INSTITUTE
OF GEOGRAPHY SLOVAK
ACADEMY OF SCIENCES

COMPARING ACCURACY-BASED INTEGRATION APPROACHES OF LANDCOVER DATASETS OVER THE ALPS AND CARPATHIANS

GEOGRAFICKÝ ÚSTAV
SLOVENSKEJ AKADÉMIE VIED

HUMBOLDT-UNIVERSITÄT ZU BERLIN

ŠIMON OPRAVIL, MATTHIAS BAUMANN, TOMÁŠ GOGA, HAMID AFZALI, TOBIAS KUEMMERLE, RÓBERT PAZÚR

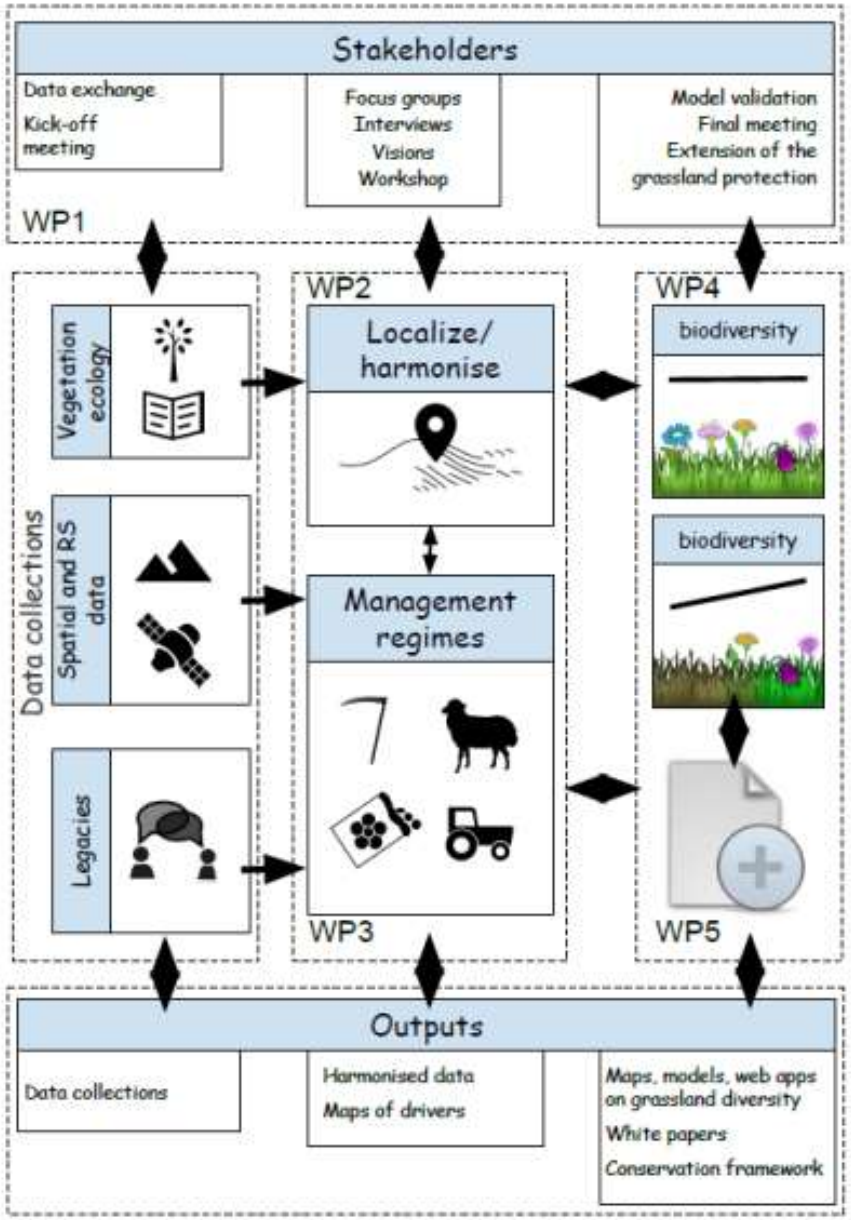
GRASSLANDS 4 BIODIVERSITY

Main objective of the project:

- To produce a map of the species-rich grasslands across the Alps and the Carpathians - real and plausible locations

Multidisciplinary and international:

