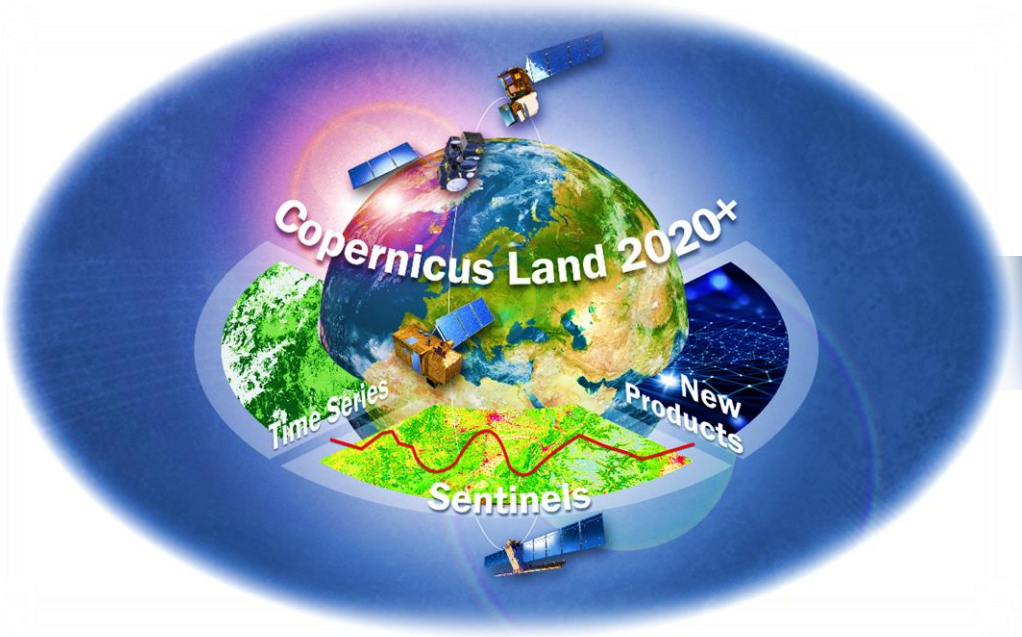


Evolution of Copernicus Land Services based on Sentinel data
3rd EARSeL SIG LU/LC and NASA LCLUC joint Workshop
Wednesday, 11 June 2018
Chania, Crete

ECoLaSS

Horizon 2020
Call - Earth Observation:
EO-3-2016: Evolution of Copernicus services

ECoLaSS: Evolution of Copernicus Land Services based on Sentinel data

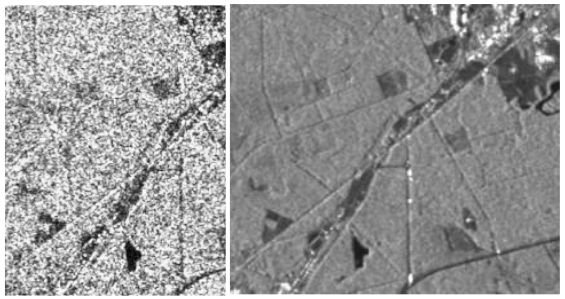
Linda Moser (GAF AG)

Probeck, M., Ramminger, G., Rieke, C., Mack, B., Ickerott, M., Storch, C., Sommer, C., Richter, R., Herrmann, D., Ruiz, I., Kovatsch, M., and Schwab K.

GAFAG SIRS JOANNEUM RESEARCH UCL Université catholique de Louvain DLR

ECoLaSS: "Evolution of Copernicus Land Services based on Sentinel data"

Key Objective = improve existing & develop novel products/services for future operational pan-European & Global Components of the CLMS for 2020+



High volume data processing chains

Impervious-ness

Agriculture

Forest

Grassland

New Products

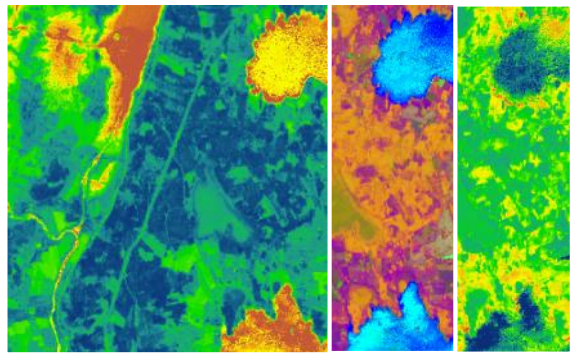
Service Requirements

Methods

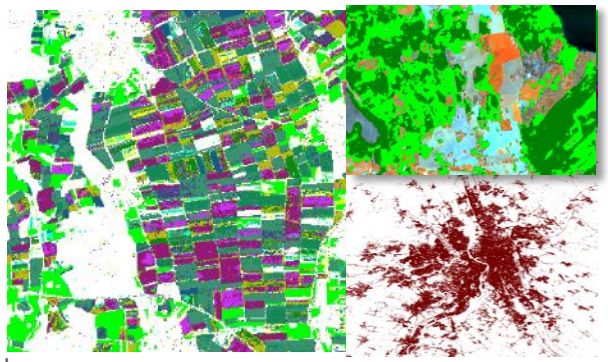
Prototypes

Operationalization

Dense optical+SAR time series classification



Example: AGRI & GRA, FOR, IMP



ECoLaSS

(H2020 Grant Agreement no. 730008)

