



Operationalizing EO for CAP Monitoring: Insights from a Paying Agency's Experience





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OUTLINE

CAP AREA MONITORING SYSTEM

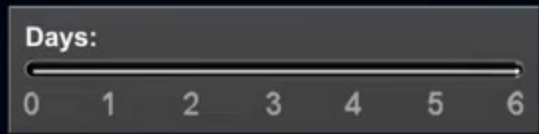
MOBILE APP "NMA AGRO"

HORIZON H2020 (EUROPE) AND OTHER PROJECTS





ES COPERNICUS
SENTINEL-1 and 2
images for free



AMS CAPABILITIES

Land cover



4

Grassland mowing



1

Crop type



18

Follow land tillage



1

Data is updated every 10 days in June-October and is available on the NPA Information Portal at the field level

99% accuracy

Mandatory in the EU from 2023

Satellite data:
Sentinel-1 and
Sentinel-2

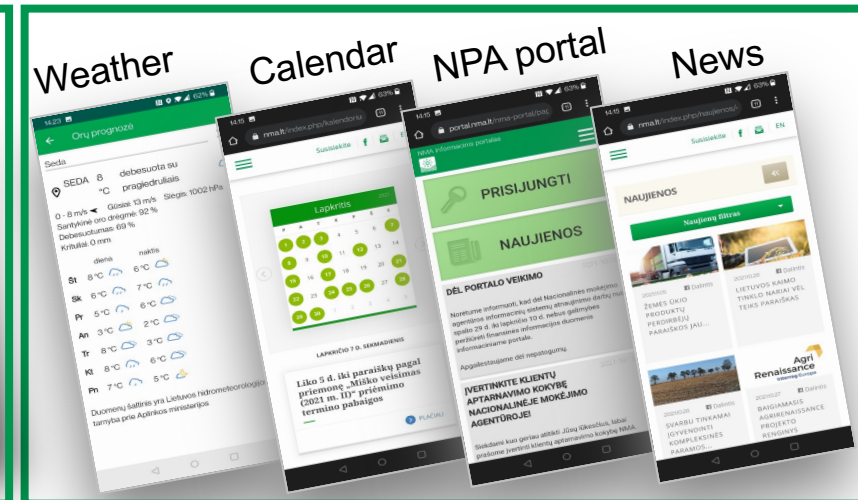
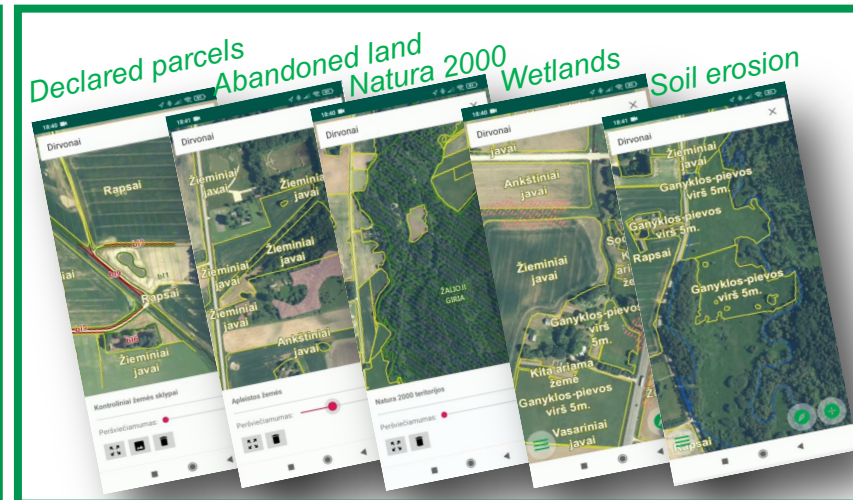
MOBILE APP – NMA AGRO

- ❑ FIRST TIME USE IN 2018
- ❑ 38 000 ACTIVE USERS
- ❑ AVAILABLE LAYERS AND INFO:

Sentinel-2 time series

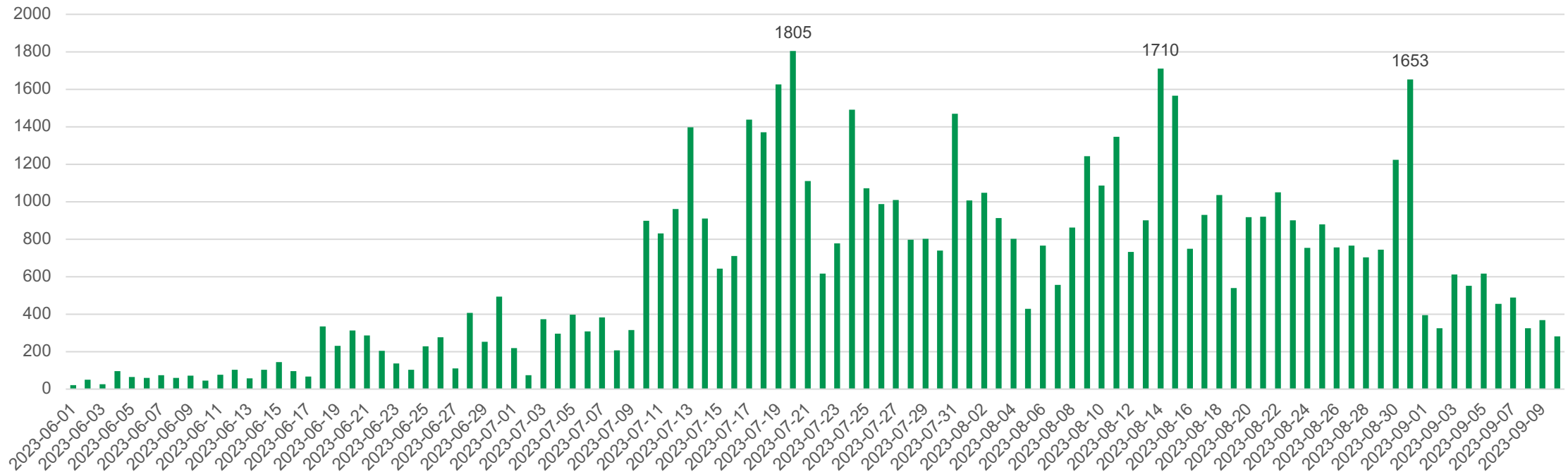
Open data layers

Useful information

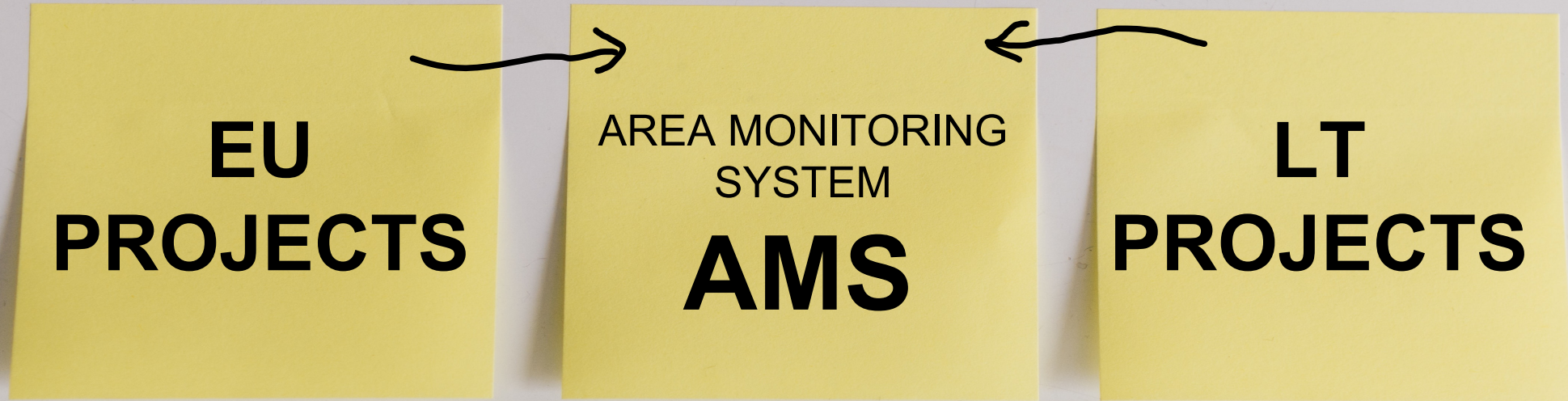


NEW TOOLS NEEDED

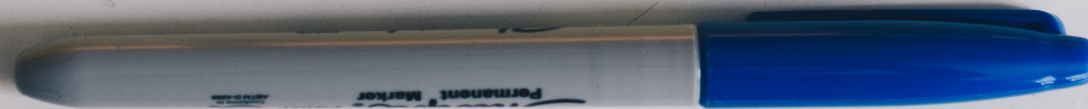
- ❑ 69 384 GEOTAGGED PHOTOS RECEIVED IN 2023
- ❑ AVERAGE 632 PHOTOS PER DAY STARTING FROM 2023-06-01
- ❑ RECORD 1805 PHOTOS PER DAY



