



Analysis of long term trends of precipitation estimates acquired using radar network in Turkey

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Precipitation estimates, a vital input in many hydrological and agricultural studies, can be obtained using many different platforms (ground station-, radar-, model-, satellite-based). Satellite- and model-based estimates are spatially continuous datasets, however they lack the high resolution information many applications often require. Station-based values are actual precipitation observations, however they suffer from their nature that they are point data. These datasets may be interpolated however such end-products may have large errors over remote locations with different climate/topography/etc than the areas stations are installed. Radars have the particular advantage of having high spatial resolution information over land even though accuracy of radar-based precipitation estimates depends on the Z-R relationship, mountain blockage, target distance from the radar, spurious echoes resulting from anomalous propagation of the radar beam, bright band contamination and ground clutter. A viable method to obtain spatially and temporally high resolution consistent precipitation information is merging radar and station data to take advantage of each retrieval platform. An optimally merged product is particularly important in Turkey where complex topography exerts strong controls on the precipitation regime and in turn hampers observation efforts. There are currently 10 (additional 7 are planned) weather radars over Turkey obtaining precipitation information since 2007. This study aims to optimally merge radar precipitation data with station based observations to introduce a station-radar blended precipitation product. This study was supported by TUBITAK fund # 114Y676.