

# DEDAL, Distributed Ecosystem for Drone Analytics in Life-sciences



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## ENHANCE YOUR FIELD TRIALS WITH DEDAL


Process your drone images for phenotyping – Free for UK academics at [dedal.jic.ac.uk](https://dedal.jic.ac.uk)

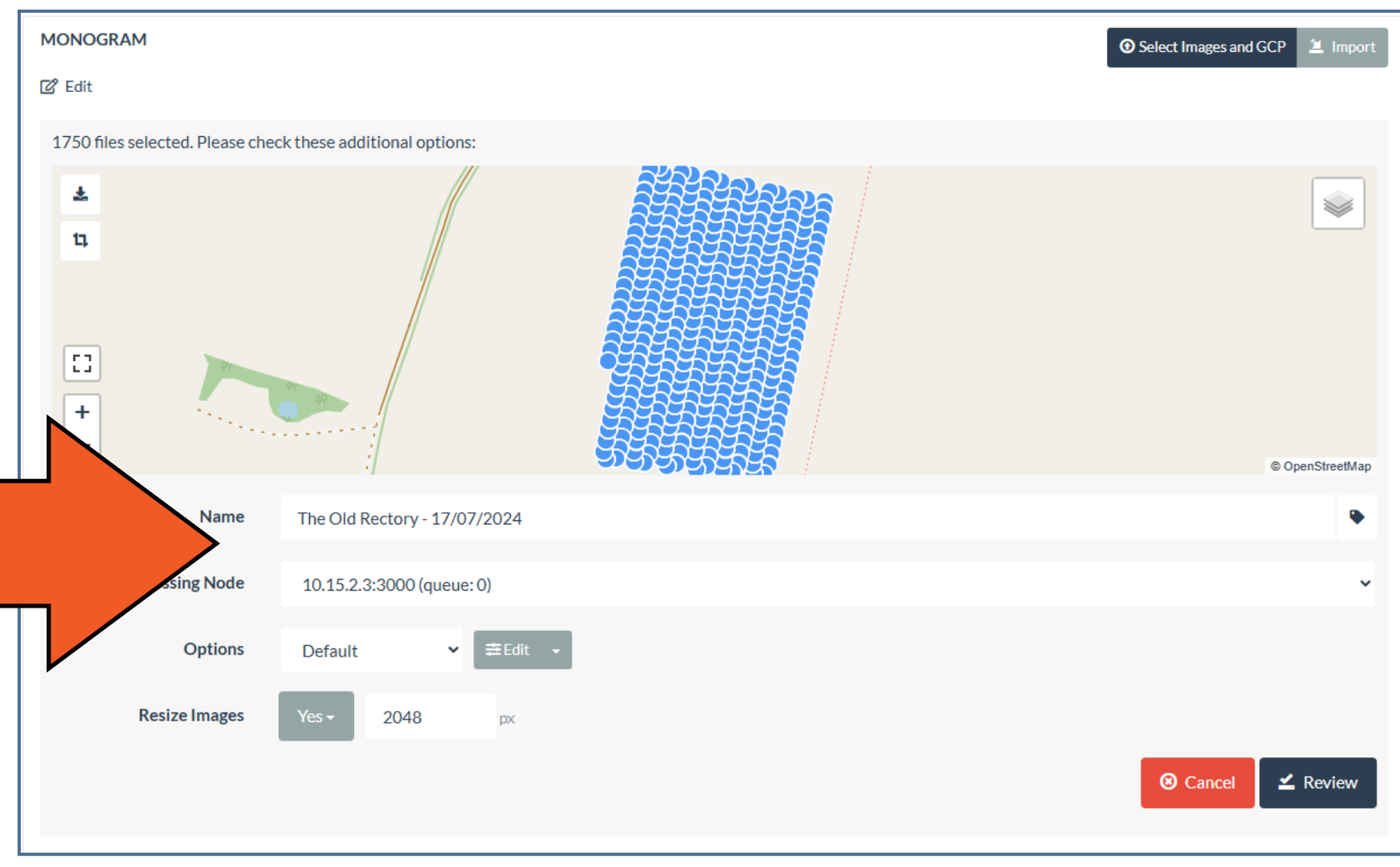
**High-capability drones** are more **affordable** than ever and this has made them a valuable tool for assessing **plant health**, but extracting scientific insights from these devices remains challenging. Key barriers include the high cost of proprietary software licenses, the hardware requirements for data processing, and the complexity of integrating open-source solutions and security best practices. At JIC, we are addressing this problem by hosting the **OpenDroneMap** project in our on-premises OpenNebula cloud, offering a high-performance service. This proof of concept server will let you both obtain an **orthometric image** and **extract valuable data** from it. Whether you are already using a drone or considering buying one, we encourage you to try our service and explore its capabilities.