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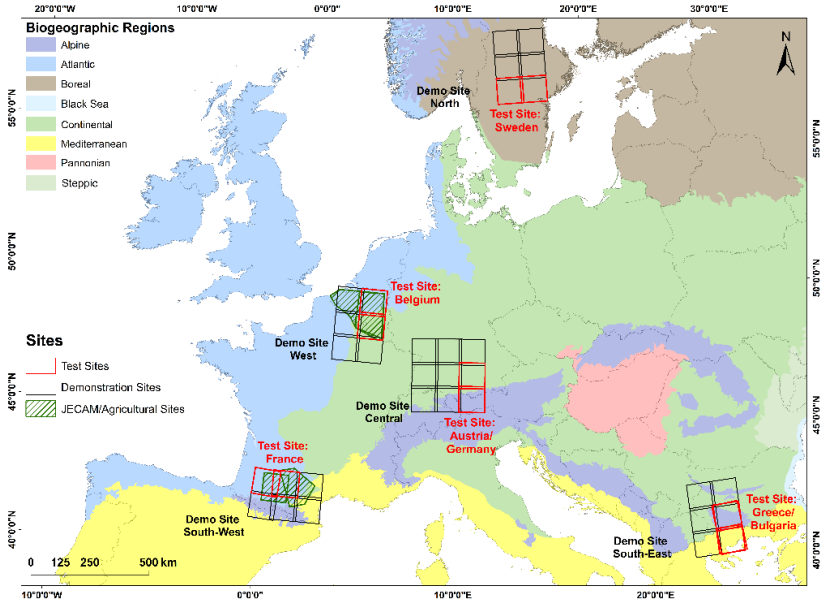


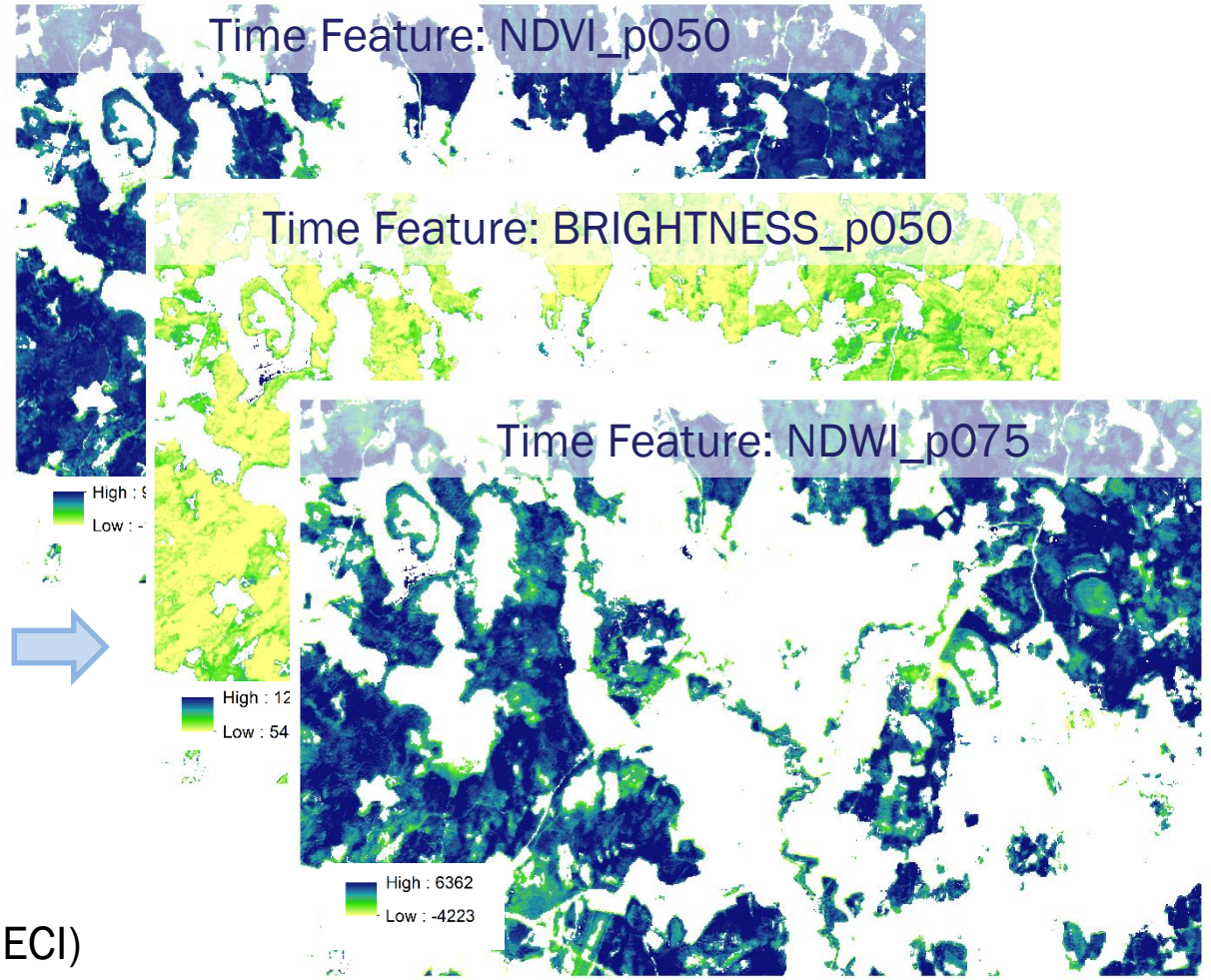
Test- and Demonstration sites in various biogeographic regions.

