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EARTH IMAGERY FOR IMPACT

Dataset Documentation

Dataset Name: Rwanda Field Boundary Competition Dataset

Description

This dataset contains field boundaries for smallholder farms in eastern Rwanda. The Nasa Harvest program funded a team of annotators from TaQadam to label Planet imagery for the 2021 growing season for the purpose of conducting the Rwanda Field boundary detection Challenge. The dataset includes rasterized labeled field boundaries and time series satellite imagery from Planet's NICFI program. Planet's basemap imagery is provided for six months (March, April, August, October, November and December). The paired dataset is provided in 256x256 chips for a total of 70 tiles covering 1532 individual fields.

Input imagery consists of a time series of planet Basemaps from the NICFI program (monthly composite) data.

Citation

NASA Harvest, Radiant Earth Foundation, & TaQadam. (2022). Rwanda Field Boundary Competition Dataset (Version 1.0) [Data set]. Radiant MLHub. https://doi.org/10.34911/RDNT.G580WW

License

Creator

NASA Harvest

Contact

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Location and boundaries

Overall Location Method

- ☐ Ground collection only
- ☐ Ground collection with boundary drawn using imagery
- ☐ Ground collection with spatial buffer added
- ☑ Boundary drawn from imagery
- ☐ Other _____
- ☐ Unknown

GeoLocation Device

- ☐ Industrial grade GPS (List model) _____
- ☐ Retail grade GPS
- ☐ Mobile Phone GPS
- ☐ N/A
- ☐ Unknown

Ground Boundary Method (Details explained in Appendix A)

- ☐ Live/Continuous point capture of walk-around
- ☐ Manual point capture of walk-around
- ☐ Manual point capture of polygon boundaries (not whole field)
- ☐ Manual point capture for later image annotation
- ☐ Manual point capture for spatial buffer within field
- ☐ Manual point capture while looking at but not in field, with heading recorded
- ☐ Other _____
- ☐ Unknown

Imagery used (Skip if no imagery used)

Sensor: _____

Date(s): _____

List scenes used in Appendix B

Imagery Annotation methods

- ☐ Boundaries drawn based on a single ground point captured
- ☐ Boundaries drawn/edited based on multiple ground points captured
- ☐ Buffer validated from ground point captured
- ☑ Boundary drawn without ground reference data (Include description of methods in Appendix C)
- ☐ Pixels annotated without ground reference data (Include description of methods in Appendix C)
- ☐ Unknown

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Boundary inclusion

- [x] Captured polygon includes the entire field/area
- [ ] Captured polygon includes only a sample of the field/area
- [ ] N/A

Classification

Classification Type

- [ ] Land cover
- [ ] Crop type
- [x] Other : Field Boundary

Classes/fields used

Describe in Appendix D

Ground Referenced Classification

- [ ] Observation (Describe methods of determination in Appendix E)
- [ ] Survey/interview with land holder (Describe methods in Appendix E)
- [ ] Other (Describe methods in Appendix E)

Image Referenced Classification

Describe methods used in Appendix C

Data Properties

Property name	Property Description	Parameters/Allowed responses (optional)
ref_rwanda_fieldboundary_competition_v1_labels_train_{chip_id}.tif / Band 1	*The label tifs have a single band of data type Byte, indicating whether the pixel is a field boundary.*	*(0 = no field boundary, 1 = field boundary)*

Appendix A: Describe the method of geographic ground data collection

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Appendix B: List imagery scenes used for annotation (ideally also included in metadata)

Appendix C: Describe how boundaries and classes were determined without ground reference data

Field boundaries were labeled on Planetscope Basemap imagery from March, April and August 2021 by TaQadam. Only fields that were big enough to be differentiated on the Planetscope imagery were labeled, only fields that were fully contained within the chips were labeled.

Appendix D: List all top-level classes or the classification guidance used

Appendix E: Describe methods for determining classes based on direct/ground observation

Include any additional information/extra space as Appendix F+