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Results of analysis of archive MSG data in the context of MCS prediction system development for economic decisions assistance - case studies

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PROZA (Operational decision-making based on atmospheric conditions) is the project co-financed by the European Union through the European Regional Development Fund. One of its tasks is to develop the operational forecast system, which is supposed to support different economies branches like forestry or fruit farming by reducing the risk of economic decisions with taking into consideration weather conditions. In the frame of this studies system of sudden convective phenomena (storms or tornados) prediction is going to be built. The main authors' purpose is to predict MCSs (Mezoscale Convective Systems) basing on MSG (Meteosat Second Generation) real-time data. Until now several tests were performed. The Meteosat satellite images in selected spectral channels collected for Central Europe Region for May and August 2010 were used to detect and track cloud systems related to MCSs. In proposed tracking method first the cloud objects are defined using the temperature threshold and next the selected cells are tracked using principle of overlapping position on consecutive images. The main benefit to use a temperature thresholding to define cells is its simplicity. During the tracking process the algorithm links the cells of the image at time t to the one of the following image at time t+dt that correspond to the same cloud system (Morel-Senesi algorithm). An automated detection and elimination of some instabilities presented in tracking algorithm was developed. The poster presents analysis of exemplary MCSs in the context of near real-time prediction system development.