1) FOREST: Sentinel-2 Time Features (Mar – Aug 2017)

Demonstration Site: North (Subset: Sweden)

S-2, 2017-05-27, R: B08, G: B04, B: B03

S-2 Time Features (2017-03-15 to 2017-06-15)



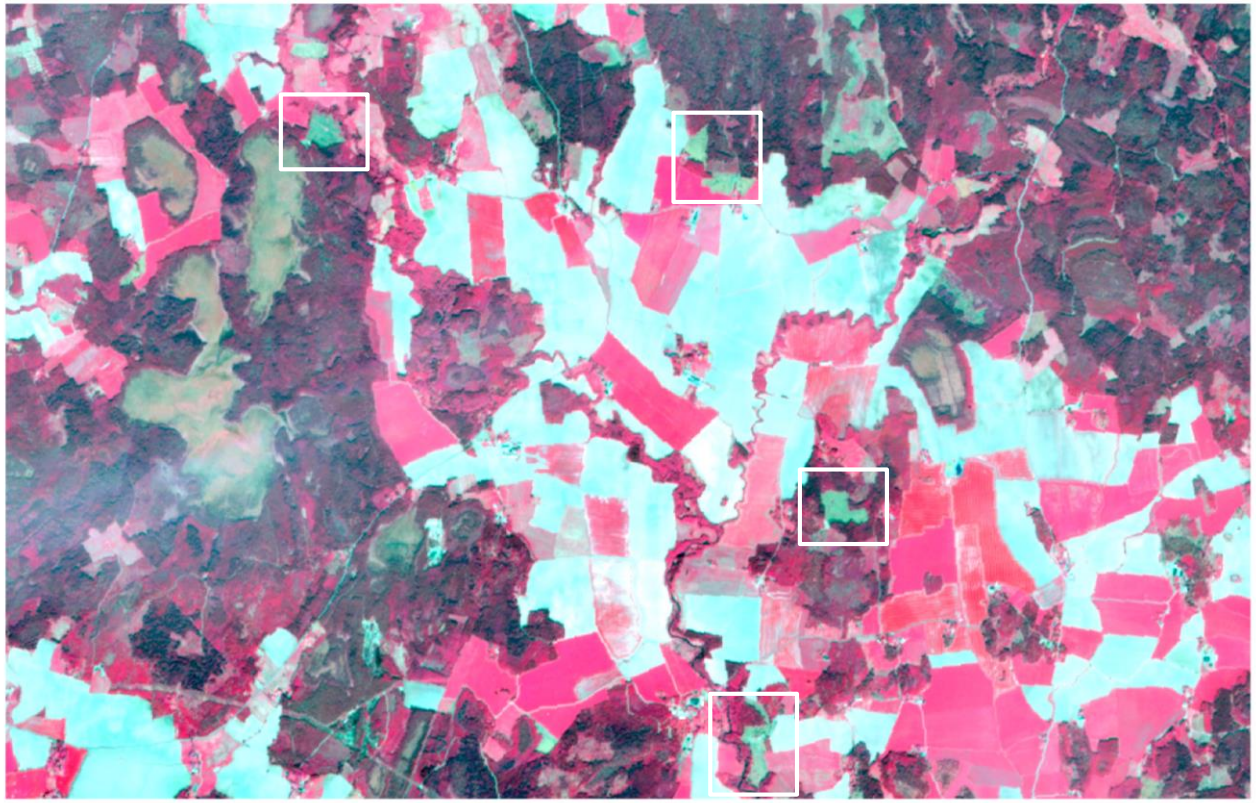
- Input: S-2 bands, S-2 indices (NDVI, NDWI, BRIGHTNESS, IRECI)
- Time interval: Mar-Aug 2017
- 60 Features selected

Produced using Copernicus Sentinel data [2017]

