



MaiL Map Portal

Online tools for marginal lands management and monitoring



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Michał Krupiński, CBK PAN



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POLITÈCNICA
DE VALÈNCIA



Development team

- Marek Ruciński (CBK PAN)
- Jesús Torralba Pérez (UPV)
- Fernando Bezares Sanfelip (CESEFOR)
- Pablo Crespo Peremarch (UPV)
- Zoi Touloudi (AUTH)
- Georgios Spanos (AUTH)
- Dzhaner Emin (IABG)
- Eleftherios Mystakidis (HOMEOTECH)
- Francisco Gallego (CESEFOR)
- ... and many other Mail Secondees and Coordinators

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- To enable users the analysis of CO₂ sequestration potential of Marginal lands

Objectives

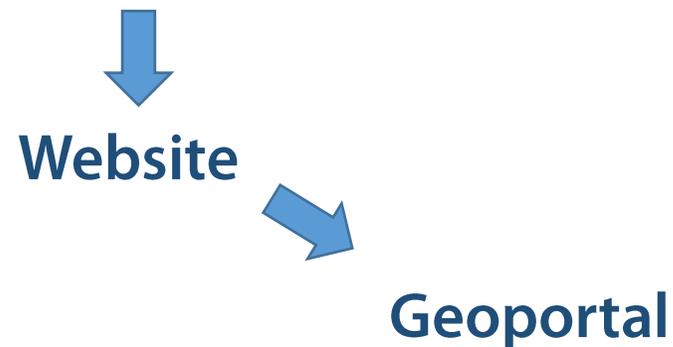
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Website

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MaiL Map Portal

Basic version (map viewer)

MaiL Map Portal

Basic version (map viewer)

vs.

MaiL Map Portal

Basic version (map viewer)

vs.

Expert version (user can play with parameters)

MaiL Map Portal

Basic version (map viewer)

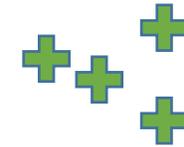
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Expert version (user can play with parameters)



MaiL Map Portal

Basic version (map viewer)



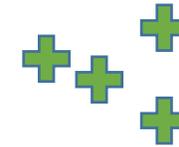
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Expert version (user can play with parameters)

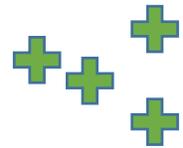


MaiL Map Portal

Basic version (map viewer)



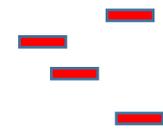
vs.



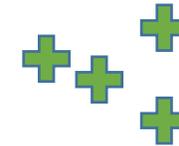
Expert version (user can play with parameters)



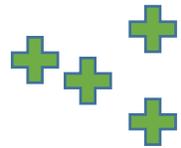
MaiL Map Portal



Basic version (map viewer)



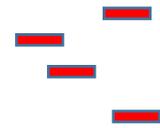
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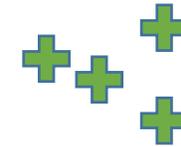
Expert version (user can play with parameters)



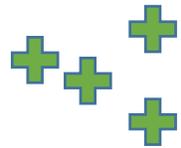
MaiL Map Portal



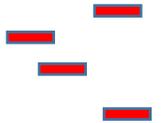
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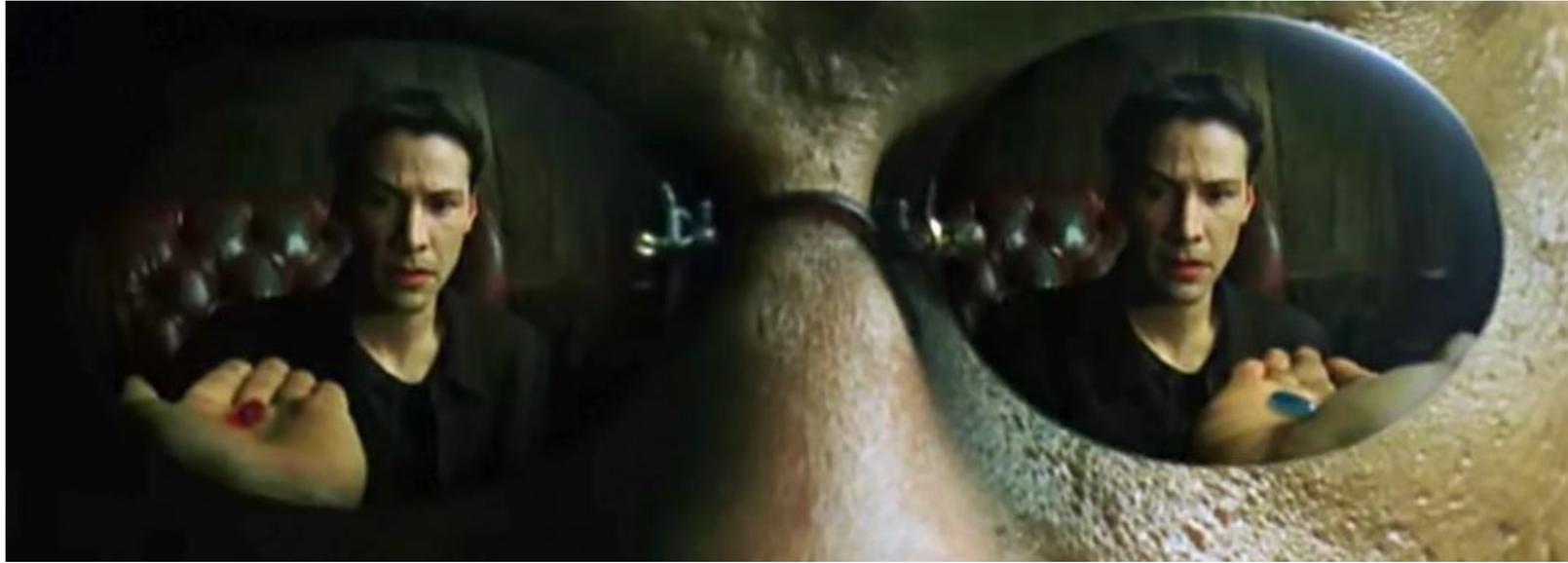


Expert version (user can play with parameters)

