



Merced Vernal Pools & Grassland Reserve

Student Success Internship

Zachary Silva, Student Intern

Joy Baccei & Brandon Stark, Supervisors



Background

Results

Contents lists available at ScienceDirect

Remote Sensing of Environment

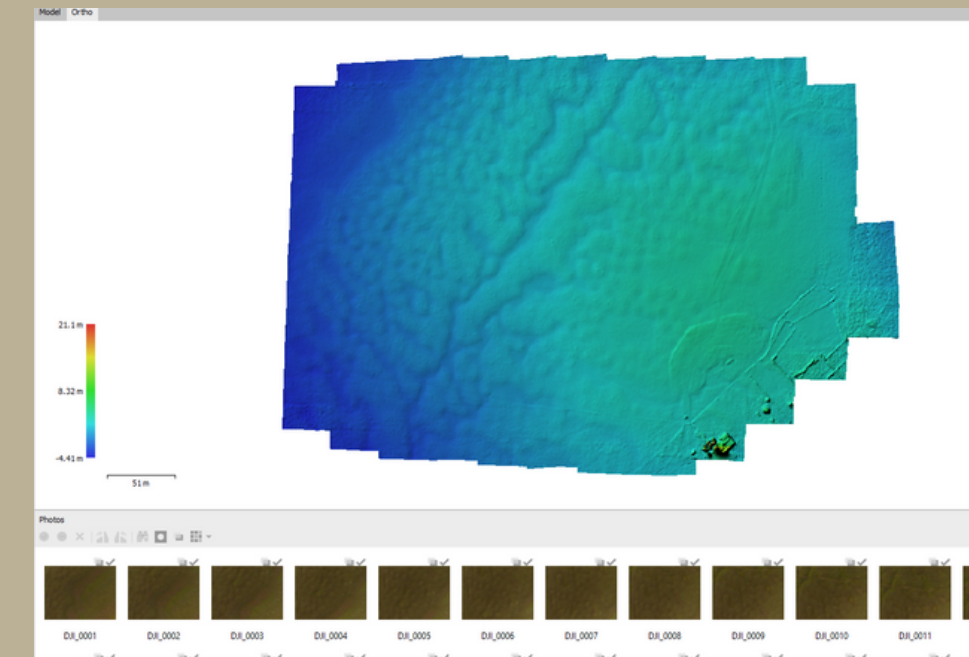
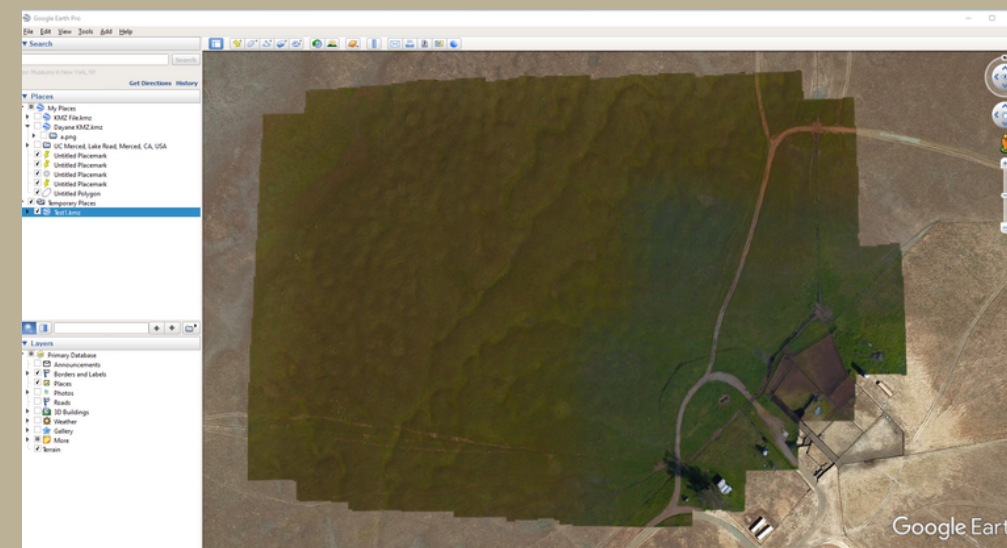
journal homepage: www.elsevier.com/locate/rse

ELSEVIER

Machine learning estimators for the quantity and quality of grass swards used for silage production using drone-based imaging spectrometry and photogrammetry

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higher soil moisture because lower slope positions receive runoff and throughflow from upper hillslope positions. IC values are positively related to PAR with higher PAR leading to higher biomass when plants are not water stressed. However, when water is limited, high PAR could contribute to lower biomass production (i.e., greater plant water stress). The maps also captured human disturbance on biomass production, such as the road having very low biomass compared to the surrounding area.