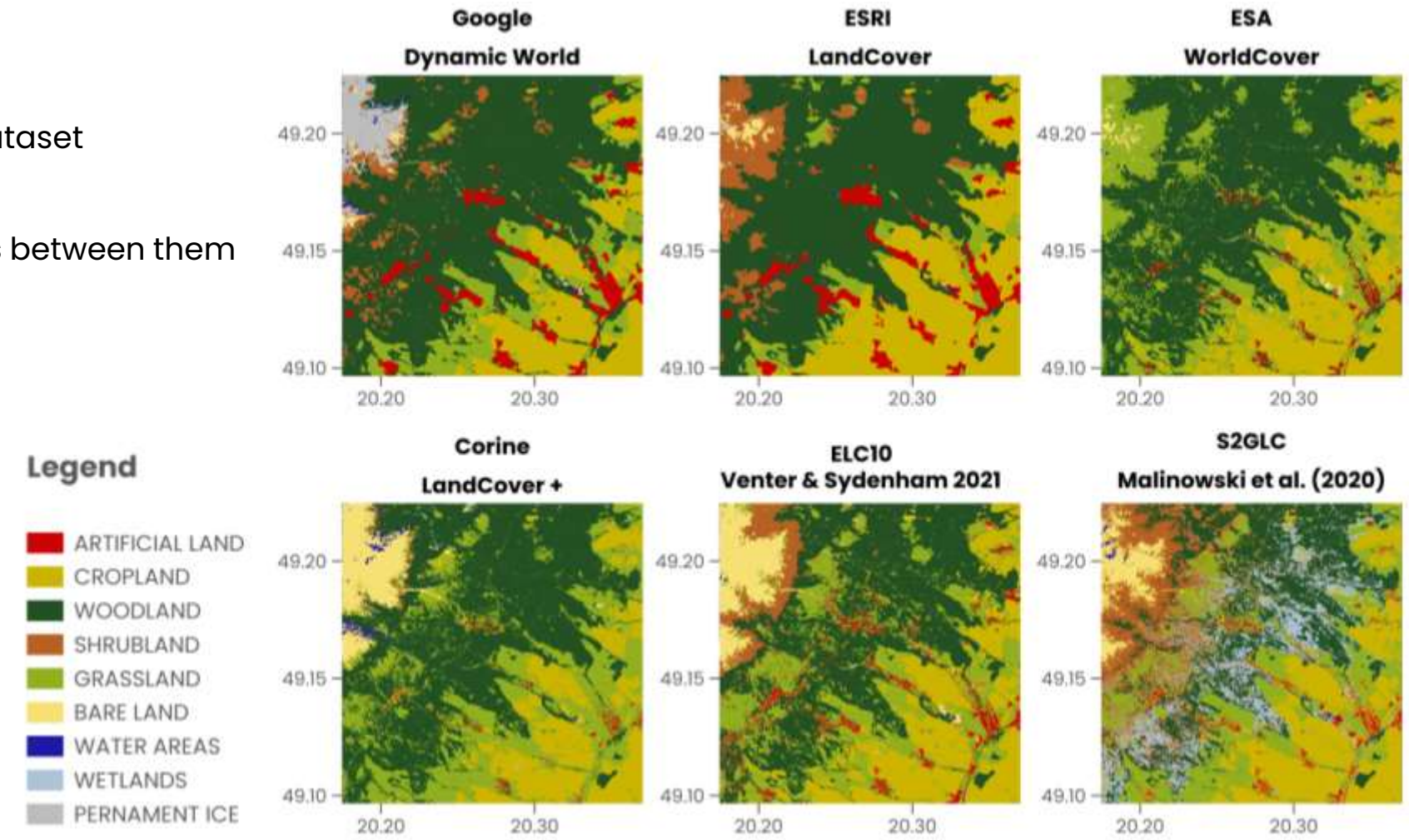
- We have multidisciplinary partners from fields of botany, ethnography and geography
- International team from Germany, Switzerland, Italy, Austria, Slovakia, Poland, Ukraine, Romania



biodiversa+
European Biodiversity Partnership

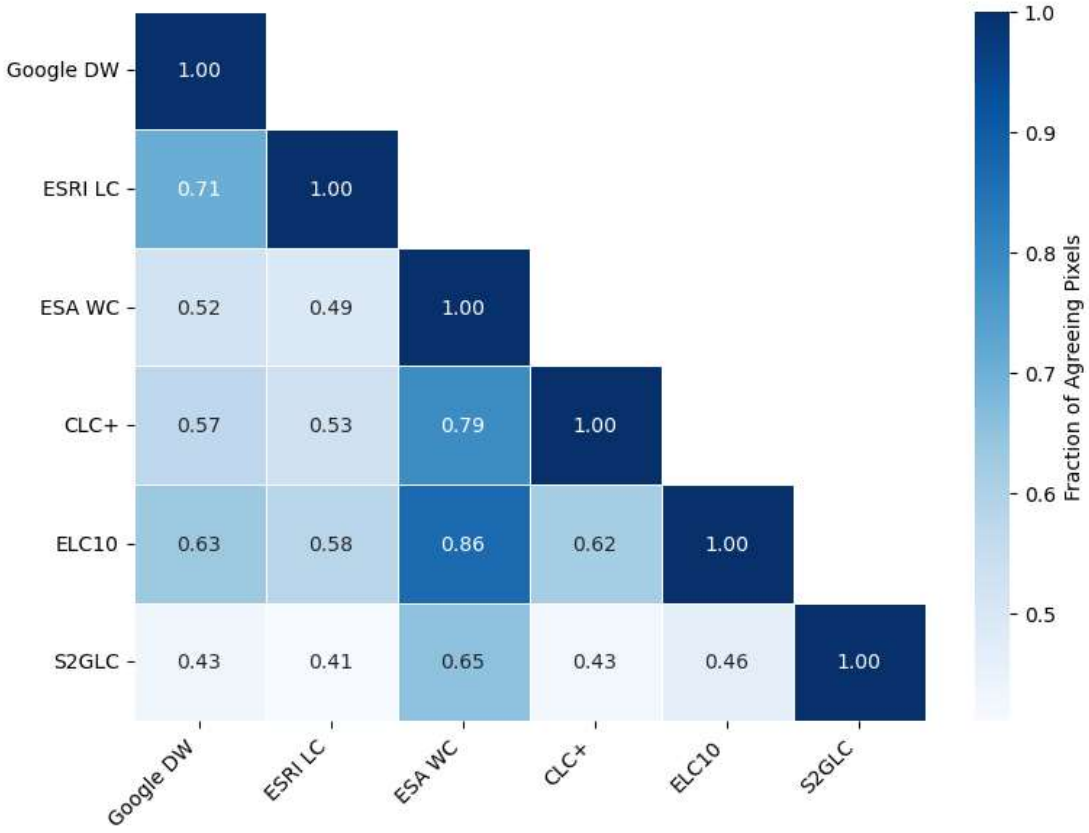
BUT WHERE ARE THE GRASSLANDS?

