13th Annual Meeting
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Contribution ID: **115**   Type: **Poster (+) Presentation**

Mapping Land Use and Land Cover Changes in Gilan Province of Iran between 1975 and 2015: GIS and Remote Sensing Analyses

Tuesday, 1 June 2021 10:00 (1 hour)

Assessing the land use and land cover change is crucial for sustainable natural resource management and understanding the changes in hydrologic processes and water cycle. In this study, we aim to quantify the land use and land cover changes in Gilan province of Iran between 1975 to 2015 using Landsat 2 MSS and Landsat 8 OLI/TIRS images, with spatial resolution of 80 m and 30 m, respectively. ArcGIS 10.5 and ERDAS Imagine 14 are utilized for image processing. Maximum likelihood supervised classification method is performed to generate the signature class of significant land cover classes including agriculture, plantation/orchards, moderate forest, urban settlements, water bodies, woodland, dense forest, good rangeland, and moderate rangeland. For each classified images, an accuracy assessment step is executed using error matrix and Kappa coefficient followed by the post classification change detection analysis. To provide detailed information about the spatial and temporal variation of land use and land cover, the statics of changes in 1975 relative to 2015 were delineated using transition probability matrix. Our analysis suggests that around 351,000 hectares in Gilan province (equivalent to nearly 25% of land cover) has changed between 1975 and 2015. The results show that dense forest and plantation/orchards are disappearing with obtained change ratio of -5.76%, and -5.88%, respectively. Agriculture and urban settlements have been expanded about 91,900 ha and 29,000 ha, respectively. The majority of the converted land use types to urban settlements are identified as plantation/orchards, agriculture, and water bodies. Forest conversion to other land uses, especially agriculture and plantation/orchards is highlighted in our analysis. The possible socio-economic impacts of these changes as well as their consequences on hydrologic processes in the region are discussed. Our investigation offers new insights regarding the changes in the land cover and land use in Gilan province of Iran which can guide future decisions, restorative land use practices, and contribute toward sustainable management of land, water and natural resources.

Keywords: Land use, Land cover, Sustainable management, Geographic information system, Remote sensing

Time Block Preference

Time Block B (14:00-17:00 CET)

References

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Student Poster Award

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Track Classification: (MS2) Porous Media for a Green World: Water & Agriculture