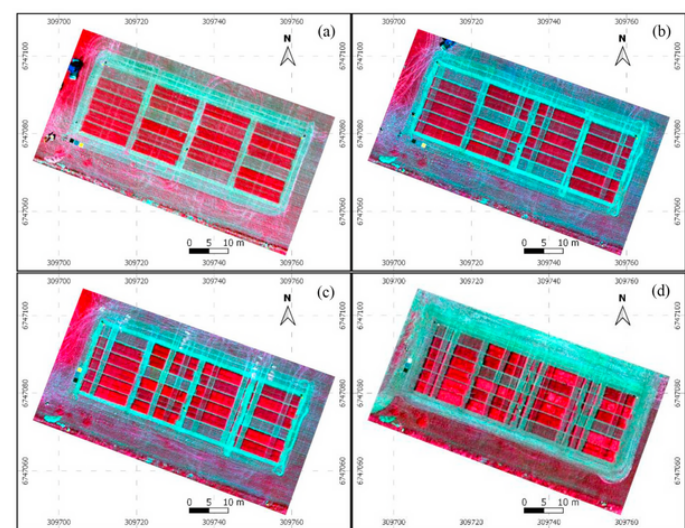


Fig. 5. Orthomosaics for the datasets of the training data site of the primary growth experiment for datasets (a) PG_TR_20170606, (b) PG_TR_20170615, (c) PG_TR_20170619, (d) PG_TR_20170628. Bands: 29 (790.85 nm), 17 (656.34 nm), 6 (545.62 nm).

