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Subjects: Geography | Environmental Sciences

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Professor Dr. Murayama is a geographer.

GIS | Remote Sensing | Geography | Spatial Analysis | Geoinformatics | Urbanization | Transportation

Professor Dr. Murayama is Professor Emeritus and Adjunct Researcher of the University of Tsukuba, Japan. He has served as Vice-President of Asian Geographical Association, President (2018-2020), Chairperson (2016-18) and Director (2010-14) of Association of Japanese Geographers, Member of Science Council of Japan (2005-2020), Director of Tokyo Geographical Society (2011-17), IGU Steering Committee Member of Transport Geography Commission (2008-16) and Urban Commission (2000-08), and President of GIS Association of Japan (2006-08).[1]

Professor Dr. Murayama has acted as Editor-in-Chief of AJG Library: International Perspectives in Geography (2018-present), Associate Editor of Euro-Mediterranean Journal of Environmental Integration (2015-present), Editor-in-Chief of Tsukuba Geoenvironmental Sciences (2015-19), Editor of Urban Studies Research (2011-17), Editor-in-Chief of Geographical Review of Japan, Ser. B (2006-08), and Editor-in-Chief of Theory and Applications of GIS (2004-06).[2]

He has also joined the editorial board of academic journals including Geomatics (2020-present), Encyclopedia (2020-present), Annals of the National Association of Geographers, India (2020-present), Asian Geographer (2019-present), Remote Sensing (2018-present), Sustainability (2018-present), Computers, Environment and Urban Systems (2015-present), Progress in Earth and Planetary Science (2013-present), Positioning (2010-present), Transactions in GIS (2015-17), Journal of Transport Geography (2001-17), GeoJournal (2001-16), and Urban Geography (2002-12).[3]

His research interests are urban and transport geography, geographical information science, and spatial analysis. He has edited and published many books including “Urban development in Asia and Africa: Geospatial analysis of metropolises” (2017, Springer-Nature), “Progress in geospatial analysis” (2012, Springer), “Spatial analysis and modeling in geographical transformation process: GIS-based applications” (2011, Springer), “Recent advances in Remote Sensing and GIS in Sub-Sahara Africa” (2010, Nova Publishers), and “Japanese urban system” (2000, Springer).

Recent Research Interest: Usefulness of GIS and RS in Urbanization Studies in developing countries

By the accelerating urbanization, Asia and Africa face serious social problems including overpopulation, urban explosion, segregation, poverty and health damages, and the increase of natural disasters such as floods, air & water pollution, landslide, tsunami, etc. In this connection, it is important for geographers to scientifically examine what has been happening on the surface of the earth. However, we are bound to say that urbanization studies are challenging in Asia and Africa, because of the lack of geospatial data over the countries, including maps, statistics, and administrative documents.

There is much less geospatial information in developing countries in comparison with the western world. For example, Censuses provide a valuable source of data that enables scientific analysis, but the question items and year of a census conducted vary by country, and there are many countries that have not conducted a census for more than ten years. The statistical units vary by country, and only a few countries have available local statistics and digital maps displaying boundary zones.

Under these circumstances, satellite images have become a comprehensive data source for empirical studies among Asian and African countries. Recently, high-resolution imagery from satellites such as Landsat, Sentinel-2, Suomi NPP, ALOS and MODIS became available for free or at minimal cost, and technologies such as geographic information systems (GIS) and remote sensing (RS) can now be used to facilitate highly precise temporal and spatial analysis of horizontal and vertical urbanization.

Today, advance in geospatial technologies is remarkable in the processing of large amounts of spatial data. In Asia, the number of geographical studies involving complex system sciences (machine learning), such as genetic algorithms (GA), cellular automata (CA), and multi-agent systems (MAS) is significantly growing. On top of the processes from the past to put forward, inductive thinking as a way for prediction is becoming a valid feature. The use of state-of-the-art simulation techniques and scenario analyses is not only limited to spatial forecasting but also can be introduced to the fields of spatial governing and spatial control/management.

Geographers have made possible achievements in the research of spatial processes, and from here on, armed with geospatial technologies, they are expected to actively commit in regional policy and planning in rapidly growing Asia and Africa.

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