

Abstract

Climate change constitutes a significant constraint to agricultural development and fruition through perturbation of rainfall. Areas located in the eastern part of Rwanda are more vulnerable than other regions of the country, owing to their topography, geology and climatology. Comprehensive hydrogeospatial information will unveil its potential irrigation capacity and further suitable irrigation solutions for the region. This study aimed at mapping the hydrological and geological characteristics and other geospatial features of irrigable lands of Bugesera region, in the Eastern Province of Rwanda, using remote sensing and geographic information system's tools. The methodological approach consisted of processing Aster radar satellite image of 2006 and a topographic map of 1998 to enable designing a Digital Elevation Model (DEM) and producing different types of map layers using appropriate software packages (ILWIS 3.3, Erdas 8.7 and ArcGIS 9.2). These maps were interpreted to describe and classify lands by slope, water proximity, percentage of clay and sand in the soil, and land use/ cover types. This will further assist to determine the most suitable areas for irrigation and derive the characteristics of potential irrigation methods for each land. This is a useful planning tool for optimizing agriculture development in the Eastern Region of Rwanda