

Optical sensing and 4D modelling of plant ecophysiological traits

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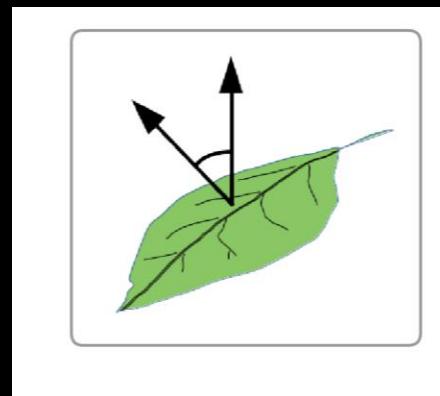
Point clouds major and untapped applications in plant science

1. Leaf angle distribution from drone ... SfM
2. 3D RT modelling TLS
3. Drone processing using Open Drone Map ... SfM, hyperspectral etc



ICT Solutions for Brilliant Minds

1. Leaf angle distribution from drones ... SfM etc

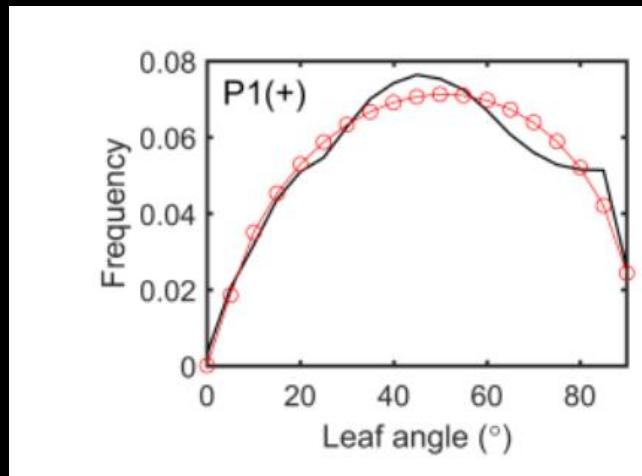




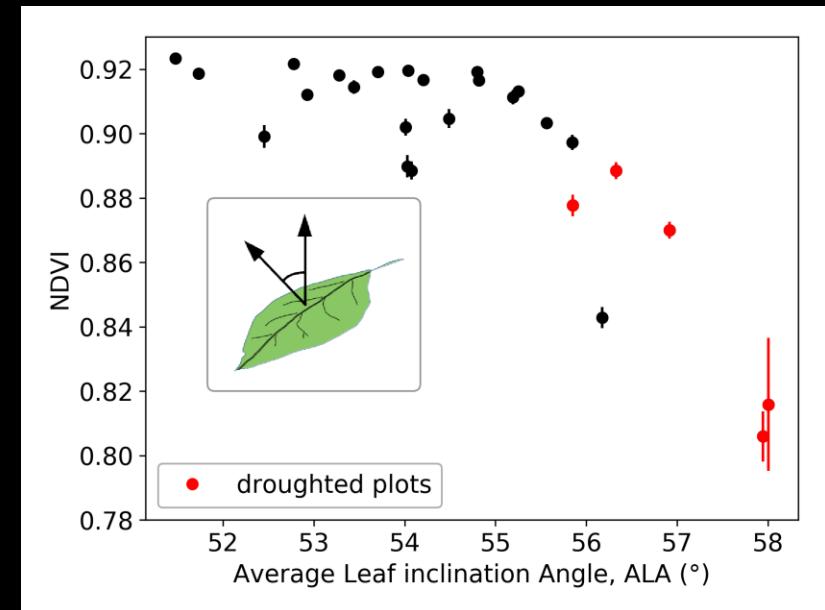
FGI_NLS





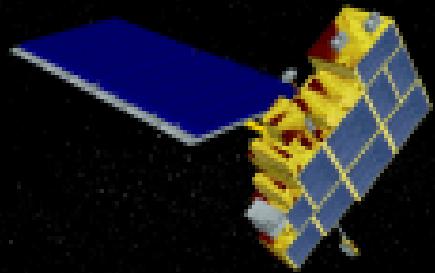


XU ET AL., 2020, *IGARSS* [10.1109/IGARSS39084.2020.9323498](https://doi.org/10.1109/IGARSS39084.2020.9323498)

