

# EVALUATING THE CAPABILITY OF SPOT5 DATA TO MONITOR POLLARDING FOREST AREAS OF NORTHERN ZAGROS

D. Bozorgnia<sup>\*a</sup> J. Oladi

<sup>a</sup> organization of tourism, cultural heritage and handicrafts, organization of tourism, cultural heritage and handicrafts, Iran, Mazandaran, Sari, Sari, Islamic Republic of Iran

Technical Commission VII Symposium 2010

**KEY WORDS:** Forestry, Land Cover, Vegetation, Processing, Image, SPOT, Satellite

## ABSTRACT:

To evaluate the capability of SPOT5 HRG data for monitoring the pollarding forest areas in northern Zagros, some parts of pollarded forests located at Baneh city were selected. The pollarding area was determined as ground truth in a 3-year alternation period using a global positioning system (GPS). Radiometric and geometric correction, were applied to the image and then the data was pre-processed, using 2 methods of spectral rationing and Principal Component Analysis (PCA). Likewise, multi-spectral bands were fused with IRS-1C PAN image, using a Principal Component transformation (PCT). The obtained results were combined with original bands. The separability of classes was studied using Bhattacharyya Distance Criteria. The resulting data was classified using a maximum likelihood algorithm. Then the classified image was compared with ground truth on a pixel by pixel base. In order to the determine classification accuracy, four parameters encompassing Overall Accuracy, Kappa Coefficient, Producer Accuracy and User Accuracy were used. The results showed that most of the classes were completely separatable from northern Koor class. The highest overall accuracy was 65.3% and Kappa Coefficient equal to 63% was obtained through classification using four-classes of the fused image. Northern Shan class showed the highest user accuracy (71%) and producer accuracy (78%). Likewise, southern Koor class showed the lowest user accuracy in all methods. Results of this study show the high capability of above mentioned images and methods to separate the pollarding areas and to prepare the map of the area.

**TOPIC:** Multi-spectral and hyperspectral remote sensing

**ALTERNATIVE TOPIC:** Land cover classification