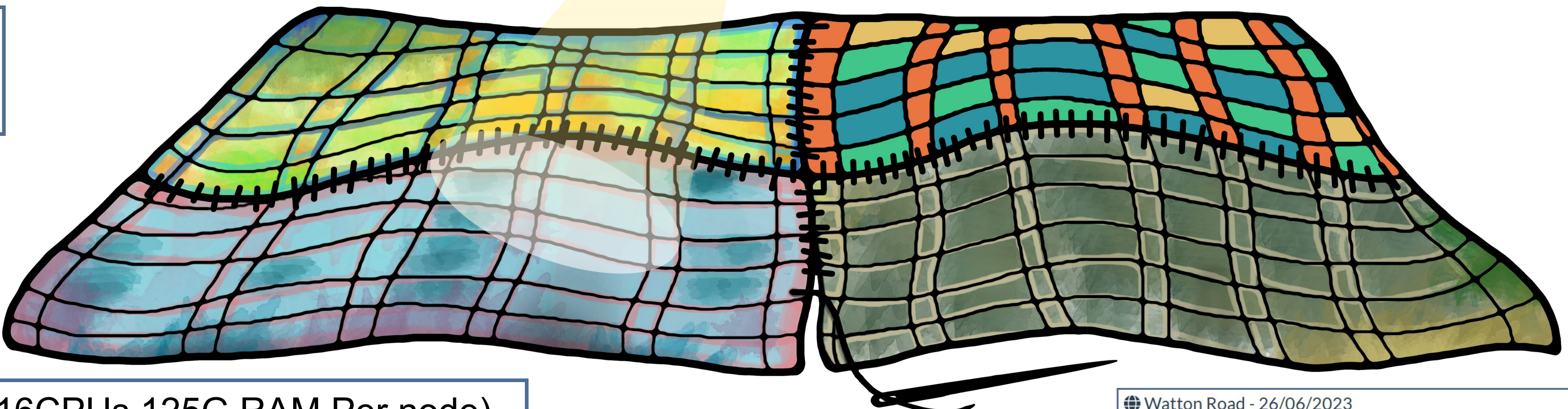
Fly your drone over your field trials. Get the pictures ready to be uploaded.

