Communicating Research in Environment Fields Using Management of Potential Data on Websites

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Communicating Research in Environment Fields Using Management of Potential Data on Websites

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Abstract: This research is focused on the increasing of climate issue studies using the management of potential data on Websites for Communicating Research in the field of Environment. This research relates with the climate data on web sites, namely : https://www7.ncdc.noaa.gov/CDO/ . Furthermore, this research is also purposed in order to elucidate the potentials and challenges of internet data for environment. In this paper, the data that are gained will be managed such that some academic articles are produced. Some data at the Internet had successfully been applied to a very wide range of climate issues including forecasting (e.g. of rainfall and wind speed).

INTRODUCTION

Nowadays, web becomes important for human life, as the rising number of social interactions is held on internet. Therefore, we learn about the use of internet in research, both as a research object itself and as a source of knowledges about other research objects. In the 2000s, an individual, with an effectively web method, used internet intensively and made many data piling up. In other hand, it is an unavoidable circumstance because the advanced sampling of ICT (Information and Communication Technology) becomes less. By linking an ever-larger part, we are able to eliminate several chosen biases caused by online populations which tend to be the same to the general population, so that it at least while there is full access allows us to have the real representative and random samples. Because of a progress in ICT, sampling is unnecessary at the time since we are able to handle almost unlimited data.

As time flies, many people realized the importance and the benefits of Internet, and they tried to leave their traditional way and to start using internet in many aspects of their life. In addition, many researches had been conducted by researchists in order to investigate the advantages of conducting research using Internet such as email [1][2] and the World Wide Web (WWW or web). it can thus be hoped for a more raised way of empirical reports over time though.

In this era, Internet plays an important role in science and technology, for instance many Official Statistics depend on Internet as their Data Source. More and more experiments are conducted by Statistical Institutes in order to study about the use of new source of data, known as Big Data and to produce the same or new statistical information in a multisource environment more efficiently and with higher levels of equality [3]. In addition, there are several literatures using internet data in context of human resource in on social sciences that we can provide. In early contributions, they used google activity data as their data sources, among them, there are [4][5] [6] [7]. The research suggest to systematically use Internet data to proxy unobservable variables and demonstrate the usefulness of this technique for a selectionnof occurrence frequencies of crucial environment phenomena in the US [8]

We, the first concern, are discussed on this paper is the type of the available environment data especialy climate data on the internet. Moreover, the key literature in the subfields have to be identify on this step and it must be related to climate issues in the environment science. The final step is to manage the data obtained from climate websites and to communicate it as an article published in the forum of International journals.

THE INTERNET DATA SOURCES OF ENVIRONMET FIELD IN WEBSITE

Environment field espicialy the climate issues are big association of data. Because of their characteristics, it causes a lot of interesting aspects that could be always studied. There are several websites on the internet providing this data, and in this paper we use data served on websites, namely https:// www7.ncdc.noaa.gov/CDO/. The website contain climate data, for instance daily rainfall data and wind speed data, shown in Figure 1 and Figure 2 respectively

