

ePaddocks™ – Boorowa Demo Product

Last modified by Franz Waldner on 5/08/2020

Data licence and access rights

See the Data Licensing document for the full terms and conditions.

Background

1. CSIRO is the owner of the Data.
2. The Recipient has requested access to the Data and CSIRO has agreed to provide access to the Data on the terms set out in this Agreement.

Permitted use

1. The Data may only be used for the Recipient’s internal purposes, which excludes using ePaddocks data for developing a competitive product.
2. The Data cannot be distributed or sub-licensed to partners or other third party organisations without the expressed written consent of CSIRO.
3. The Recipient may visually display paddock boundaries and agricultural classifications contained within the Data to its customers via its own proprietary software platform.
4. Any personal information provided with the Data will comply with the requirements of the Privacy Act 1988 (Cth).

Summary

ePaddocks™ retrieves paddock boundaries across the grain zone using deep-learning and image segmentation. The deep-learning model is applied to all the cloud-free Sentinel-2 images available for a season and its predictions are averaged across acquisition dates. The product has thus a resolution of 10-m. For storage and ease-of-use purposes, boundaries have been simplified with a tolerance of 10 m. For more details about the methods, refer to Waldner and Diakogiannis (2020) and Diakogiannis *et al.* (2020).

Spatial and Temporal extents

Item	Detail
Spatial resolution (metres)	10 (simplified with a 10 m tolerance)
Spatial coverage (metres)	1500031,-3872514 : 1536973,-3849544
Feature count	2,881
Temporal resolution	2019
Temporal coverage	April-November
Sentinel-2	Sentinel-2A/B Multispectral Imager

Item	Detail
Spatial representation type	Polygons
Spatial reference system	Australian Albers. EPSG:3577

Attributes

Attribute	Type	Detail
raster_val	Integer 64	Unique field identifier
sem_unc	Real	Semantic uncertainty. Characterises the algorithm confidence to detect a paddock.

Attribute	Type	Detail
ins_unc	Real	Instance uncertainty. Characterises the algorithm confidence to delineate an individual paddock.
area_ha	Real	Area of the paddock (in hectares) before simplification.

Point of contact

Item	Detail
Name	Alexander Bunday
Organisation	CSIRO, BD&C
Email	alexander.bunday@csiro.au
Role	Product Manager
Address	Synergy building, Black Mountain, ACT 2601
Telephone	+61 2 6218 3701

Credit

- Commonwealth Scientific and Industrial Research Organisation
- ESA Copernicus Sentinel Program

References

Item	Detail
Publication	Waldner, F., & Diakogiannis, F. I. (2020). Deep learning on edge: extracting field boundaries from satellite images with a convolutional neural network. <i>Remote Sensing of Environment</i> , 245, 111741.
Publication	Diakogiannis, F. I., Waldner, F., Caccetta, P., & Wu, C. (2020). Resunet-a: a deep learning framework for semantic segmentation of remotely sensed data. <i>ISPRS Journal of Photogrammetry and Remote Sensing</i> 162, 94-114.