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

Judul karya ilmiah (artikel) : Dynamics of urban growth in Semarang Metropolitan-Central Java: An examination based on built-up area and population change
Jumlah Penulis : 2 penulis
Status Pengusul : Wiwandari Handayani, **Iwan Rudiarto**
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a. Nama Jurnal : Journal of Geography and Geology
b. Nomor ISSN : 1916-9779 E-ISSN 1916-9787
c. Vol.,no.,bulan,tahun : Vol.6 Issue 4, Pages 80
d. Penerbit : Canadian Center of Science and Education
e. DOI artikel (jika ada): 10.5539/jgg.v6n4p80
f. Alamat web jurnal : http://ccsenet.org/journal/index.php/jgg/article/view/39642
g.Terindeks di Google-based Impact Factor 11.90 (2018)

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b. Artikel jurnal tentang pertumbuhan kota di Metropolitan Semarang yang dijabarkan dari aspek perkembangan lahan terbangun dan penduduk dan sesuai dengan bidang ilmu penulis terutama dalam hal perencanaan dan pengembangan kota dan wilayah. Pembahasan cukup mendalam dan didukung oleh 3 referensi atau sekitar 14% dimana 2 diantaranya merupakan artikel jurnal dari total 22 referensi yang digunakan.

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Semarang, 23-01-2020

Reviewer 1,

Prof. Dr.rer.nat. Imam Buchori, ST
NIP. 197011231995121001
Departemen PWK, FT. Undip

**LEMBAR**
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Catatan Penilaian artikel oleh *Reviewer*:

a. Kelengkapan unsur jurnal mulai dari abstrak sampai ucapan terima kasih sudah sesuai dengan petunjuk penulisan artikel jurnal. Konten pembahasan IMRaD menjelaskan lebih detil tentang judul yang diangkat, berkaitan dengan perubahan lahan terbangun dan pertambahan penduduk di Metropolitan Semarang.

b. Ruang lingkup dan penggunaan metode sudah dibahas mengacu kepada perkembangan penduduk dan lahan terbangun di Kota Semarang dengan pembanding beberapa kota di asia tenggara seperti Manila dan Bangkok namun kurang komprehensif. Artikel sesai dengan bidang ilmu penulis terutama berhubungan dengan perencanaan guna lahan dan kota. Artikel didukung oleh 14% referensi dalam membahas temuan studi.

c. Artikel kurang memiliki nilai kebaruan dan tidak menjelaskan *Image Analysis* secara mendalam. Penulisan artikel didukung oleh 22 referensi yang sebagian merupakan artikel jurnal dan 12 diantaranya diterbitkan dala 10 tahun terakhir.

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Semarang, 07-02-2020

Reviewer 2,

Prof. Dr. Ir. Nany Yuliastuti, MSP
NIP. 195407171982032001
Departemen PWK, FT. Undip

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

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Semarang, 09-03-2020

Reviewer 1,

Prof. Dr.rer.nat. Imam Buchori, ST
NIP. 197011231995121001
Departemen PWK FT.Undip