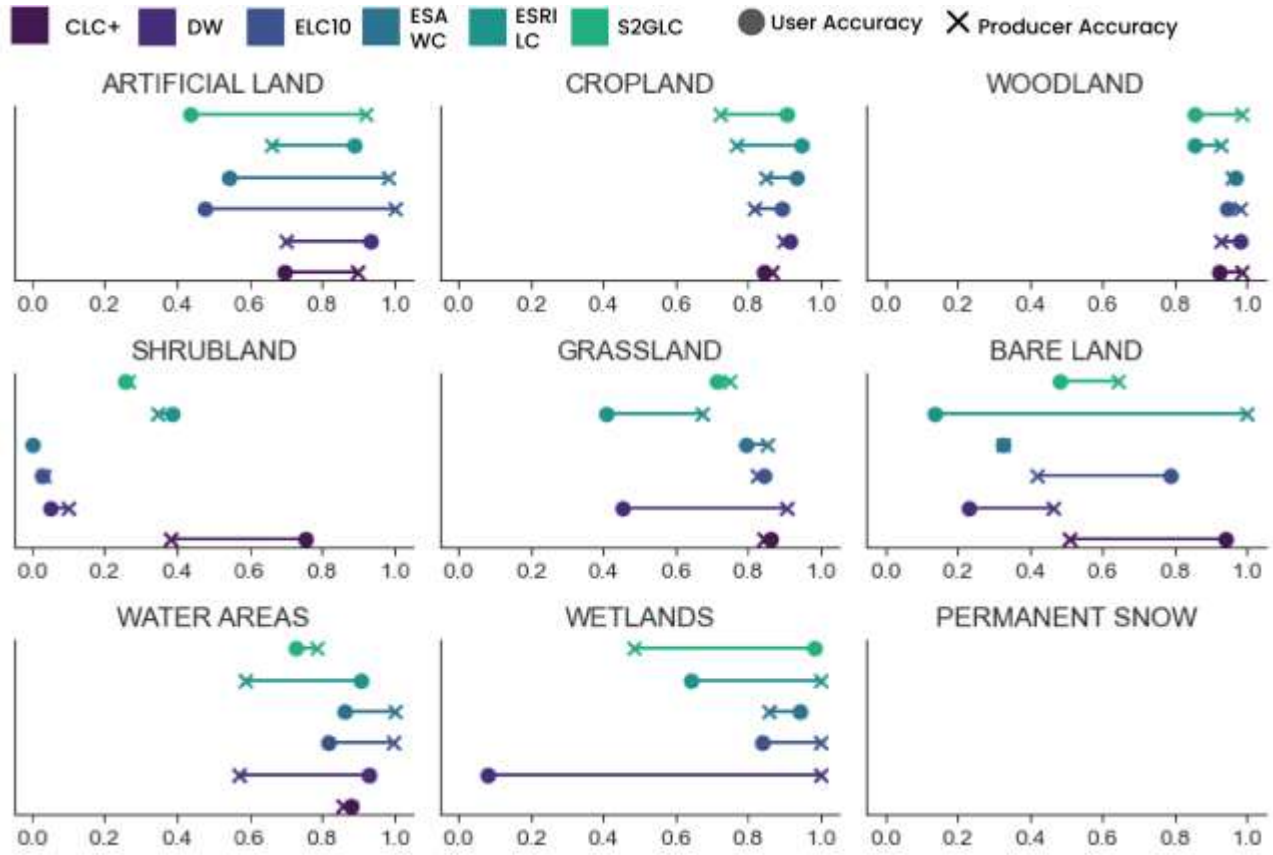
- We look at existing landcover dataset
- Find out serious **inconsistencies** between them



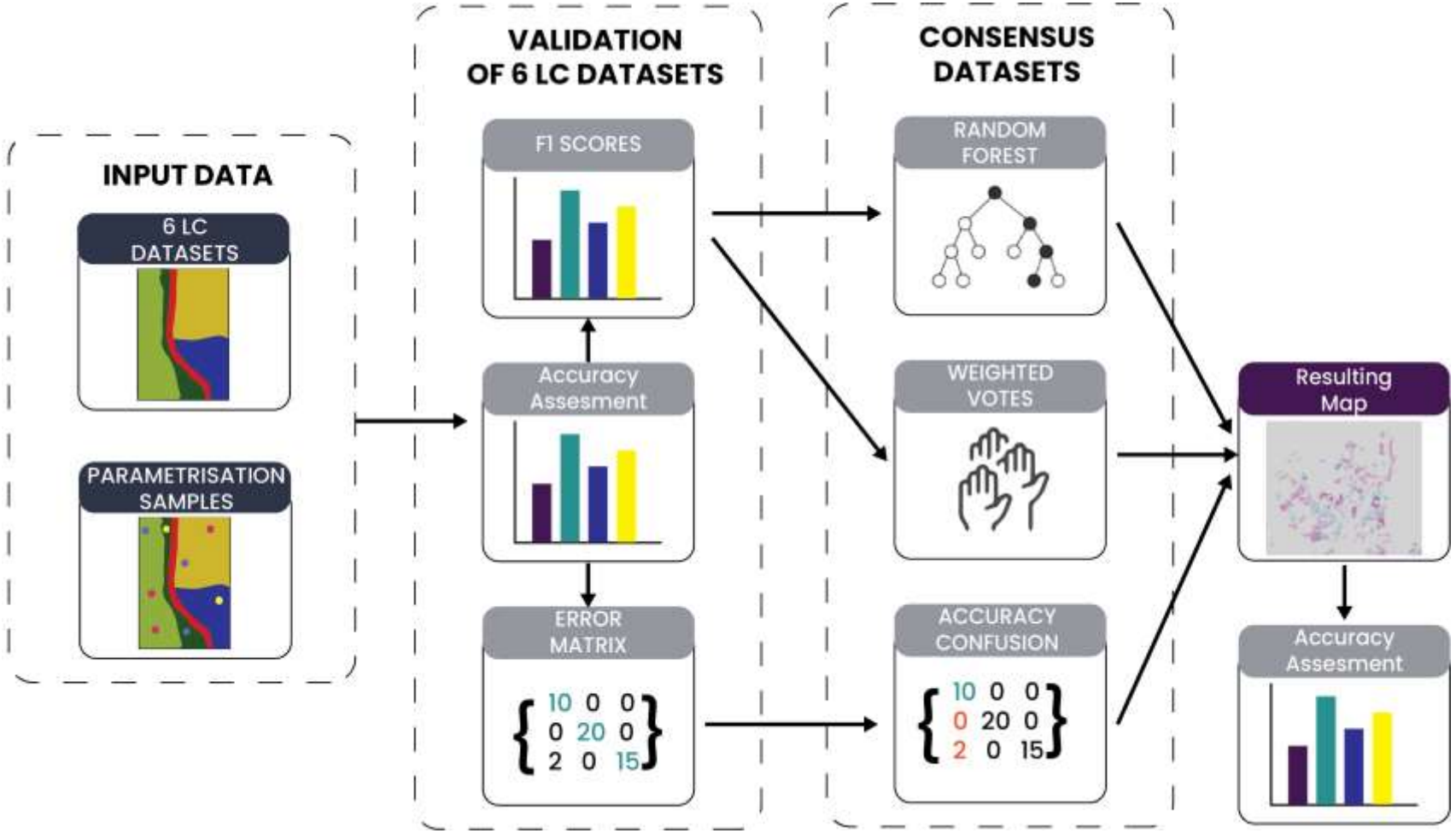
BUT WHERE ARE THE GRASSLANDS?