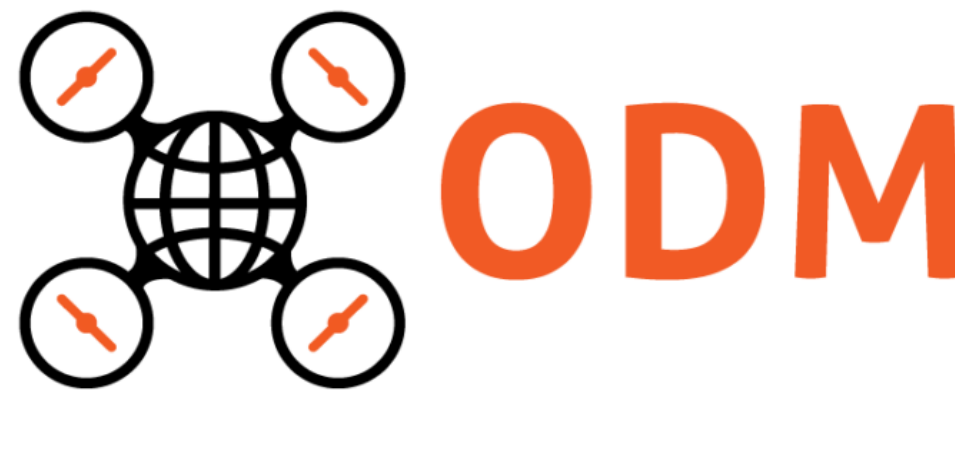
### Stitching your images



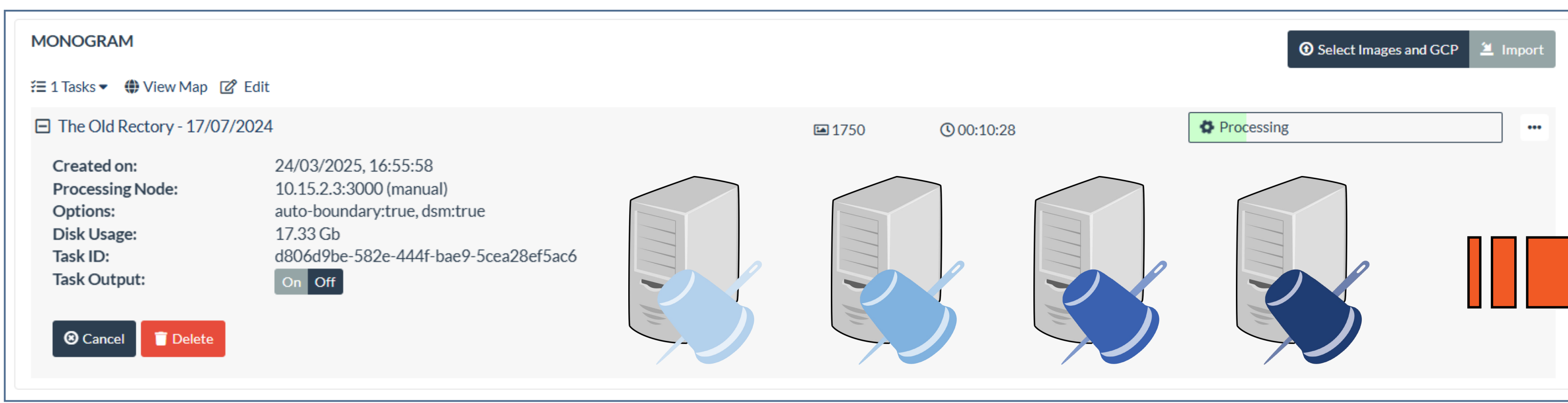


