



Tracking of radar reflectivity cores and their characteristics - utilization in operational application

Hana Kyznarova and Petr Novak

Czech Hydrometeorological Institute, radar department, Praha, Czech Republic (kyznarova@chmi.cz)

Many cell-tracking algorithms for identification of radar reflectivity cores corresponding to convective storms and their tracking were developed in the past. A convective storms nowcasting algorithm named CELLTRACK, that identifies and tracks individual reflectivity cores, was developed in the Czech Hydrometeorological Institute (CHMI) and is operationally used for several years in the CHMI forecast offices. CELLTRACK identifies reflectivity cores as continuous areas of reflectivity higher than a given threshold. After testing of several reflectivity thresholds, the value of 44dBZ was chosen as a most useful for convective storms nowcasting. CELLTRACK allows tracking and extrapolation forecast of the identified reflectivity cores and is also able to deal with splitting and merging of the cores.

CELLTRACK also allows assignment of different radar and lightning detection characteristics to individual reflectivity cores. Available characteristics are maximum reflectivity, height of maximum reflectivity, echotop height, area, vertically integrated liquid, hail probability, number of associated lightning strokes and others. Radar characteristics are calculated operationally, operational use of lightning detection data is currently under preparation. However suitable visualization of these characteristics is currently not available. It will be available in a new version of the web-based application JSMeteoView for operational visualization of radar data, which is currently under development.

The contribution will focus on description and utilization of reflectivity cores characteristics. It will also discuss possibilities of visualization of reflectivity cores characteristics that satisfies the needs of CHMI forecast offices.