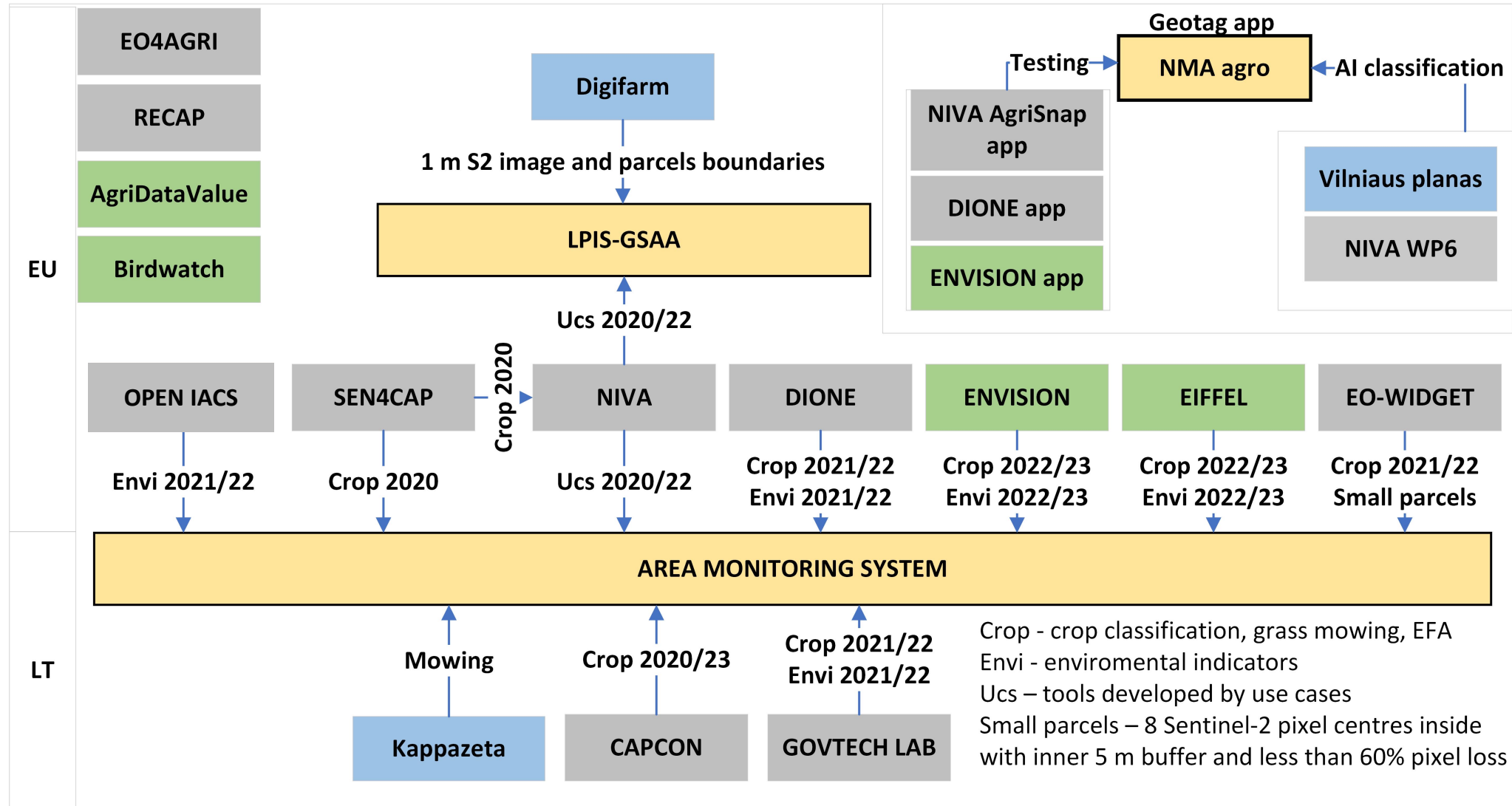
NPA IN PROJECTS



+
Finalized



PROJECTS FOR CAP MONITORING



Crop - crop classification, grass mowing, EFA
 Envi - enviromental indicators
 Ucs – tools developed by use cases
 Small parcels – 8 Sentinel-2 pixel centres inside with inner 5 m buffer and less than 60% pixel loss