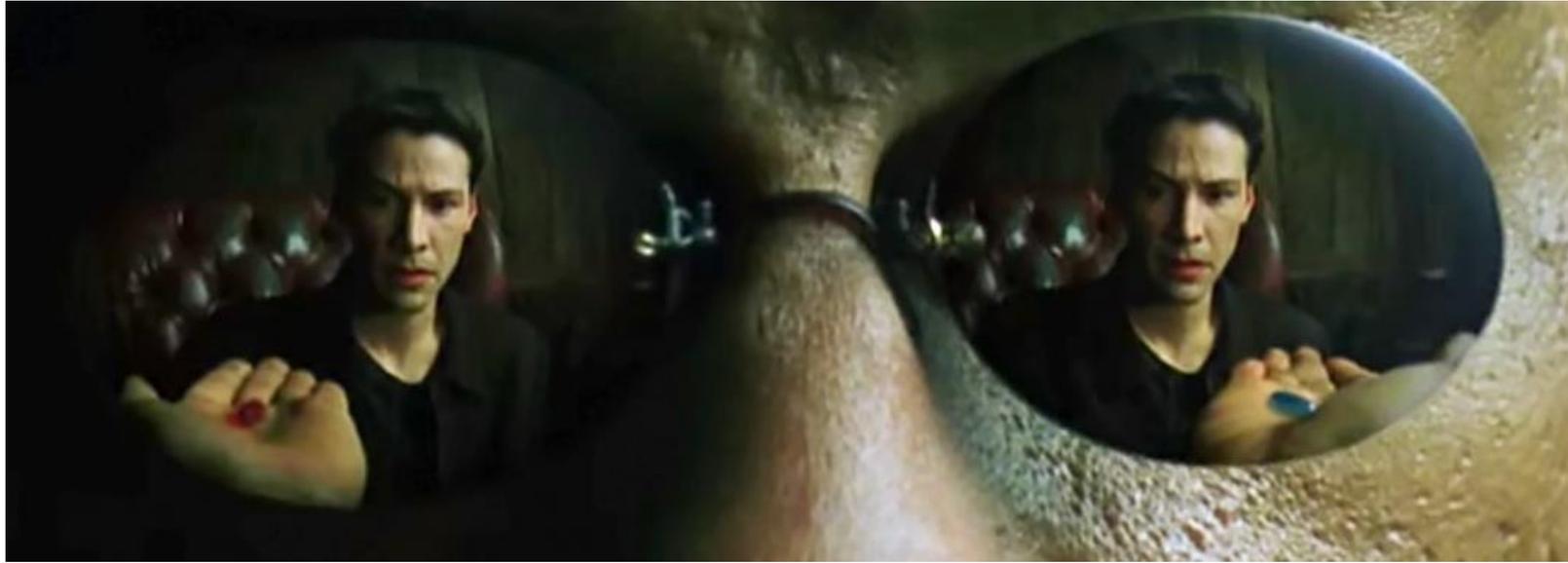






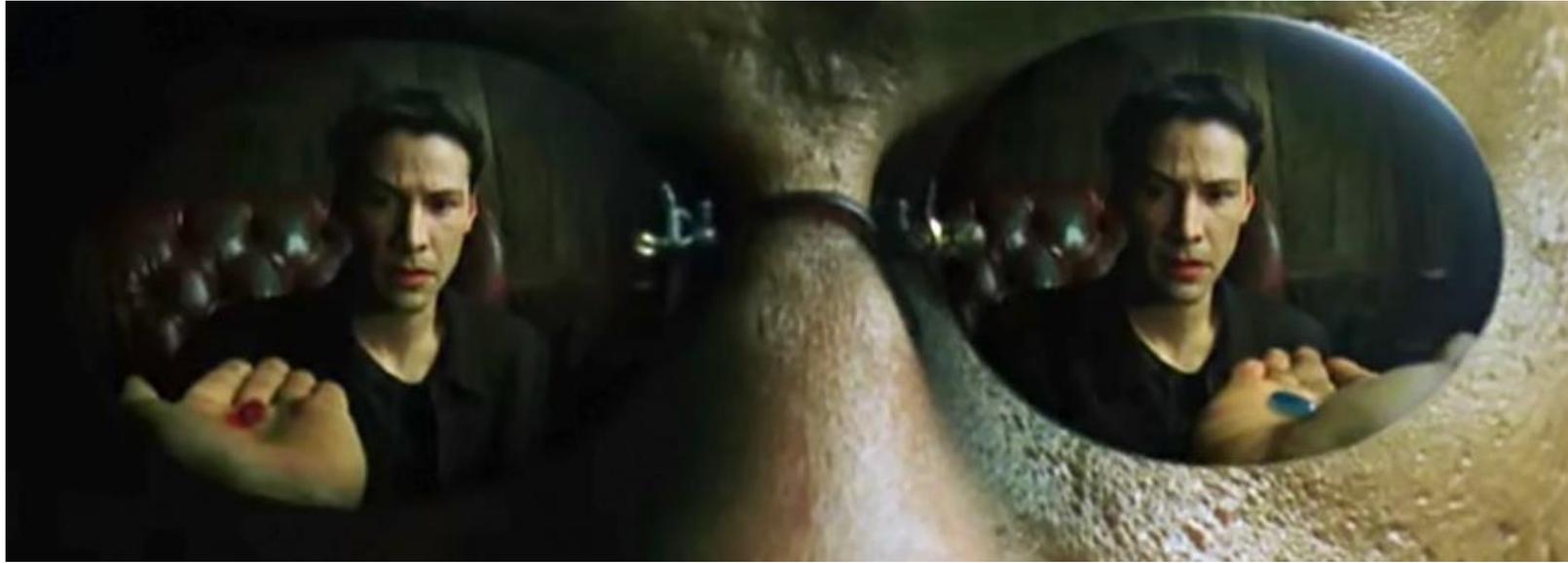


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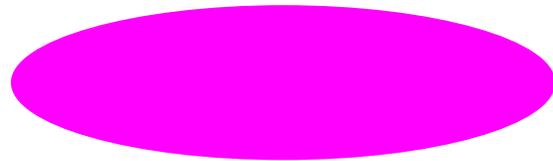


?

#ff00ff



?





?

