



Assessment of various convective parametrisation schemes for warm season precipitation forecasts

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In the frame of the EU/FP6-funded FLASH project the sensitivity of numerical model quantitative precipitation forecasts to the choice of the convective parameterization scheme (CPS) has been examined for twenty selected cases characterized by intense convective activity and widespread precipitation over Greece, during the warm period of 2005 – 2007. The schemes are: Kain – Fritsch, Grell and Betts – Miller – Janjic. The simulated precipitation from the 8-km grid was verified against raingauge measurements and lightning data provided by the ZEUS long-range lightning detection system. The validation against both sources of data showed that among the three CPSs, the more consistent behavior in quantitative precipitation forecasting was obtained by the Kain – Fritsch scheme that provided the best statistical scores.

Further various modifications of the Kain–Fritsch (KF) have been examined. The modifications include: (a) the maximization of the convective scheme precipitation efficiency, (b) the change of the convective time step, (c) the force of the convective scheme to produce more/less cloud material, (d) the alteration of the vertical profile of updraft mass flux detrainment.