



Bulgarian Integrated NowCasting tool (BINCA)

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Geographical location and climate features determine Bulgaria as one of the countries with high frequency of severe weather phenomena including hail, flood, lightning, etc. As a part of the trans-national project “BalkanMed real time severe weather service (BeRTISS)” the Bulgarian Integrated NowCasting tool (BINCA) is developed. The tool uses the Global Navigation Satellite System (GNSS) data from the recently deployed GNSS network at the Hail Suppression Agency (HSA) and the Sofia University. The GNSS data from 12 ground-based stations is processed in near-real time. For derivation of water vapor products surface pressure and temperature from the Weather Research and Forecasting (WRF) model is used. The atmospheric water vapor is a key element of the hydrological cycle and participates in cloud and precipitation formation and atmospheric stability. Two dimensional water vapor maps and water vapor time-series will be visualized. The radar data are obtained by 7 Doppler radar station (S and X band) covering the territory of Bulgaria. The full volume scan is performed every 4 minutes. Interactive Radar Information System (IRIS) generates products based on this volume scan. The operational nowcasting tool will be developed on a publicly accessible web platform. The tool will combine radar and GNSS products and as well as surface atmospheric observation data from the automatic networks operated by HSA and Sofia University. The WRF model runs will be conducted twice a day with horizontal resolution of 4 km covering Bulgaria. The forecast products will be also integrated in the operational tool. One year of testing of the tool in operational settings is planned.