The use of NWCSAF software products at the German Weather Service: forecast branch and numerical weather prediction

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Abstract

A short introduction on technical aspects of the operational implementation of both NWC-SAF software packages at DWD will be given. The purpose of operating is to support mainly the following activity fields of the service:

1. the short range and very short range forecasts issued by the 6 regional forecasting centres and the supervising centre;

2. the creation of a satellite based climatology of clouds, the radiation budget and humidity parameter (SAF on Climate Monitoring);

3. operating of a suite of nonhydrostatic numerical models (Local model, Local model Europe, Local model short range)

The focus of this presentation is set on items 1 and 3.

Based on forecast impact estimations and expected product quality the forecasters were triggered to make use of selected NWCSAF/MSG products in their daily business. The list of products with highest priority consists of CTY, CTH, CRR, TPW, SAI and RDT. Experiences, pro's and cont's, obtained from case studies and forecasters' response will be emphasised in this section. The implications of squared structures to be found in CTTH products has to be discussed. Some investigations were carried out to link SAI and TPW together to create a so-called 'Convective Rain Index'. First results will be presented.

Supporting the numerical weather prediction in this context means bifocal kind of applications: the generation of variable surface characteristic maps and clutter correction of RADAR echoes utilised for the latent heat nudging step, both using the cloudmask/cloudtype information. An overview will be given. Examples show a quite good performance in snow detection in general, but serious misclassifications of multilayered clouds as snow over mountaineous areas with PPS. Problems in obtaining the real cloud type in twilight conditions with MSG algorithm and implications with clutter correction will be discussed.

It can be concluded that by utilising NWCSAF software products many new opportunities to improve the weather forecast have grown up. The recommendations made above will be summarised and an outlook on the future use of NWCSAF software products at DWD shall be provided.

kind of presentation: *power point, verbal*
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