Reviewer 2,

Prof. Dr. Ir. Nany Yuliastuti, MSP
NIP. 195407171982032001
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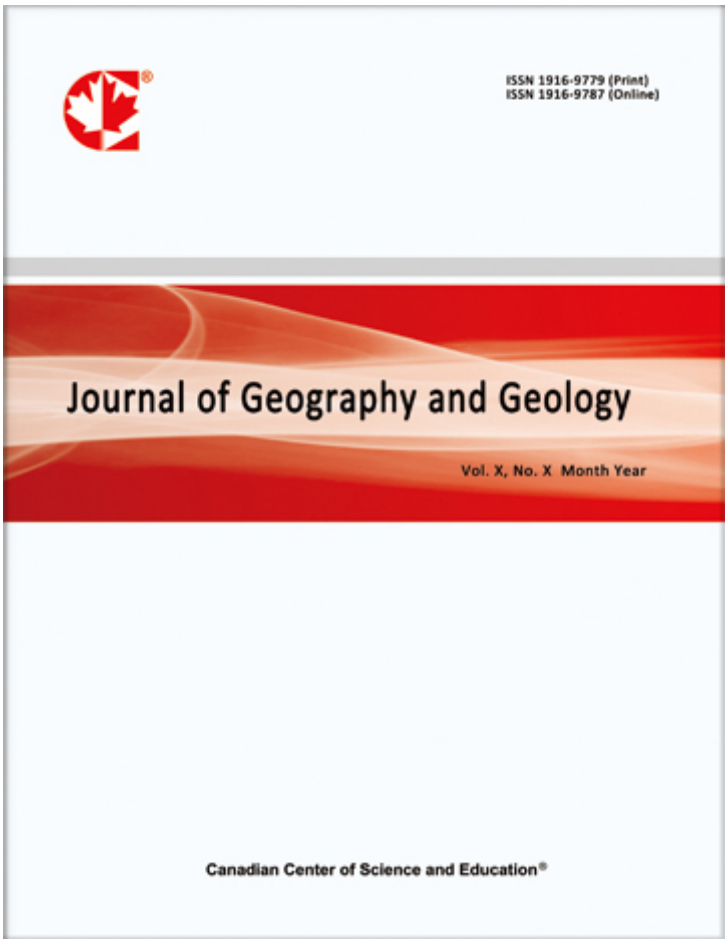


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# Vol. 6, No. 4 (2014), Journal of Geography and Geology

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**Started:** 2009
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Journal of Geography and Geology; Vol. 6, No. 4; 2014
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# Landslide Potential in Santo Domingo De Heredia, Costa Rica, Central America

Jonnathan Reyes-Chaves[2] & Mario Fernández-Arce[1,2,3]

[1] Preventec-University of Costa Rica (UCR), Costa Rica

[2] School of Geography, University of Costa Rica (UCR), Costa Rica

[3] Center for Research in Geological Sciences (UCR), Costa Rica

Correspondence: Mario Fernández-Arce, School of Geography, University of Costa Rica (UCR), Costa Rica. E-mail: mario.fernandezarce@ucr.ac.cr

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**Abstract**

This paper reports results from a survey of landslide potential in the canton (county) of Santo Domingo de Heredia, Costa Rica. This canton, like much of Central America, is located in a tropical region with abrupt topography where the potential for landslides is relatively high. A deadly landslide occurred in this canton in 2008. Due to this reality, it is important to investigate the landslide potential in the canton more broadly. This action study will contribute to the efforts of local authorities to manage disaster risk in the study area. The purpose of the work is to spatially identify the areas at risk to this hazard, with the long-term goal of reducing the human vulnerability and enhancing protective actions for people living near the zones at high risk for landslide. The Mora-Varhson-Mora methodology, which takes into account lithology, humidity, slope, seismicity and precipitation to estimate landslide potential, was used to carry out the work. The most important results are that the landslide potential overall in Santo Domingo is low but that there are specific communities with high risk; these include Fatima, Monte Carmelo, Calle Vieja and La Presa.

**Keywords:** landslides, susceptibility, vulnerability, potential, slope, stability

## 1. Introduction

Landslides are a very common natural threat around the world, especially in tropical countries with mountain belts of abrupt relief (Larsen and Torres, 1998, Dai et al., 2002). Guzzetti (2000) indicated that landslide disasters often occur when cut slopes fail in highly urbanized areas. If people live on slopes prone to landslides, or near the base of a slope prone to sliding, they are vulnerable to the catastrophic impact of a sudden landslide. Rosenfeld (1994) and Alexander (1995) said that the population growth and the expansion of settlements and life-lines over hazardous areas are increasing the impact of natural disasters, both in the developed and developing world (Rosenfeld, 1994; Alexander, 1995 in Guzzetti et al., 1999). Therefore, it is necessary to recognize the landslide potential of landslide prone areas to protect the population and prevent deaths.