- Decided to combine them in a smart way to get **the most accurate landcover dataset in Alps and Carpathians**





MAKING THE MOST ACCURATE LANDCOVER DATASET IN ALPS AND CARPATHIANS – WORKFLOW



MAKING THE MOST ACCURATE LANDCOVER DATASET IN ALPS AND CARPATHIANS – VALIDATION POINTS

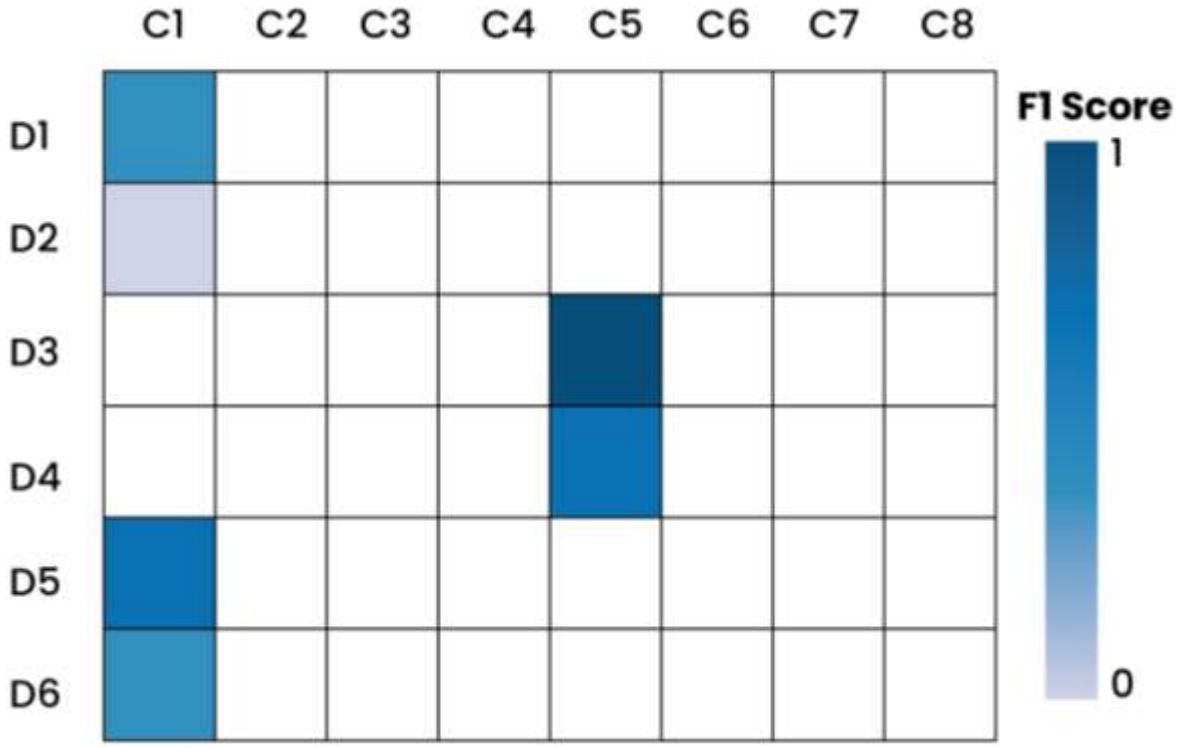
- 5620 stratified validation points by class
- Each point were interpreted using VHR imagery by 3 team members
- We split point data 50/50 to **parametrisation** and **validation** set