“Half-expert” map portal

Requirements

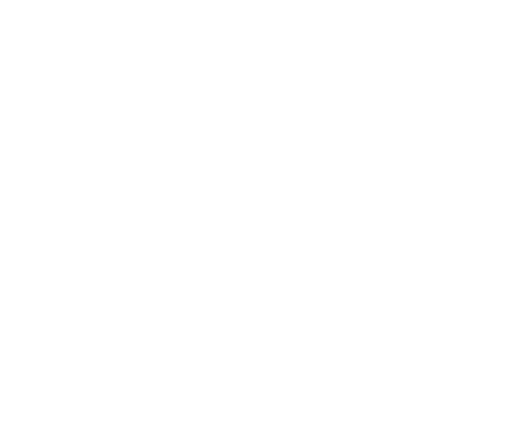
Requirements



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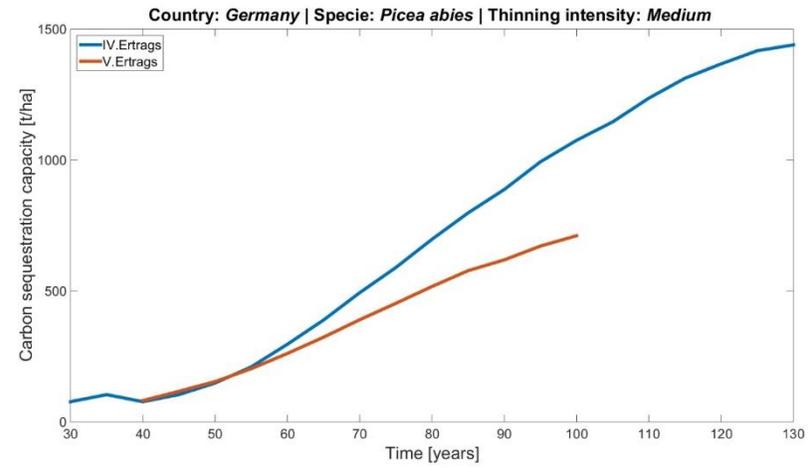
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Requirements



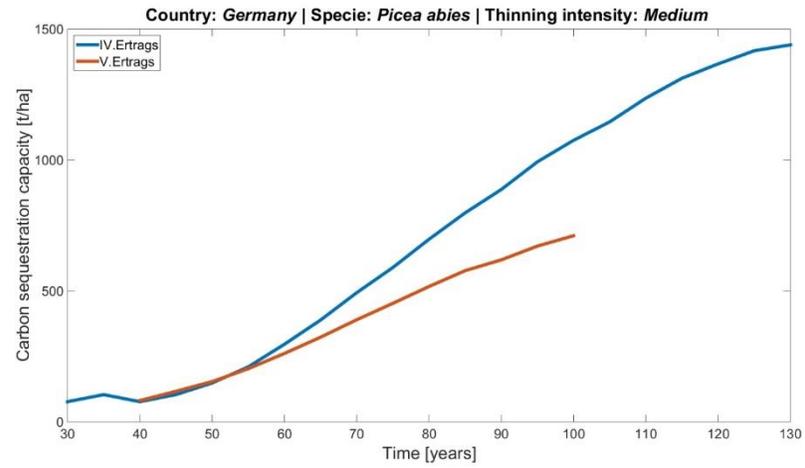
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Requirements



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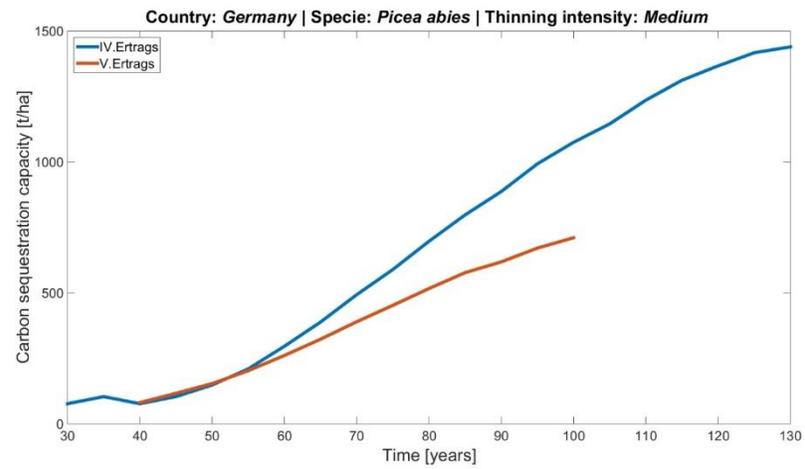


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Requirements



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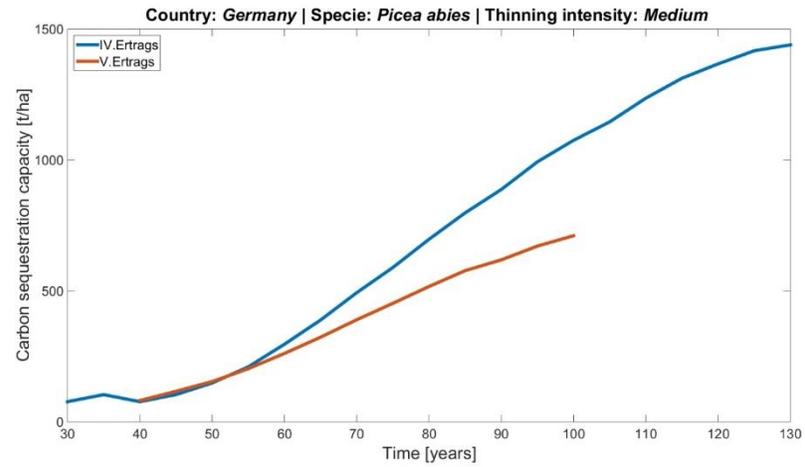
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Requirements



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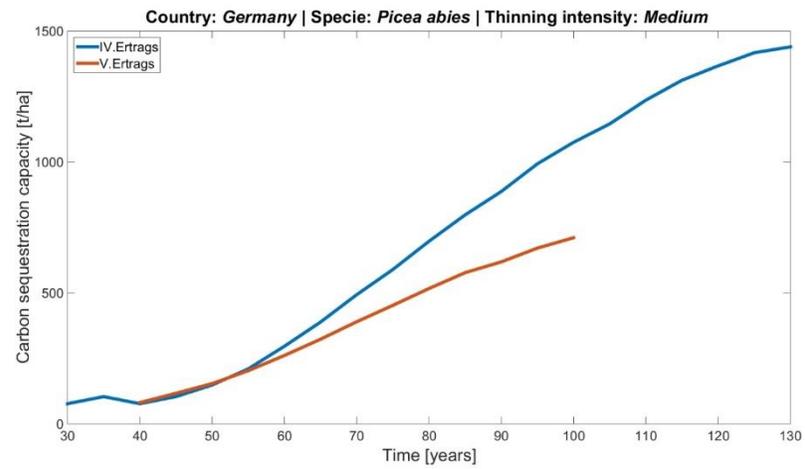


