GAUSS
GENERATING ADVANCED USAGE OF EARTH OBSERVATION FOR SMART STATISTICS

SNOW STATISTICS IN FINLAND

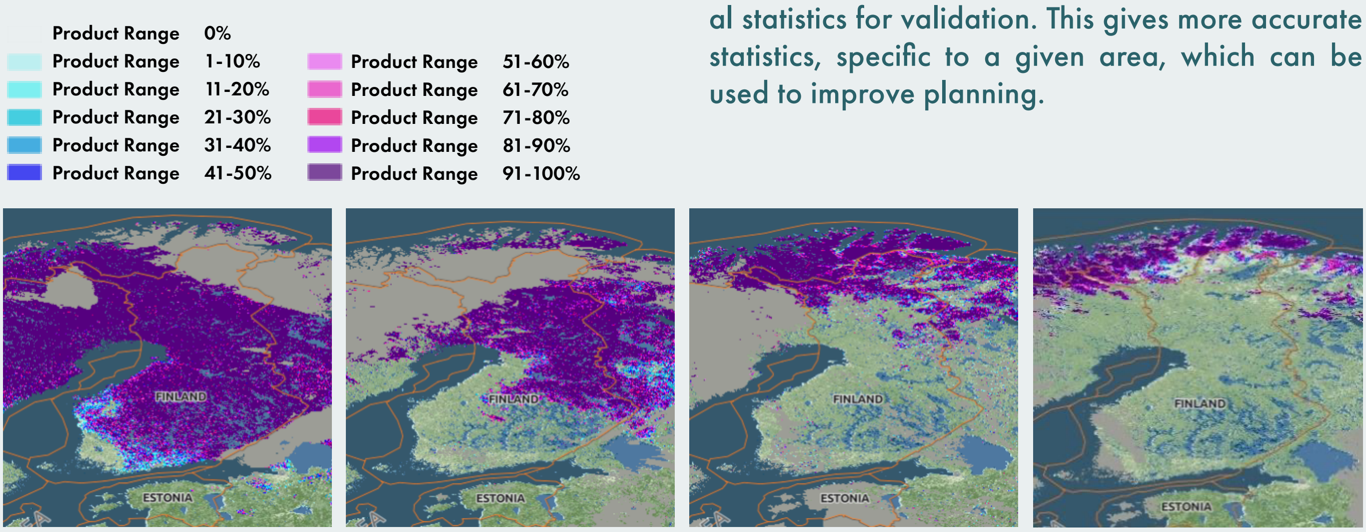
CASE STUDY 2

As the most northern country in the EU, accurate information on snow is critical for Finland. Among other things, statistics on snow are used to ensure that buildings are designed in line with expected loads, that logistics and transport are planned according to likely blockages, and that forecast meltwater is taken into account for drainage and hydropower.

Traditionally, the Finnish Environmental Institute (SYKE) provides Statistics Finland with a value for the Snow Water Equivalent (SWE) on a specified date (16th March) every year, using selected in-situ measurements at points around the country. Other statistics of interest, such as the first snow-free day, can also be provided for these points.

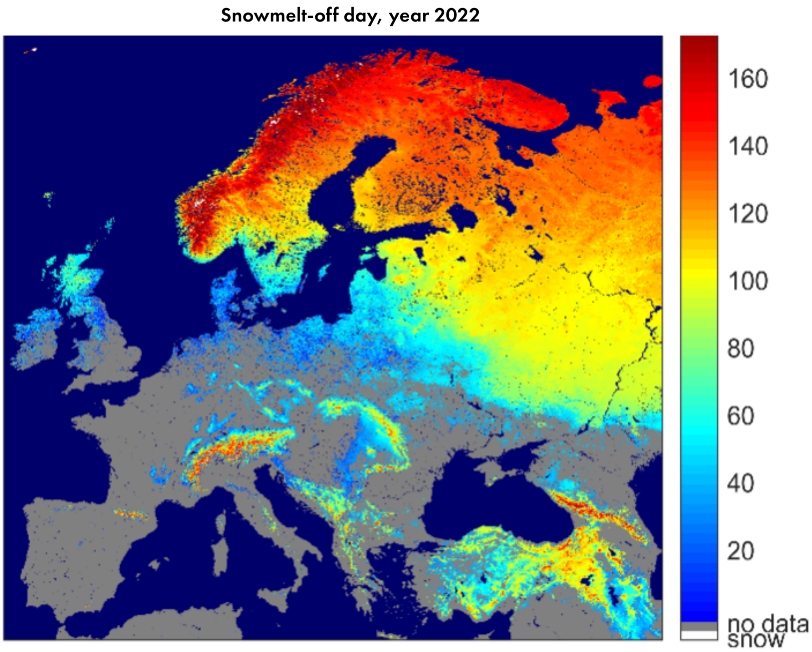
This case study has shown how earth observation data can be used to replace these point values with a range of data covering different places and times. A range of different sensors is used so that the service is not dependent on having cloud free skies. They are also fused with values from traditional in-situ sensors, as well as taking into account more novel types sensors such as webcams.

