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Convection Nowcast for Air Traffic Management Verification

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Air Traffic Management (ATM) is a common name for all systems assisting aircraft on its journey. Two main activities of ATM are Air Traffic Control (ATC) – in charge of aircraft separation, and Air Trafic Flow Management (ATFM) – in charge of airspace capacity planning. Because every air traffic controller can handle limited number of planes at once, every airspace and ATM sector has certain traffic capacity. Main goal of ATFM it to evenly distribute air traffic load over time and space. Warm season deep moist convection challenges this goal, because widespread storms of great vertical extent cause large air traffic detours and congestion of airspace around convectively active areas, increasing workload on air traffic controllers.
Therefore, precise and accurate short range forecasts of convective coverage and cloud tops are essential for tactical planning and flow planning in ATM, and are of great importance for flight safety.
To address some of these issues, in 2016, Croatia Control meteorological division tested a new forecast product for ATM - Convection Nowcast. ATM Convection Nowcast is a graphical forecast of deep moist convection horizontal and vertical coverage of ATM sectors. It is manually generated by forecasters, using ingredients-based methodology and remote sensing data.
During the testing period in convective season, in the same format as original nowcast, verification data was generated using IR satellite images and lightning detection data. At the end of the testing period, forecasts were compared to obserations in order to answer two key questions:
1. how good is forecast of convective coverage, and
2. how good is forecast of convective cloud tops.
Usual verification measures were used in this process. This poster presents details about the ATM Convection Nowcast product and verification results for the testing period in 2016.