

PRÆCITRÆ –
AP1) Træets vækst
Tidlige/foreløbige resultater

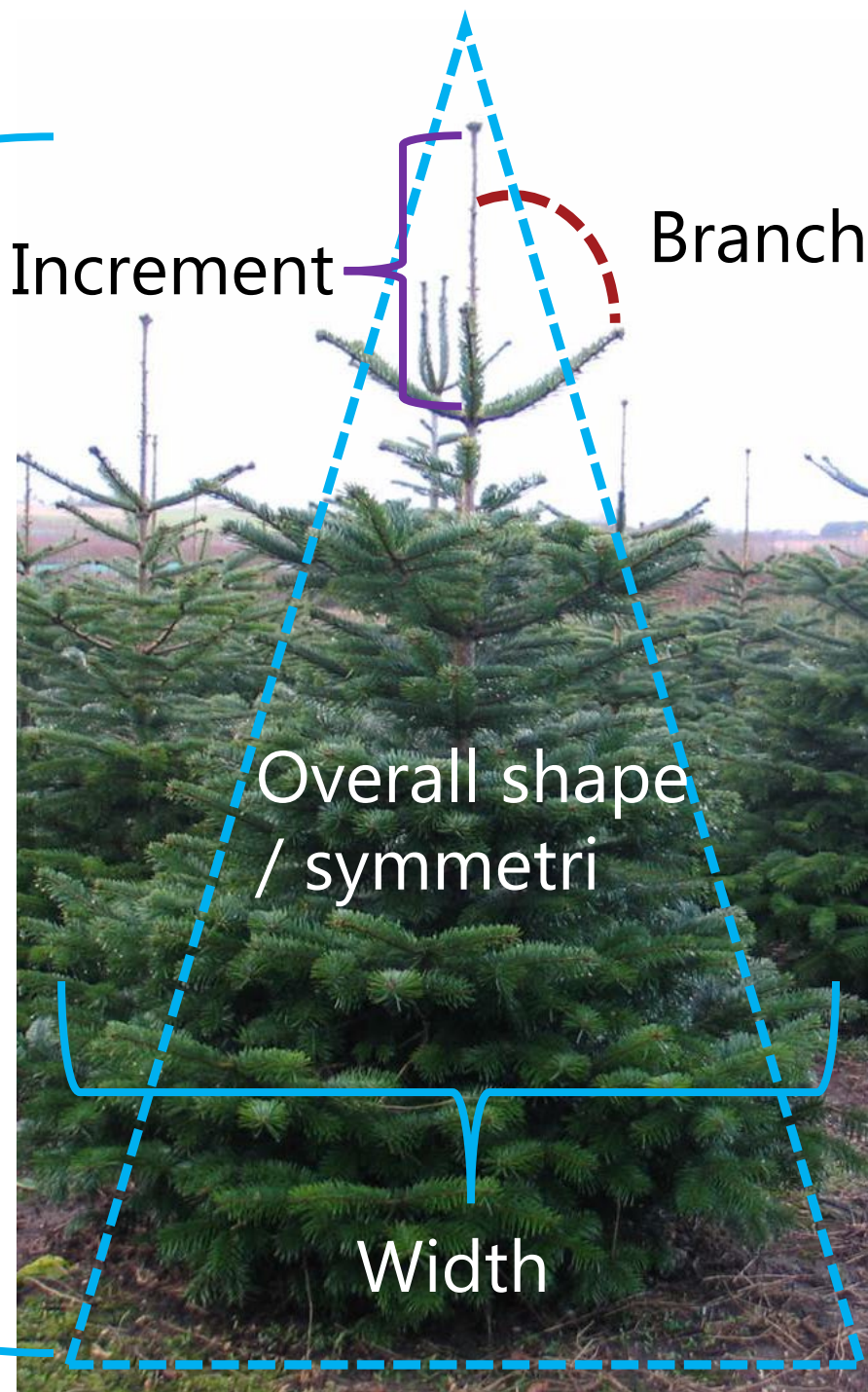
Height

Increment

Branch angle

Overall shape
/ symmetri

Width





Søllinge –
Flyvning
11/12-2024



Overblik - Søllinge



Optimizing flight height at Søllinge site

At 12m we fly RGB only (GSD: 0.33 cm/pixel), take 25 minutes

At 20m we fly RGB + Multispectral (GSD: 0.93 cm/pixel), take 22 minutes

