Abstract:

Nowadays, use of water is one of the most determinative parameters for social and even political planning as far as future conflicts are predicted around water rights of countries especially those with common water resources. Moreover information about water available quantity at the region, its temporal and spatial variation and careful maintenance and operation planning is needed for optimal use of this vital resource. Therefore development of advanced techniques such as remote sensing (RS) and geographic information systems (GIS) with possible different aspects of watershed conditions and faster and more reliable analysis of information have established a special position at the hydrological and water resources studies. According to the objectives of this study, preparation of snow coverage maps as well as water level contours using satellite images and finding relationship between them are two important goals of this research. To accomplish this, firstly satellite images of LANDSAT from TM sensor for a 10 years interval and satellite images of TERRA from MODIS sensor were obtained for the same interval. Next, snow coverage maps of watershed and water level contours were evaluated using MODIS and LANDSAT images, respectively. Finally, prediction model of inflow to Sistan reservoirs was developed using multi regression technique based on snow cover area of a 10 years interval. The resulting model was a 4th degree polynomial with high precision which indicates a significant relationship between snow area of watershed highlands and inflow volume to these reservoirs.

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Compilation of a model to predict the inflow to water reservoirs of Sistan based on snow cover using RS and GIS

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