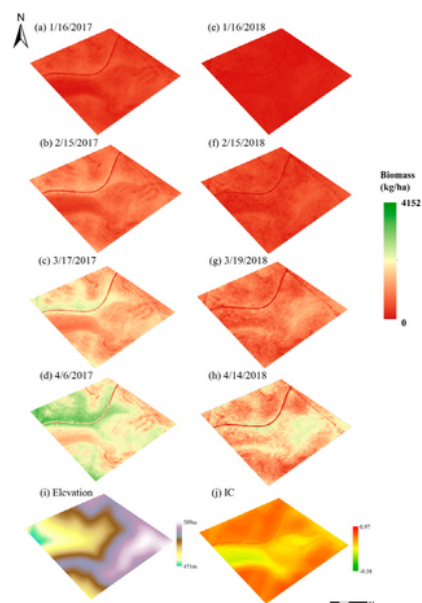
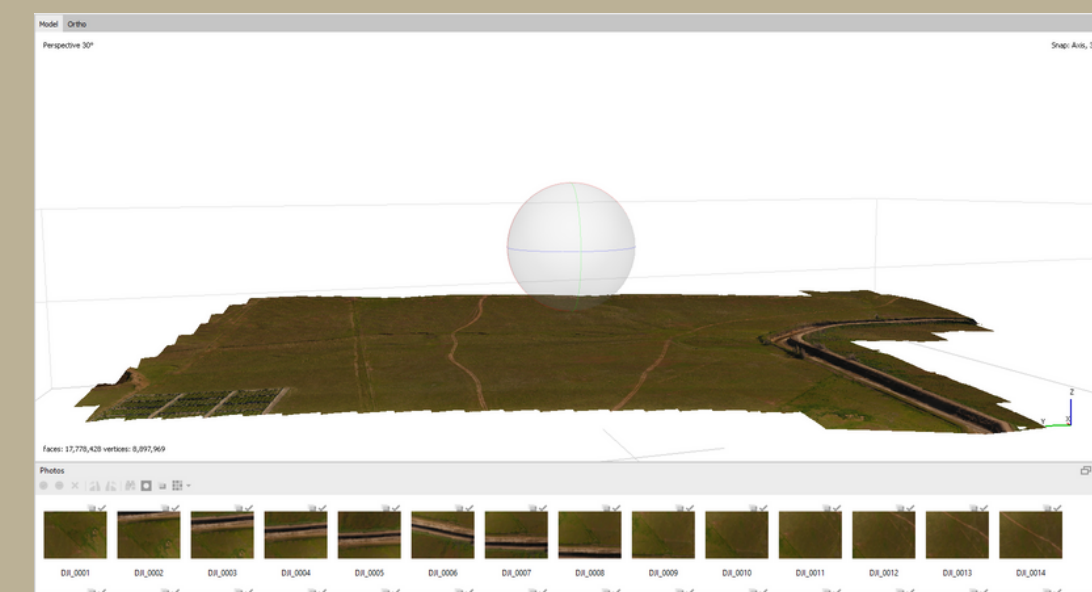
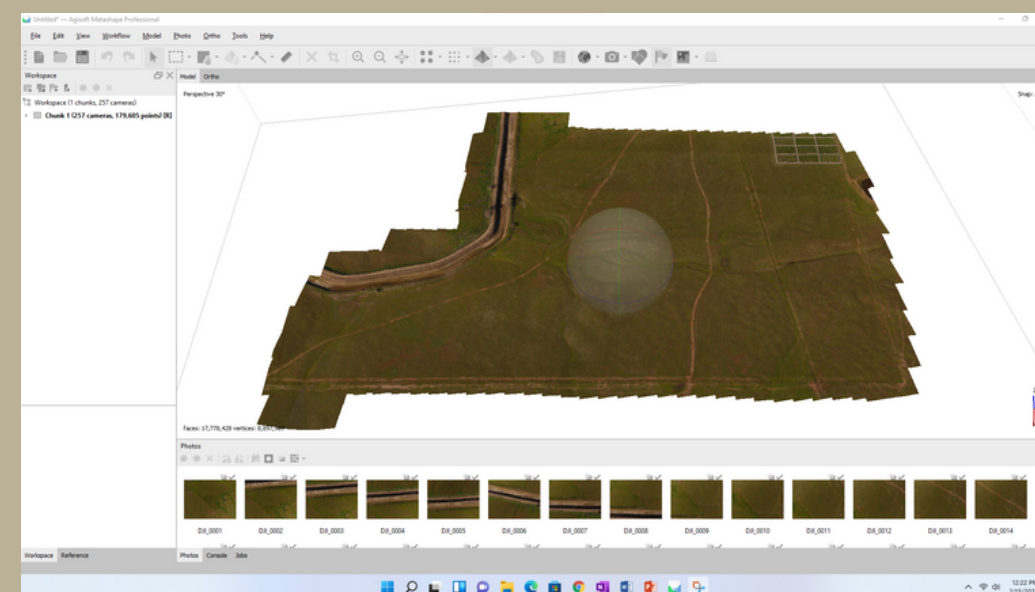