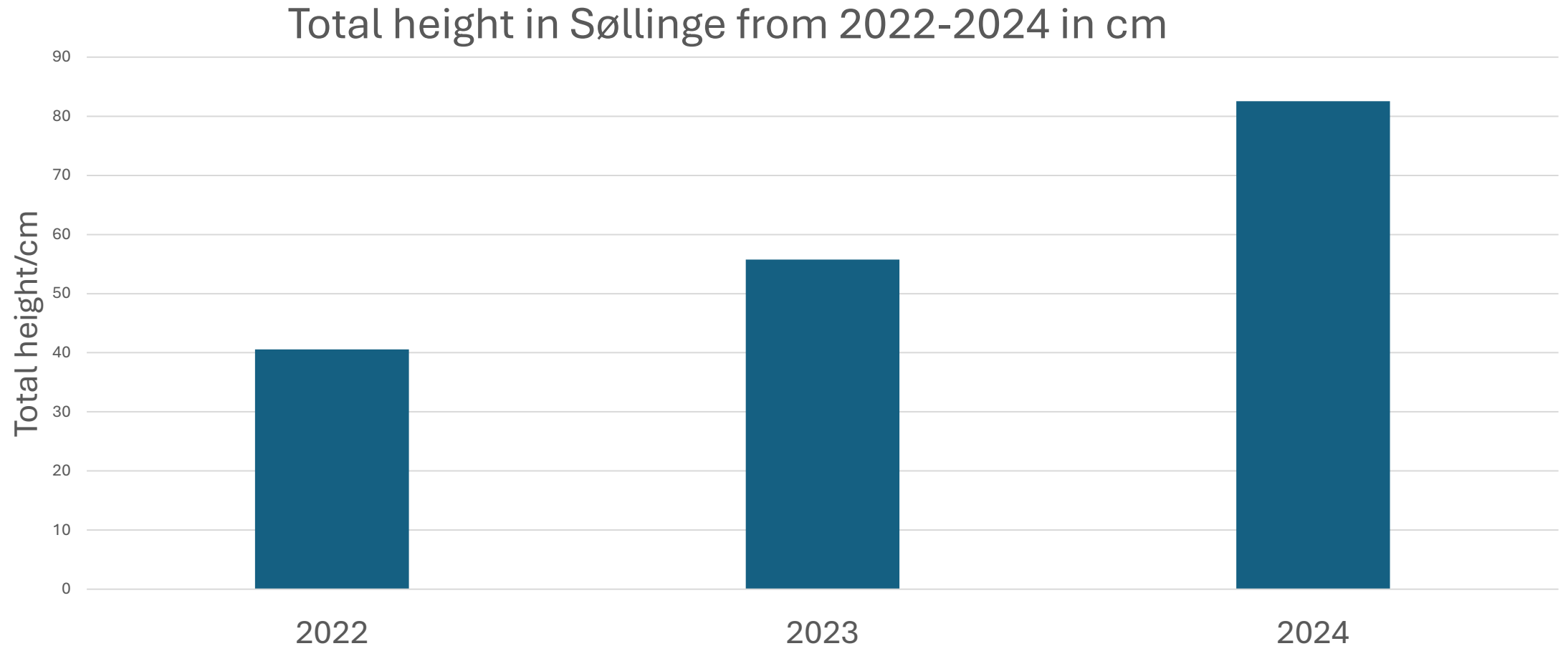
At 30m we fly RGB + Multispectral (GSD: 1.39 cm/pixel), take 12 minutes

At 40m we fly RGB + Multispectral (GSD: 1.85 cm/pixel), take 10 minutes

All flights with same speed: 1.7 m/s

*GSD (The Ground Sampling Distance): is the distance between two consecutive pixel centers measured on the ground.