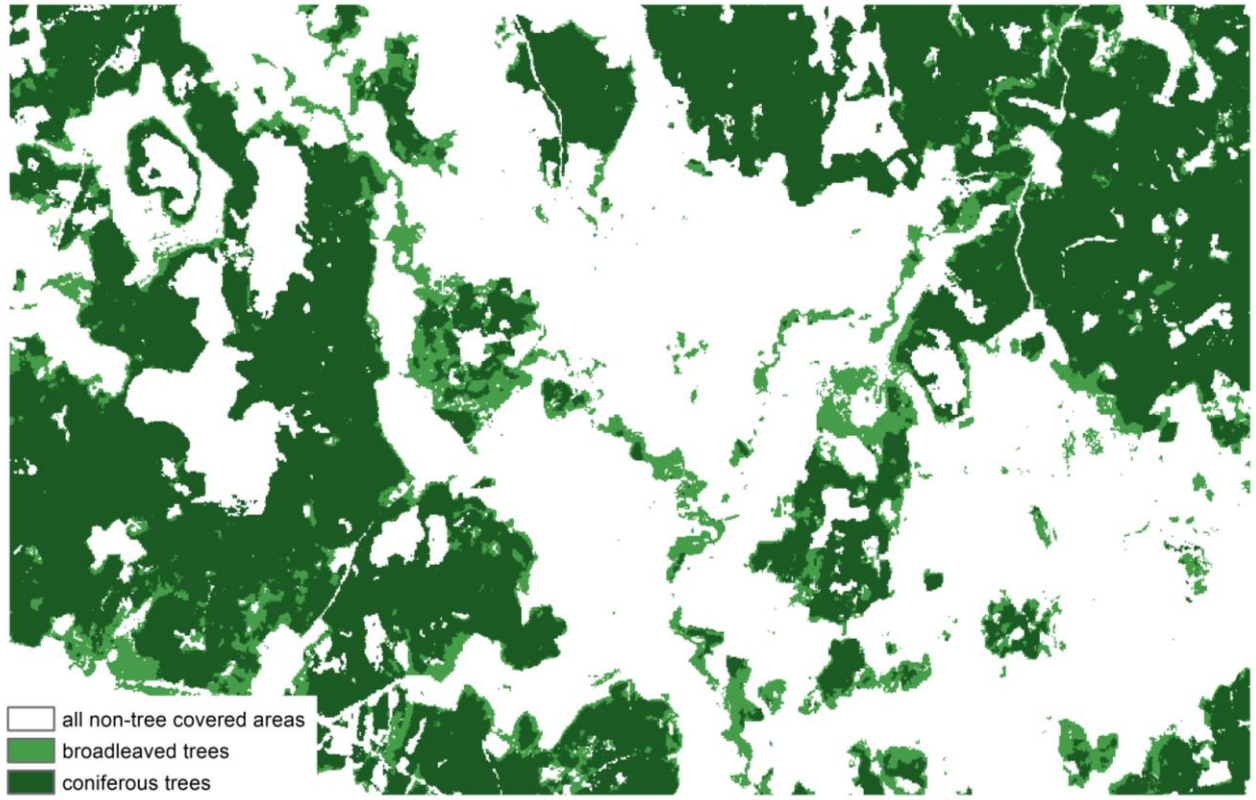
1) FOREST Dominant Leaf Type / Forest Change – Prototype Copernicus HRL

Demonstration Site: North (Subset: Sweden)

S-2, 2017-05-27, R: B08, G: B04, B: B03



Tree Cover: Change 2015/2017



DLT Overall Accuracy (OA) = 97%

DLT Producer's Accuracy = 86-98%, DLT User's Accuracy = 90-99%

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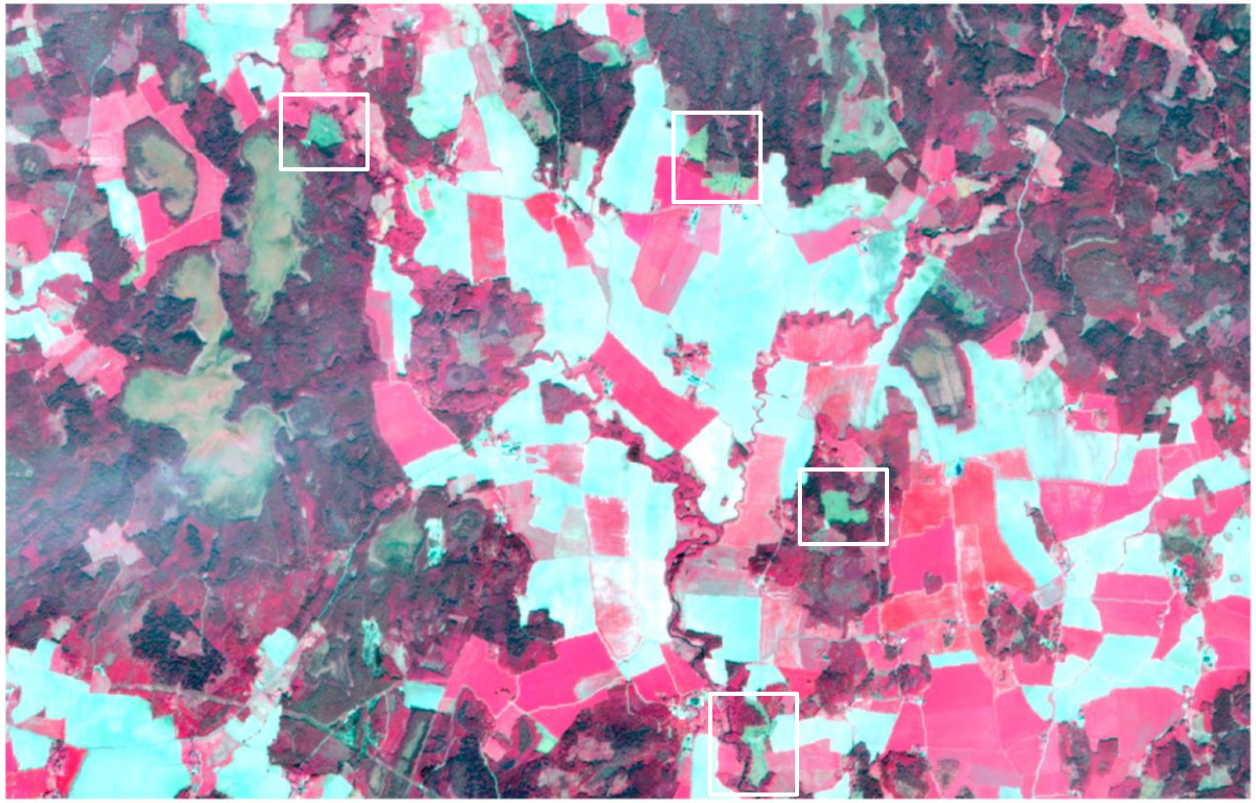