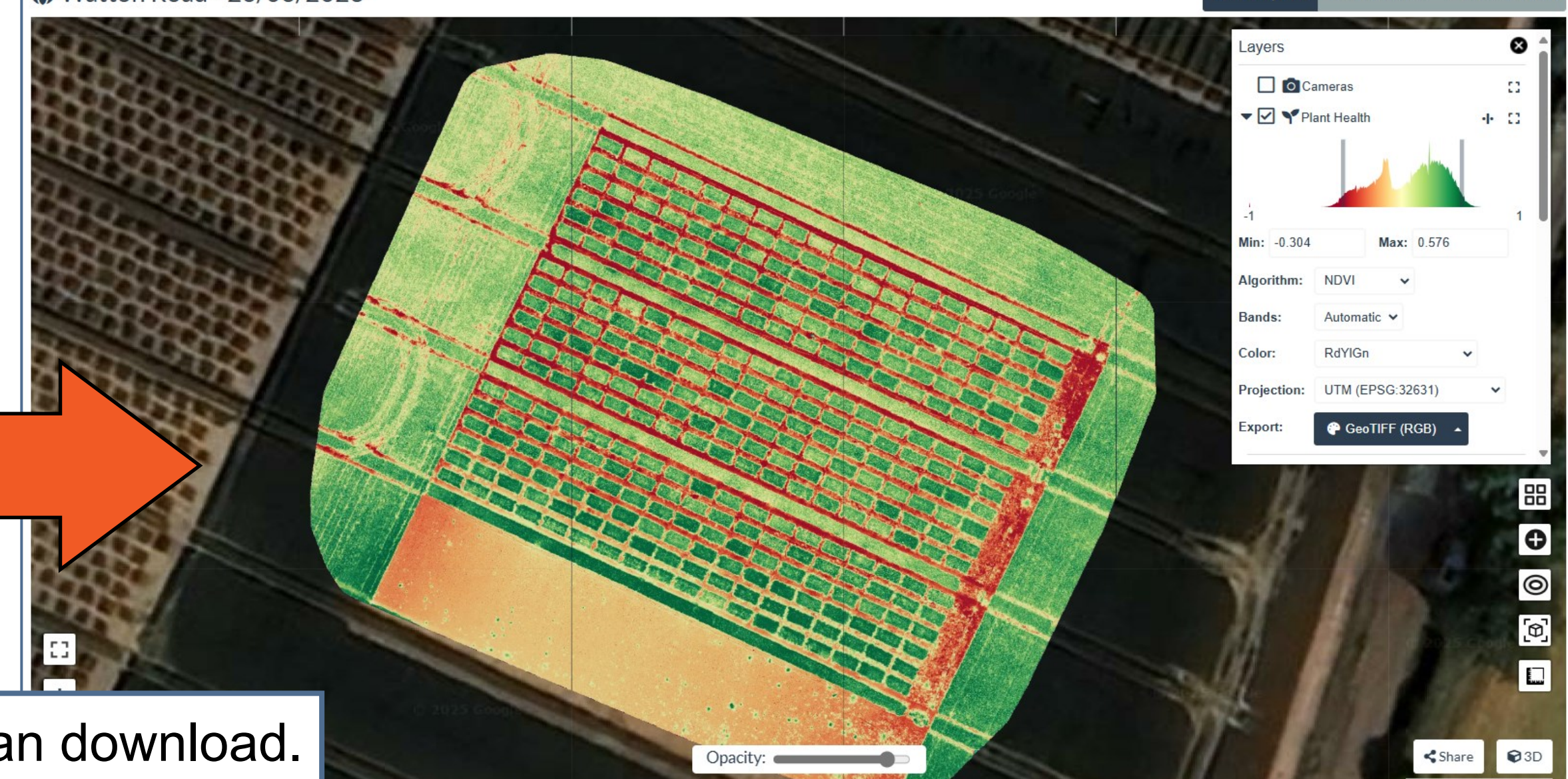
Create an account and upload the images to [dedal.jic.ac.uk](https://dedal.jic.ac.uk)