Ground height in Søllinge 2019 planted trees



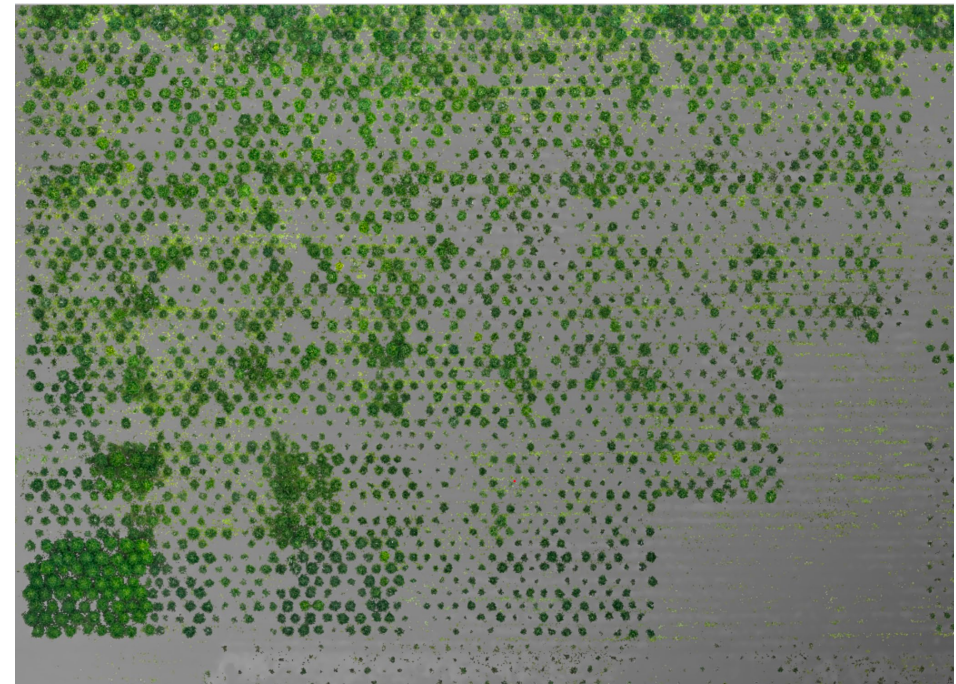
Tree height extraction in Søllinge

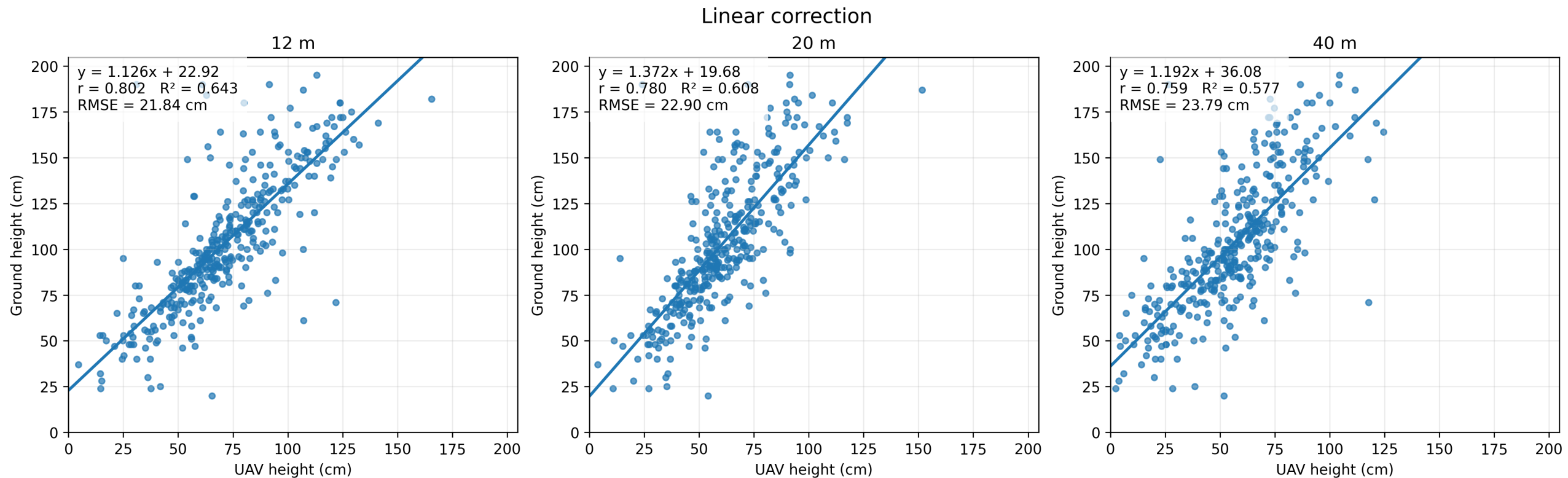


Tree height extraction workflow: NDVI, RGB, and DSM layers were imported and vegetation areas (NDVI > 0.7) were isolated.