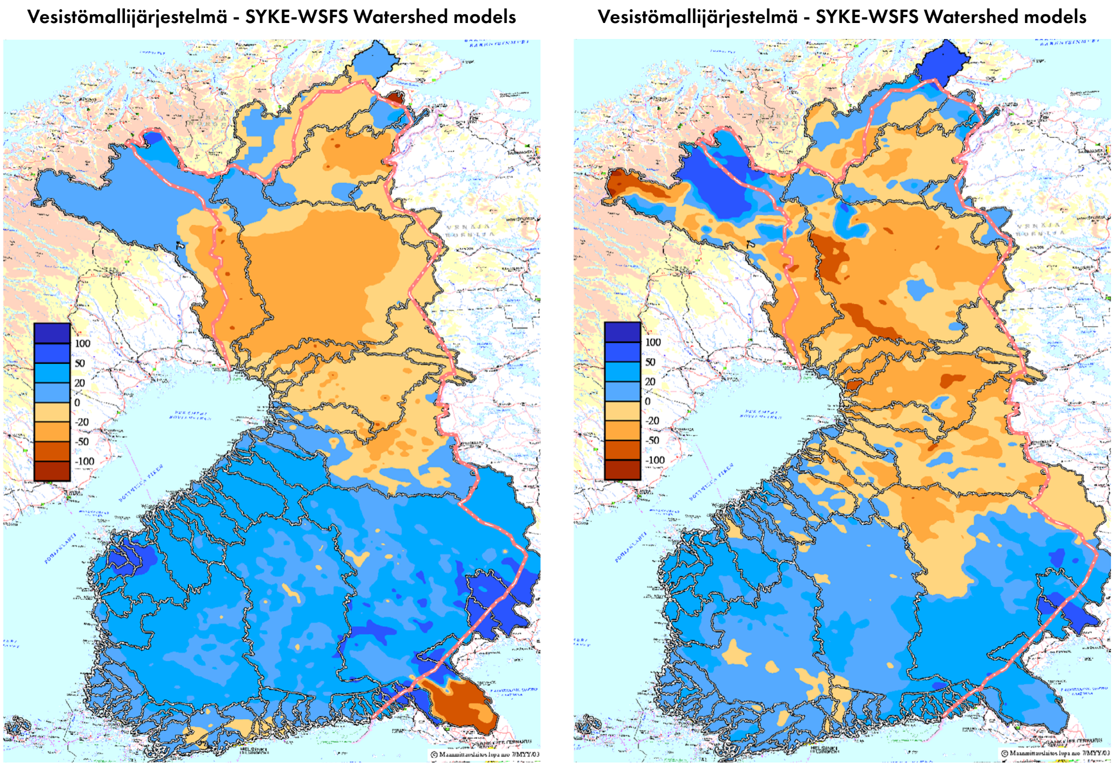
These outputs have been compared to the traditional statistics for validation. This gives more accurate statistics, specific to a given area, which can be used to improve planning.



19th April 2022 | 6th May 2022 | 14th May 2022 | 25th May 2022

Examples of the daily CryoLand FSC products 2022 (courtesy of ENVEO IT GmbH, FMI and SYKE, www.cryoland.eu) and the Snow melt-off map generated for the data from the beginning of January 1st (by SYKE).





Example of mean monthly anomaly maps (mm) of January 2022 for simulated SWE (left) and EO SWE (right)

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