

Investigation of preconvective environment of severe storms using MTG IRS proxy data

Jana Čampa (1), Thomas August (2), Mateja Iršič-Žibert (1), and Boštjan Muri (1)

(1) ARSO, Slovenian Environment Agency, Ljubljana, Slovenia (jana.campa@gov.si), (2) EUMETSAT, Darmstadt, Germany

The knowledge of the vertical structure of the atmosphere is extremely important for a reliable weather forecast, especially in the case of severe convection. The next generation of EUMETSAT geostationary satellites (MTG) will offer such information from the new hyper-spectral infrared sounder (MTG IRS). In the preparations phase, observations from the METOP/IASI instrument are used as a proxy. The IASI Level 2 geophysical parameters, including temperature and moisture profiles, are routinely retrieved in near-real time at EUMETSAT and distributed to NMSs. Currently only available two times a day, similar data will be available continuously from MTG and will offer even more options for the use in operational forecasting and nowcasting.

The verification of the profiles with AMDAR aircraft data has shown that these profiles are reliable enough for the direct use in nowcasting, even though they are much smoother than radiosonde or aircraft data. Additionally, they are available to forecasters significantly earlier than the first model analysis that includes these data.

Information on two ingredients of convection can be derived from satellite profiles - instability and moisture. We investigate these parameters in the vicinity of thunderstorms, which are identified via lightning data and ESWD reports. The comparison to the model forecasts valid at the time of the satellite overpass highlights the additional information for the forecasters.