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The 5th Geoinformation Science Symposium 2017 (GSS 2017)

To cite this article: 2017 *IOP Conf. Ser.: Earth Environ. Sci.* **98** 011001

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Preface



Welcome to The 5th Geoinformation Science Symposium 2017, which takes place from 27 to 28 September 2017 in University Centre, Universitas Gadjah Mada. The Organising Committee has selected “Bridging Geospatial Industries and Scientific Research” as the main theme of this symposium. It is motivated by the fact that, as we all know, Indonesian geospatial industries have been growing fast during the past 10 years. A lot of governmental institutions and private sectors are making use of geospatial data in their business. On the other hand, research in the universities and other scientific institutions is also growing significantly. New study programs focusing on the use and development of geoinformation science and technology have been established, while

research funding on the development of this field is also increasing. The problem is that they are not coupling in a synergy, so that the expected outcome of the advances could not be reached optimally.

This meeting aims to embrace researchers, practitioners, lecturers as well and students from various governmental, education and private sectors to share their experiences and also expectations in the engagement in geospatial world. We also invite experts from Australia and Japan university to sit together with the Indonesian Geospatial Agency as well as the Directorate General of Research Reinforcement and Development officials. We hope that this occasion may shape a new perspective on bridging the gap between industries and the scientific research.

During this two-day symposium, more than 70 papers were presented, and about 20 posters were displayed. In addition to these scientific papers, two special sessions focusing on the establishment of Indonesian Association of Remote Sensing Laboratories (InARSeL) and One Geospatial Information Certificate Policy were conducted. I would like to thank Prof. Stuart Phinn from the University of Queensland Australia and to Assoc Prof. Wataru Takeuchi from Tokyo University Japan, who have made time for delivering keynote speeches. I am also grateful to the representative of Geospatial Information Agency (BIG) and the representative of Director General of Research Reinforcement and Development, for joining us to represent the Indonesian geospatial industry and scientific research institution respectively. I would also like to mention the Rector of UGM, Dean of the Faculty of Geography, all sponsors, all staff of the Department of Geographical Information Science, organising team, and all participants who have fully supported this event.

Yogyakarta, 27 September 2017

Drs. Projo Danoedoro, M.Sc., Ph.D.

Symposium General Co-Chair
The 5th Geoinformation Science Symposium 2017



Conference Photographs and Video

Photo (see attached files)

Video <https://youtu.be/4LR7SkkVZas>

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Monitoring of Drought Events in Gorontalo Regency

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Monitoring of Drought Events in Gorontalo Regency

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Abstract. Gorontalo Regency is a region vulnerable to drought. Drought is one of meteorological disaster because it tends to bring negative impact on various sectors. This study used rainfall data from 1981 to 2016 (35 years). The research employed Standardized Precipitation Index (SPI) to monitor and calculate the level of drought from the duration, intensity, and frequency in different time scales. The SPI value was calculated using the DrinC and ArcGIS software is used to create drought spatial distribution maps. The mean intensity of drought simultaneously followed the drought magnitude in Bilato station. The peak of drought in SPI-3 occurs in 1982, 2009 and 2016. In 1982, about 76.5% of the stations showed that the peak of drought events for SPI-3 in October to December. Moreover, 94% of the stations reveals that the peak of drought events for SPI-6 occur in July to December 1982. This shows that drought in 1982 was more severe than other years in the last three decades. Linear trends of drought for the period of 1981 to 2016 in most stations show an increasing trend, hence, it can be concluded that Gorontalo Regency experienced an increase in the wet period. Changes in time-scale caused the tendency for a high number of dry period frequencies. Drought spatial distribution could be used to determine the priority plans in finding the solutions due to droughts that occur in drought-vulnerable areas. Drought analysis using SPI could contribute to the decision-making in the future as an effort to minimize the impact of drought.

Keywords: drought severity, spatial analysis, standardized precipitation index

1. Introduction

Gorontalo Regency is one of the regencies in Gorontalo Province with highest rice production with total rice production in 2015 is about 153.515 tons and maize production in the same year is about 142.863 tons [3]. Therefore, Gorontalo Regency is the largest food producer in the province. Furthermore, Gorontalo Regency is also vulnerable to drought. Drought is one of meteorological disaster because it tends to bring negative impact on various sectors, such as in social and economic sectors as well as in other areas. The potential drought area in Gorontalo Regency is about 172.894 hectares, whereas the possible environmental damage due to drought is about 59.311 hectares [2]. The impact of the drought is economically and socially felt by the people in this regency. Therefore, efforts to assess the level of drought hazard are needed. This effort can be made by utilizing the climate data to monitor the drought events. Hence, adaptation and mitigation of drought hazard can be done.

Monitoring of drought events needs an exact calculation to assess the severity classification of the drought. Assessing the severity classification and providing information for early drought warning can support adaptation and mitigation actions of the drought hazard. Therefore, tools to be used in evaluating



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