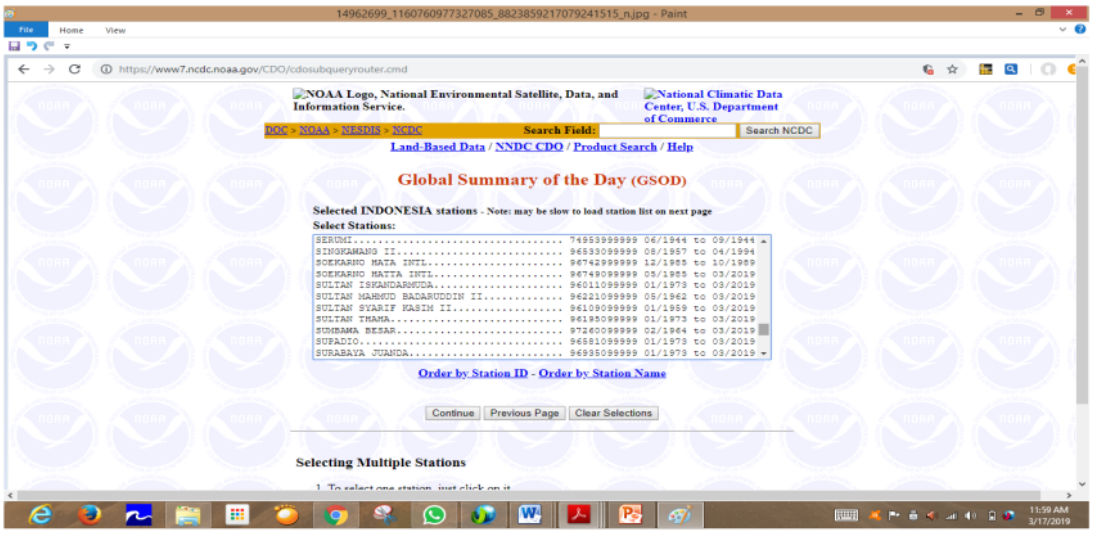


Figure 1.the Website source of climate data

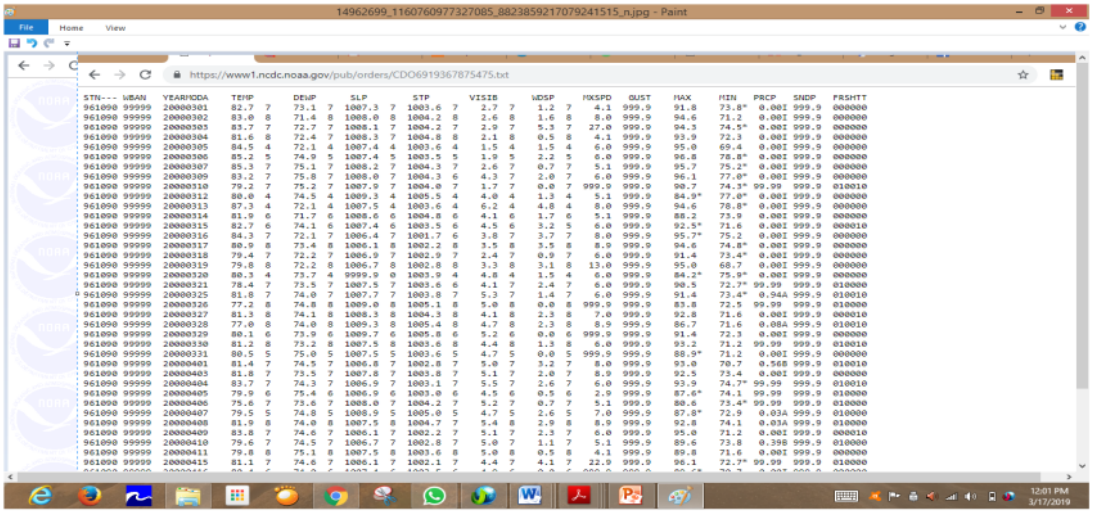


Figure 2. Daily data of wind speed and Rainfall

CLIMATE DATA MANAGEMENT ON PRODUCING RESEARCH ARTICLE

A number of previous studies compared statistical distributions with measurements in order to examine how well the statistical modelling of the measured wind speed and rainfall. An overview of recent studies is presented in Table 1. Table 1 shows that a large number of different statistical modelling were previously compared with wind speed and rainfall data.

Table 1. Overview of recent studies that use different statistical modelling to assess wind speed and rainfall occurrence probabilities.