NodeODM will process your images (16CPUs 125G RAM Per node).






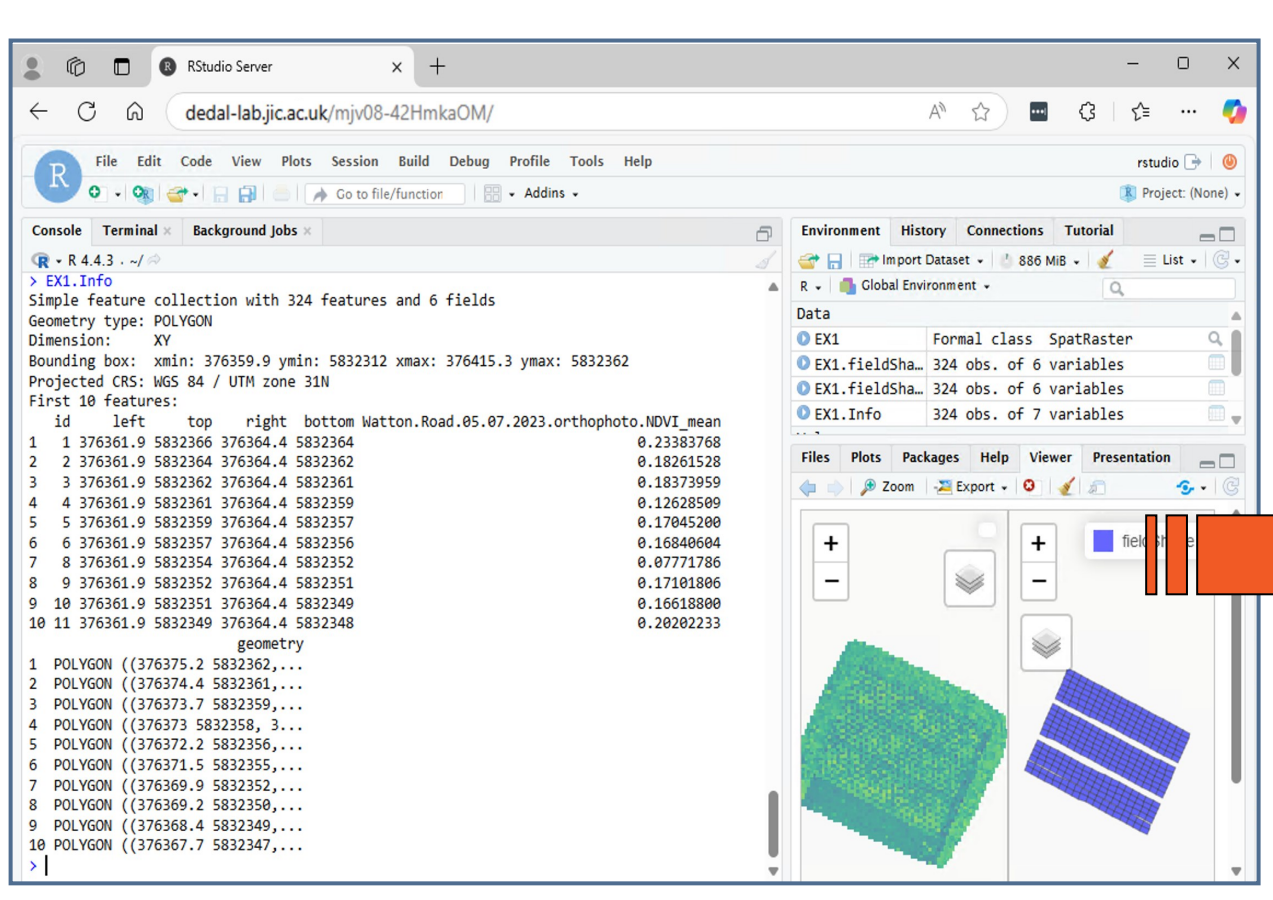
