LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
KARYA ILMIAH : PROSIDING

Judul Karya Ilmiah	:	The use of a MLP neural network for analysis and aodeling of land use changes with variations variable of physical and economic social		
Jumlah Penulis	:	4 Orang (S Subiyanto, A Sukmono, N Bashit and **F J Amarrohman**)		
Status Pengusul	:	Penulis ke-4		
Identitas Prosiding	:	a. Judul Prosiding	:	Geomatics International Conference 2019
		b. ISBN/ISSN	:	Online ISSN: 1755-1315, Print ISSN: 1755-1307
		c. Thn Terbit, Tempat Pelaks.	:	2019, Surabaya, Indonesia
		d. Penerbit/Organiser	:	IOP Publishing
		e. Alamat Repository/Web	:	https://iopscience.iop.org/article/10.1088/1755-1315/389/1/012029
		Alamat Artikel	:	https://iopscience.iop.org/article/10.1088/1755-1315/389/1/012029/pdf
		f. Terindeks di (jika ada)	:	Scopus

Kategori Publikasi Makalah (beri ✓pada kategori yang tepat) : [√] *Prosiding* Forum Ilmiah Internasional
[ ] *Prosiding* Forum Ilmiah Nasional

Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Reviewer		Nilai Rata-rata
	Reviewer I	Reviewer II	
a. Kelengkapan unsur isi prosiding (10%)	2,80	3,00	2,90
b. Ruang lingkup dan kedalaman pembahasan (30%)	8,00	8,00	8,00
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	8,20	8,00	8,10
d. Kelengkapan unsur dan kualitas terbitan/prosiding(30%)	8,00	9,00	8,50
Total = (100%)	**27,00**	**28,00**	**27,50**
Nilai Pengusul = (40% x 27,50)/3 = 3,67			

Semarang,

Reviewer 2

Arief Laila Nugraha, S.T., M.Eng.
NIP. 198105302006041001
Unit Kerja : Teknik Geodesi FT UNDIP

Reviewer 1

Moehammad Awaluddin, S.T., M.T.
NIP. 197408212005011001
Unit Kerja : Teknik Geodesi FT UNDIP

LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
KARYA ILMIAH : PROSIDING

Judul Karya Ilmiah	:	The use of a MLP neural network for analysis and aodeling of land use changes with variations variable of physical and economic social		
Jumlah Penulis	:	4 Orang (S Subiyanto, A Sukmono, N Bashit and **F J Amarrohman**)		
Status Pengusul	:	Penulis ke-4		
Identitas Prosiding	:	a. Judul Prosiding	:	Geomatics International Conference 2019
		b. ISBN/ISSN	:	Online ISSN: 1755-1315, Print ISSN: 1755-1307
		c. Thn Terbit, Tempat Pelaks.	:	2019, Surabaya, Indonesia
		d. Penerbit/Organiser	:	IOP Publishing
		e. Alamat Repository/Web	:	https://iopscience.iop.org/article/10.1088/1755-1315/389/1/012029
		Alamat Artikel	:	https://iopscience.iop.org/article/10.1088/1755-1315/389/1/012029/pdf
		f. Terindeks di (jika ada)	:	Scopus

Kategori Publikasi Makalah (beri ✓pada kategori yang tepat) : [√] *Prosiding* Forum Ilmiah Internasional
[ ] *Prosiding* Forum Ilmiah Nasional

Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Maksimal Prosiding		Nilai Akhir Yang Diperoleh
	Internasional [30]	Nasional [ ]	
a. Kelengkapan unsur isi prosiding (10%)	3,00		2,80
b. Ruang lingkup dan kedalaman pembahasan (30%)	9,00		8,00
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	9,00		8,20
d. Kelengkapan unsur dan kualitas terbitan/prosiding(30%)	9,00		8,00
Total = (100%)	**30,00**		**27,00**
Nilai Pengusul = (40% x 27,00)/3 = 3,60			

Catatan Penilaian Paper oleh Reviewer :