Tree Cover: Change 2015/2017

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DLT Producer's Accuracy = 86-98%, DLT User's Accuracy = 90-99%

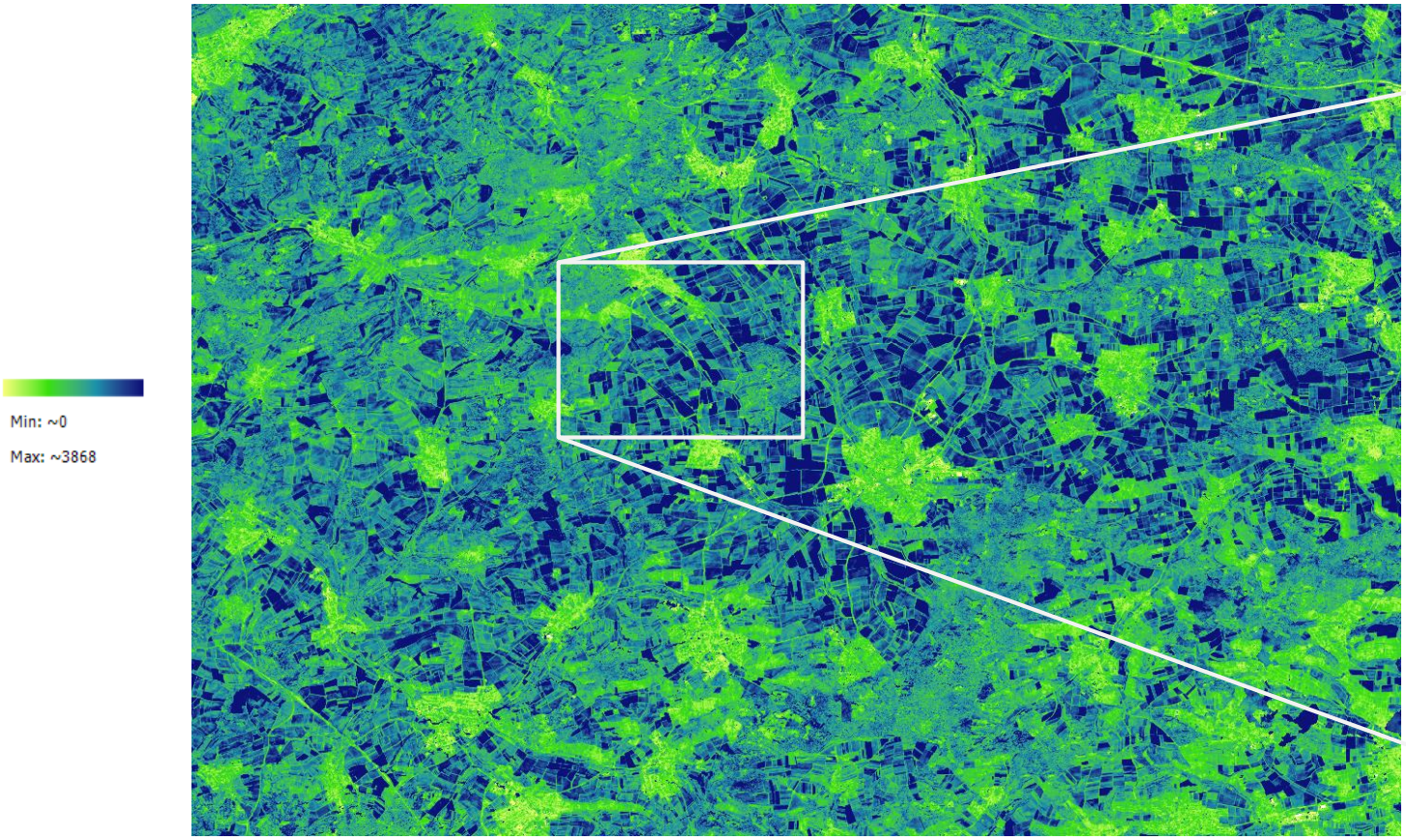
Produced using Copernicus Sentinel data [2017]

