

EVALUATION OF SOUTH AFRICAN RADAR AND REMOTELY SENSED SURFACE PARAMETERS TO PREDICT FLOODING IN BOTSWANA

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Botswana has suffered extensively from flooding resulting from sudden downpours, the most serious of which was the February 2000 event which resulted from remnants of tropical cyclones. Extensive road flooding occurred, north-south links were severed and many hundreds of lives were lost. Such flooding has occurred before, but without such intensity. Efforts to help predict flooding were started such as the United States Geological Survey international project (Village Flood Watch Project, 2002) which provided for upgrading the number and quality of meteorological instrumentation and gages. With the establishment of a precipitation RADAR network in South Africa and Botswana, it has become feasible to apply hydrology models to the problem of real-time monitoring of flooding. A study has been done to determine whether accurate enough information exists to implement such a system. Required data sets for Botswana such as DEM's and Land Use/Land Cover (LULC) do not exist from national sources. This paper reports the results of an investigation into using satellite derived digital elevation models (e.g. Shuttle RADAR Topography Mission) and satellite derived Land Use/Land Cover along with typical algorithms for RADAR precipitation estimates to produce useable estimates for flooding. The effect of the low accuracy of the SRTM and LU/LC data sets is also assessed.