1. **Kesesuaian dan kelengkapan unsur isi paper:**
   Unsur isi karya ilmiah sudah lengkap meliputi abstrak, introduction, material and method, result and discussion, conclusion dan references. Artikel ditulis sesuai kaidah penulisan ilmiah.
2. **Ruang lingkup dan kedalaman pembahasan:**
   Penelitian dengan topik geodesi di bidang kewilayahan ini menggunakan metode MLP neural network, dengan kajian teori yang lengkap dan metode yang terstruktur jelas. Kedalaman pembahasan sudah cukup baik.
3. **Kecukupan dan kemutakhiran data/informasi dan metodologi:**
   Literatur yang digunakan sesuai dengan tema dan up to date. artikel ini menggunakan metode analisis yang sesuai dengan tema penelitian.
4. **Kelengkapan unsur dan kualitas terbitan:**
   Unsur prosiding Geomatics International Conference sudah lengkap dan terstruktur. IOP Publishing menerbitkan prosiding terindeks Scopus dengan Online ISSN: 1755-1315 dan Print ISSN: 1755-1307.

Semarang,

Reviewer 1

Moehammad Awaluddin, S.T., M.T.
NIP. 197408212005011001
Unit Kerja : Teknik Geodesi FT UNDIP

LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
KARYA ILMIAH : PROSIDING

Judul Karya Ilmiah	:	The use of a MLP neural network for analysis and aodeling of land use changes with variations variable of physical and economic social		
Jumlah Penulis	:	4 Orang (S Subiyanto, A Sukmono, N Bashit and **F J Amarrohman**)		
Status Pengusul	:	Penulis ke-4		
Identitas Prosiding	:	a. Judul Prosiding	:	Geomatics International Conference 2019
		b. ISBN/ISSN	:	Online ISSN: 1755-1315, Print ISSN: 1755-1307
		c. Thn Terbit, Tempat Pelaks.	:	2019, Surabaya, Indonesia
		d. Penerbit/Organiser	:	IOP Publishing
		e. Alamat Repository/Web	:	https://iopscience.iop.org/article/10.1088/1755-1315/389/1/012029
		Alamat Artikel	:	https://iopscience.iop.org/article/10.1088/1755-1315/389/1/012029/pdf
		f. Terindeks di (jika ada)	:	Scopus

Kategori Publikasi Makalah : [√] *Prosiding* Forum Ilmiah Internasional
(beri ✓pada kategori yang tepat) [ ] *Prosiding* Forum Ilmiah Nasional

Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Maksimal Prosiding		Nilai Akhir Yang Diperoleh
	Internasional [30]	Nasional [ ]	
a. Kelengkapan unsur isi prosiding (10%)	3,00		3,00
b. Ruang lingkup dan kedalaman pembahasan (30%)	9,00		8,00
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	9,00		8,00
d. Kelengkapan unsur dan kualitas terbitan/prosiding(30%)	9,00		9,00
Total = (100%)	**30,00**		**28,00**
Nilai Pengusul = (40% x 28,00)/3 = 3,74			

Catatan Penilaian Paper oleh Reviewer :

1. **Kesesuaian dan kelengkapan unsur isi paper:**
   Prosiding ditulis dengan lengkap dan sudah sesuai tata urutan yang sudah ditentukan untuk publikasi. Unsur isi prosiding sudah cukup lengkap dan dinarasikan dengan jelas.
2. **Ruang lingkup dan kedalaman pembahasan:**
   Lingkup prosiding mengenai penerapan ilmu geodesi di bidang kewilayahan. Membahas pemodelan perubahan lahan menggunakan metode ANN MLP dengan variabel fisik dan ekonomi yang sesuai dengan tema dengan pembahasan yang cukup lengkap.
3. **Kecukupan dan kemutakhiran data/informasi dan metodologi:**
   Data yang digunakan sudah mutakhir dengan sumber literatur yang sesuai dan terkini. Metodologi yang digunakan disampaikan dengan urutan yang mudah dipahami.
4. **Kelengkapan unsur dan kualitas terbitan:**
   Prosiding ini diterbitkan melalui proses review yang baik, serta dapat diakses secara umum. Kualitas terbitan prosiding ini terindeks Scopus dan forum ilmiah internasional ini diadakan setiap tahun.

