Contribution ID: **19** Type: **Oral presentation**

Assimilation of SCATSAR-SWI with SURFEX: Resolution studies over Austria

Wednesday, 27 November 2019 11:50 (20 minutes)

The performance of numerical weather prediction (NWP) can be improved significantly by assimilating remotely sensed soil moisture in the included land surface model. In our study, we investigate the improvement of the NWP in the Austrian domain by assimilating the multi-layer fused data product SCATSAR-SWI (Soil Water Index) with the surface model SURFEX. The SURFEX assimilation employs a multi-layer diffusion scheme approach and the simplified Extended Kalman Filter. The data has a grid sampling of 500 m, whereas the assimilation system is run with different grid resolutions. Our goal is to find the optimum relation between exploiting the high-resolution information and reasonable computational effort as well as to test the limits of the underlying physical parametrisations in the NWP model.

The soil moisture analysis with 1.25 km resolution shows a positive impact on the NWP skill metrics compared to 2.5 km when using the same setup for the atmospheric forecast model. To probe the quality of the soil moisture analysis directly, we plan furthermore a comparison with in-situ measurements in Austria.

Which session would you like to present in?

1. Hydrological data assimilation for NWP

Primary authors: Dr VURAL, Jasmin (ZAMG Vienna, Austria); Dr SCHNEIDER, Stefan (ZAMG Vienna, Austria)

Presenter: Dr VURAL, Jasmin (ZAMG Vienna, Austria)

Session Classification: Session 3: Hydrological data assimilation for NWP

Track Classification: H SAF and HEPEX joint workshop on ”Satellite inspired hydrology for an uncertain future”