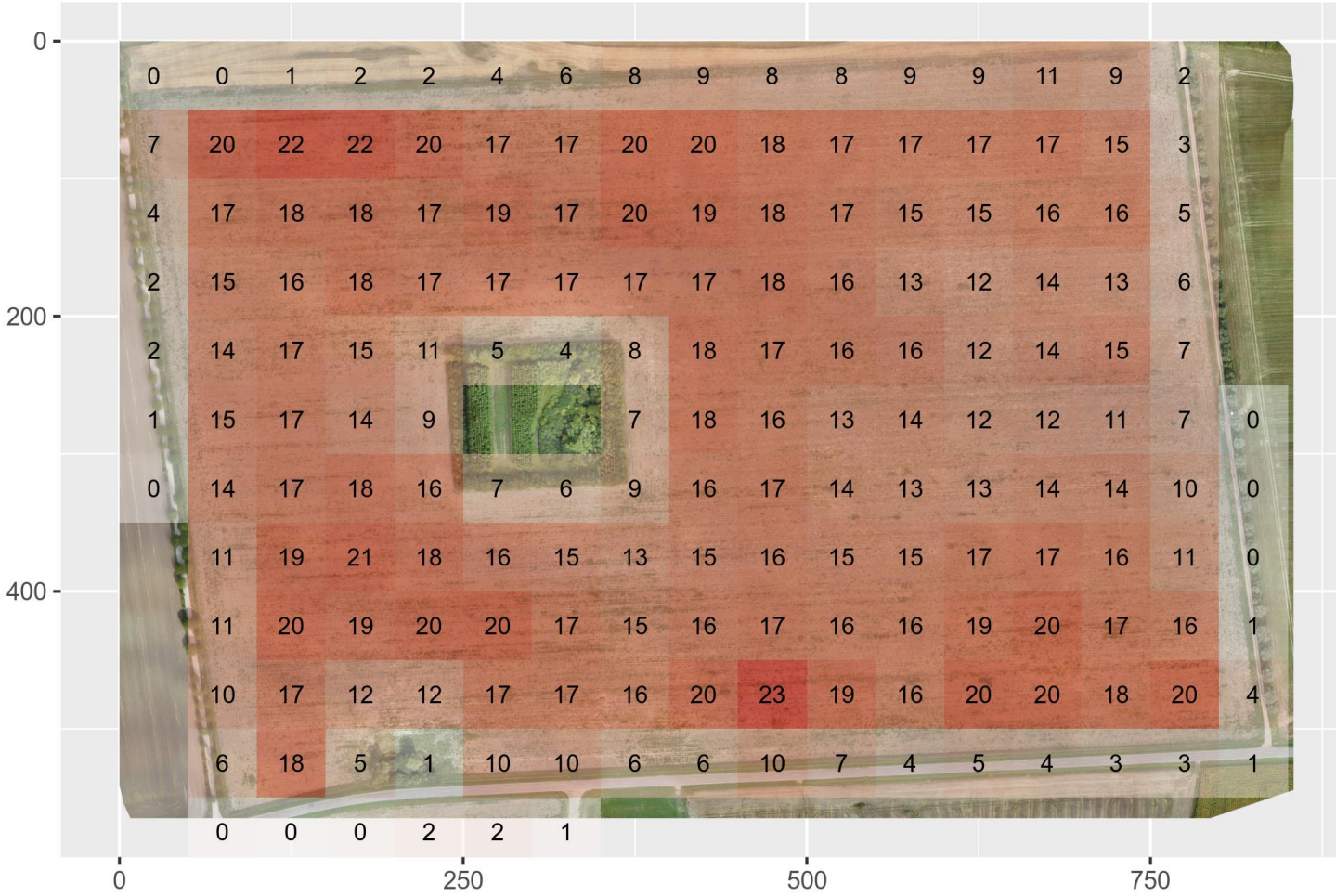
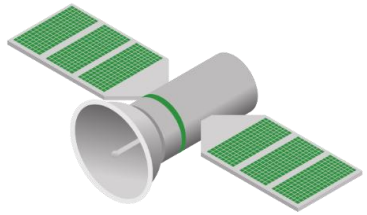
Use of drones

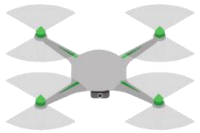
- Create field overview
- Estimate yield
- Optimize use of fertilizer, herbicides and fungicides



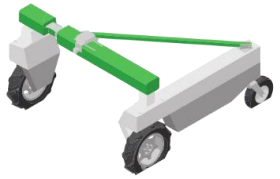


Platform disadvantages

- Satellites
  - Low spatial resolution
  - Cloud coverage



- Drones
  - Weather dependent
  - Limited weight of payload



- Field robots
  - Capacity

Field robots

FarmDroid

Robotti

Questions?

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