MAKING THE MOST ACCURATE LANDCOVER DATASET IN ALPS AND CARPATHIANS – TESTED APPROACHES

Random Forest

Weighted Votes

Example of urban green pixel



Accuracy - Confusion

D1

class	1	2	3
1	0,207	0,016	0,027
2	0,007	0,783	0,143
3	0,074	0,016	0,339

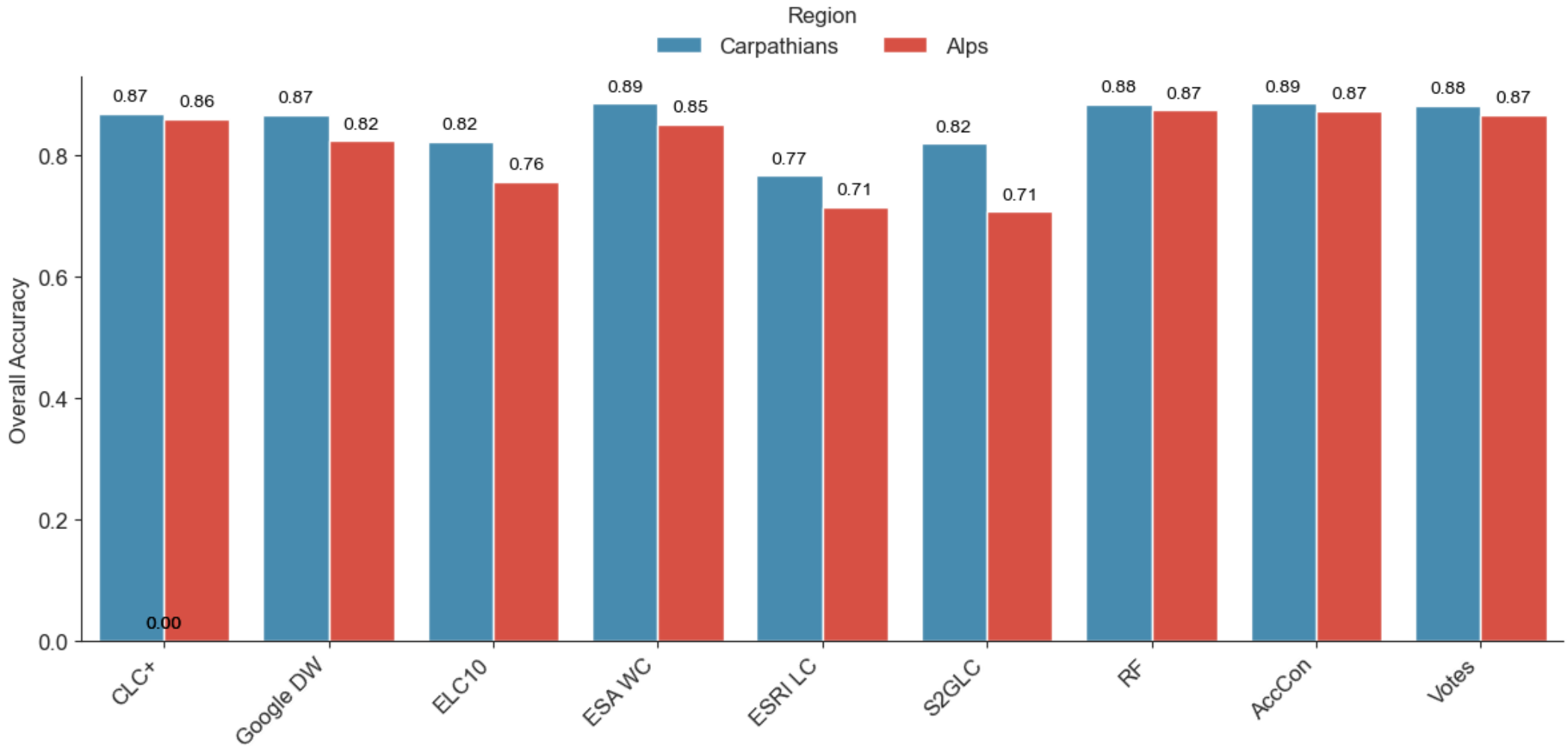
D2

class	1	2	3
1	0,843	0,005	0,008
2	0,008	0,926	0,038
3	0,005	0,008	0,685

1: (0.207 - 0.016 + 0.843 – 0,005) * 0,5 = 0.51

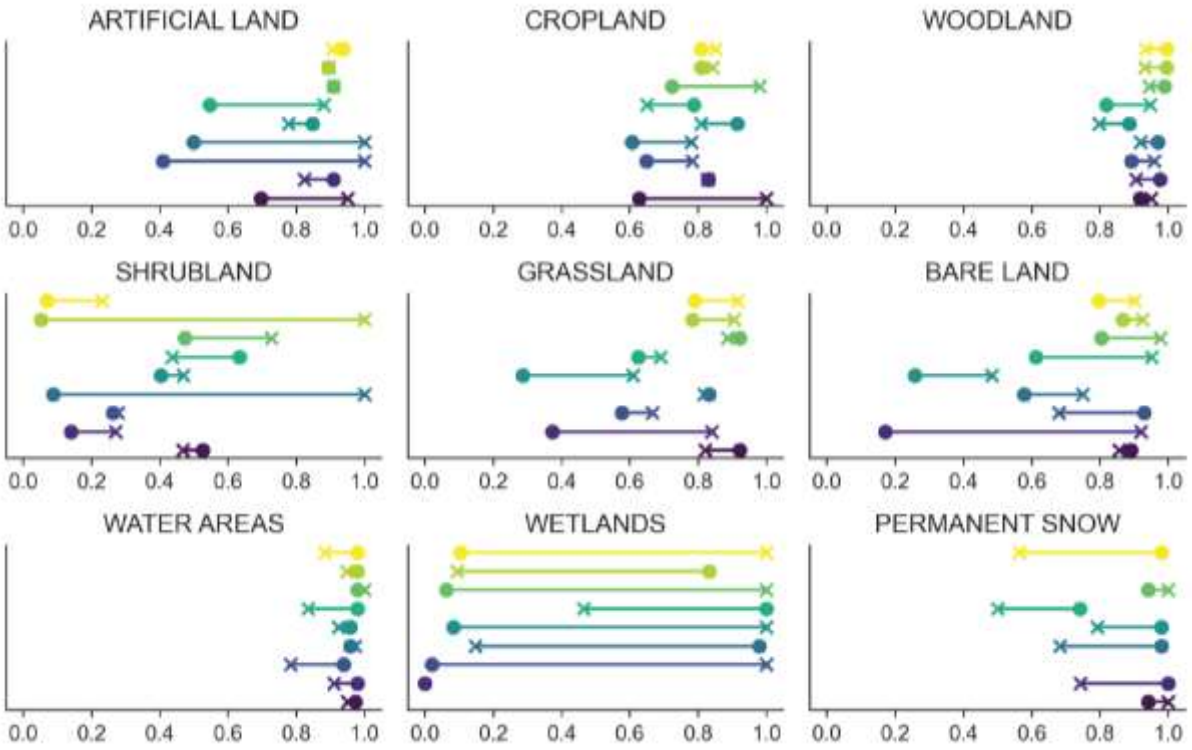
2: (0.926 – 0.008 + 0.783 – 0.007) * 0.5 = **0.85**