Semarang,

Reviewer 2

Arief Laila Nugraha, S.T., M.Eng.
NIP. 198105302006041001
Unit Kerja : Teknik Geodesi FT UNDIP

IOP Conference Series: Earth and Environmental Science • *Open Access* • Volume 389, Issue 1 • 13 December 2019 • Article number 012029 • 4th Geomatics International Conference 2019, GeoICON 2019 • Surabaya • 21 August 2019 through 22 August 2019 • Code 156150

Document type
Conference Paper • *Bronze Open Access*

Source type
Conference Proceedings

ISSN
17551307

DOI
10.1088/1755-1315/389/1/012029

The use of a MLP neural network for analysis and aodeling of land use changes with variations variable of physical and economic social

Subiyanto S.[a], Sukmono A.[a], Bashit N.[a], Amarrohman F.J.[a]

Save all to author list

[a] Geodesy Department, Faculty of Engineering, Diponegoro University, Indonesia

Abstract

Modeling the land use changes is a method that used to understand the causes and effects of dynamic changes. The model in this research is the ANN model with Multi-layer Perceptron (MLP) network architecture and backpropagation algorithm. The Artificial Neural Network (ANN) method is a potential method for land change as well as test the predictive abilities that will be produced by the model. Land use change modeling uses a combination of ANN and GIS methods. The aim of this research are (1) predict land use and land use change in Banyumanik District in 2011, 2015 and 2019, (2) build the land

Table of contents

Volume 389

2019

Previous issue Next issue

Geomatics International Conference 2019 21–22 August 2019, Surabaya, Indonesia

Accepted papers received: 29 October 2019
Published online: 13 December 2019

Open all abstracts

Preface

Papers

Spatial analysis of urban growth based on city center and central business district (a case study of Antananarivo, the capital city of Madagascar)

A Fetraniaina, A Deliar and A B Harto

+ Open abstract View article PDF

OPEN ACCESS 012011

Analysis of lava flood risk distribution to support hazard mitigation

T Hariyanto, Z R Larasati, A Kurniawan and C B Pribadi

+ Open abstract View article PDF

OPEN ACCESS 012012

Potential mapping of limestone using Landsat 8 and Quickbird imagery in Tuban Regency

B M Sukojo and D A Majid

+ Open abstract View article PDF

OPEN ACCESS 012013

Study of potentials economic valuation of mangrove ecosystem for coastal communities using satellite imagery (case study: East Coastal Surabaya)

Bangun Muljo Sukojo and Yurike Nisa Arindi

+ Open abstract View article PDF

OPEN ACCESS 012014

Analysis of changes in land value of land use permit (IPT) with tax object sale value (NJOP) 2018 using market data approach (Case Study: Pucang Sewu Village, Gubeng Sub-District, Surabaya)

U W Deviantari, R D Salsabila and A Dediyono

+ Open abstract View article PDF

OPEN ACCESS 012015

Landslides hazards assessment using geographic information system and remote sensing: Gakenke District

G G Benineza, I Rwabudandi and M J Nyiransabimana

+ Open abstract View article PDF

OPEN ACCESS 012016

The tsunami prone area for marine tourism activities (case study: Tulungagung District)

Y Budisusanto, C B Pribadi and R Dianita

+ Open abstract View article PDF

OPEN ACCESS 012017

Hydrographic datum and GNSS heighting in the SW Java Sea, Indonesia: Comparison between observed and models of Sea Surface

Poerbandono, I Gumilar and T P Sidiq

+ Open abstract View article PDF

OPEN ACCESS 012018

Impact of Kigali City master plan implementation on living conditions of urban dwellers: case of Nyarugenge District in Rwanda

M J Nyiransabimana, I Rwabudandi, W T de Vries, J P Bizimana and G G Benineza

+ Open abstract View article PDF

OPEN ACCESS 012019

The effect of Kalimantan Institute of Technology on land use change in Karang Joang

A S Rahajeng and M R Pratama

+ Open abstract View article PDF

OPEN ACCESS 012020

Evaluation of suitable landuse for existing condition in South Coastal of Sampang Regency