Author	Statistics Modelling
Rehman et al., 1994	Two Parameters Weibull for wind speed modelling[9]
Carta et al., 2009	Generalized Gamma, Gamma, Weibull, singly truncated from below normal, two components mixture Weibull, Rayleigh, beta, inverse Gaussian, lognormal for wind speed modelling [10]
Morgan et al., 2011	Gamma, lognormal, Rayleigh, log Pearson type III, Generalized Rayleigh, Generalized Gamma, Pearson type III, Weibull, Generalized normal, Wakeby, Kappa, bimodal Weibull mixture[11]
Kollu et al., 2012	Weibull-extreme value distribution (GEV), Weibull-lognormal, GEV-lognormal for wind speed modelling [12]
Piantadosi et al., 2009	Two Parameters Gamma for rainfall modelling [13]
Woolhiser and Roldan., 1982	Exponential and mixed exponential for rainfall modelling [14]
Sharda and Das., 2005	Weibull for rainfall modelling [15]

This research uses wind speed and rainfall data available on the site of https: // www7.ncdc.noaa.gov/CDO/, shown in Figure 1 and Figure 2 respectively, in order to produce research articles. The management data obtained will be begun by transforming data in to a graph and histogram. Moreover, the wind speed and rainfall data which are daily data are arranged in to graphs and histograms as shown on Figure 3 and 4 consecutively. Then, if we look into the graphs produced, both data, wind speed and rainfall, have certain pattern and a random rule of the occurrence of two natural phenomenon which are highly related to climate. Based on this information, it enables us to do some statistic modeling, such us probability modeling of natural phenomenon events. Therefore, the best modeling of daily data, wind speed and rainfall, in Pekanbaru can be communicated by using research articles published in Applied Mathematical Sciences, Vol. 12, 2018, no. 29, 1393 - 1401 and Vol. 12, 2018, no. 2, 69 - 80. These two research articles are also attached as shown in Figures 5 and 6 respectively

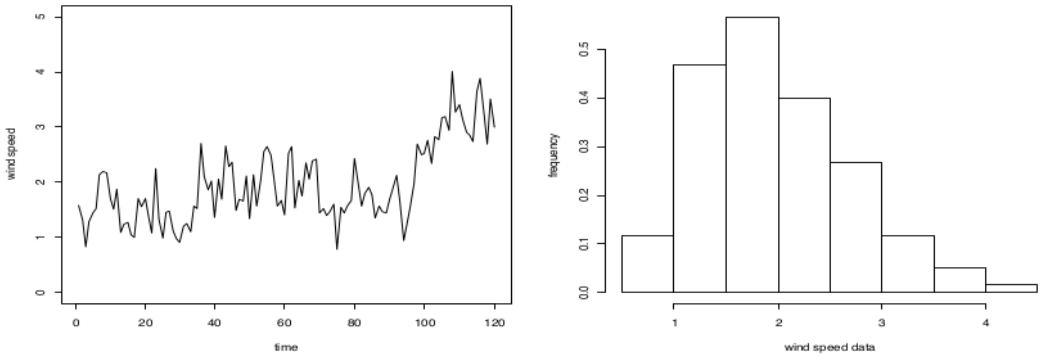


Figure 3. Plot and Histogram of wind speed data on Pekanbaru

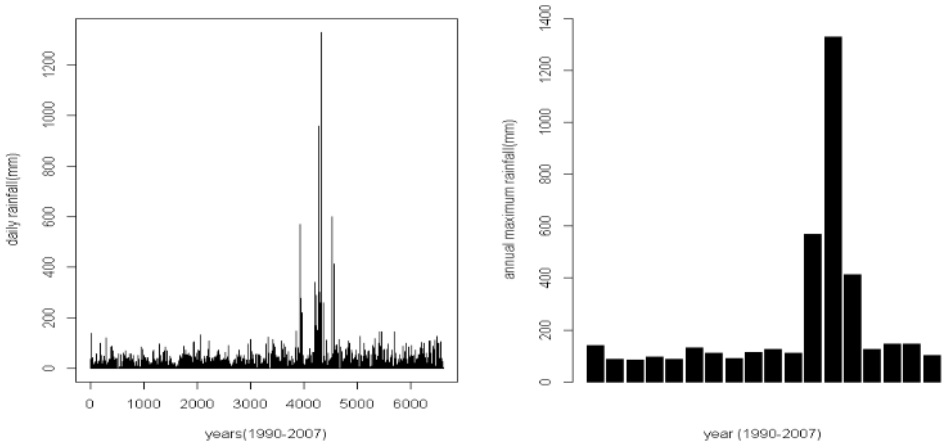
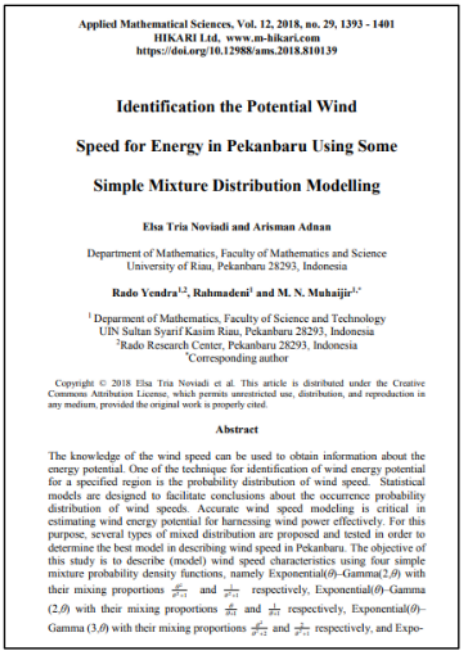