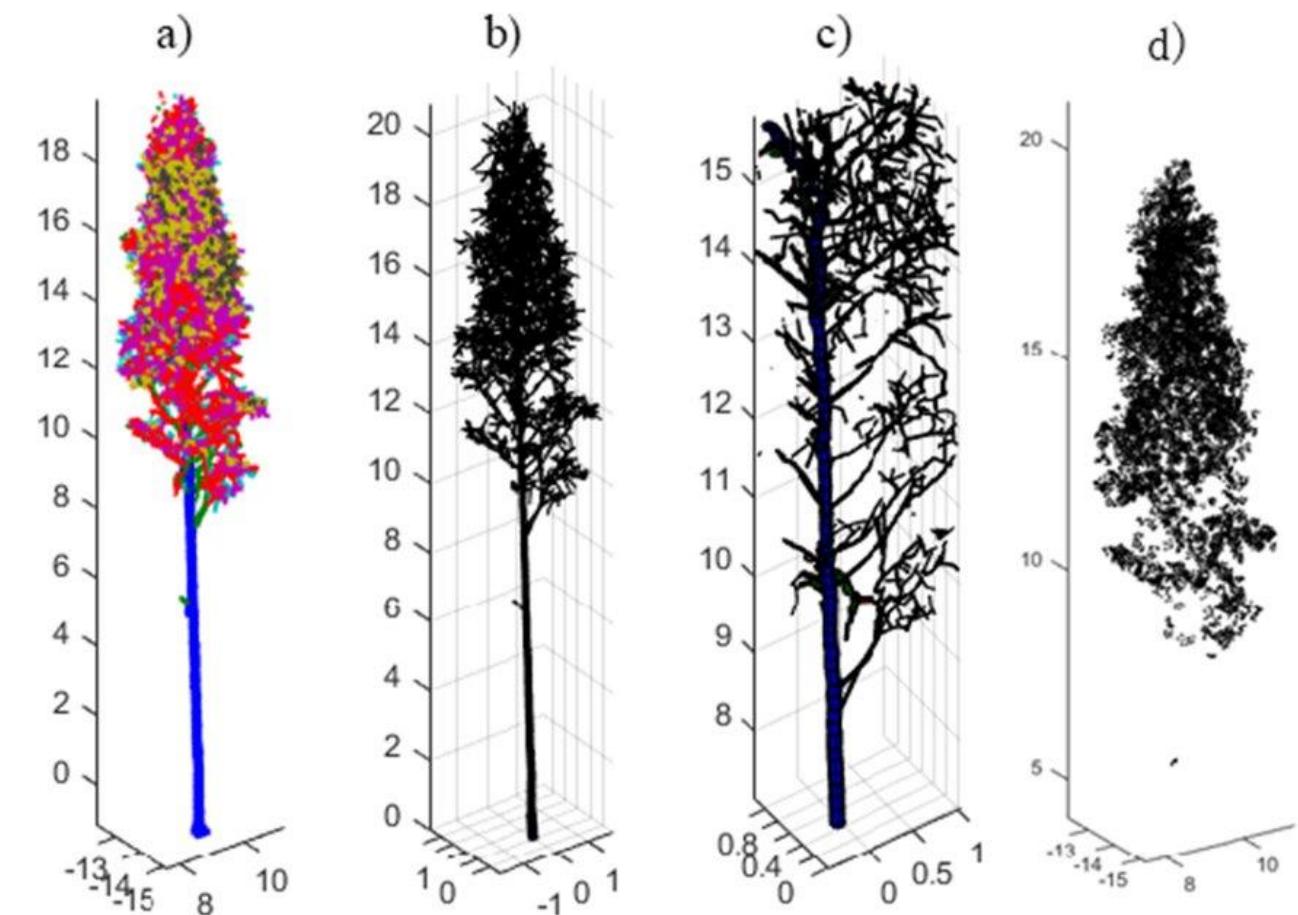


ATHERTON ET AL., 2020, *EARTH ARXIV* <https://doi.org/10.31223/osf.io/eayph>

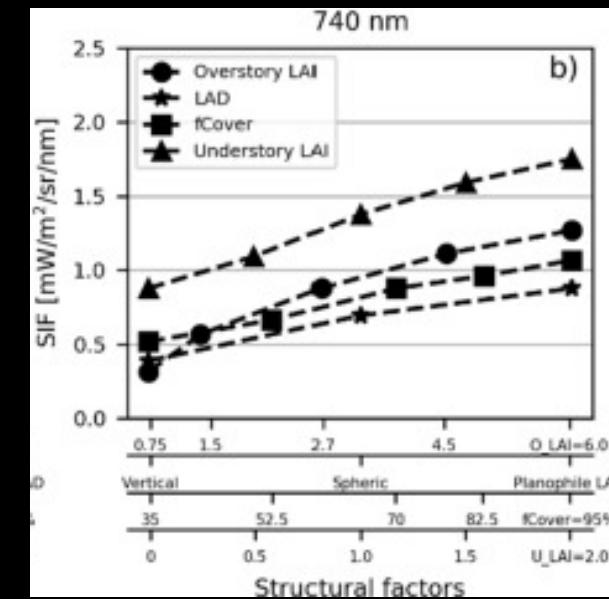
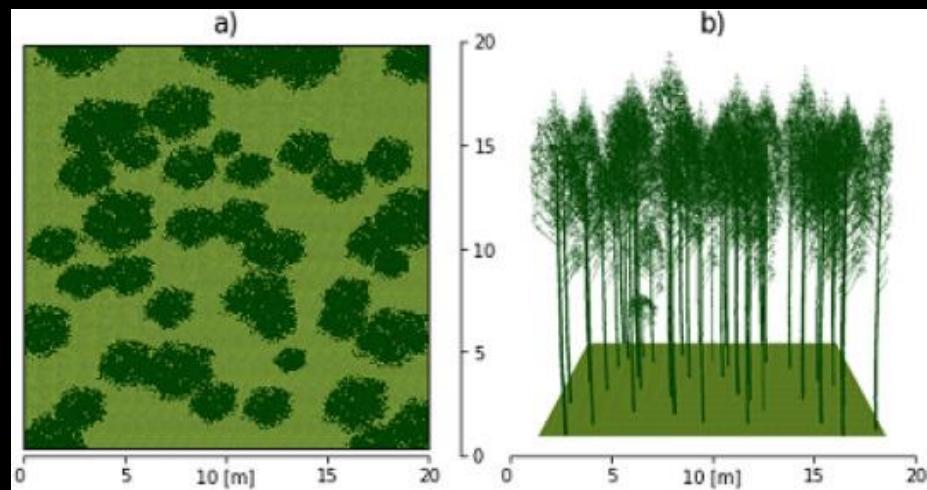
2. 3D Radiative Transfer modelling of chlorophyll fluorescence Terrestrial Laser Scanning



Building trees from TLS data using Tree QSM & FaNNI for use in remote sensing simulations



Using a virtual forest stand to simulate a remote sensing signal, chlorophyll fluorescence (SIF)

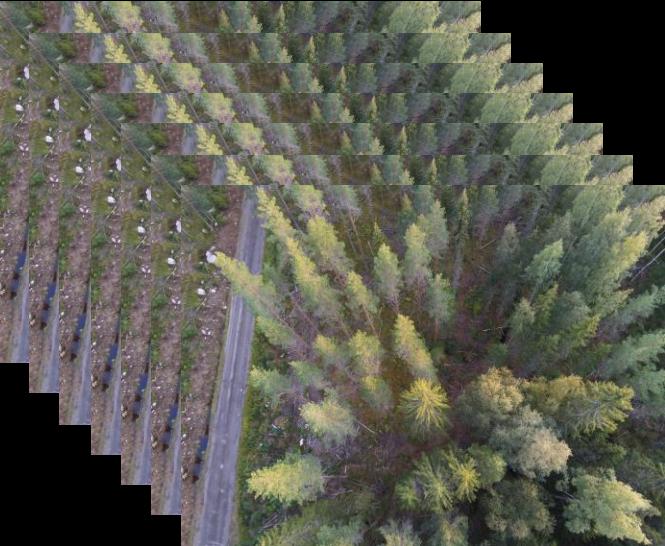


Liu, Weiwei, et al. *Remote Sensing of Environment* 232 (2019): 111274.

3. Open-source drone data processing on Puhti



Open-source drone processing chain



The screenshot shows the OpenDroneMap (ODM) software interface. It features a central workspace with a preview of an orthophoto. On the left, there's a sidebar with navigation links like 'Home', 'Available', 'Usage', and 'Example batch job script'. The main content area displays the ODM logo and some descriptive text about the software's purpose.

@inproceedings{Vacca2020WEBOD, title={WEB Open Drone Map (WebODM) a Software Open Source to Photogrammetry Process}, author={Giuseppina Vacca}, year={2020} }