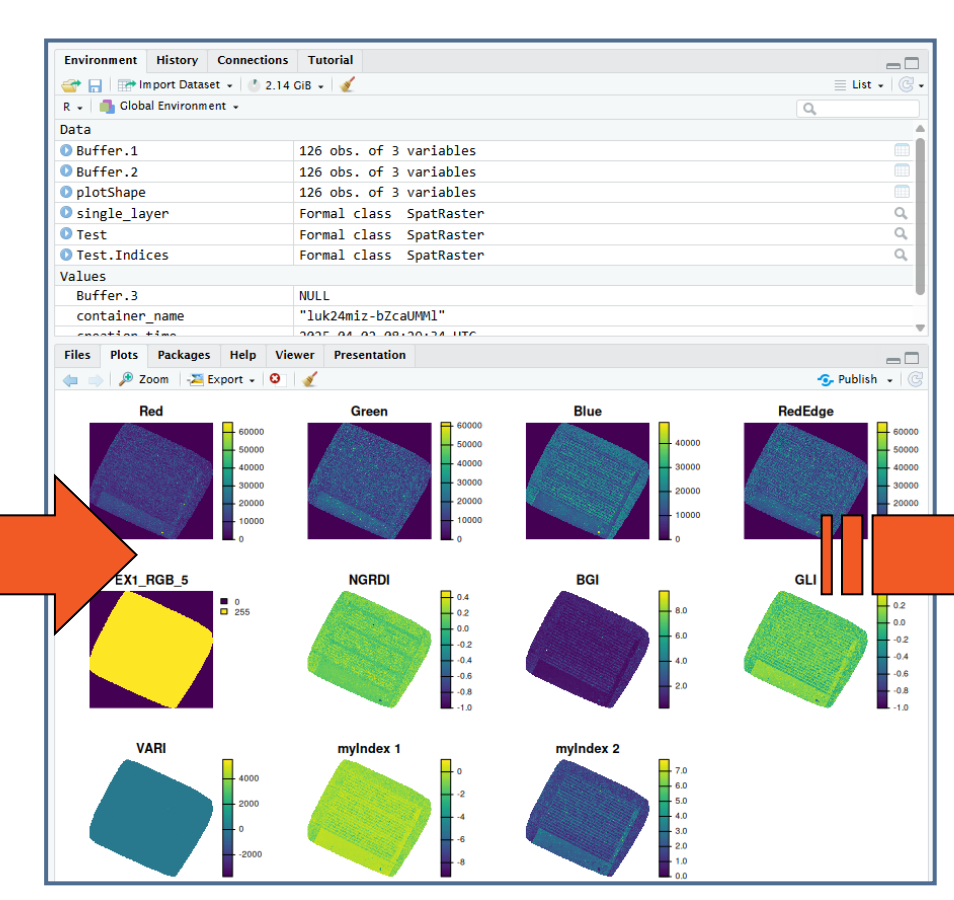
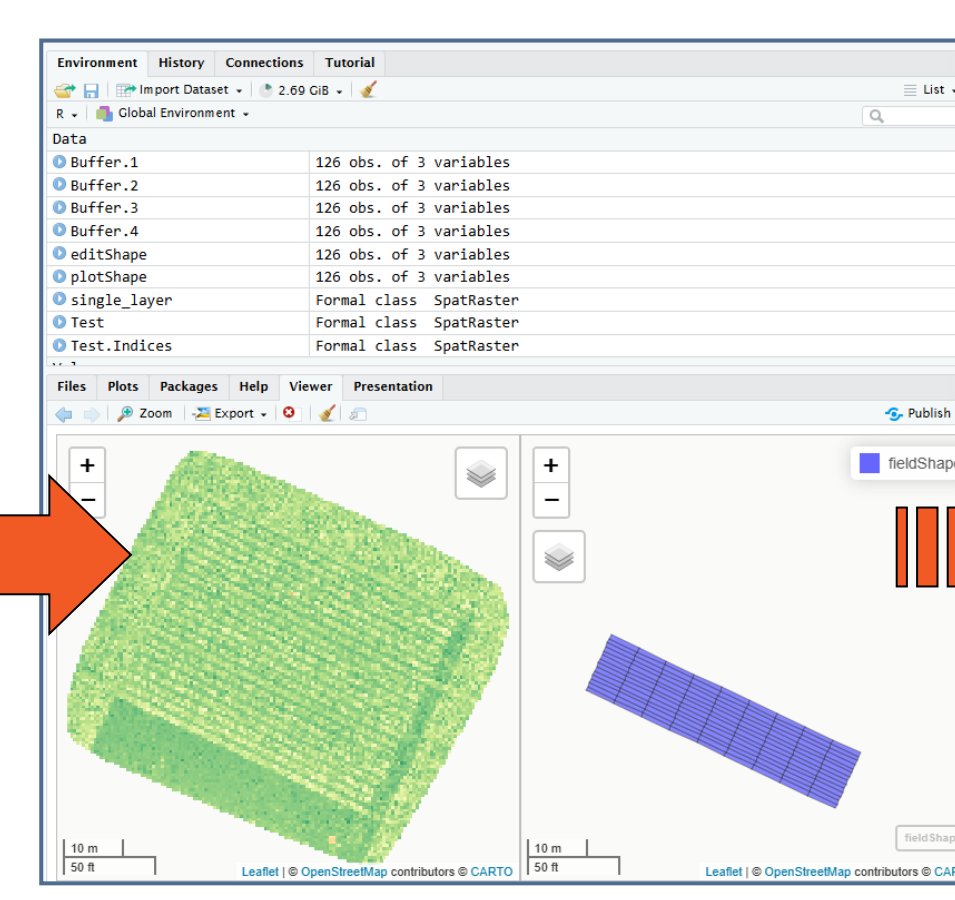