Yanto Budisusanto, Cherie Bhekti Pribadi and Annisa' Kunny Latifa

+ Open abstract View article PDF

OPEN ACCESS 012021

Estimation of sea-level variability around the Java Sea and Karimata Strait using Cryosat-2 Altimeter

S M N T Pampanglola, E Y Handoko and Yuwono

+ Open abstract View article PDF

OPEN ACCESS 012022

The improvement of ultrasonic sensor-based device for direct ocean wave measurement program at Western Java Sea – Indonesia

D Adrianto, E B Djatmiko and Suntoyo

+ Open abstract View article PDF

OPEN ACCESS 012023

The Comparation of Low Water Level Based on Observation Time Variations in Jakarta

Khomsin, D G Pratomo and H A W Marantika

+ Open abstract View article PDF

OPEN ACCESS 012024

Land subsidence induced by agriculture activity in Bandung, West Java Indonesia

T.P Sidiq, I Gumilar, H.Z Abidin and M Gamal

+ Open abstract View article PDF

OPEN ACCESS 012025

Cut and fill analysis of Palu Bay seabed topography pre and post-tsunami

Khomsin, D G Pratomo and L O F Susanto

+ Open abstract View article PDF

OPEN ACCESS 012026

The seismogenic source on the deep lateral ramp of Sumatra accretionary wedge inferred from the source model of the 2009 mw 7.6 Padang, Indonesia, earthquake

I D M A Sanjiwani, K E Ching and I M Anjasmara

+ Open abstract View article PDF

OPEN ACCESS 012027

Satellite data use in the WEAP Model as an evaluation of Water Availability in Unda River Basin

M W Jayantari, W Wardoyo and M A Maulana

+ Open abstract View article PDF

OPEN ACCESS 012028

Obtaining low water line contour value for enclave claim regime 12 nautical miles on Hatohobei Island Republic of Palau against the Republic of Indonesia in according with UNCLOS 1982 using satellite-derived bathymetry

A Kurniawan and A I Santoso

+ Open abstract View article PDF

OPEN ACCESS 012029

The use of a MLP neural network for analysis and aodeling of land use changes with variations variable of physical and economic social

S Subiyanto, A Sukmono, N Bashit and F J Amarrohman

+ Open abstract View article PDF

OPEN ACCESS 012030

Preliminary coseismic deformation associated with the July 7th 2019 M7.0 north Maluku earthquake

Susilo, I Meilano, Daryono, J Efendi, D A Sarsito and A Y Basuki

+ Open abstract View article PDF

The use of a MLP neural network for analysis and aodeling of land use changes with variations variable of physical and economic social

S Subiyanto, A Sukmono, N Bashit and F J Amarrohman

Geodesy Department, Faculty of Engineering, Diponegoro University, Indonesia

Abstract. Modeling the land use changes is a method that used to understand the causes and effects of dynamic changes. The model in this research is the ANN model with Multi-layer Perceptron (MLP) network architecture and backpropagation algorithm. The Artificial Neural Network (ANN) method is a potential method for land change as well as test the predictive abilities that will be produced by the model. Land use change modeling uses a combination of ANN and GIS methods. The aim of this research are (1) predict land use and land use change in Banyumanik District in 2011, 2015 and 2019, (2) build the land use model using the ANN method and (3) predict of land use in Banyumanik District in 2027. To predict the land use change is use Markov Chain models. The purpose of modeling land changes is as well as the factors that drive these changes. Some of the drivers of land use changes are physical and socio-economic variables. Physical variables are distance to road, distance to river, distance to agricultural and vacant land, elevation, slope, and climate. Whereas the economic variables are population density, and market land prices. Physical data variables obtained from high resolution satellite image processing. For socio-economic variables data are obtained from statistical data and field surveys. In this research, the model is carried out in a framework with various variables that are different, so that the best model is obtained. Cramer's V value each variable is tested to see the relationship between these variables.