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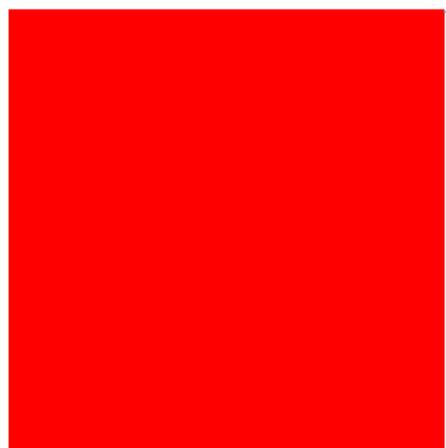
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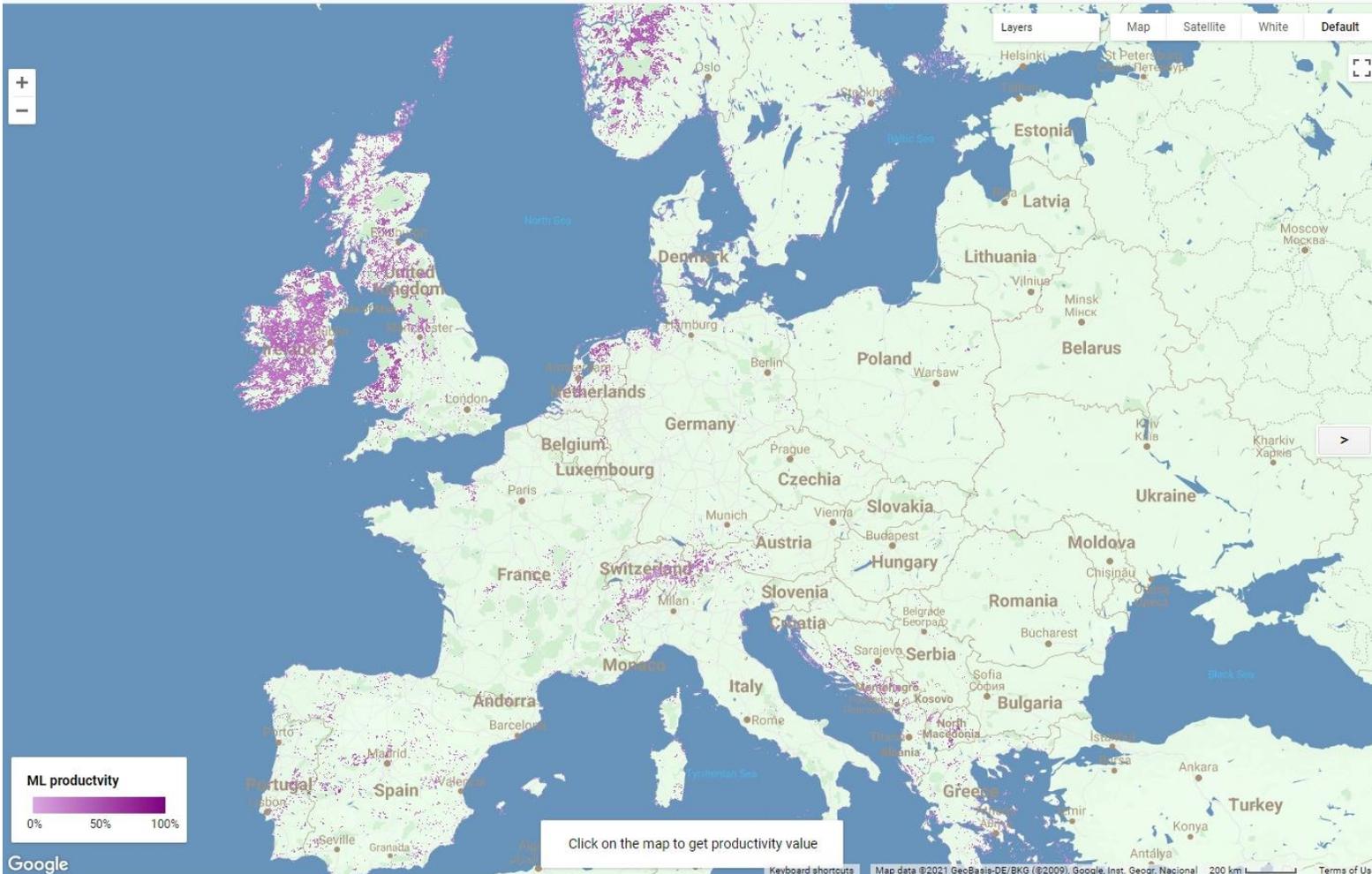


10 m

10 m



Google Earth Engine



Marginal Lands in Europe

www.marginallands.eu

Marginal Lands Toolbox

Project provides tools for marginal land detection and monitoring such as:

- Marginal lands productivity
- Marginal lands identification based on existing databases
- Marginal lands detection using Sentinel - 1 SAR data
- TBA

What is a marginal land?

For the purpose of MAIL project following definition of a marginal land has been adopted based on in depth literature review. Marginal lands are lands with significant, either environmental (biophysical variables) or socioeconomic, constraints and with potential to impact national accounting for C stock, excluding agricultural lands and other valuable areas. Dynamic and variability are key concepts for marginal land identification. Examples of these areas include, but are not limited to, degraded and / or abandoned lands, lands with naturally low productivity due to biophysical constraints, and other degraded lands that have not (yet) been converted to other uses, e.g. post-industrial and post-mining sites. In a complement approach, fully consistent with the MAIL project objectives, we will consider Marginal Lands those whose land use allows, according to accounting rules referred in the EU commitment and the regulation developed (European Parliament. Regulation (EU) 2018/841) and land use categories proposed by the 2006 IPCC guidelines (IPCC. (2006)), to maximize the increase of carbon stock. That is, MAIL project will focus on areas in which it is possible to convert them to forest lands. Therefore, it can be considered Marginal Lands, grasslands (including systems with woody vegetation), abandoned croplands or other lands (bare soil, rock, ice, etc.), excluding from them those with social-economic activity, environmental protection or with legislative restrictions. For the detailed literature review containing definitions of marginal lands, their categorisation and identification methodologies (deliverables link below)

[MAIL Project website](#)

[Download the deliverable PDF](#)

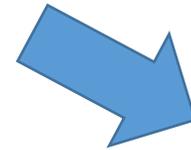
[Download the full data set](#)

1. Identification of Marginal Lands

- 1. Identification of Marginal Lands**
- 2. Decision Support System for afforestation planning**

