Generating automatic warning proposals

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A warning system is a complex chain, which builds on different applications leading to a customer friendly product. The goal of the product is to deliver useful information to the end-user, giving indication of the severity of the event and what best to do in order to avoid damages and/or injuries/fatalities. In-between the different production steps are a number of processes, which can be altered to improve the products; for example by including probabilistic information or by producing impact-oriented warnings.

As MeteoSwiss is renewing its warning system, it opens up the possibility to include the above-mentioned information. Furthermore, it also offers the option to automatize the warning generation chain. One key part of this process are the automatically generated first guesses of warning regions. These regions display the danger level of any given hazard based only on the meteorological situation; hence, no predefined regions will be used to generate the warning products. As of now, MeteoSwiss used a set of predefined regions on which the danger level was indicated. These regions were not necessarily defined to best represent weather phenomena but rather often municipal boundaries.

However, how to produce meaningful regions is not trivial and it requires discussions with the forecasters as there are a number of parameters to tune. Tuning the regions is needed as no forecasting system is perfect and ideally, the automatically generated first guesses compensate for these short-comings. However, realistically speaking, before achieving a fully automatic warning system, there will be an intermediate phase when first guesses will likely have to be manually adjusted by the forecasters.

We will present our work and first results of automatic warning proposals based on COSMO-2E and feedbacks thereof we got from discussions with the forecasters.