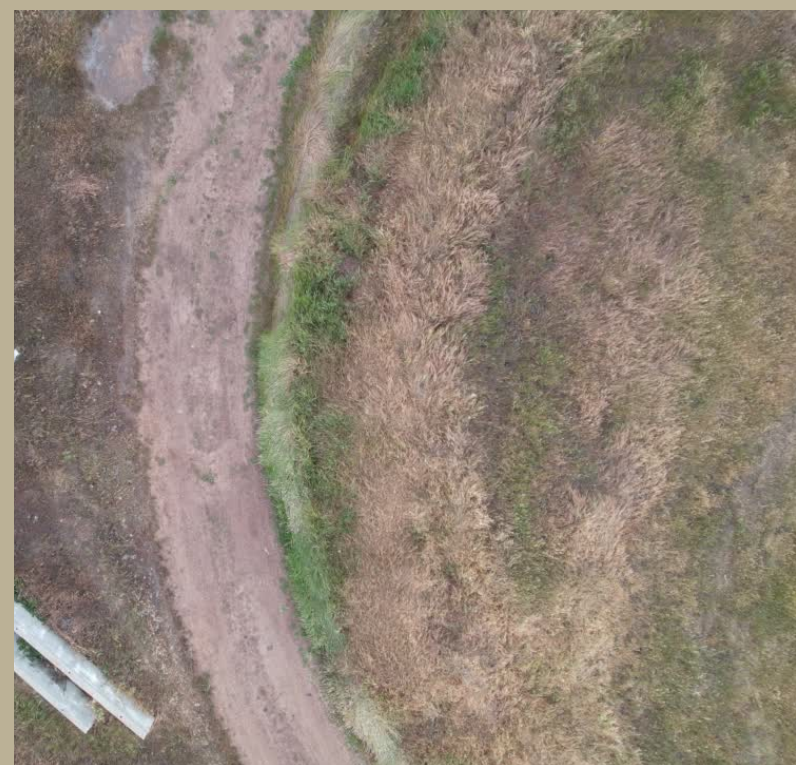
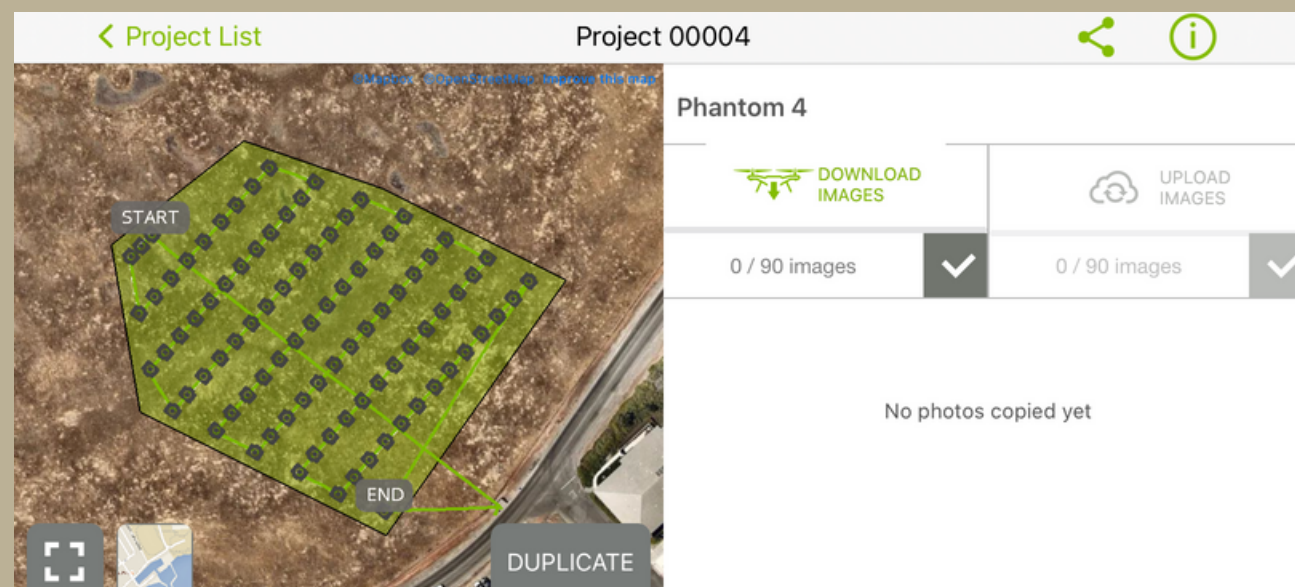
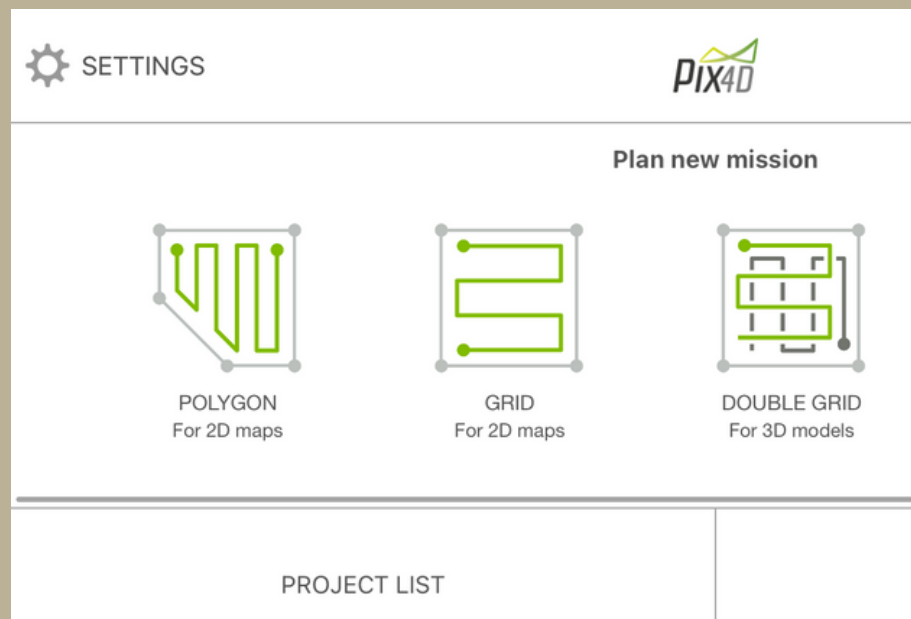