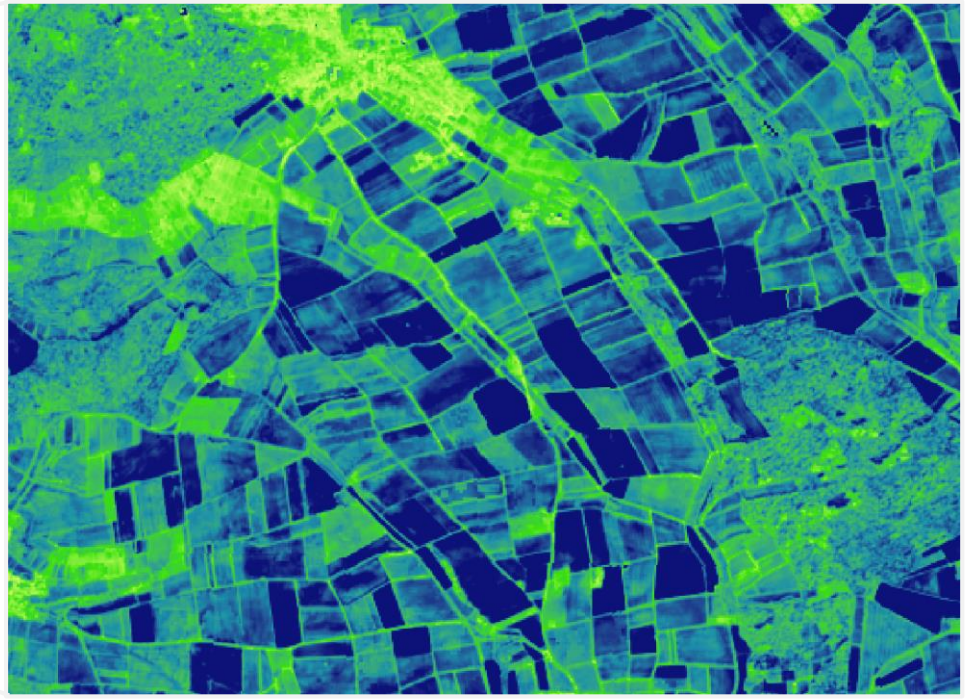
2) AGRICULTURE: Sentinel-1 & -2 Time Featues

Demonstration Site: Central (Subset: Baden-Württemberg, Germany)

S-2, 2017-03-15 to 2017-11-14

Time Feature: B08_std





Input: S-1 bands, S-1 indices, S-2 bands, S-2 indices (NDVI, NDWI, BRIGHTNESS, IRECI)

Time intervals: Mar-Nov and 2-monthly (Mar-May, May-Jul, Jul-Sep, Sep-Nov)

Forward feature selection: 28 selected time features (from ~500)

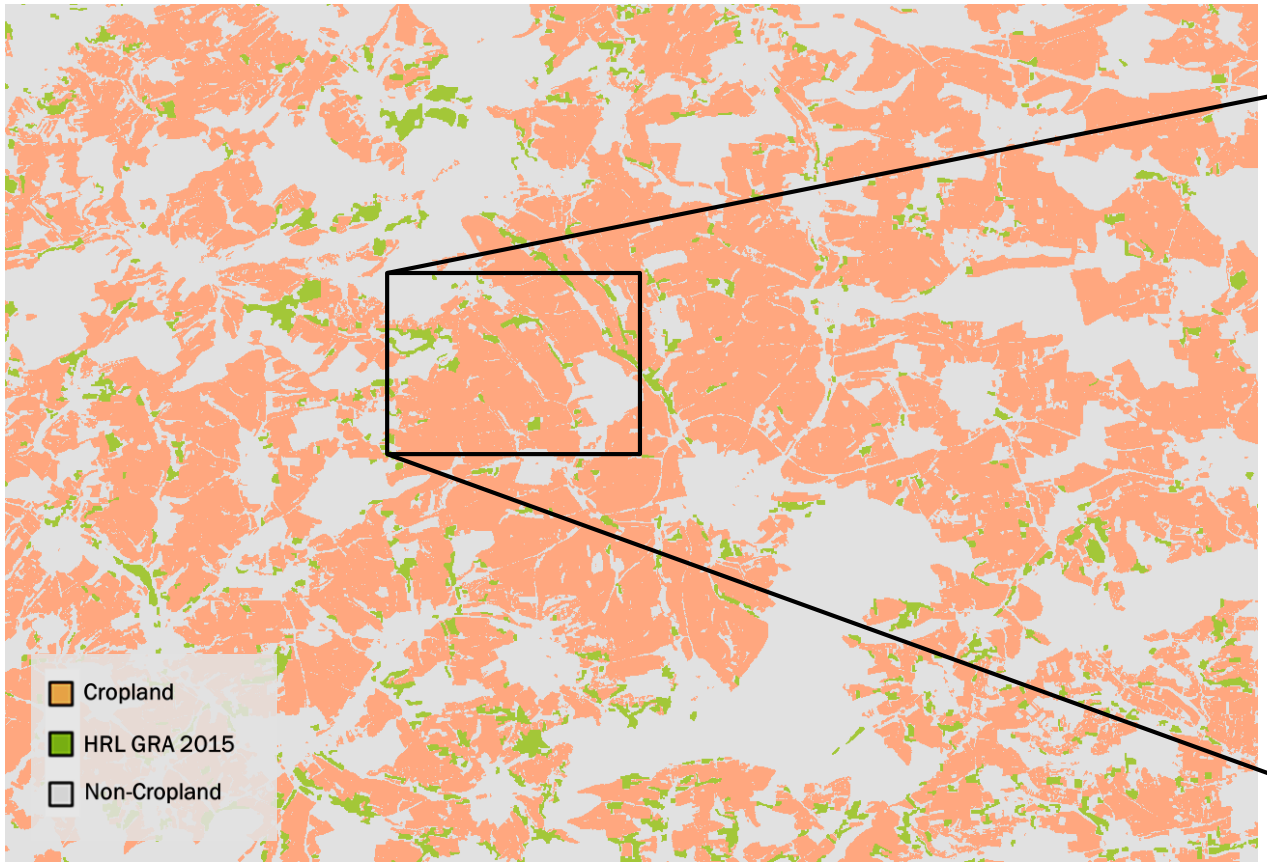
Produced using Copernicus Sentinel data [2017]