ACCURACY COMPARISONS

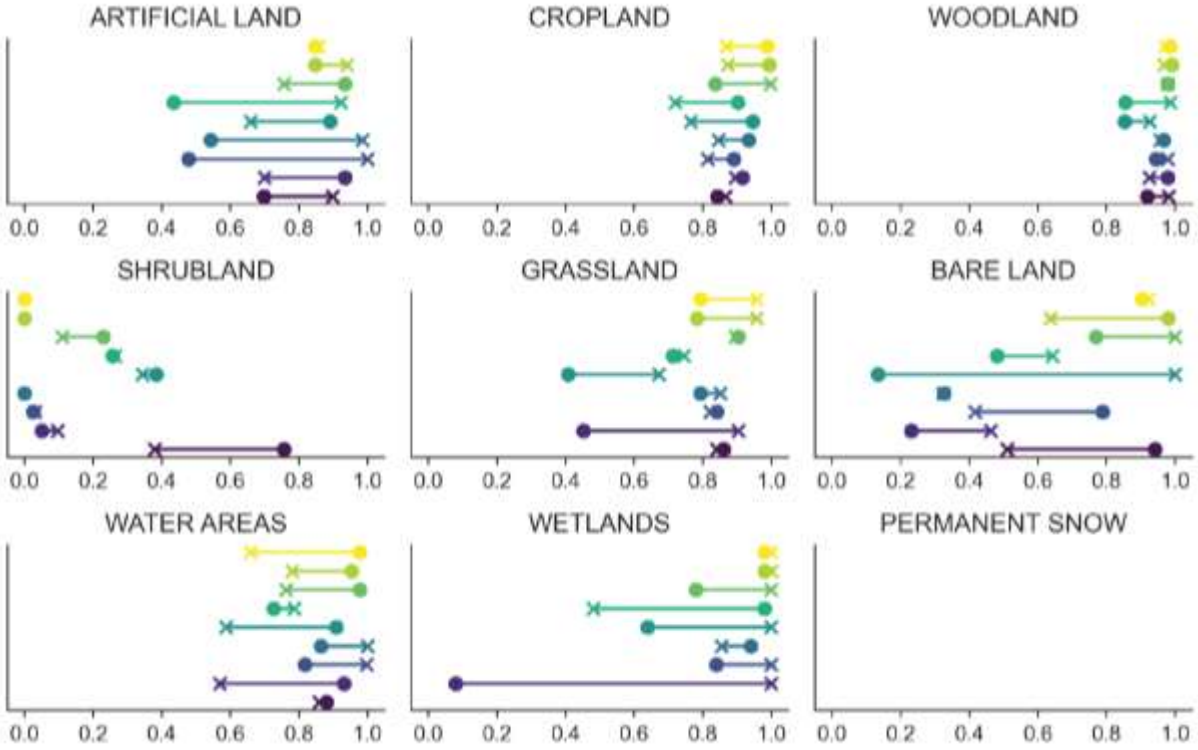


ACCURACY COMPARISONS

Alps

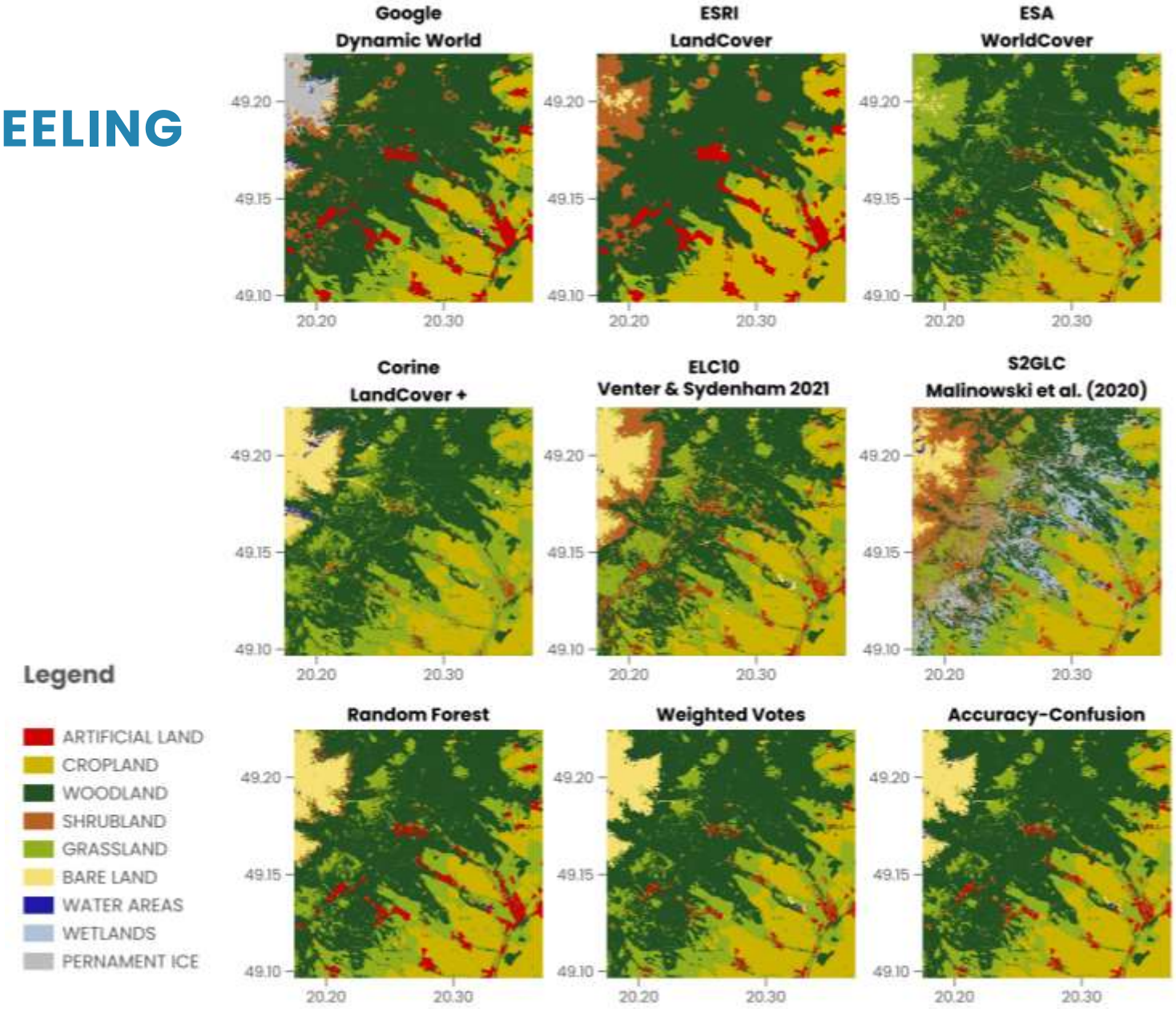


Carpathians

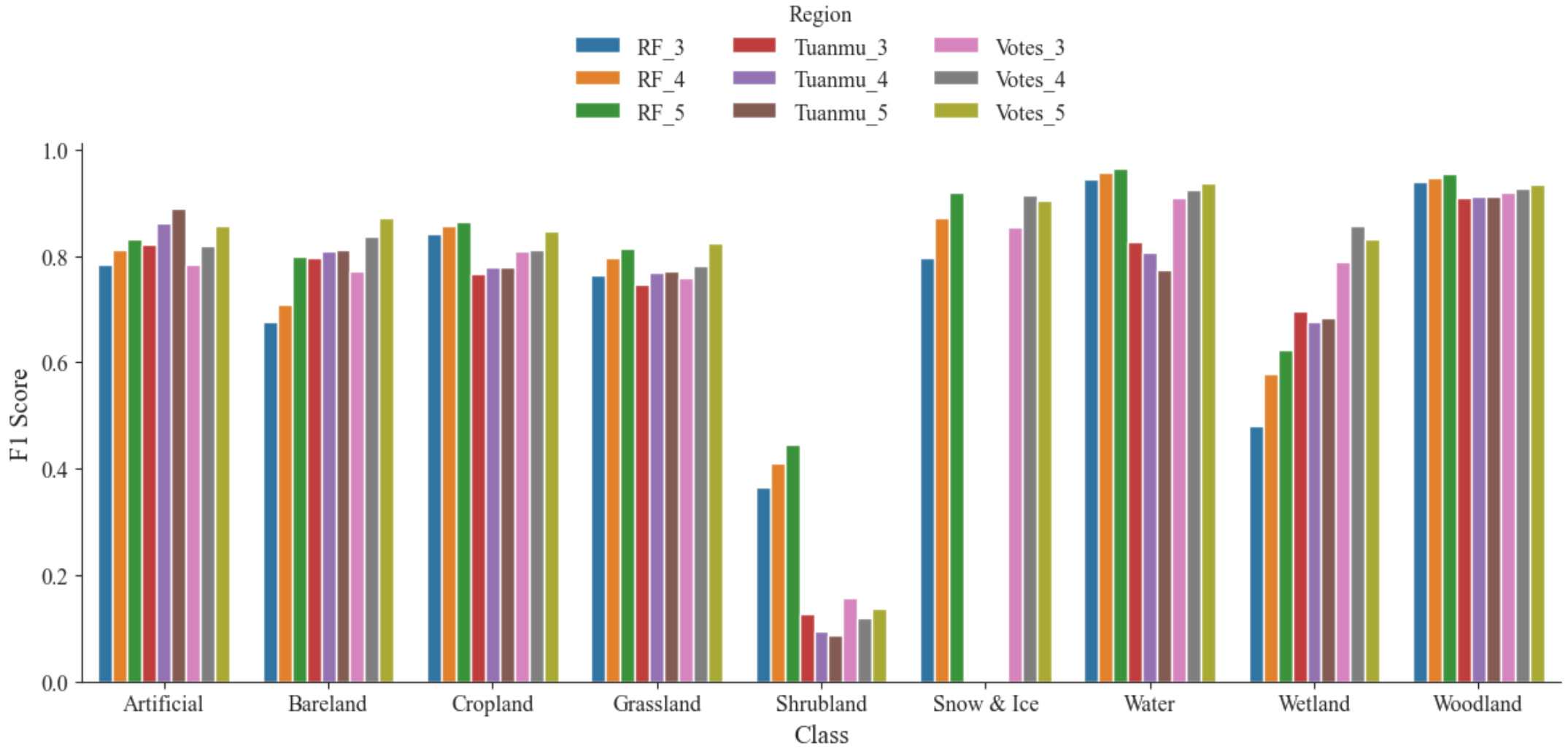


IT CAN ALSO BE ABOUT THE FEELING

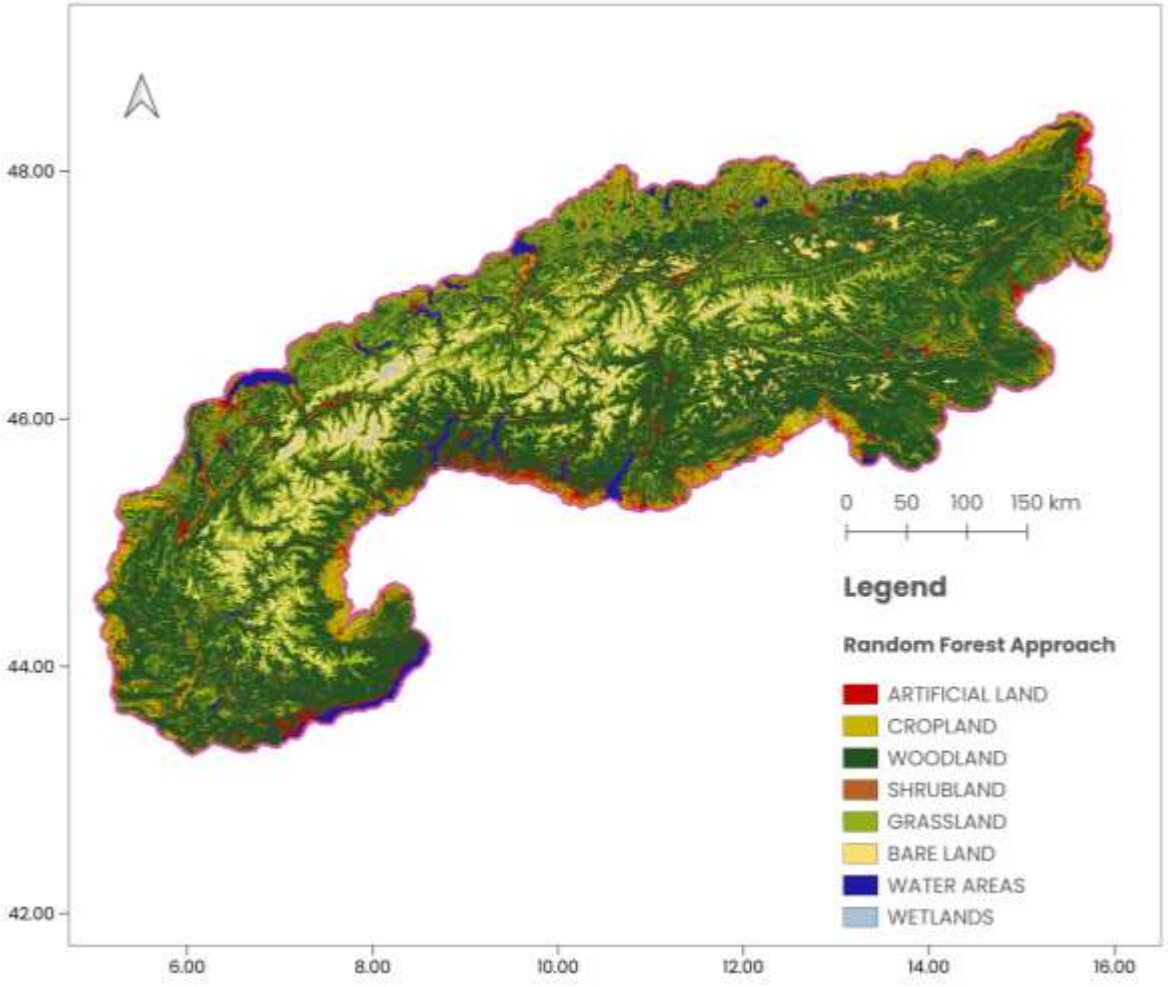
- Sometimes the feeling from the map can tell more than validation set
- It very hard to distinguish shrublands and logged forest from static maps
- However, comparing with WorldCover the overestimation of grasslands is lower

