RESEARCH ARTICLE

SPATIAL ESTIMATION OF VEGETATION INDEXES IN ANAIYUR CATCHMENT USING LANDSAT 8 IMAGE

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Abstract: The objective of this paper is to estimate three vegetation indexes forAnaiyur catchment of Kamuthytaluk, Ramanathapuram District,Tamil Nadu. The indexes estimated were Normalized Difference Vegetation Index (NDVI), Soil Adjusted Vegetation Index (SAVI), and Leaf Area Index (LAI). Landsat 8 satellite images with Operational Land Imager(OLI) Sensor and Thermal Infrared Sensor (TRIS) was used. Two Landsat Image of April 2017 and August 2019 belonging two different seasons was downloaded from the USGS website and used in calculation of the three indexes.The Normalized Difference Vegetation Index of Anaiyur Catchment for April, 2017 varies between 0.001 and 0.42 and for August, 2019 varies between 0.04 and 0.48. The Leaf Area Index of Anaiyur Catchment for April, 2017 ranges from -0.40 to 1.89 and for August, 2019 ranges from 0.27 to 2.82. The predicted value of Soil Adjusted Vegetation Index of AnaiyurCatchment for April, 2017 ranges from 0.002 to 0.63 and for August, 2019 ranges from 0.068 to 0.72.These vegetation attributes can be used in various study related to surface albedo, photosynthesis, carbon budgets, water balance, rainwater harvesting potential and related processes.

Keywords: Landsat Image, Remote Sensing, Vegetation Indexes

REFERENCES

Huete, A.R. (1988). A soil-adjusted vegetation index (SAVI). *Remote Sensing of Environment*. 25(3). 295-309

Koshal, A.K. and Kumar, S. (2015). Seasonal Coverage Analysis of Spatio-Temporal Satellite Data of India. *Journal of Plant Development Sciences* 7(8): 619-630.

Lillesand, T. M., Kiefer, R. W. and Chipman, J. W. (2008). Remote sensing and image interpretation. Hoboken, NJ: John Wiley and Sons.

Mazzarino, M. and Finn, J. T. (2016). An NDVI analysis of vegetation trends in an Andean watershed. Wetlands Ecol Manage. 24:623–640.

Ramachandran, J., Lalitha R. and VallalKannan, S. (2019). Remote sensing based greenness modeling of different crops in Lalgudi block using Landsat 8 image. *Journal of Soils and crops*, 29(2). 232-235.

Roy, D.P., Wulder, M.A., Loveland, T.R., Woodcock, C.E., Allen, R.G., Anderson, M.C., Helder, D., Irons, J.R., Johnson, D.M., Kennedy, R., Scambos, T.A., Schaaf, C.B., Schott, J.R., Sheng, Y., Vermote, E.F., Belward, A.S., Bindschadler, R., Cohen, W.B., Gao, F., Hipple, J.D., Hostert, P., Huntington, J., Justice, C.O., Kilic, A., Kovalskyy, V., Lee, Z.P., Lymburner, L., Masek, J.G., McCorkel, J., Shuai, Y., Trezza, R., Vogelmann, J., Wynne, R.H. and Zhu, Z. (2014). Landsat-8: Science and product vision for terrestrial global change research. *Remote Sensing of Environment*. 145:154–172.

Thavorntam, W. and Tantemsapya, N. (2013). Vegetation greenness modeling in response to climate change for Northeast Thailand. *Journal of Geographical Sciences.* 2(6). 1052–1068.

Tucker, C.J. (1979). Red and photographic infrared linear combinations for monitoring vegetation. *Remote Sens. Environ*. 8(2). 127–150.

Xiao-sheng, Lin, Jie Tang, Zhao-yang, Li and Hai-yi, Li (2016).Vegetation greenness modelling in response to inter annual precipitation and temperature changes between 2001 and 2012 in Liao River Basin in Jilin Province, China. *Springer Plus*. 5(1).

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