Min: ~0

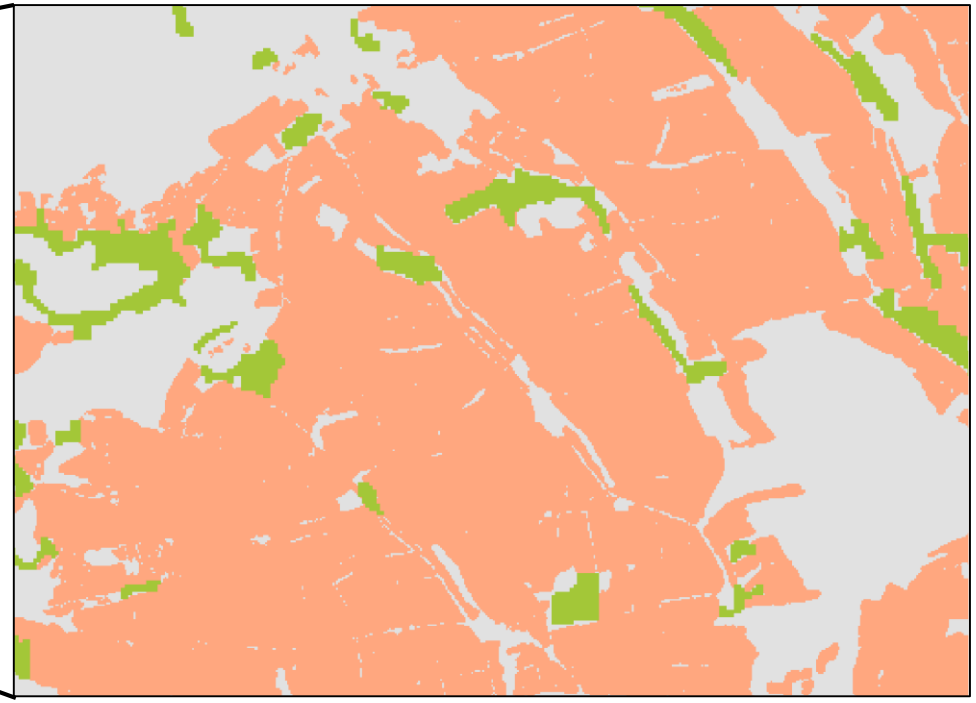
Max: ~3868

2) AGRICULTURE: Crop Mask/Type – Potential future Copernicus Agricultural

Demonstration Site: Central (Subset: Baden-Württemberg, Germany)



Crop Type Map (16 crop types)



Maize (PA=100%, UA=98%), SugarBeets (PA=98%, UA=100%), WinterCrop (PA=100%, UA=96%),WinterRape (PA=100%, UA=100%), SummerRape (PA=15%, UA=54%), Sunfl/Topinamb (PA=20%, UA=85%)

Overall Accuracy (OA) = 93%

Producer's Accuracy = 15-100%

User's Accuracy = 54-100%

LPIS data © MLR BW

Produced using Copernicus Sentinel data [2017]

© European Union, Copernicus Land Monitoring Service 2015, European Environment Agency (EEA).

