



EUMETNET
EUROPEAN METEOROLOGICAL
SERVICES NETWORK

C-SRNWP

Surface breakout session 2021

Patrick Samuelsson (SMHI)
Chair of Surface Expert team

Agenda of Surface Breakout Session

- **Patrick Samuelsson: “The C-SRNWP project on ESA-CCI land cover”**
- **Daniel Regenass: “Numerics of the 1d Richards Equation and implications for land surface modelling on the kilometer-scale”**
- **Geoffrey Bessardon: “An update on physiography activities at (Met Éireann) including some work on machine learning”**
- **Eoghan Keany: “Mapping of building heights for Ireland using Sentinel-1 and Sentinel-2 time series”**
- **Samuel Viana: “Implementation of Roughness Sublayer in SURFEX”**
- **Discussions... please bring items and questions!**

The C-SRNWP project on ESA-CCI land cover

The EUMETNET Assembly decided last November to support our proposal of a three year position (2021-2023) dedicated to “Evaluation and updates of ESA-CCI global land cover map for NWP needs”.

The position is now held by Doctor Sandro Oswald at Austrian Met Service, ZAMG

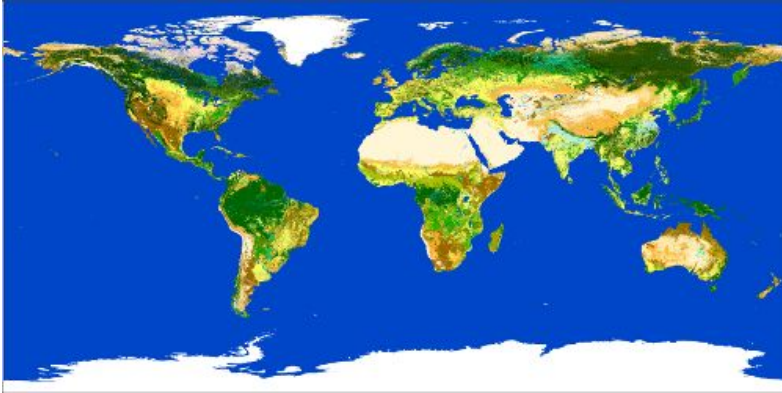


Sandro is involved in projects with focus on land use changes in urban environments where he combines work with land cover/use information from databases and from satellite products. He has also experience with machine learning methods.

A Supervisory team is connected to the position:

- **Patrick Samuelsson (SMHI, chair of C-SRNWP Surface Expert team)**
- **Ekaterina Kurzeneva (FMI)**
- **Bolli Pálmason (IMO)**

ESA-CCI products



<http://www.esa-landcover-cci.org/?q=node/164>

Land cover

- Global land cover maps at 300 m spatial resolution. Latest release v2.1.1.
- Period: Annually 1992-2019.
- The typology counts 38 classes based on the UN Land Cover Classification System (LCCS) and includes natural surfaces, but only 1 urban class and 1 water class.

Water bodies

- Water Bodies - v4.0: A static map with the distinction between ocean and inland water is now available at 150 m spatial resolution

For SURFEX ECOCLIMAP Second Generation users: Based on ESA-CCI land cover v1.6.1 for the 2010 epoch (2008-2012). Complemented with water bodies info to distinguish sea/lake/river and with urban info to create 10 LCZ urban classes.

The C-SRNWP project on ESA-CCI land cover

In our proposal we defined a few items that the project should fulfill. The project should support the C-SRNWP Met services by:

- gather and document reports on identified deficiencies and suggested corrections from all C-SRNWP institutes.
- prepare and, with certain intervals, release corrected versions of the ESA-CCI land cover product which can be downloaded by the C-SRNWP partners.
- share the documentation and updated product with C3S so that their new releases can benefit from the work.

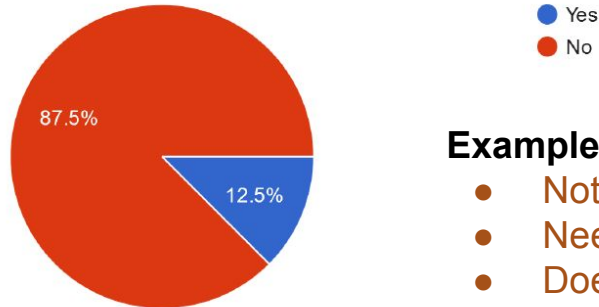
The team (Sandro and supervisors) would like to understand if these items are still relevant according to the C-SRNWP Surface Expert Team. Therefore a survey has recently been performed.

Representatives from ACCORD, UK Met Office and COSMO have responded.
A short summary of the outcome is...

The C-SRNWP project on ESA-CCI land cover

Do you already apply the ESA-CCI land cover product in your consortia?

8 responses



Examples of responses:

- Not available through the current NWP system yet.
- Needs further investigation.
- Does not fulfill our very-high resolution needs (higher than 300 m).

