



Investigation on extreme daily rainfall estimation using MSG MPE approach for North Tunisia

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Evaluation of satellite-retrieved extreme precipitation is important for flood management, soil erosion assessment and other environment issues. Due to damage risk to houses, farms and buildings, heavy precipitation may have important social impacts. The paper aims to investigate the potential of the Meteosat Multi Sensor Precipitation or MSGMPE data which combine microwave rain rate estimations from the SSMI sensor and since mid-2009 the AMSU-A sounder with the SEVIRI thermal infrared channel from MSG-2 using an EUMETSAT production chain in near real time mode. The data were analysed using ILWIS Open and extreme rainfall patterns across the north of Tunisia were generated. Rainfall events with at least 50 mm/day observed across the rainfall ground network were selected for the period 2007-2009. Kriging methods were applied to generate rainfall maps which were then compared to satellite estimations using the precipitation products available in the EUMETSAT UMARF archive and/or from GEONETCast. The summation of the MPE estimates and products available at 5 min and 15 minute time steps over 24h, gave rise to the comparison basis. Correlation coefficients were used to undertake the comparison. It was found that for some events pixels correlation coefficients of 0.65 were achieved while for other events however, the correlation was weak and non-significant. The MSGMPE data should be combined with other data or information in order to give more reliable extreme rainfall estimates for all weather situations in Tunisia.

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