1. Identification of Marginal Lands

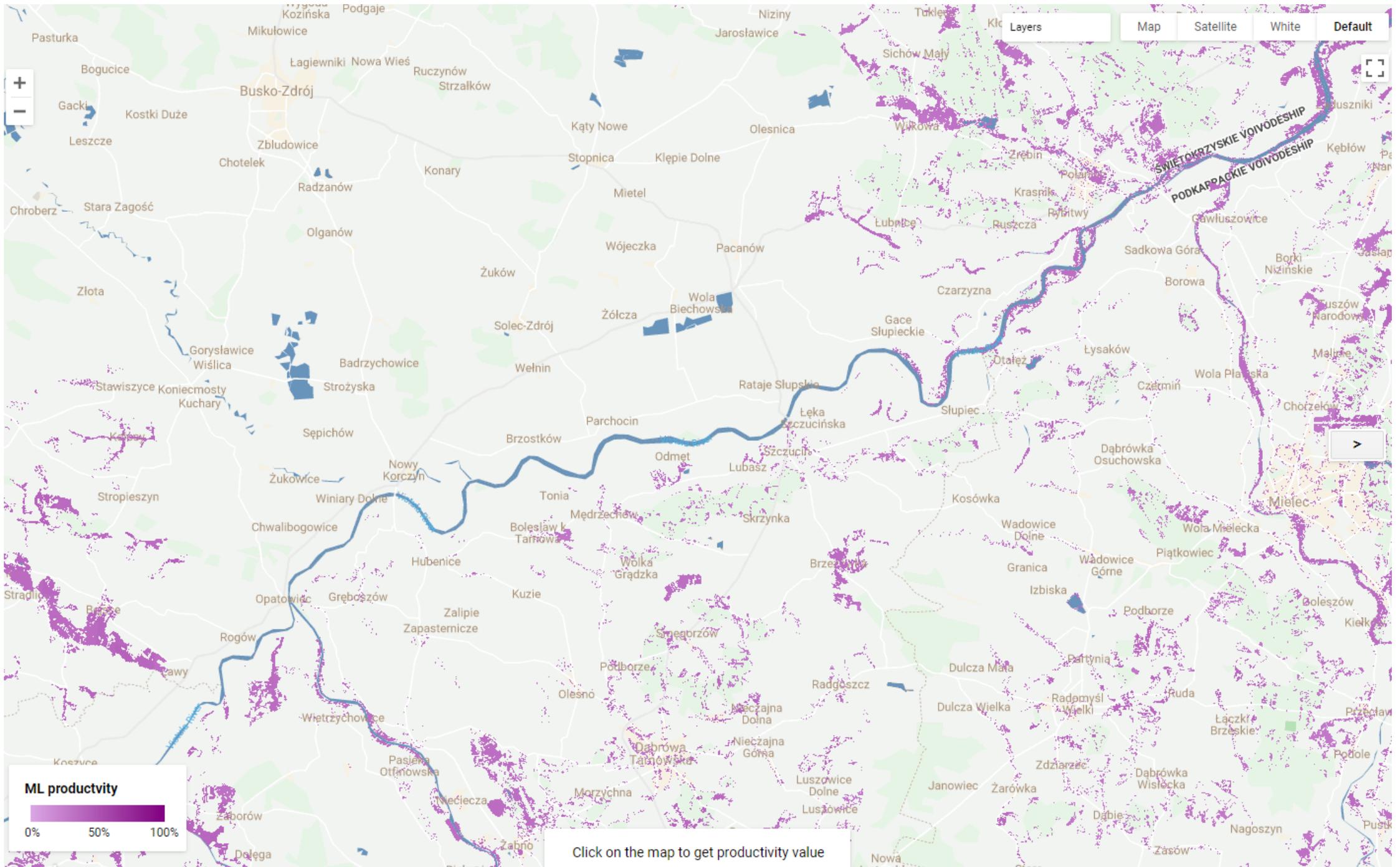
2. Decision Support System for afforestation planning



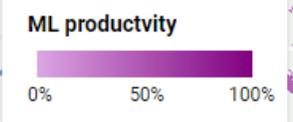
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2. Decision Support System for afforestation planning