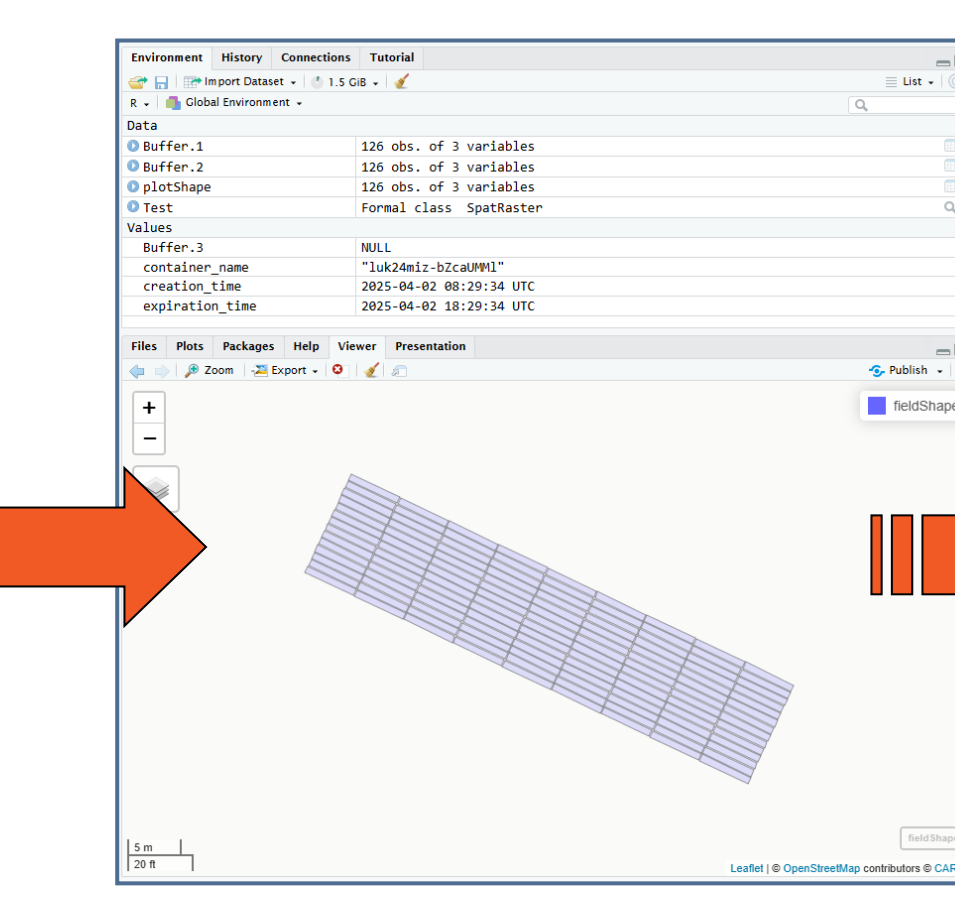
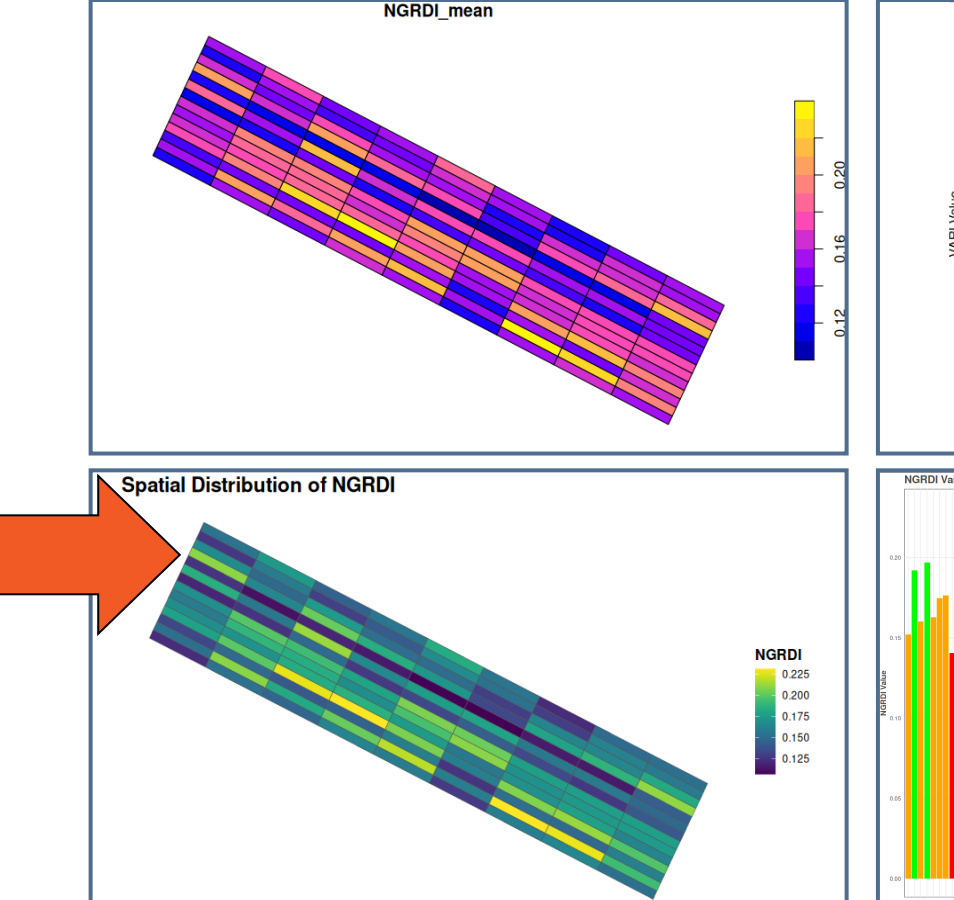



