



Climatological aspects of convective parameters for Europe: comparison of reanalysis and sounding data

Mateusz Taszarek (1), Harold E. Brooks (2), and Bartosz Czernecki (1)

(1) Adam Mickiewicz University, Department of Climatology, Poznań, Poland (mateusz.taszarek@amu.edu.pl), (2) NOAA/National Severe Storms Laboratory, Norman, Oklahoma

ERA-Interim reanalysis including surface data and over 2.5 million atmospheric soundings from years 1979-2016 are used to present climatological aspects of convective parameters for Europe. The most important differences regarding these two datasets are discussed. Preliminary results indicate that vertical shear parameters are underestimated in ERA-Interim when compared to sounding observations. The degree of underestimation is the greatest in the lower troposphere (0-1 km shear) and decreases with height (e.g. 0-3 km, 0-6 km). Underestimation is also higher during warm season (Apr-Sep) and lower during cold (Oct-Mar). Regional analysis indicate that ERA-Interim overestimates thermodynamic instability over Mediterranean area and underestimates over central and eastern Europe. Among CAPE parameters surface based and most unstable CAPE are better correlated with observational data than mixed layer CAPE. Low-level wind shear is underestimated in the whole Europe but the biggest differences are observed in the Mediterranean area. ERA-Interim slightly underestimates temperature lapse rates in western, central and eastern Europe during warm season, and overestimates over cold season. Over Mediterranean area lapse rates are overestimates from March to September. Both datasets indicate that the highest annual number of days with environmental conditions favorable for thunderstorms cover N Italy and Balkan Peninsula. Enhanced values are also observed over Mediterranean, central and eastern Europe.