



Remote sensing: data combination as a key for storm nowcasting

Michaela Valachova (1,3), Hana Kyznarova (2), Petr Novak (2), and Martin Setvak (2)

(1) Czech Hydrometeorological Institute, Central Forecasting Office, Prague, (2) Czech Hydrometeorological Institute, Division of Remote Sensing and Information, Prague, (3) Charles University, Department of Atmospheric Physics, Prague, The Czech Republic

Nowcasting of convective storms is one of the most challenging tasks for operational weather forecasters. Despite the fact that storm characteristics depend on many factors, the processes of electrification, dynamics and microphysical composition of storm clouds are closely related. Methods of remote sensing offer comprehensive information about the storm life-cycle: from the formation of the initial cumulus cloud to the mature storm decay.

Remote sensing is the essential source of information about the storm development at the Czech Hydrometeorological Institute. However, satellite, radar, sounding and lightning observations are used more or less separately. By means of multi-sensor measurements we focus on a temporal evolution of convective storms in the Central Europe. According to the observations and European Severe Weather Database, two different categories of storms are characterised: severe and non-severe, which could bring direct use for very short-term forecasting and improve a real-time warning process. In our studies we seek various severe storm indicators by effective data combinations of available measurements. Our research aim to fulfil remote sensing potential and meet the forecasters' requirements for a better nowcasting tool.