1. Introduction

The Changes in land use and land cover (LULC) can be analyzed using the model [1]. The model used is a technique or method used to determine the causes by dynamic changes caused [2]. [3] Conducted a model of land use change in Siak Regency to find out the process and patterns of changes that occur and the variables that drive these changes. [4] Modeling with changes models in demographic and physical factors in land use or closure in Costa Rica, including reciprocity of land use or self-closure of the above factors. [5] Conducted a research of decreasing availability of vacant land due to an increase in residential areas which was followed by an increase in fair market land prices in Banyumanik Regency, Semarang City.

The benefits of the land use change model are used for environmental impact studies [6]. Future land use planning and policies can be seen from the results of the final analysis of modeling changes in use. Some researchers model changes in land use using various methods. [3] Uses modeling using the Multinomial Logistic Regression (MLR) method. The results of this modeling were successfully built

Landslides hazards assessment using geographic information system and remote sensing: Gakenke District

G G Benineza[1], I Rwabudandi[2] and M J Nyiransabimana[1]

[1] Department of Civil Environmental and Geomatics Engineering, University of Rwanda, College of Science and Technology, Kigali, Rwanda
[2] Department of Geomatics Engineering, Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia

Abstract. Gakenke district is located in the Northern Province of Rwanda and is known as the district with several landslide events. Assessment of landslide in Rwanda has not been a problem until the weather changed frequently with heavy rainy season. The purpose of conducting this study was due to massive movement of earth having impacts on roads infrastructures, community, and negative impacts for the planners and decision makers. Remote sensing and Geographical Information system methods were used in the study for the assessment of landslide hazard occurrence, weighted overlay model was used where the different triggering factors were considered and scored according to the relationship between causative factor contribution the and landslides and then weighted for producing landslides vulnerability map. The results revealed that Gakenke is vulnerable to landslides and this is due to the most triggering factors: slope that present 40% with 30% of the land cover in addition to rainfall having 20% and 10% of Gakenke District soil type of this area. Landslide hazard map of Gakenke have been created using GIS by combining the causing factors. Hence, an updated map of exposed areas in Gakenke District to landslide could be prepared taking into account different points

1. Introduction

Earth´s surface is changing through both folding and faulting forces, triggering movements in the terrain´s crust and on its surface. Landslides are downward movement of slant materials such as rocks, debris or soils due to gravitational pull. Landslide is the one of the natural disasters in the world which causes loss of life, harms, and destroy properties in year [1]. Sideways plate boundaries people are to be exposed to earthquakes or volcanic activity, people who live close to the coast may be exposed to floods or tsunamis, and societies who live in hilly areas could be affected by sweeps. Landslides occur naturally in all parts of the world and are termed differently subject on factors such as material structure and rapidity of movement [2].

Rwanda is currently vulnerable to change of climate conditions as it takes more precipitation which is very significant in agriculture even rural and cities livelihoods met with irregular situation from drowning and landslides disasters. Rwanda is located in equatorial Africa, with a shortage of data to produce strong climate projections. Having realized that most of families in the affected areas are regularly living with agricultural and livestock activities, there is a need to know effects that caused

[1] G G Benineza
[2] I Rwabudandi
[1] M J Nyiransabimana

Impact of Kigali City master plan implementation on living conditions of urban dwellers: case of Nyarugenge District in Rwanda

M J Nyiransabimana[1], I Rwabudandi[3], W T de Vries[4], J P Bizimana[2] and G G Benineza[1]

[1]Department of Civil, Environmental and Geomatics Engineering, University of Rwanda, P.O. Box 3900, Kigali Rwanda
[2]Department of Geography and Urban Planning and Centre for Geographic Information Systems and Remote Sensing, University of Rwanda, P.O. Box 3900, Kigali Rwanda
[3]Department of Geomatics Engineering, Institut Teknologi Sepuluh Nopember (ITS), Kampus ITS Surabaya 60111, Indonesia
[4]Department of Civil, Geo and Environmental Engineering, Technische Universität München (TUM), Chair of Land Management, Arcisstraße 21, 80333 München, Germany

