Geophysical Research Abstracts
Vol. 14, EGU2012-10469-3, 2012
EGU General Assembly 2012

Evaluation of Multiple Satellite-based Rainfall Products over a Topographically Complex Watershed

Y. Derin and K. K. Yilmaz
Middle East Technical University, Department of Geological Engineering, Ankara, Turkey

Recent improvements in the ability of satellite-based rainfall retrieval algorithms to produce near-real time estimates at high space and time resolutions make them potentially attractive for basin scale hydrologic studies. These algorithms are potentially valuable for hydrological modeling in watersheds with complex topography due mainly to difficulties in representation of high rainfall variability using rain gauges. This study evaluates three different satellite-based rainfall retrieval algorithms, namely, Tropical Rainfall Measuring Mission Multi-satellite Precipitation Analysis (TMPA), NOAA/Climate Prediction Center Morphing Method (CMORPH) and EUMETSAT's Multi-Sensor Precipitation Estimate (MPE) using a relatively dense rain gauge network within topographically complex Filyos Basin in Turkey. The evaluation is performed at multiple time (daily, monthly, annual) and space scales (point, grid, basin scale) using quantitative, categorical and graphical measures. Our initial results indicated that satellite-based algorithms significantly underestimated the rainfall compared to the stations receiving orographic rainfall, whereas the satellite-based products overestimated the rainfall compared to the stations located in the drier regions of the basin. We will present the details of the evaluation results and discuss potential implications of using satellite-based rainfall algorithms as input to hydrologic models in topographically complex watersheds.