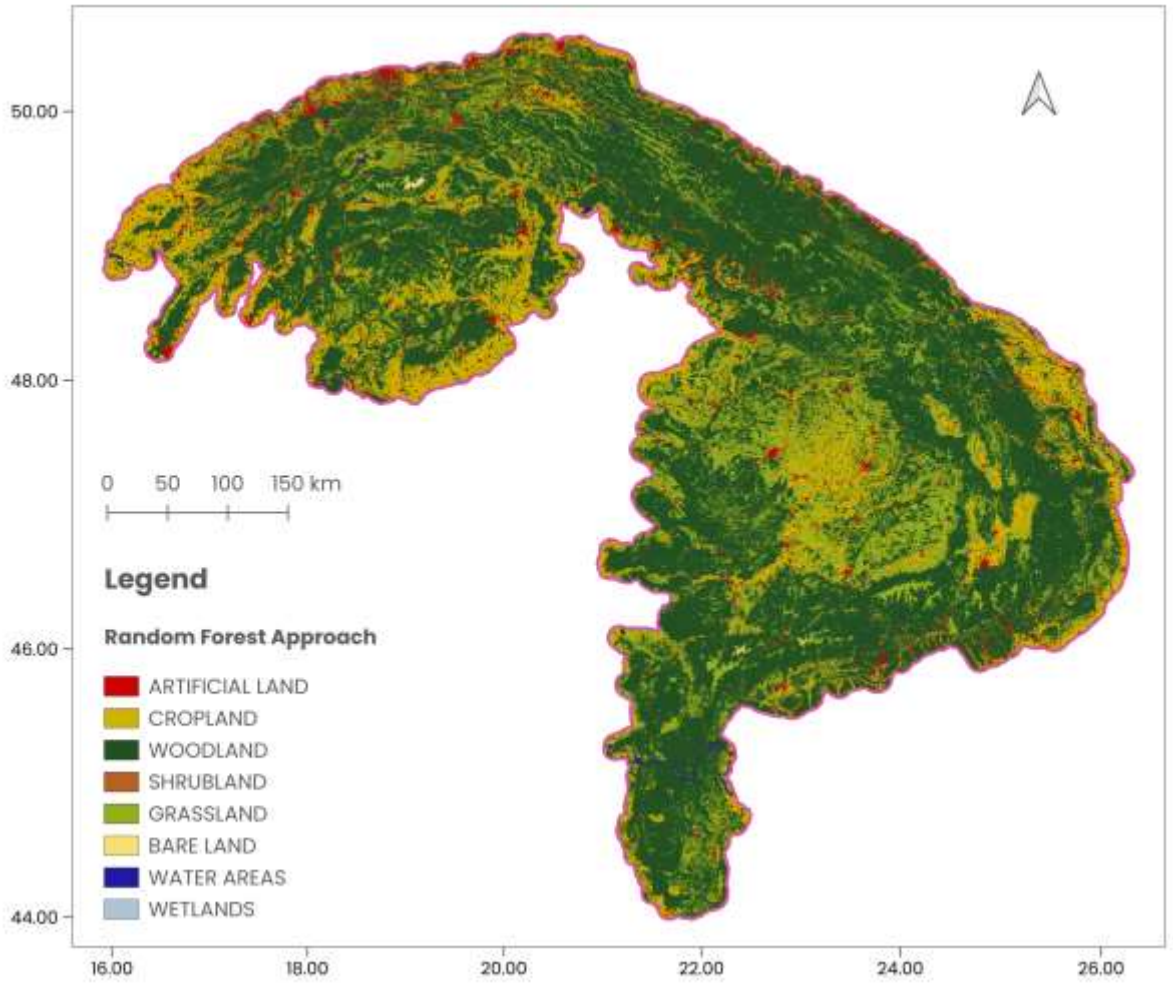


RUBBISH IN RUBBISH OUT



QUICK LOOK ON A PRETTY MAPS





WHERE CAN YOU FIND THEM

- We make all maps using Google Earth Engine
- We make the data available through GEE APP
- Soon the datasets with probabilities will be available on Zenodo
- … and, also publication is almost ready
- **Use cases**: Mask for species distribution mapping, Mapping illegal changes of landcover

Link to the APP

It works on the phone too 😉

SCAN ME

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