

Analysis of MODIS Snow-Cover Map Changes During Missing Data Period

B. Rayegani*, S. J. Khajeddin, S. Soltani and S. Barati¹

(Received : Oct. 4-2006 ; Accepted : Sep. 26-2007)

Abstract

Snow is a huge water resource in most parts of the world. Snow water equivalent supplies 1/3 of the water requirement for farming and irrigation throughout the world. Water content estimation of a snow-cover or estimation of snowmelt runoff is necessary for Hydrologists. Several snowmelt-forecasting models have been suggested, most of which require continuous monitoring of snow-cover. Today monitoring snow-cover patches is done through satellites imagery and remote sensing methods. MODIS have smaller Spatial Resolution and more bands in comparison with Meteorology Satellite like NOAA. Therefore, in this research we used MODIS data for creating snow cover imagery. Existence of cloud in the study area is a major problem for snow cover monitoring. Therefore, in this research snow cover area changes were estimated without MODIS data period, but with DEM imagery and regressions between temperature, height and aspect. For this purpose, on 10 Esfand when the image was suitable we estimated the snow cover area. In comparison with real image, precision of the method was confirmed.

Keywords: Snow, Snow maps, Snow cover changes, Remote sensing, MODIS images, NDSI Index.

1. MSc., Assoc. Prof., Assis. Prof. and Former MSc. Student of Rang Manag., College of Natur. Resour., Isf. Univ. Technol., Isfahan, Iran.

*: Corresponding Author, Email: bhz_ray@yahoo.com