

April 2022



TREE SPECIES MAPPING WITH MULTITEMPORAL SENTINEL-2 DATA

>>> A few years later

In the past few years, the work on the tree species map was continued and published in scientific literature. In addition to improving the tree species map, work is currently underway to improve the description of Land Cover classes outside the forest topic.

Markus Immitzer, University of Natural Resources and Life Sciences, Vienna (BOKU)



BENEFICIARIES	University of Natural Resources and Life Sciences (BOKU)	Biosphere Reserve Wienerwald (BPWW)	Forest enterprises; Forest authorities and administrations; Forests site managers	Citizens and Society
TIER 1: SERVICE PROVIDER	TIER 2 PRIMARY USER	TIER 3 SECONDARY USER	TIER 4 END USER BENEFICIARIES	
SERVICES	Sentinel-2	A semi-automated workflow based on feature selection and model optimization; Detailed Land Cover maps; Detailed tree species related information	Change-detection for forest management activities; Parameters directly related to the use of forest resources in the biosphere reserve.	More sustainable development of the biosphere reserves; Contribution to higher education activities (master programme at BOKU)

Value chain definition following SeBS Methodology - <https://earsc.org/sebs>

The space-based solution

This Copernicus-based solution is produced by a scientific entity for a for a Public Administration.

The Usage Maturity Level

The solution remained at the same high UML stage and it has been better integrated in the workflow of the administration.

Thematic Area



BIODIVERSITY AND ENVIRONMENTAL PROTECTION

Region of Application



NORTHERN AUSTRIA VIENNA

Sentinel mission used



S2

Copernicus Service used



-

Usage Maturity Level



4

Overall benefits

ECONOMIC



No noticeable additional modification/impact on the functioning of the public administration nor on the lives of the citizens since 2018.

ENVIRONMENTAL



No noticeable additional modification/impact on the functioning of the public administration nor on the lives of the citizens since 2018.

REGULATORY



No noticeable additional modification/impact on the functioning of the public administration nor on the lives of the citizens since 2018.

INNOVATION



No noticeable additional modification/impact on the functioning of the public administration nor on the lives of the citizens since 2018.

SCIENCE



No noticeable additional modification/impact on the functioning of the public administration nor on the lives of the citizens since 2018.

SOCIETAL



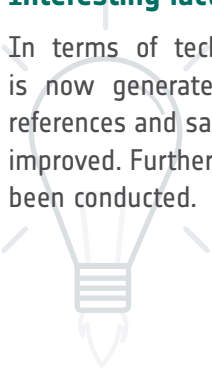
No noticeable additional modification/impact on the functioning of the public administration nor on the lives of the citizens since 2018.



Benefits classification following SeBS Methodology - <https://ears.org/sebs>

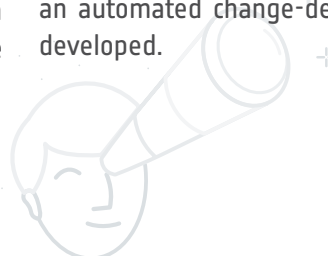
Interesting facts...

In terms of technical perspective, additional information is now generated by the solution. Based on additional references and satellite data, the tree species map has been improved. Furthermore, analyses of additional features have been conducted.



Outlook to the future

In the future, the plan is to expand the maps on other geographic regions and also in terms of content. Furthermore, an automated change-detection algorithm is planned to be developed.



Acknowledgements

We thank our project partners Austrian Federal Forests (ÖBf), Forestry Office and Urban Agriculture of Vienna (MA 49) and forest enterprise of Heiligenkreuz Abbey for providing reference information. The research was partly supported by the Austrian Research Promotion Agency through the ASAP project 854027 E04Forest.

Contacts

Markus Immitzer | markus.immitzer@boku.ac.at

ABOUT COPERNICUS4REGIONS

The views expressed in the Copernicus User Stories are those of the Authors and can in no way be taken to reflect the official opinion of the European Space Agency or of the European Commission. Funded by the European Union, in collaboration with NEREUS. Paging, printing and distribution funded by the European Space Agency. IPR Provisions apply. Copernicus4Regions material may be used exclusively for non commercial purposes and provided that suitable acknowledgment is given.

Find the original story at
www.nereus-regions.eu/copernicus4regions/user-stories-sheets
 or Download the full publication
www.nereus-regions.eu/copernicus4regions/publication

www.copernicus.eu
<https://sentinels.copernicus.eu>