Figure 10. Spatial distribution of the estimated biomass on days of sUAS flights during 2017 and 2018 growing seasons (a-h). Also shown are elevation (i) and illumination condition (IC) maps (j).



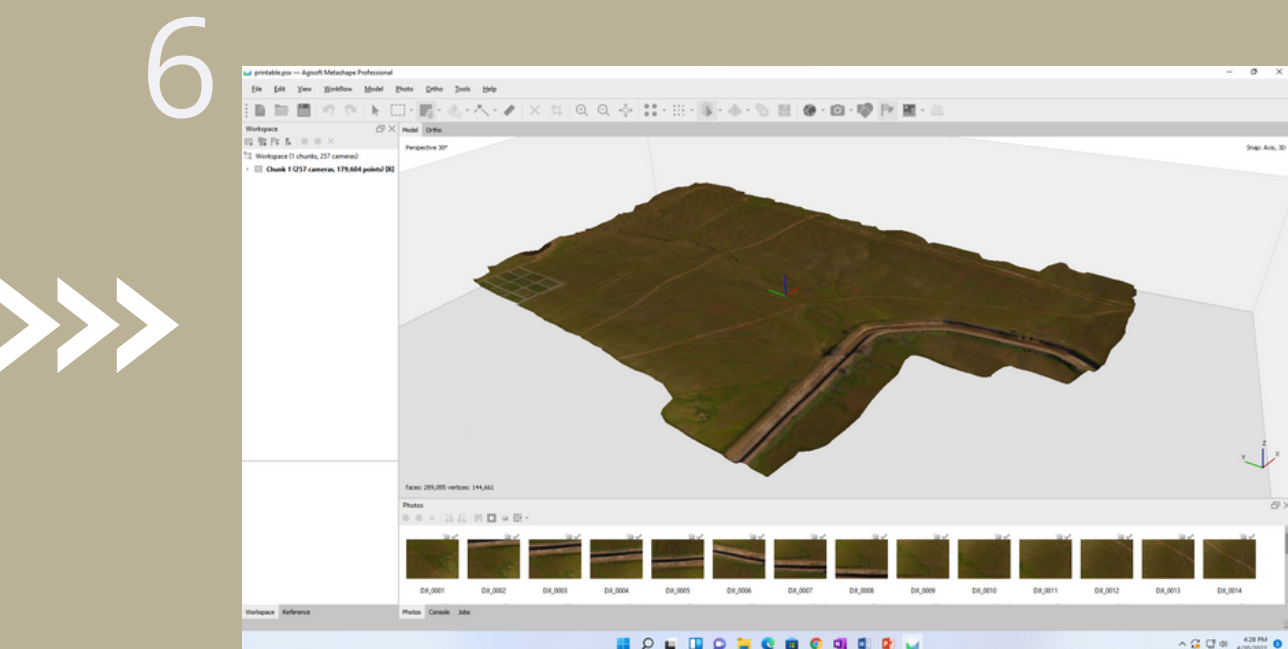
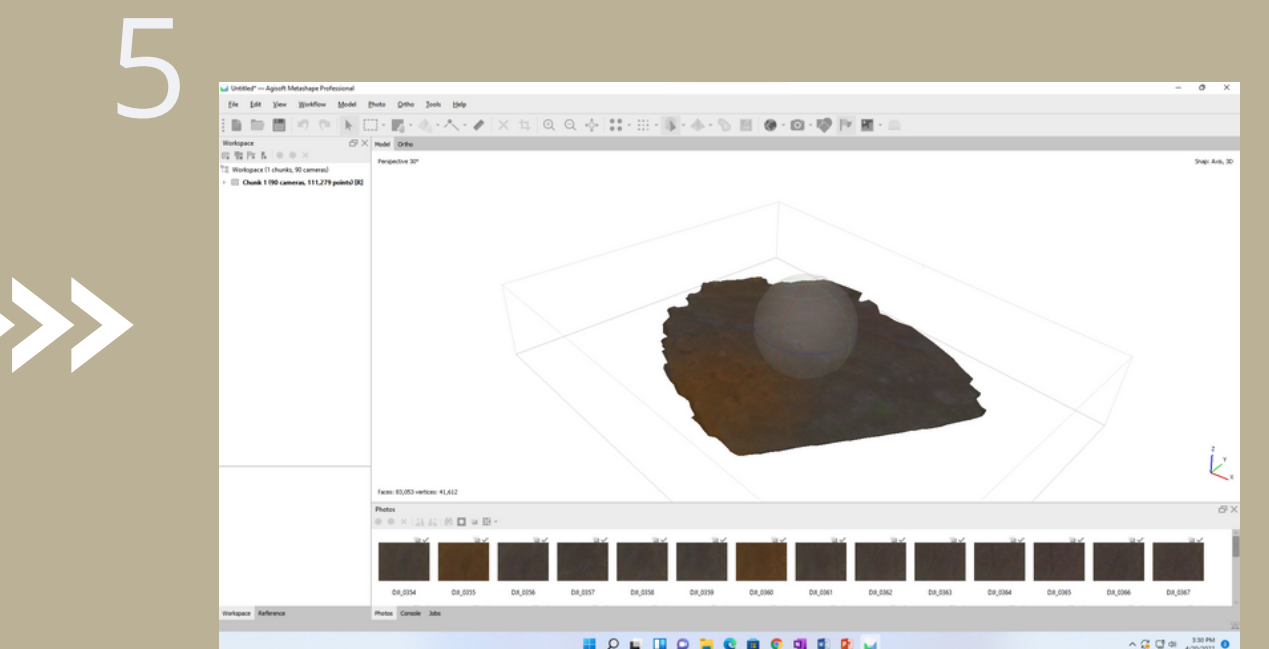
