**Modelling Earthquake data using some lifetime distributions**

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| **Abstract**  In this study, we provide statistical inferences about earthquake data by modelling some lifetime distributions. We consider five lifetime distributions (Weibull, exponentiated Exponential [1], exponentiated Weibull [2], generalized Lindley [3], and Power Lindley [4]) to model earthquake data. We consider two earthquake data set in this paper. The first data consist of 20 observations denoting magnitudes of earthquakes in the Kuşadası bay on 23 November 2020 while the second data set includes the magnitudes of earthquakes in the Kuşadası bay on 24 November 2020. The maximum likelihood method is used to estimate the unknown parameters of these distributions. We estimate average magnitude of earthquakes via the maximum likelihood estimates of the parameters of five lifetime distributions. |
| Keywords: Weibull distribution, Exponentiated Exponential distribution, Maximum likelihood estimation, Real data analysis. |

**References**

1. Gupta, R. D., Kundu, D., 2001, Generalized exponential distribution: different method of estimations, Journal of Statistical Computation and Simulation, 69 (4), 315-337.
2. Pal, M., Masoom M.A., Jungsoo W. (2006). Exponentiated weibull distribution. *Statistica* 66 (2) 139-147.
3. Nadarajah, S., Bakouch, H. S., Tahmasbi, R. (2011). A generalized Lindley distribution. *Sankhya B*, *73*(2), 331-359.
4. Ghitany, M. E., Al-Mutairi, D. K., Balakrishnan, N., Al-Enezi, L. J. (2013). Power Lindley distribution and associated inference. *Computational Statistics & Data Analysis*, *64*, 20-33