Figure 4.record of daily rainfall data and maximum annual daily rainfall from 1990 to 2007 provided by the Meteorological, Climatological, and Geophysical Agency of Pekanbaru, Indonesia



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Identification the Potential Wind Speed for Energy in Pekanbaru Using Some Simple Mixture Distribution Modelling

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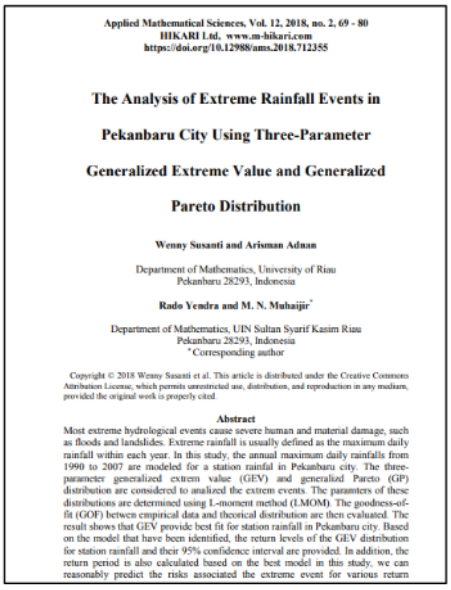
Abstract

The knowledge of the wind speed can be used to obtain information about the energy potential. One of the technique for identification of wind energy potential for a specified region is the probability distribution of wind speed. Statistical models are designed to facilitate conclusions about the occurrence probability distribution of wind speeds. Accurate wind speed modeling is critical in estimating wind energy potential for harnessing wind power effectively. For this purpose, several types of mixed distribution are proposed and tested in order to determine the best model in describing wind speed in Pekanbaru. The objective of this study is to describe (model) wind speed characteristics using four simple mixture probability density functions, namely Exponential(θ)–Gamma(2,θ) with their mixing proportions $\frac{\theta^2}{\theta^2+1}$ and $\frac{1}{\theta^2+1}$ respectively, Exponential(θ)–Gamma (2,θ) with their mixing proportions $\frac{\theta}{2+\theta}$ and $\frac{2}{2+\theta}$ respectively, Exponential(θ)–Gamma (3,θ) with their mixing proportions $\frac{\theta^3}{\theta^3+2}$ and $\frac{2}{\theta^3+2}$ respectively, and Expo-

Figure 5.a research article published in Applied Mathematical Sciences, Vol. 12, 2018, no. 29, 1393 – 1401



Applied Mathematical Sciences, Vol. 12, 2018, no. 2, 69 - 80
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The Analysis of Extreme Rainfall Events in Pekanbaru City Using Three-Parameter Generalized Extreme Value and Generalized Pareto Distribution