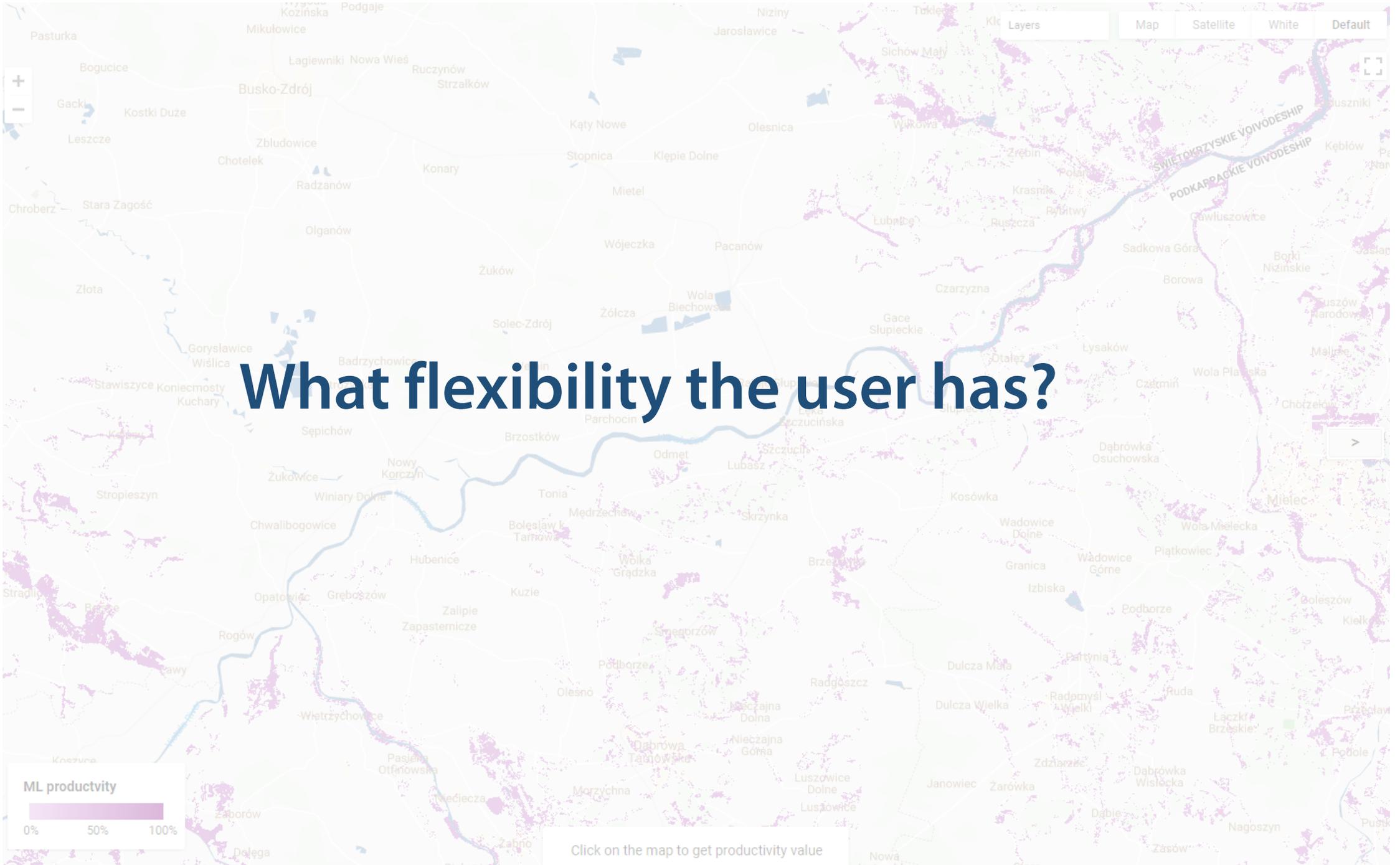
Products – Layers – Maps



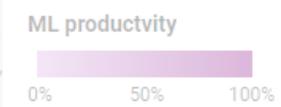
Layers Map Satellite White Default



Click on the map to get productivity value

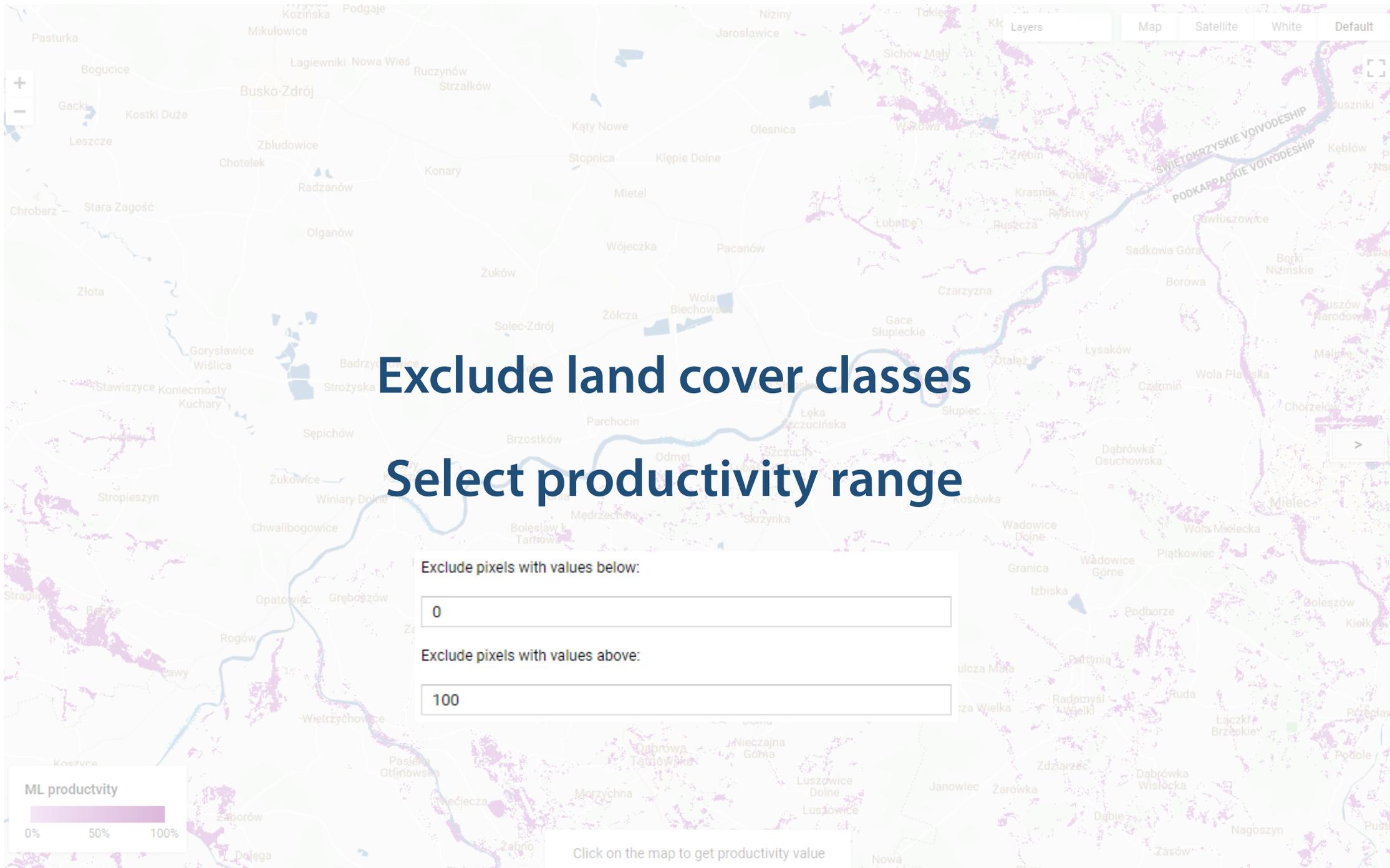


What flexibility the user has?