Abstract. The increasing population and inadequate planning resulted in informal settlements and poor social infrastructures in Kigali City. As response, the Kigali City authority adopted the Kigali City Master Plan (KCMP) to guide the urban development. However, no evaluations of the KCMP implementation has been carried out. This study assessed therefore the level of KCMP implementation and its impact on living conditions of urban dwellers in Nyarugenge District. We evaluated the KCMP implementation using Geographical Information System (GIS) overlay analysis, based on indicators of degree of conformity: accordance, unfulfillment and deviation. We assessed the impact of KCMP implementation using a paired sample t-test analysis to compare the availability/accessibility of urban quality of life indicators before and after the adoption of the KCMP. The results indicated that the level of KCMP implementation is low due to zoning categories and construction standards that are not affordable for low-income citizens. Nevertheless, this implementation has partly improved dwellers' living conditions through the provision of some elements of urban quality of life. The KCMP should be revised thereby considering the affordability of its implementation by different stakeholders including low-income populations. Further researches should assess negative impacts of KCMP implementation on living conditions of urban dwellers.

1. Introduction

Rural-urban migration has been causing a rapid population growth in Kigali City, resulting in the emergence of informal settlements and poor social infrastructures [1]. To handle this problem, the planning authority of Kigali City adopted a legal framework which guides and regulates urban planning and development in Kigali City. This legal framework includes among others the detailed Master Plans for Nyarugenge, Gasabo and Kicukiro Districts. These detailed Master Plans were later integrated into a single Kigali City Master Plan that was approved in 2013 for the entire City of Kigali [2]. The Kigali City Master Plan has several objectives and some of them are related to the improvement of living

The seismogenic source on the deep lateral ramp of Sumatra accretionary wedge inferred from the source model of the 2009 mw 7.6 Padang, Indonesia, earthquake

I D M A Sanjiwani[1], K E Ching[1], and I M Anjasmara[2]

[1] Department of Geomatics, National Cheng-Kung University, Tainan, Taiwan
[2] Department of Geomatics Engineering, Institut Teknologi Sepuluh Nopember,Kampus ITS Sukolilo, Surabaya 60111, Indonesia

Abstract. The 2009 Mw 7.6 Padang earthquake has been inferred as an intraslab event because it locates at approximately 80 km depth which is within the oceanic slab with maximum curvature. However, the major trench-parallel-striking normal faulting event usually occurs at this tectonic environment but not the trench-normal-striking reverse event like this 2009 Padang earthquake. To solve this enigma, the coseismic displacements were estimated based on the analysis of daily coordinate time series calculated by GAMIT software from 15 continuous GPS stations along the Sumatra region. The maximum horizontal displacement is approximately 58.3 mm toward SW at the MSAI station while the maximum vertical displacement reaches 16.1 mm. The optimized geometry parameters of the source fault were determined by the Markov Chain Monte Carlo using the uniform-slip dislocation model. The optimized strike and dip of fault plane are 80^{circ} and 57^{circ}, respectively. The coseismic slip distribution was then estimated using the distributed-slip dislocation model in terms of optimized fault geometry. The geodetic moment of 1.35 x 1027 dyne-cm in our best-fit model is equivalent to Mw 7.39. The coseismic slip mainly ranges 28-70 km in depth with the maximum slip of 2000 mm. The optimized source fault plane is also comparable to the relocated aftershock distribution. Comparing to the location of interface, our source fault is mainly located at the place above the interface. We therefore proposed that this 2009 Padang earthquake occurred in the deep part of accretionary wedge, but not with the slab. In addition, we also proposed this 2009 event as a lateral ramp event because its strike is normal to the trench, such as the 2010 Jaishian earthquake in Taiwan. Finally, we proposed that a thick-skinned deformation may be also represented in the prism of Sumatra subduction zone.

1. Introduction

A current study purposed by [1] shows that their joint analysis of geodetic and seismic waveform data initiated the Padang earthquake was an intraslab event and ruptured primarily downdip and to the southwest. In the previous study, the depth sections emphasize the agreement between the larger magnitude aftershock locations between 74 and 97 km depth. However, [2] and [3] define a shallow portion of a slab as a depth range 20 - 60 km and judge either is intraslab by observing the focal mechanism and depths. Generally, intraslab earthquakes