Min: ~0

Max: ~3868

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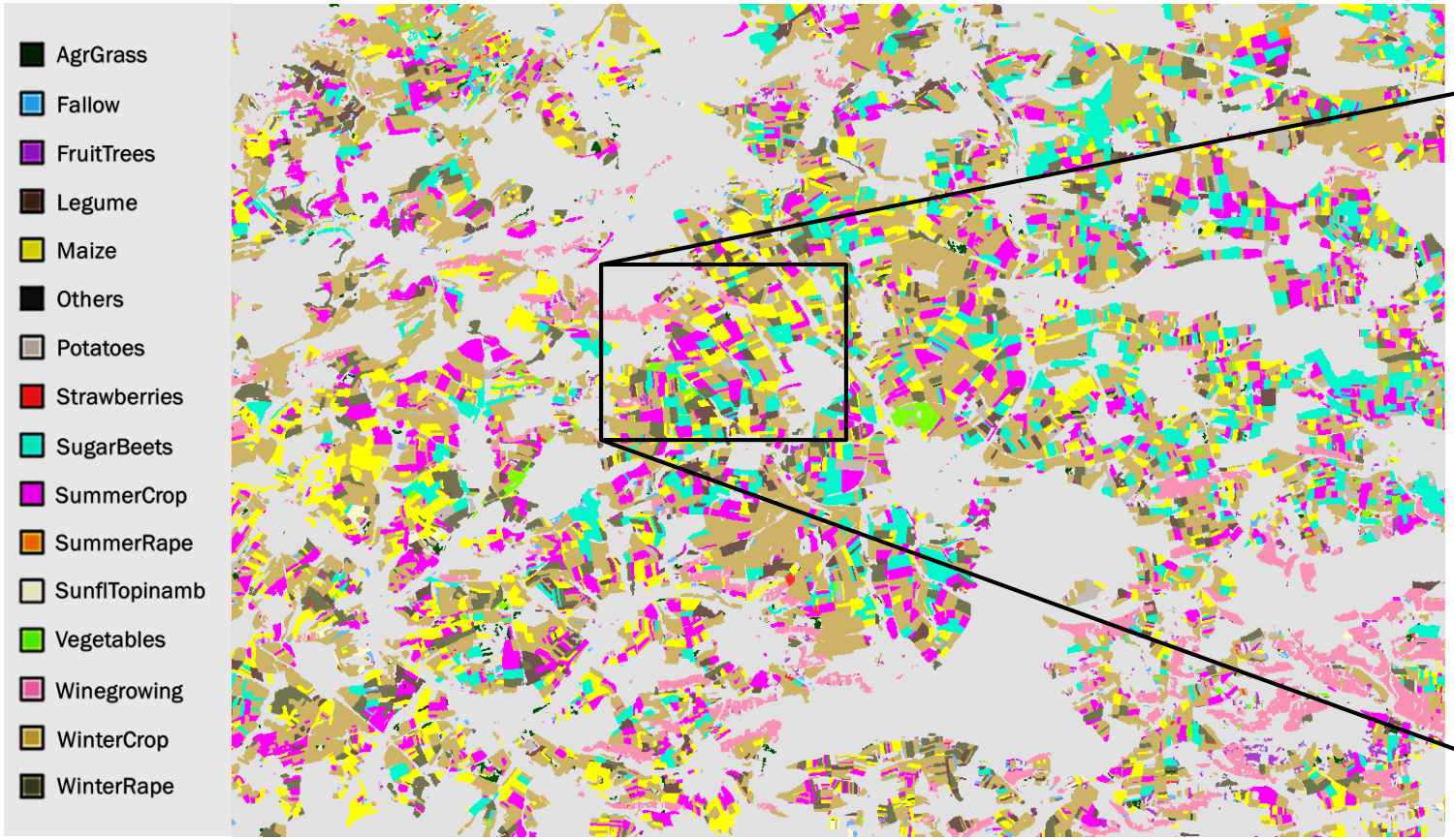

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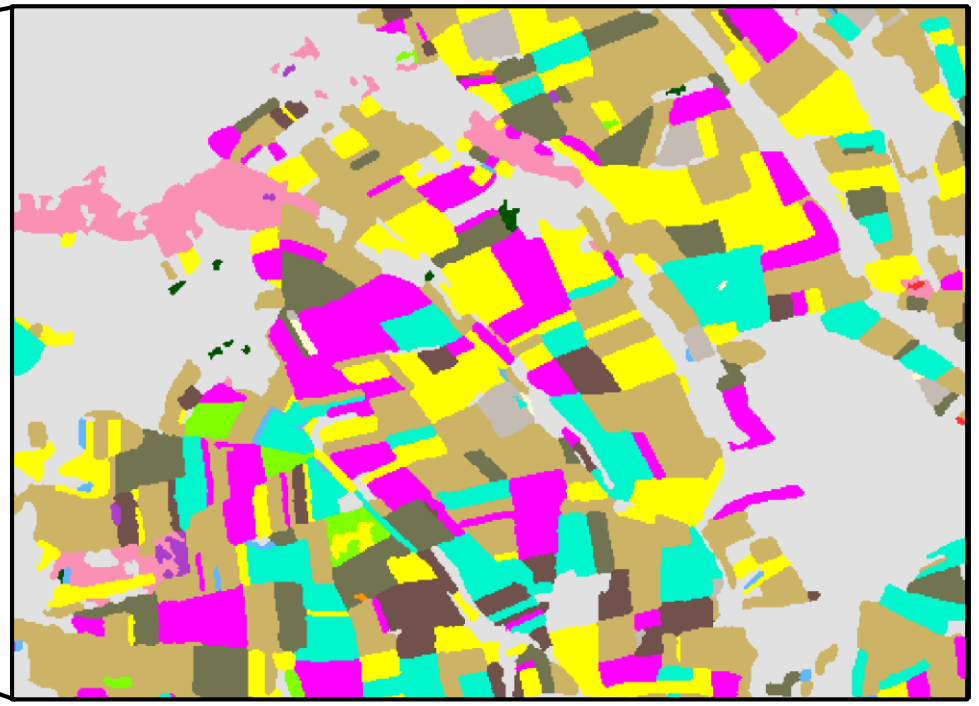

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Thank you on behalf of the ECoLaSS team !!

Contact: linda.moser@gaf.de

(Project Coordinator)

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