DEDAL will stitch them into an orthometric image that you can download.

### DEDAL-lab

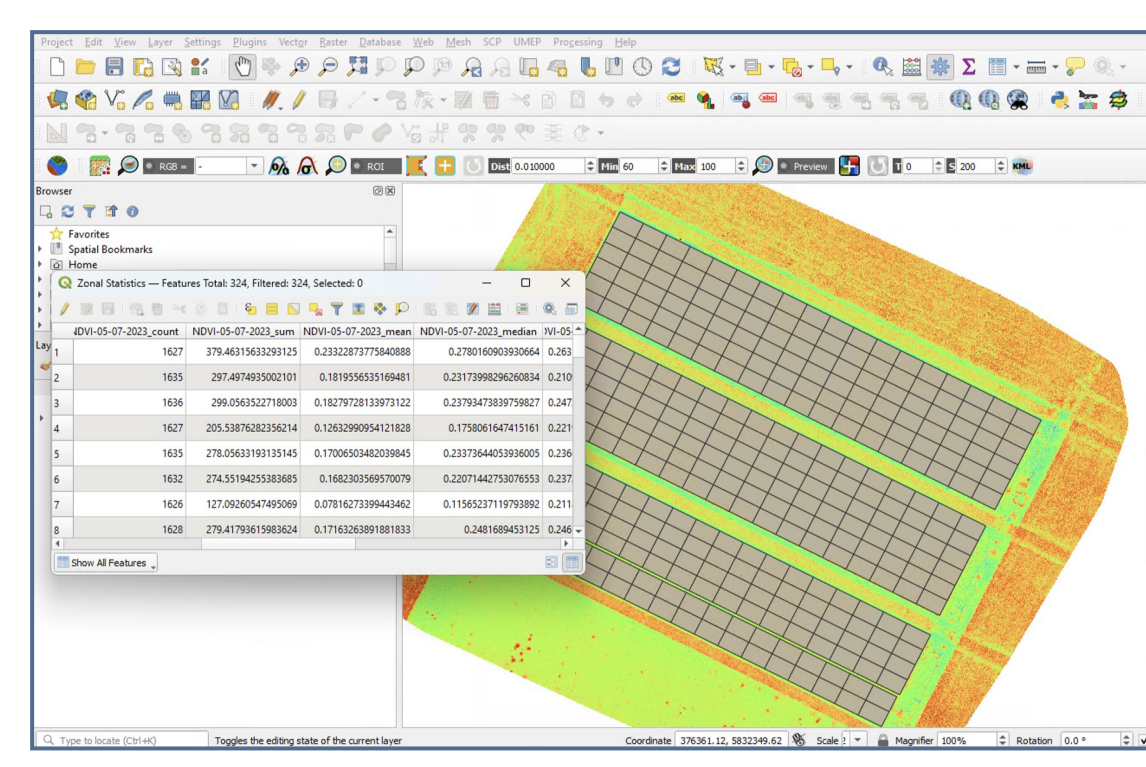
Obtaining an **orthomosaic** image is just the first step, you still need to transform it into **valuable data** and visualisations. DEDAL-lab is designed for this purpose. You can either set up your local FIELDimageR.Extra environment or request access to a virtual RStudio lab hosted on our infrastructure, preloaded with all the necessary packages and libraries for seamless analysis.




### QGIS Integration

Another option to extracting valuable data is through QGIS, where orthomosaics can be used to calculate key metrics, such as the average NDVI for each plot.



### HighGround Plugin

The HighGround QGIS plugin, built at the JIC by Rob Ellis, provides an easy method for extracting canopy height from a DEM. Currently under development.






### AI Integration

Ongoing work aims to expand DEDAL's capabilities by incorporating AI models such as YOLO for phenotyping tasks, including yield estimation and disease scoring.





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 NBI Research Computing and Core Computing Teams, Sarah Brookes, Dr Alba Pacheco Moreno.  
 OpenDroneMap Authors ODM – OpenDroneMap/ODM GitHub Page 2020;  
<https://github.com/OpenDroneMap/ODM>  
 Pawar P & Matias FI.\* FIELDimageR.Extra. The Plant Phenome J. 2023;  
<https://doi.org/10.1002/ppj2.20083>