Comments:

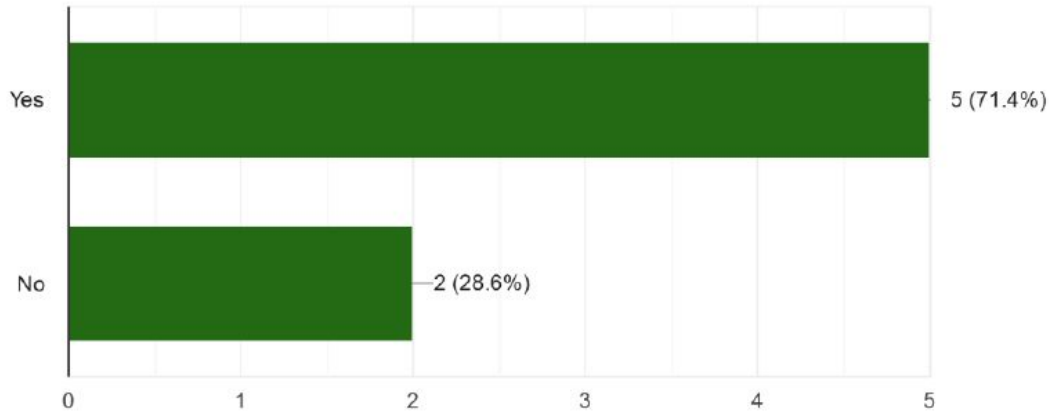
- It only includes one urban class and one water class. Thus needs complementation for urban and water from other sources (e.g. LCZ for urban) before it can be applied in our NWP system.

The C-SRNWP project on ESA-CCI land cover

... but the intention to use it is larger:

Are you going to do it?

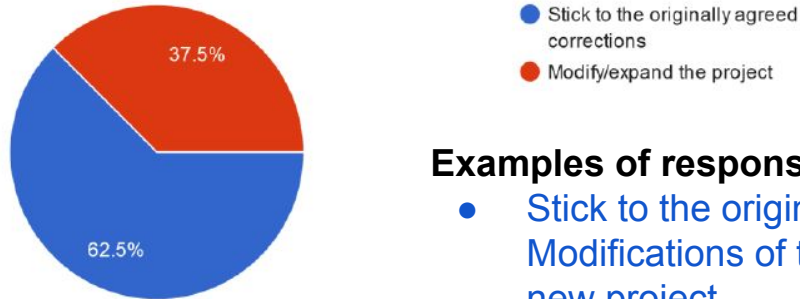
7 responses



The C-SRNWP project on ESA-CCI land cover

Should we stick to the originally agreed corrections of ESA-CCI land cover (see description above)
or should we modify/expand the project?

8 responses



Examples of responses:

- Stick to the original idea, useful enough. Modifications of the original ideas should mean a new project.
- We should include a common solution for more urban and water classes.

Comments:

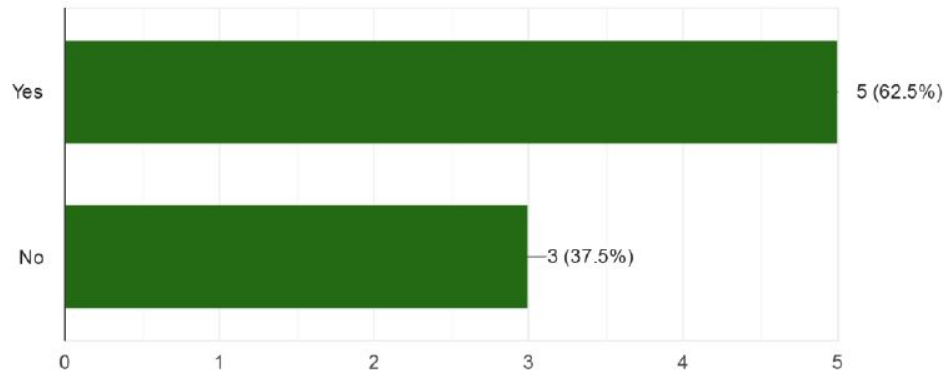
- Complicating factor: One should be aware of that corrections needed vary between years (1992-2019).

The C-SRNWP project on ESA-CCI land cover

Do you use other global land monitoring data such as LAI or NDVI (near real-time) from

Copernicus?

8 responses



Examples of responses:

- Yes, Copernicus satellite LAI and albedo products.
- No, other...

The C-SRNWP project on ESA-CCI land cover

How to proceed:

- **More comments besides the presented outcome of the survey from this audience?**
- **Sandro and the Supervisory team will discuss the outcome of the survey and decide how to proceed.**
- **Technical aspects to tackle:**
 - **Reporting interface, i.e. how should Met service members report identified deficiencies in ESA-CCI land cover?**
 - **How to work with the data? E.g. the ESA SNAP architecture provides a tool for Earth Observation processing and analysis.**



THANKS!

Lake Ågelsjön, Norrköping, Sweden