

April 2022



IMPROVING SNOW AVALANCHE FORECASTING

>>> A few years later

The snow avalanche detection processing system is now used by the public authorities themselves, with NORCE being responsible only for maintenance and evolution of the processing system.

Markus Eckerstorfer, Norwegian Research Centre (NORCE)



| | | | | |
|---------------|-----------------------------------|--|---|--|
| BENEFICIARIES | Norwegian Research Centre (NORCE) | Norwegian Avalanche Warning Service (NVE) | Winter backcountry users; Public entities responsible for infrastructure planning and road safety | Society and citizens |
| | TIER 1: SERVICE PROVIDER | TIER 2 PRIMARY USER | TIER 3 SECONDARY USER | TIER 4 END USER BENEFICIARIES |
| SERVICES | Sentinel-1 | Continuous avalanche observations; Update of avalanche activity datasets | Forecast as risk reduction measure; Prevention of fatal avalanche accidents | Increase in overall safety of citizens and infrastructures |

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

The space-based solution

This Copernicus-based solution was produced by a scientific entity for a for a Public Administration. In the past few years, there were significant performance and automation improvements.

The Usage Maturity Level

In the past few years, the solution has transitioned to a higher level of UML. The main reason for this is that new space-funds were allocated to uptake the space-based solutions into territorial practices.

Thematic Area



TRANSPORTS, CIVIL INFRASTRUCTURE AND SAFETY

Region of Application



ICELAND ITALY SWITZERLAND

Sentinel mission used



S1

Copernicus Service used



-

Usage Maturity Level



5

Overall benefits

ECONOMIC



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.

ENVIRONMENTAL



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

SCIENCE



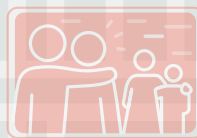
No noticeable additional modification/impact on the functioning of the public administration nor on the lives of the citizens since 2018.

REGULATORY

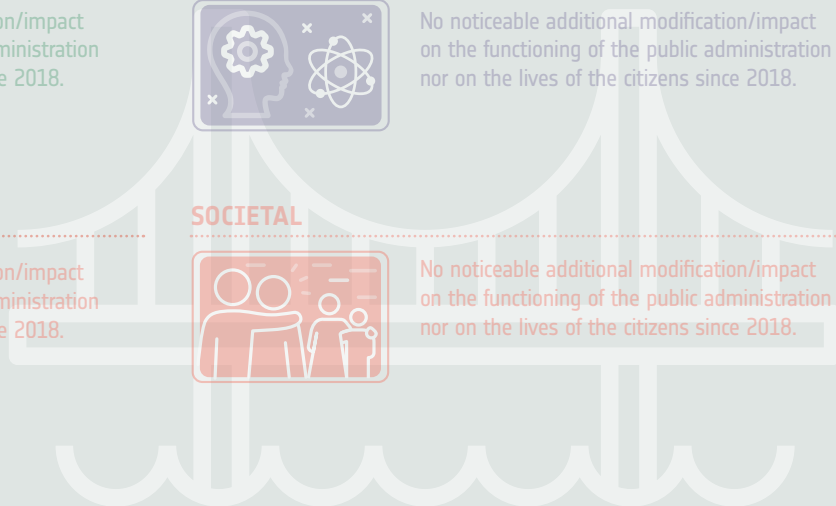


No noticeable additional modification/impact on the functioning of the public administration nor on the lives of the citizens since 2018.

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://earsc.org/sebs>

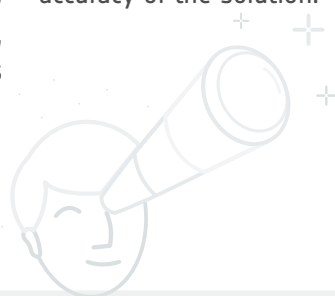
Interesting facts...

The processing of Copernicus data is now entirely automated and can be run by the public authorities themselves. Additionally, Norwegian public authorities have set up the processing system to be run for all mountain regions, enabling thus a country-wide detection of snow avalanches on almost daily basis.



Outlook to the future

Future plans foresee the use of machine learning for snow avalanche detection in order to additionally improve the accuracy of the solution.



Acknowledgements

This pre-operational service, based on Copernicus data, is a joint project between the independent research company Norut, the Norwegian Avalanche Centre at NVE and the Norwegian Public Road Administration, financed by the Norwegian Space Centre.

Contacts

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