There are many case studies of individual landslides in Costa Rica (Mora et al., 1989; Mora et al., 1990, Mora & Soto, 1990; Mora, 1993, Peraldo & Molina, 1993; Mands et al., 1994; Mora, 2001; Alvarado et al., 2003) but no current scientific publications on the landslide potential of the study area. The working hypotheses is that the landslide susceptibility (Carrara, 1993; Pradhan, 2010) of Santo Domingo (Figure 1) is low despite the high levels of precipitation and seismicity in the country but zones of high potential exist in the steep slope areas, especially along river canyons. Such hypotheses will be tested as we map landslide potential and identify areas at risk.

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# Theory and Applications of Numerical Simulation of Permeation Fluid Mechanics of the Polymer-Black Oil

Yirang Yuan[1], Aijie Cheng[1], Danping Yang[1] & Changfeng Li[1,2]

[1] Institute of Mathematics, Shandong University, Jinan, China

[2] School of Economics, Shandong University, Jinan, China

Correspondence: Yirang Yuan, Institute of Mathematics, Shandong University, Jinan, China. Tel: 86-531-88364732. E-mail: yryuan@sdu.edu.cn

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**Abstract**

Theory and application of numerical simulation of permeation fluid mechanics is discussed about the polymer--black oil (water, oil and gas) in this paper. In view of petroleum geology, geochemistry, computational mechanics of flow and computer technology, the mechanics model of three-phase flow (water, oil and gas) of the polymer is presented firstly, then a numerical algorithm consisting of a full implicit program, and an implicit computation for the pressure and an explicit computation for the concentration is given by structuring an upstream sequence and an iterative algorithm of implicit fined upwind fractional step finite difference to solve the pressure equation, the concentration equation and the saturation of chemical substance components. A type of software applicable in major industries has been made in consideration of ten-meters steps, hundreds of thousands nodes and tens of years and high accuracy and the application has been carried out successfully in analysis and simulation of major oil-fields extraction such as Daqing Oilfield, Shengli Oilfield and Dagang Oilfield and others, which gives rise to outstanding economic and social benefits. A precise analysis is given for a simplified model and an idea is presented to solve this international famous problem.

**Keywords:** polymer flooding, mechanics of three-phase flow (water, oil and gas) through porous media—the polymer, model and numerical simulation, application of oil fields, theoretical analysis

## 1. Introduction

At present an effective method, water-flooding, to hold the pressure of reservoirs is popular in the world, and the recovery efficiency is more outstanding than any other natural exploring forms. It gives more benefits and helps Chinese oil fields keep high quantity production. It continues to be more important and how a strategic project works to develop the exploiting efficiency of crude oil in the way of water-flooding driving.

A mass of residual crude oil remains in the reservoir after water-flooding exploiting because of the constraint of capillary force preventing the motion and the slight influenced regions and the fluidity ratio between displacement phase and driven phase weakening the displacement force. Then it is more important to develop the displacement efficiency. A popular method is considered that the mixture is injected into the underground fluid including chemical addition agents such as polymer, surface active agent and alkali. The polymer can optimize the fluidity of displacement phase, modify the ratio with respect to driven phases, balance the leading edges well, weaken the inner porous layer, increase the efficiency of displacement and the pressure gradient. Surface active agent and alkali can decrease interfacial tensions of different phases, then make the bound oil move and gather.

Some hypotheses should be made as follows to find the mathematical models. The mixture fluid flows along isothermal curves, different phases keep equilibrium state, different components have no chemical reaction and expanded Darcy Theory holds and so on. In view of the pressure $p(x,t)$ and the saturation $c_i(x,t)$, the flow equation and convection-diffusion equations are derived with corresponding boundary value conditions and