



## **Radar data pre-processing for reliable rain field estimation**

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A comparative analysis of different pre-processing methods applied to radar data for the minimization of the uncertainty of the produced Z-R relationship is conducted. The study focuses on measurements from 3 ground precipitation stations which are located in close proximity to the Souda Bay C-Band radar in Crete, Greece. While precipitation and reflectivity measurements were both collected in almost synchronized 10 minute intervals, uncertainties related to timing issues are discussed and measurements are aggregated to various scales up to 12 hours. Reflectivity measurements are also transformed and resampled in space, from polar coordinates to regular grids of 500 to 5000m resolution. The tradeoffs of both spatial and temporal transformation are discussed. Data is also filtered for noise using simple thresholding, the Wiener filter and combinations of both methods. The effects of the three pre-processing procedures are studied with respect to the final fit of the data to acceptable Z-R equations for the generation of reliable precipitation fields.