



EUMETNET
EUROPEAN METEOROLOGICAL
SERVICES NETWORK

Summary of EWGLAM Surface Sessions 2025

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Chair of Surface Expert team

Sessions on surface aspects - parameters

Work and improvement of our physical surface models is still important, like the parameterizations themselves, but also we should put **efforts in reasonable estimation of the parameters applied...**

This was brought up by Christoph Rüdiger (ECMWF) and Jürgen Helmert (DWD).

Chris emphasized the potential given by **going from the physical world to the data-driven ML world and back again**. And how we can utilize satellite data better, not only for DA.

Jürgen described their **Adaptive Parameter Tuning (APT)** system where increments in the assimilation (DA) are used to dynamically optimize parameters, improving forecast accuracy and operational reliability.

Sessions on surface aspects - excess ground-heat flux

Excess ground heat flux, and consequently an overestimated amplitude of the soil temperature diurnal cycle, have been identified both in the TERRA model in COMSO and in the SURFEX model in ACCORD.

Jan-Peter explained how the use of the IFS skin temperature concept helped to improve the situation and Patrick explained how modified top-soil properties help to improve the situation.

Sessions on surface aspects - urban

Jan-Peter reports on the success of how the urban model TERRA_URB, implemented and tested in ICON, performs well!

Chris shows how urban agglomeration areas (continuous cluster of grid points with an urban cover > 10%) show good agreement between observations and simulations of Urban Heat Island.

Sessions on surface aspects

In the LACE community the ALARO atmospheric model has been coupled to the surface model SURFEX. Martina Tudor reported on the status of the coupling and results from evaluation.



The Copernicus Climate Change Service Evolution (CERISE) project aims to enhance the quality of the C3S reanalysis and seasonal forecast portfolio, with a focus on land-atmosphere coupling.

A few ACCORD partners contribute to to CERIS. Among those, SMHI and MetNorway, where **two flavours of EnKF** are developed and evaluated, the Ensemble Square Root Filter (EnSRF) and the Local Ensemble Transform Kalman Filter (LETKF). Abhishek Lodh (until recently at SMHI) reported about these activities.

Sessions on surface aspects - soil properties

Jürgen reports how the multi-layer clay and sand Soilgrids data are being used in COSMO.

Not presented these days, but our visiting student at SMHI, Benjamin Vite, has shown that surface energy fluxes (Bowen-ratio) are quite sensitive for how the vertical distribution of clay and sand are described for the model.