Colours: Ongoing project Piloting by NPA Finalized project IACS system

OBJECTIVES OF THE PROJECTS

- ❑ E-PLATFORM FOR MONITORING THE IMPLEMENTATION OF CAP REQUIREMENTS
- ❑ E-PLATFORM FOR ENVIRONMENTAL DATA AND ACTIVITY MODELING, ASSESSMENT, AND MONITORING
- ❑ PREPARATION OF DATA SETS FOR BOTH AREAS-TARGETS USING SATELLITE IMAGES, DRONES, IN-SITU DATA, AND FIELD PHOTOS PROVIDED BY FARMERS.

EXAMPLES OF SUCCESSFUL RESULTS

- ❑ IDENTIFIED METHOD TO CONVERT SENTINEL-2 10M SCALE IMAGES TO 1M ([LINK](#))
- ❑ CREATED ALGORITHM FOR AUTOMATIC CROP BOUNDARY DRAWING
- ❑ PROVEN POSSIBILITY OF CROP CLASSIFICATION AT THE BEGINNING OF THE YEAR
- ❑ CREATED E-PLATFORM FOR MONITORING THE IMPLEMENTATION OF AGRICULTURAL REQUIREMENTS ([LINK](#)) AND ENVIRONMENTAL ACTIVITIES ([LINK](#))

