


[Home](#) > [Journal](#) > [Earth & Environmental Sciences](#) > [JGIS](#)
[Indexing](#) | [View Papers](#) | [Aims & Scope](#) | [Editorial Board](#) | [Guideline](#) | [Article Processing Charges](#)
[JGIS](#) > Vol.4 No.3, June 2012



Quantitative versus Qualitative Geospatial Data in Spatial Modelling and Decision Making

PDF (Size: 437KB) PP. 237-241 DOI: 10.4236/jgis.2012.43028

Author(s)

Ko Ko Lwin, Yuji Murayama, Chiaki Mizutani

ABSTRACT

In general, geospatial data can be divided into two formats, raster and vector formats. A raster consists of a matrix of cells where each cell contains a value representing quantitative information, such as temperature, vegetation intensity, land use/cover, elevation, etc. A vector data consists of points, lines and polygons representing location or distance or area of landscape features in graphical forms. Many raster data are derived from remote sensing techniques using sophisticated sensors by quantitative approach and many vector data are generated from GIS processes by qualitative approach. Among them, land use/cover data is frequently used in many GIS analyses and spatial modeling processes. However, proper use of quantitative and qualitative geospatial data is important in spatial modeling and decision making. In this article, we discuss common geospatial data formats, their origins and proper use in spatial modelling and decision making processes.

KEYWORDS

Quantitative and Qualitative Geospatial Data; Spatial Modelling and Decision Making

Cite this paper

K. Lwin, Y. Murayama and C. Mizutani, "Quantitative versus Qualitative Geospatial Data in Spatial Modelling and Decision Making," *Journal of Geographic Information System*, Vol. 4 No. 3, 2012, pp. 237-241. doi: 10.4236/jgis.2012.43028.

References

- [1] K. K. Lwin and R. Shibasaki, "Monitoring and Analysis of Deforestation Process Using Remote Sensing and GIS: A Case Study in Myanmar," 19th Asian Conference on Remote Sensing (ACRS), Manila, Philippines, 1998.
- [2] A. Guisan and N. E. Zimmermann, "Predictive Habitat Distribution Models in Ecology," *Ecological Modeling*, Vol. 135, No. 2-3, 2000, pp. 147-186. doi:10.1016/S0304-3800(00)00354-9
- [3] J. M. Scott, F. Davis, B. Csuti, R. Noss, B. Butterfield, C. Groves, H. Anderson, S. Caicco, F. D' Erchia, T. C. Edwards Jr., J. Ulliman and G. Wright, "Gap Analysis: A Geographic Approach to Protection of Biodiversity," *Wildlife Monographs*, Vol. 123, 1993, pp. 1-41.
- [4] T. C. Edwards Jr., E. Deshler, D. Foster and G. G. Moisen, "Adequacy of Wildlife Habitat Relation Models for Estimating Spatial Distributions of Terrestrial Vertebrates," *Conservation Biology*, Vol. 10, No. 1, 1996, pp. 263-270. doi:10.1046/j.1523-1739.1996.10010263.x
- [5] S. N. Miller, D. J. Semmens, D. C. Goodrich, M. Hernandez, R. C. Miller, W. G. Kepner and D. P. Guertin, "The Automated Geospatial Watershed Assessment tool," *Environmental Modeling and Software*, Vol. 22, No. 3, 2007, pp. 365-377. doi:10.1016/j.envsoft.2005.12.004
- [6] K. K. Lwin and Y. Murayama, "Modelling of Urban Green Space Walkability: Eco-Friendly Walk Score Calculator," *Computers, Environment and Urban Systems*, Vol. 35, No. 5, 2011, pp. 408-420. doi:10.1016/j.compenvurbsys.2011.05.002
- [7] Y. Sadahiro and M. Umemura, "A Computational Approach for the Analysis of Changes in Polygon

[JGIS Subscription](#)
[Most popular papers in JGIS](#)
[About JGIS News](#)
[Frequently Asked Questions](#)
[Recommend to Peers](#)
[Recommend to Library](#)
[Contact Us](#)

Downloads:	127,883
------------	---------

Visits:	272,521
---------	---------

[Sponsors, Associates, and Links >>](#)

Distributions," Journal of Geographical Systems, Vol. 3, No. 2, 2001, pp. 137-154. doi:10.1007/PL00011471

- [8] C. Robertson, T. Nelson, B. Boots and M. Wulder, " STAMP: Spatial-Temporal Analysis of Moving Polygons," Journal of Geographical Systems, Vol. 9, No. 3, 2007, pp. 207-227. doi:10.1007/s10109-007-0044-2
- [9] Y. Xie and X. Ye, " Comparative Tempo-Spatial Pattern Analysis: CTSPA," International Journal of Geographic Information Science, Vol. 21, No. 1, 2007, pp. 49-69. doi:10.1080/13658810600894265
- [10] C. Mizutani, " Construction of an Analytical Framework for Polygon-Based Land Use Transition Analyses," Computers, Environment and Urban Systems, Vol. 36, No. 3, 2012, pp. 270-280. doi:10.1016/j.compenvurbsys.2011.11.004
- [11] Y. Murayama, " Systematization of Fieldwork Methodology: A Study on Capture, Management, Analysis and Circulation of Geographical Data," Grant-in-Aid for Scientific Research A, JSPS, 2010.
- [12] Y. Murayama and K. K. Lwin, " Population Estimation of Rapidly Growing Cities in Southeast Asia Using GIS/ RS," Grant-in-Aid for Scientific Research, JSPS, 2010.