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Earth observation data for assessment of nationwide land cover and long-term deforestation in Afghanistan

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Abstract

This study generated a national level spatial database of land cover and changes in forest cover in Afghanistan for the 1975-1990, 1990-2005 and 2005-2014 periods. Using these results we analysed the annual deforestation rates, spatial changes in forests, forest types and fragmentation classes over a period of 1975 to 2014 in Afghanistan. The land cover map of 2014 provides distribution of forest (dry evergreen, moist temperate, dry temperate, pine, sub alpine) and non forest (grassland, scrub, agriculture, wetlands, barren land, snow and settlements) in Afghanistan. The largest land cover, barren land, contributes to 56% of geographical area of country. Forest is distributed mostly in eastern Afghanistan and constitutes an area of 1.02% of geographical area in 2014. The annual deforestation rate in Afghanistan's forests for the period from 1975–1990 estimated as 0.06% which was declined significantly from 2005-2014. The predominant forest type in Afghanistan is moist temperate which shows loss of 80 km^2 of area during the last four decades of the study period. At national level, the percentage of large core forest area was calculated as 52.20% in 2014.

Key words: Deforestation, fragmentation, conservation, earth observation, Afghanistan

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