



GNSS water vapour products for the BeRTISS service in Bulgaria

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Sofia University is a project partner of the "BalkanMed real time severe weather service" (BeRTISS) funded by the Ineterreg Balkan-Mediterranean Program. Main objective of the BeRTISS project (2017-2019) is to establish a pilot transnational severe weather service by exploiting Global Navigation Satellite Systems (GNSS) tropospheric products to enhance the safety, the quality of life and environmental protection in the Balkan-Mediterranean region. Sofia University contributes with: 1) operational provision of GNSS tropospheric products processed by the Sofia University GNSS Analysis Centre (SUGAC), 2) numerical simulations with Weather Research and Forecasting Model (WRF) and 3) delivery of GNSS water vapor product to the severe weather services and public. In this work the GNSS processing strategy is outlined. The SUGAC was established in 2014 and one year processing campaign has been conducted in post-processing mode. The SUGAC operational processing will be in near-real time mode using the Bernese software and will start with 12 newly installed ground-based GNSS stations, operated by the Sofia University and the Hail Suppression Agency (HSA). To derive water vapour products the WRF model forecast of surface pressure and temperature will be used. The GNSS water vapour products and WRF forecast will be provided to HSA for integration in Bulgarian Integrated NowCASTing tool. In addition, GNSS water vapour will be used for case studies of selected severe weather events like intense precipitation, hail and thunder storms, fog and foehn. The GNSS data from the BeRTISS network in Bulgaria will be provided to the analysis centers in Greece and Cyprus and as a next step in the SUGAG processing the networks of Greece and Cyprus will be included.