A grid was created and aligned with individual trees. Canopy (cDSM) and ground (sDSM) elevation models were generated, and zonal statistics were used to extract elevation values for each grid.

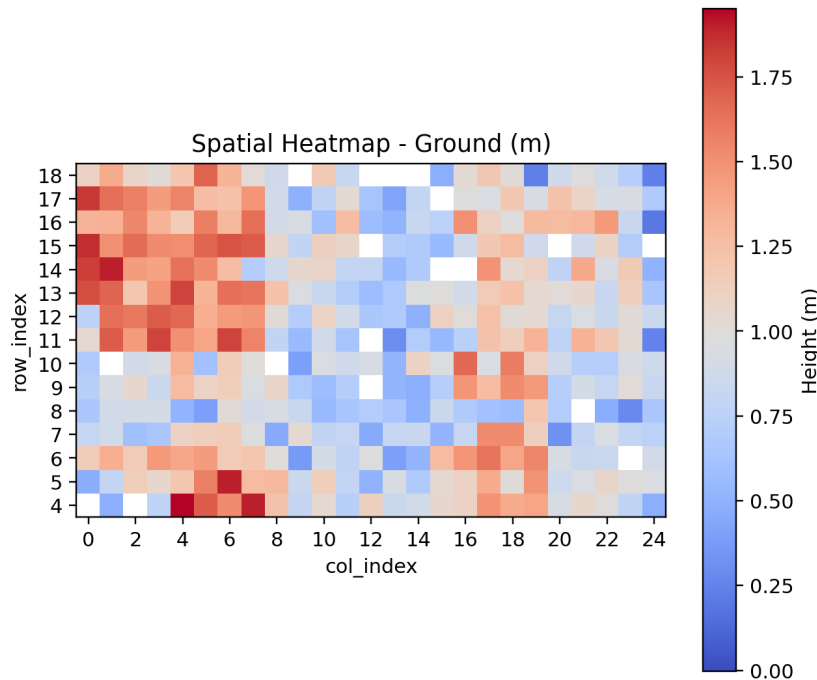
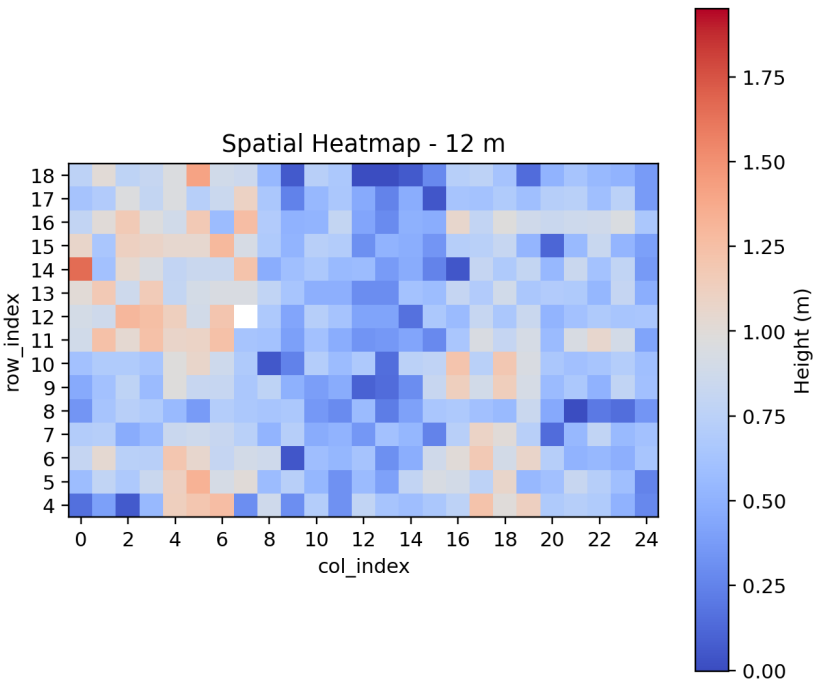
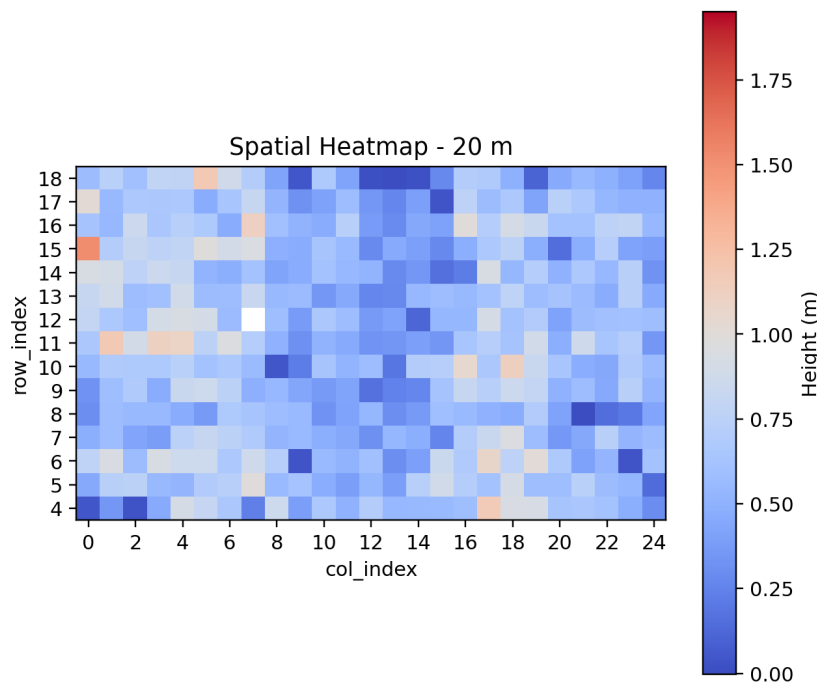
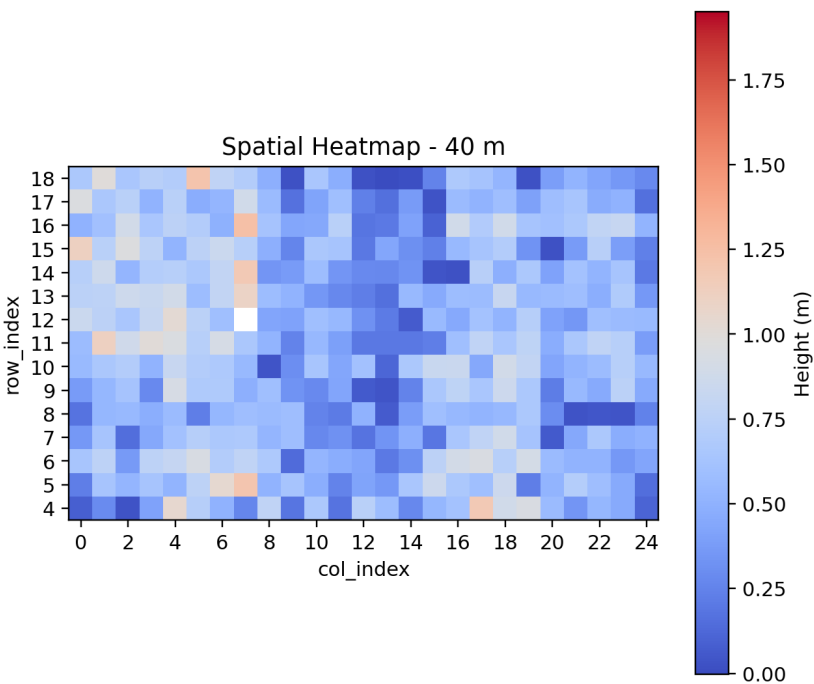
Tree height was calculated as $cDSM - sDSM$.





UAV-estimated and ground-measured tree heights show a strong positive correlation ($r = 0.759$ – 0.802), indicating good consistency in height trends.

However, the relatively low R^2 values (0.577 – 0.643) suggest limited explanatory power due to canopy structure and terrain-related errors.



UAV heights are generally underestimated but follow the same spatial pattern as ground measurements, likely due to DTM inaccuracy.