DEEP RESOLUTION IMAGERY



**Super/ Deep
1m resolution
S2 image**

Areal image



ALL TERRITORY 2 TIMES A YEAR



OCTOBER AND APRIL



A DEEP NEURAL NETWORK MODEL
INCREASES THE SPATIAL RESOLUTION
OF SENTINEL-2 FROM 10 METERS TO 1
METER



INPUT DATA FOR AUTOMATED FIELD
DELINEATION

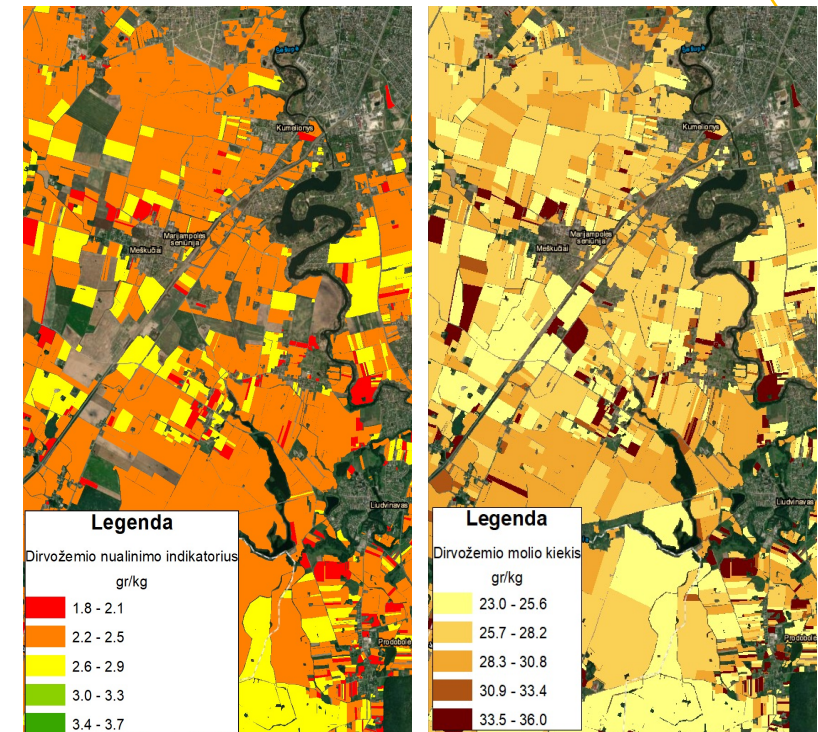
BACGROUND MAP IN GSA, LPIS AND
NMA AGRO MOBILE APP AS ADDITIONAL
LAYER

NEW LAYERS IN
GSA FROM 2023:
1. 1M DEEPLY
RESOLVED S2
IMAGE
2. DELINEATED
FIELDS

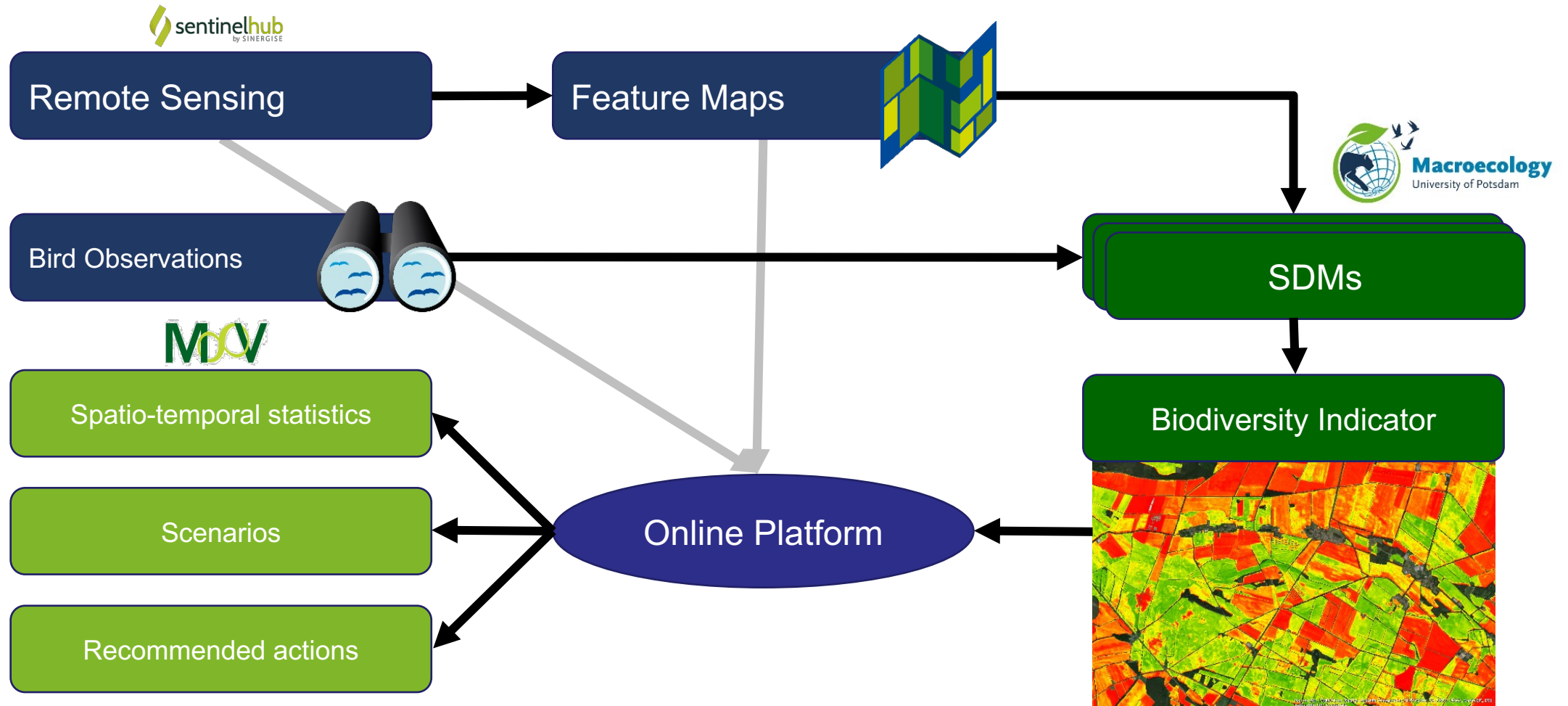


EXAMPLES OF ENVIRONMENTAL DATA

- ❑ FERTILIZER RUNOFF RISK ZONES
- ❑ WATER POLLUTION ZONES
- ❑ BURNED MEADOW AND REED AREAS
- ❑ SOIL ORGANIC CARBON CONTENT
- ❑ SOIL CLAY CONTENT
- ❑ SOIL EROSION INDICATOR



FARMLAND BIRD HABITAT PLATFORM



CHALLENGES GOING FORWARD

- ❑ IMPLEMENTATION OF NEW AMS MARKERS
 - ❑ DETECTION OF AGRICULTURE PRACTICES LIKE NON-TILLAGE, ORGANIC FARMING...
- ❑ IMPROVE CONTROL OF GRASSLANDS
- ❑ IMPLEMENTING AUTOMATIC ANALYSIS OF GEO-TAGGED PHOTOS
- ❑ IMPROVE FARMERS INTERACTION BY PROVIDING NEW SERVICES IN THE MOBILE APP



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