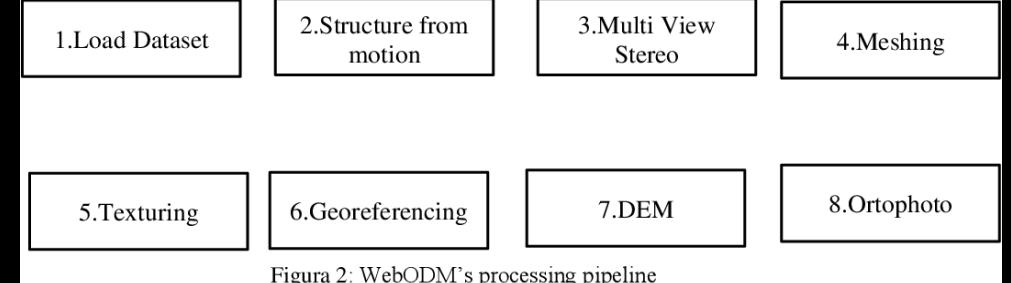
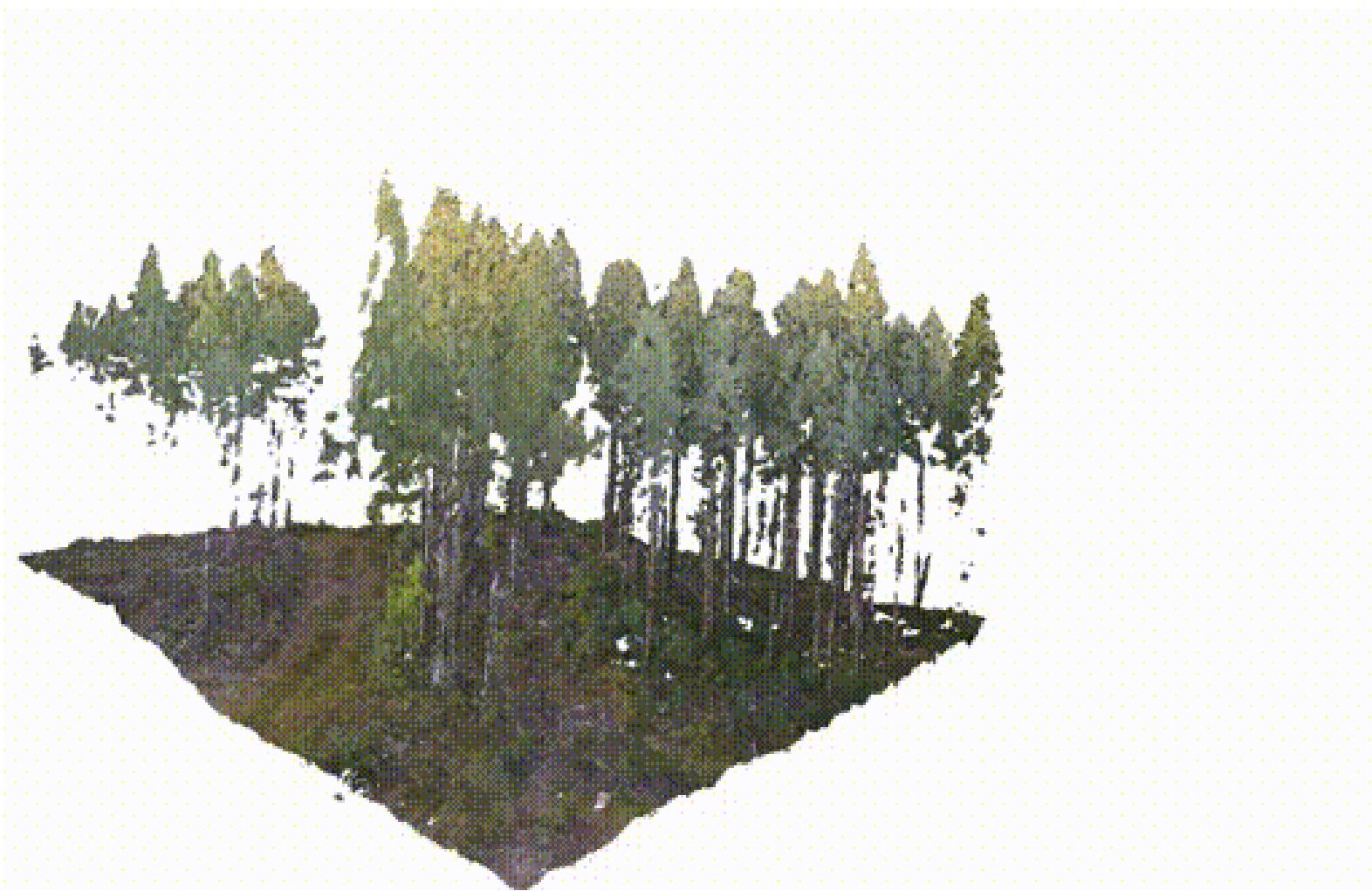


Figura 2: WebODM's processing pipeline

A terminal window showing a bash script command. The command uses Singularity to run a containerized version of WebODM. It specifies the container image, project directory, and various processing parameters such as resolution, feature extraction, and meshing quality.

```
#!/bin/bash
#SBATCH --account=project_2004875
#SBATCH --ntasks=1
#SBATCH --cpus-per-task=25
#SBATCH --mem-per-cpu=12G
#SBATCH --partition=small
#SBATCH --time=04:00:00

run singularity run \
--bind /scratch/project_2004875/odm_project:/datasets/code \
appl/soft/qeo/opendronemap/opendronemap_2.5.7.sif --project-path /datasets --\
in-num-features 18000 --mesh-octree-depth 11 -feature-quality ultra -pc-quality ultra --pc-ept
```



"startTime": "2021-09-17T09:30:43.766809",

"endTime": "2021-09-17T12:16:04.812090",

283 images; 1.3 GB



https://joathert.github.io/hyy_change/



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Thank you for listening!