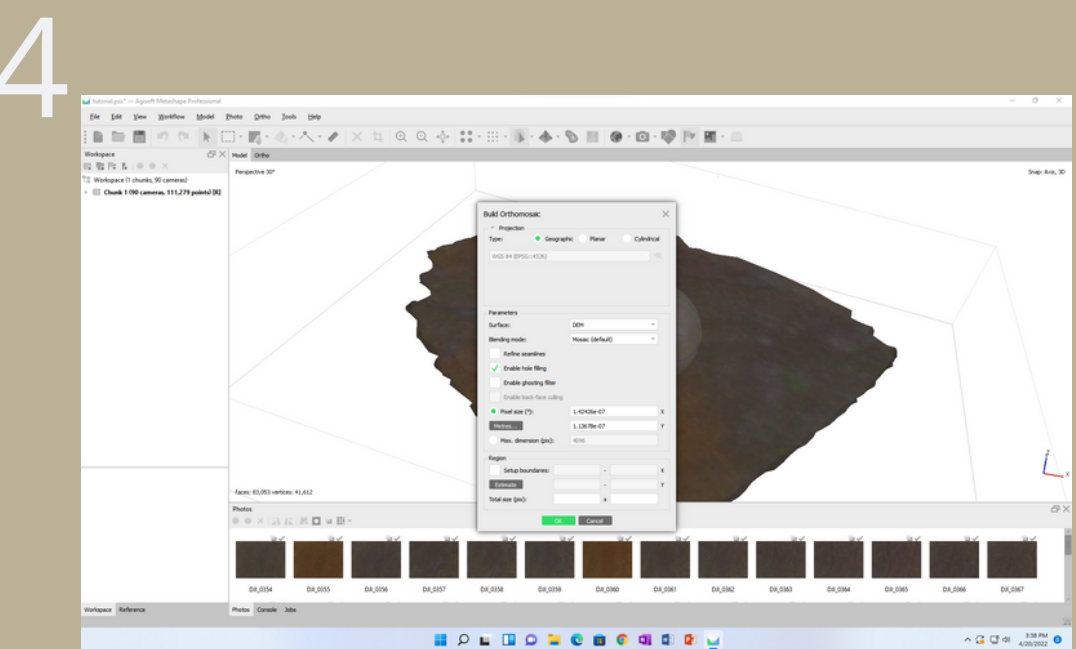
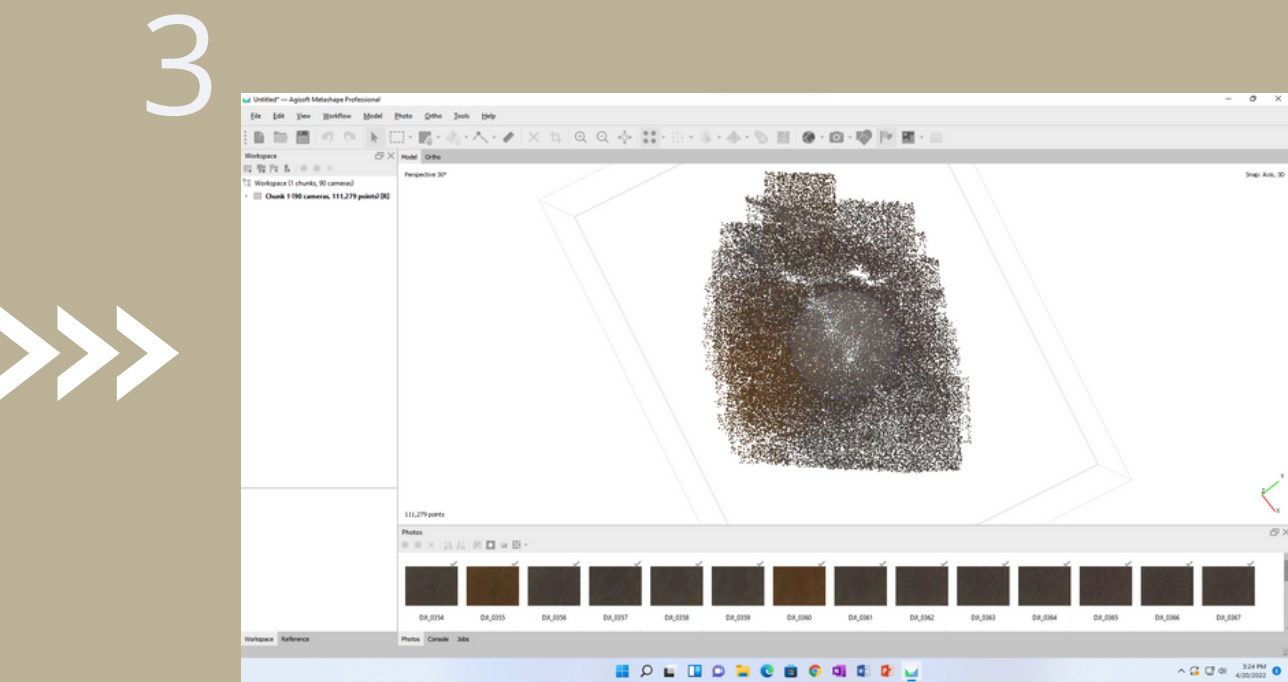
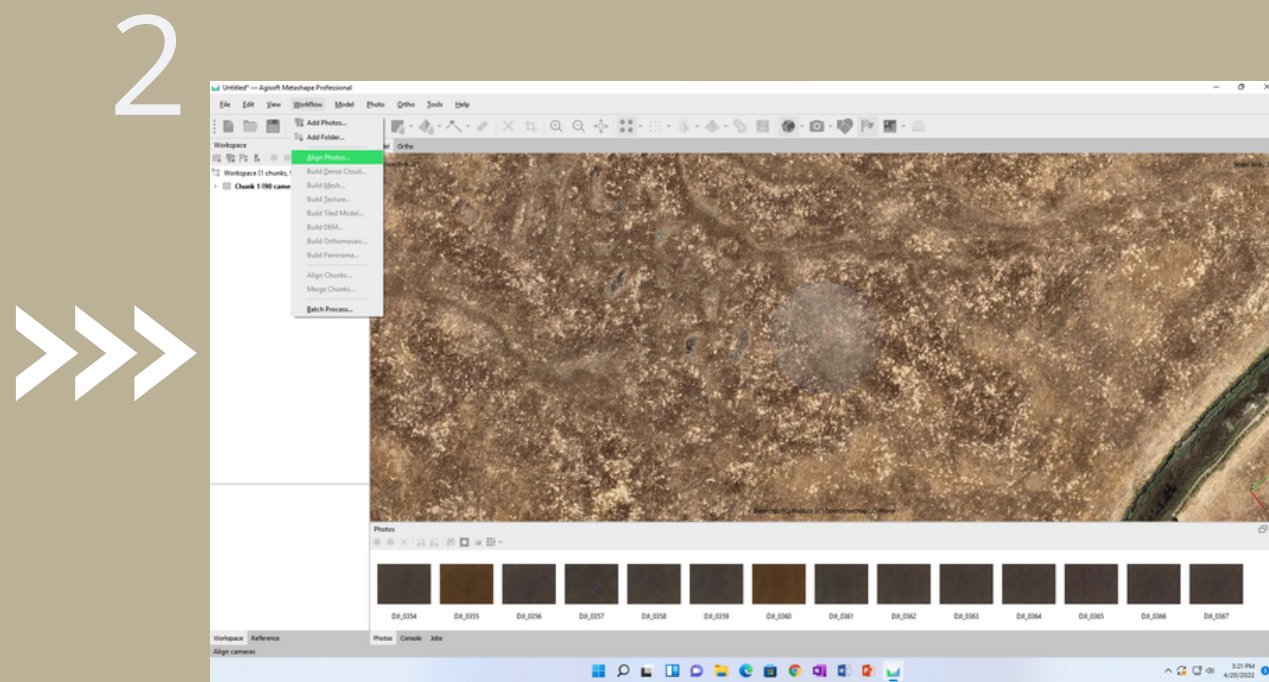
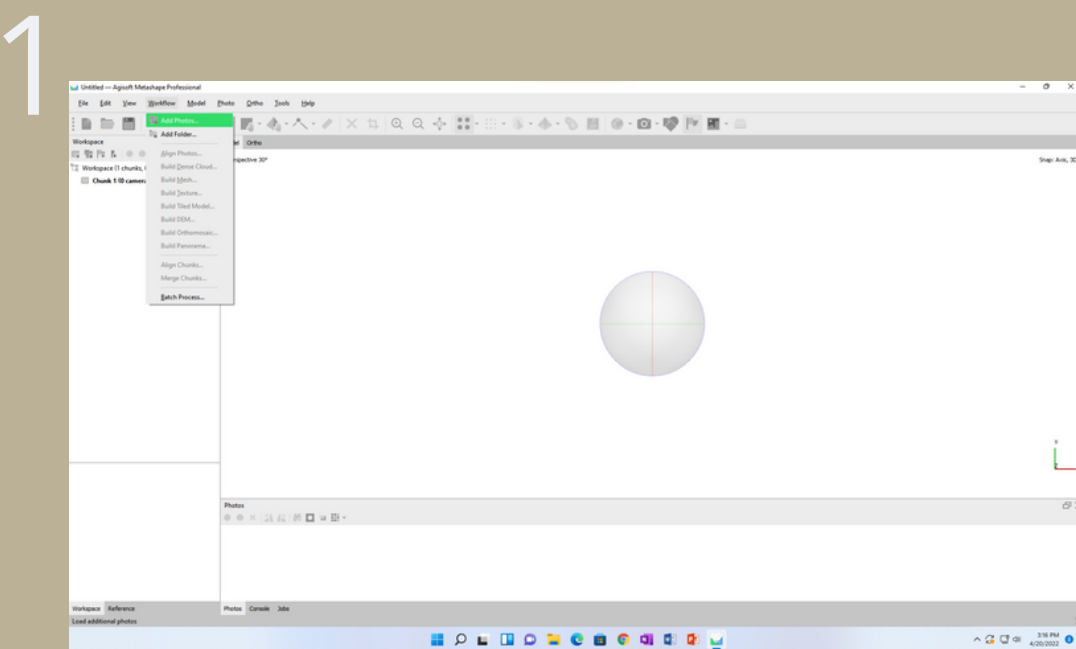


Drone Preparation & Flight





Agisoft Metashape





Next Steps

Multi-spectral Surveying Camera

Images from the MAPIR Camera