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Abstract

Most extreme hydrological events cause severe human and material damage, such as floods and landslides. Extreme rainfall is usually defined as the maximum daily rainfall within each year. In this study, the annual maximum daily rainfalls from 1990 to 2007 are modeled for a station rainfall in Pekanbaru city. The three-parameter generalized extrem value (GEV) and generalized Pareto (GP) distribution are considered to analized the extrem events. The paramters of these distributions are determined using L-moment method (LMOM). The goodness-of-fit (GOF) betwen empirical data and theorical distribution are then evaluated. The result shows that GEV provide best fit for station rainfall in Pekanbaru city. Based on the model that have been identified, the return levels of the GEV distribution for station rainfall and their 95% confidence interval are provided. In addition, the return period is also calculated based on the best model in this study, we can reasonably predict the risks associated the extreme event for various return

Figure 6.aresearch article published in Applied Mathematical Sciences, Vol. 12, 2018, no. 2, 69 – 80

CONCLUSION

In this paper, we arrange the steps on producing research articles by using data which are available on potential websites, especially in the term of climate issues. Specifically, we exposure on production of the best probability modeling of wind speed and rainfall. Data that has been managed using the correct statistical methods will be communicated through research articles published in several good international journals.

ACKNOWLEDGMENTS

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REFFERENCES

[1]Schmidt, W.C. 1997. World-wide web survey research: benefits, potential problems, and solutions. Behaviour Research Methods, Instruments & Computers, 29, 274-279

[2]Murray, C.D. and Sixsmith, J. 1998. E-mail: a qualitative research medium for interviewing? International Journal of Social Research Methodology Theory and Practice, 1, 103-121

[3]Citro C. F. 2014. From multiple modes for surveys to multiple data sources for estimates.*Survey Methodology*, Vol.40, N.2, pp.137–161.

[4]Ginsberg, J, Mohebbi, MH, Patel, RS, Brammer, L, Smolinski, MS, Brilliant, L 2009: 'Detecting Influenza Epidemics using Search Engine Query Data', *Nature*, vol. 457, 1012 – 1014.

[5]Askitas, N & Zimmermann, KF 2009, 'Google Econometrics and Unemployment Forecasting', *Applied Economics Quarterly*, vol. 55, no. 2, pp. 107-120. **DOI**:10.3790/aeq.55.2.107

[6]Choi, H & Varian, H 2012, 'Predicting the present with google trends'.*Economic Record*, vol. 88 (s1), pp. 2-9.

[7] Thamrin, H., Darussamin, Z., Zamsiswaya, Z., Yendra, R., Fudholi, A, 2019, Analysis the Effect of Mathematics Subjects on Islamic School in Pekanbaru Region Using Spatial Analysis, *International Journal of Engineering and Advanced Technology*, Vol 8, no 4, pp 482-486

[8]Saiz, A, Simonsohn, U 2013, 'Proxying for unobservable variables with internet document frequency', *Journal of the European Economic Association*, vol. 11, no. 1, pp. 137-165.

[9]Rehman, S., Halawani, T. O., Husain, T. (1994). Weibull parameters for wind speed distribution in Saudi Arabia. *Solar Energy, 53*(6): 473-479.

[10]Carta JA, Ramirez P, Velazquez S (2009) A review of wind speed probability distributions used in wind energy analysis Case studies in the Canary Islands. Renew Sust Energy Rev 13:933–955

[11]Morgan EC, Lackner M, Vogel RM, Baise LG (2011) Probability distributions for offshore wind speeds. Energy Convers Manag 52:15–26

[12]Kollu R, Rayapudi SR, Narasimham SVL, Pakkurthi KM (2012) Mixture probability distribution functions to model wind speed distributions.Int J Energy Environ Eng 3:27

[13]Piantadosi, J. W. Boland, and P. G. Howlett. Simulation of rainfall totals on various time scales–daily, monthly and yearly. Environmental Modeling and Assessment, 14(4):431–438, (2009).

[14]D. A. Woolhiser and J. Roldan. Stochastic daily precipitation models 2, a comparison of distribution of amounts. Water Resources Research, 18(5):1461–1468, (1982).

[15]V. N. Sharda and P. K. Das. Modelling weekly rainfall data for crop planning in a sub-humid climate of india. Agricultural Water Management, 76:120–138, (2005).

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