Click on the map to get productivity value



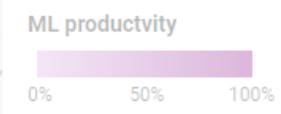


Exclude land cover classes

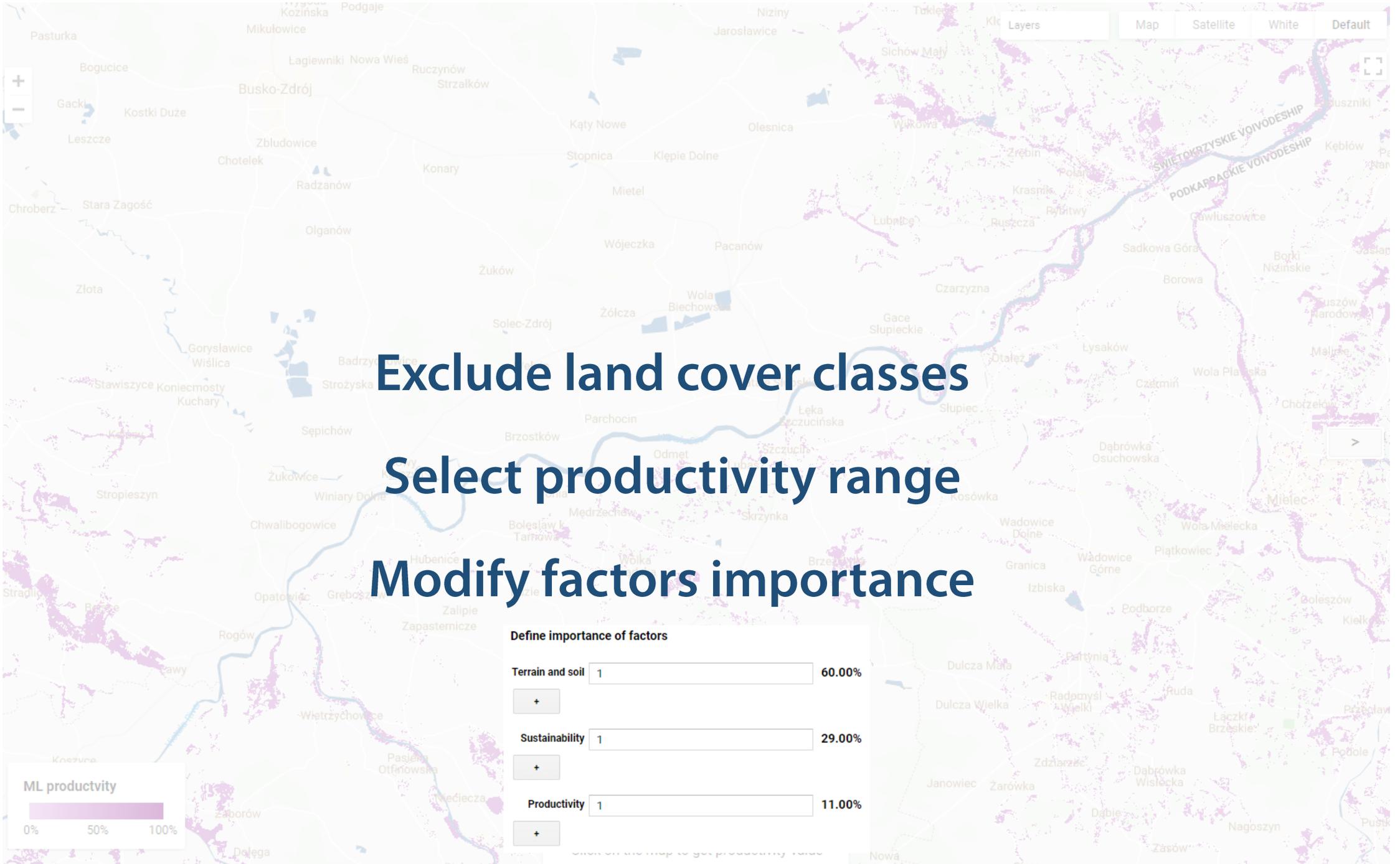
Select productivity range

Exclude pixels with values below:

Exclude pixels with values above:



Click on the map to get productivity value



Exclude land cover classes

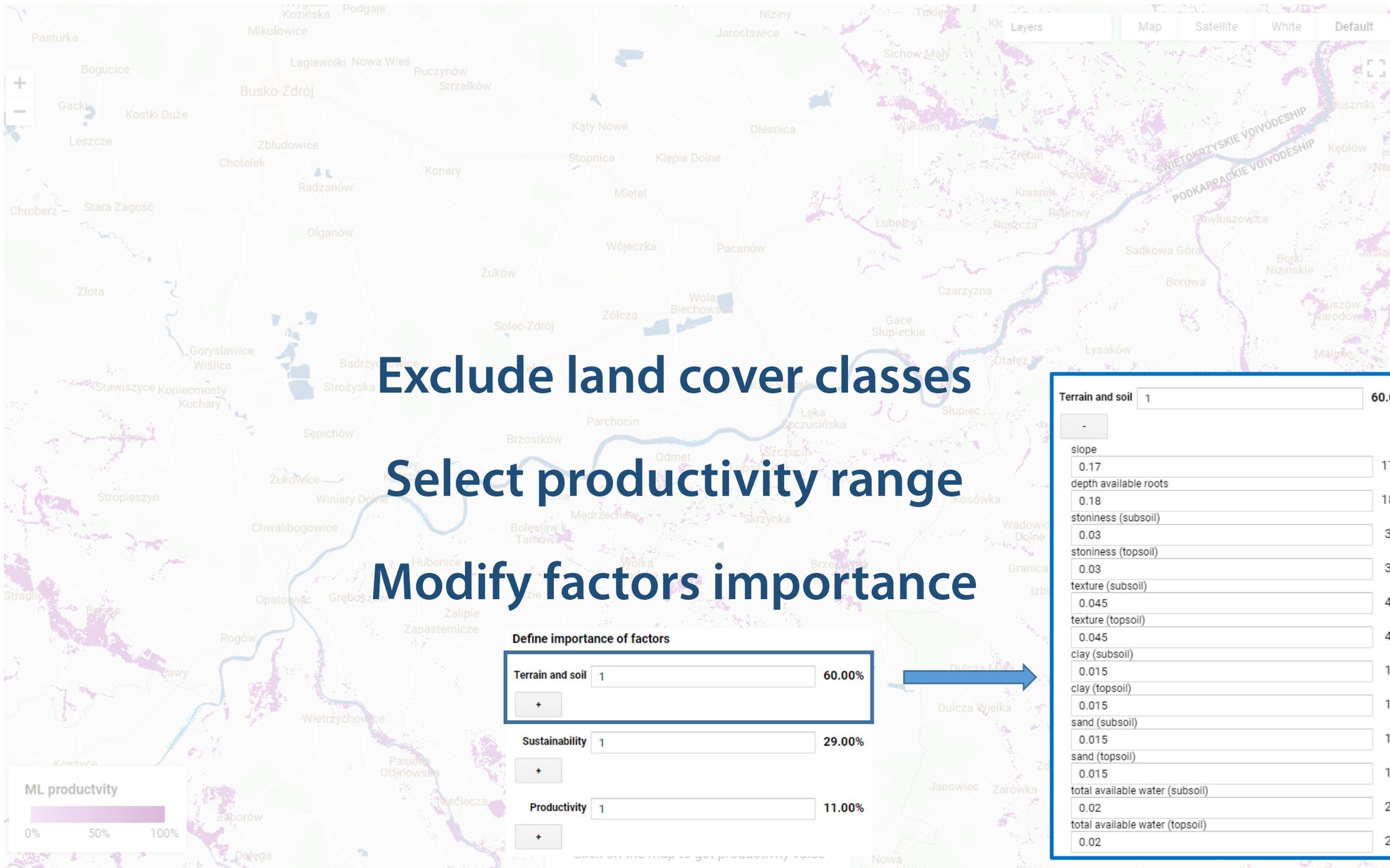
Select productivity range

Modify factors importance

Define importance of factors

Terrain and soil	<input type="text" value="1"/>	60.00%
<input type="button" value="+"/>		
Sustainability	<input type="text" value="1"/>	29.00%
<input type="button" value="+"/>		
Productivity	<input type="text" value="1"/>	11.00%
<input type="button" value="+"/>		





Exclude land cover classes

Select productivity range

Modify factors importance

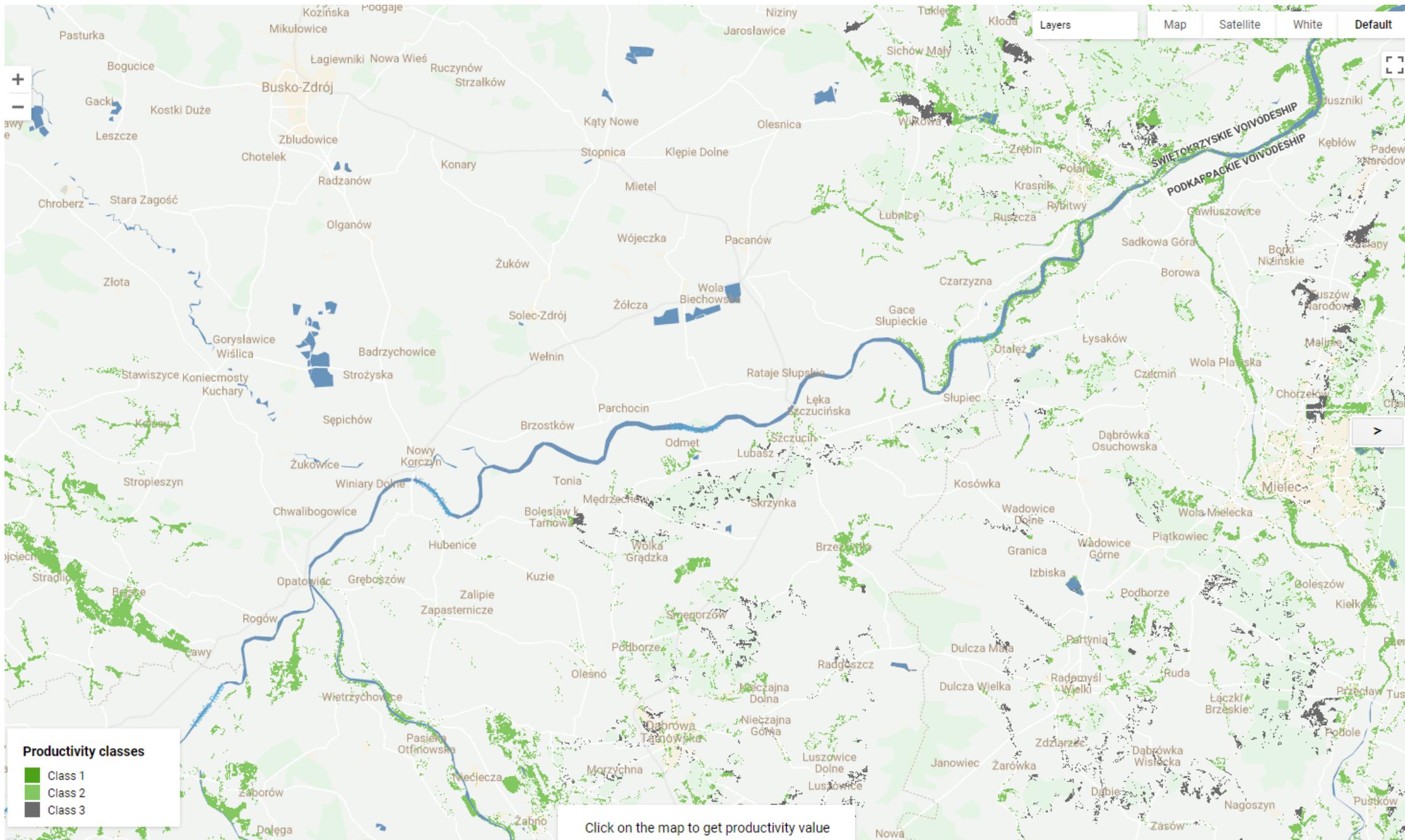
Define importance of factors

Terrain and soil	1	60.00%
Sustainability	1	29.00%
Productivity	1	11.00%



Terrain and soil	1	60.00%
-		
slope	0.17	17.00%
depth available roots	0.18	18.00%
stoniness (subsoil)	0.03	3.00%
stoniness (topsoil)	0.03	3.00%
texture (subsoil)	0.045	4.50%
texture (topsoil)	0.045	4.50%
clay (subsoil)	0.015	1.50%
clay (topsoil)	0.015	1.50%
sand (subsoil)	0.015	1.50%
sand (topsoil)	0.015	1.50%
total available water (subsoil)	0.02	2.00%
total available water (topsoil)	0.02	2.00%





Productivity classes

- Class 1
- Class 2
- Class 3

Click on the map to get productivity value



Classification of Marginal Lands into 3 classes in 4 different ways

Productivity classes

- Class 1
- Class 2
- Class 3

Click on the map to get productivity value

Classification of Marginal Lands into 3 classes in 4 different ways

Equal magnitude

25th and 75th percentile

33rd and 66th percentile

Custom classes

Productivity classes

- Class 1
- Class 2
- Class 3

Click on the map to get productivity value

Area of Interest

Area of Interest



Europe

Area of Interest



NUTS 3



Europe

Access ?

Access ?



Free

Open

Google Earth account required

Access ?



Free

Open

Google Earth account required

(but it's free too)

More information ...

Demonstration on Friday

Dedicated section within Mail MOOC



Thank you for your attention!



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