

DAFTAR PUSTAKA

- [1] M. Wyss and D. C. Booth, "The IASPEI procedure for the evaluation of earthquake precursors," *Geophysical Journal International*, vol. 131, no. 3, pp. 423–424, dec 1997.
- [2] A. Riggio and M. Santulin, "Earthquake forecasting: A review of radon as seismic precursor," *Bollettino di Geofisica Teorica ed Applicata*, vol. 56, no. 2, pp. 95–114, 2015.
- [3] N. Morales-Simfors, R. Wyss, and J. Bundschuh, "Recent progress in radon-based monitoring as seismic and volcanic precursor: A critical review," *Critical Reviews in Environmental Science and Technology*, vol. 50, pp. 979 – 1012, 2020.
- [4] D. Nikolopoulos, D. Cantzos, A. Alam, S. Dimopoulos, and E. Petraki, "Electromagnetic and radon earthquake precursors," *Geosciences*, 2024.
- [5] D. Ghosh, A. Deb, and R. Sengupta, "Anomalous radon emission as precursor of earthquake," *Journal of Applied Geophysics*, vol. 69, pp. 67–81, 2009.
- [6] J. Scoville, J. Sornette, and F. T. Freund, "Paradox of peroxy defects and positive holes in rocks Part II: Outflow of electric currents from stressed rocks," *Journal of Asian Earth Sciences*, vol. 114, no. February, pp. 338–351, 2015.
- [7] D. Freund, F. Ouillon, G. Scoville, J. Sornette, "Earthquake precursors in the light of peroxy defects theory: Critical review of systematic observations," *European Physical Journal: Special Topics*, vol. 230, no. 1, pp. 7–46, 2021.
- [8] V. Shukla, V. Chauhan, N. Kumar, and D. Hazarika, "Assessment of Rn-222 continuous time series for the identification of anomalous changes during moderate earthquakes of the Garhwal Himalaya," *Applied Radiation and Isotopes*, vol. 166, p. 109327, 2020.
- [9] K. Kawabata, T. Sato, H. A. Takahashi, F. Tsunomori, T. Hosono, M. Takahashi, and Y. Kitamura, "Changes in groundwater radon concentrations caused by the 2016 Kumamoto earthquake," *Journal of Hydrology*, vol. 584, p. 124712, 2020.
- [10] J. Muto, Y. Yasuoka, N. Miura, D. Iwata, H. Nagahama, M. Hirano, Y. Ohmomo, and T. Mukai, "Preseismic atmospheric radon anomaly associated with 2018 Northern Osaka earthquake," *Scientific Reports*, vol. 11, no. 1, pp. 1–8, 2021.
- [11] Y. Zhao, Z. Liu, Y. Li, L. Hu, Z. Chen, F. Sun, and C. Lu, "A case study of 10 years groundwater radon monitoring along the eastern margin of the Tibetan Plateau and in its adjacent regions: Implications for earthquake surveillance," *Applied Geochemistry*, vol. 131, p. 105014, 2021.
- [12] H. Zhou, H. Su, C. Li, and Y. Wan, "Geochemical precursory characteristics of soil gas Rn, Hg, H₂, and CO₂ related to the 2019 Xiahe Ms5.7 earthquake across the northern margin of West Qinling fault zone, Central China," *Journal of Environmental Radioactivity*, vol. 264, p. 107190, 2023.

- [13] Z. Zhou, L. Tian, J. Zhao, H. Wang, and J. Liu, "Stress-Related Pre-Seismic Water Radon Concentration Variations in the Panjin Observation Well, China (1994–2020)," *Frontiers in Earth Science*, vol. 8, no. November, pp. 1–12, 2020.
- [14] M. Awais, A. Barkat, A. Ali, K. Rehman, W. Ali Zafar, and T. Iqbal, "Satellite thermal IR and atmospheric radon anomalies associated with the Haripur earthquake (Oct 2010; M w 5.2), Pakistan," *Advances in Space Research*, vol. 60, no. 11, pp. 2333–2344, 2017.
- [15] Sunarno, H. L. Firdaus, Y. F. Luckyarno, M. M. Waruwu, and R. Wijaya, "Detection system for deterministic earthquake prediction based on radon concentration changes in Indonesia," *Journal of Engineering Science and Technology*, vol. 15, no. 3, pp. 1787–1798, 2020.
- [16] T. O. Pratama, Sunarno, S. Hawibowo, M. M. Waruwu, and R. Wijaya, "Deterministic system for earthquake early warning system based on radon gas concentration anomaly at yogyakarta region-Indonesia," *AIP Conference Proceedings*, vol. 2320, 2021.
- [17] T. O. Pratama, A. B. Wijatna, S. Sunarno, H. K. Sari, R. Yanti, R. Wijaya, and M. M. Waruwu, "Application of continuous radon gas concentration telemonitoring for predictive seismic hazard assessment in manado, indonesia," *Ecological Engineering amp; Environmental Technology*, 2025.
- [18] B. Sahoo, B. Sapra, A. Khan, M. P. Ratheesh, D. Kumbhar, J. Gaware, S. Kanse, S. Phanjoubam, and D. K. Aswal, "A persistent radon anomaly signal preceding the destructive 7.7 mw earthquake in myanmar on march 28, 2025," *Scientific Reports*, vol. 15, 2025.
- [19] H. Woith, "Radon earthquake precursor: A short review," *The European Physical Journal Special Topics*, vol. 224, pp. 611 – 627, 2015.
- [20] M. Tsuchiya, H. Nagahama, J. Muto, M. Hirano, and Y. Yasuoka, "Detection of atmospheric radon concentration anomalies and their potential for earthquake prediction using random forest analysis," *Scientific Reports*, vol. 14, 2024.
- [21] C. A. Putranto, S. Sunarno, F. Faridah, and T. O. Pratama, "Earthquake epicenter prediction from the java-bali radon gas telemonitoring station using machine learning," *International Journal of Advances in Applied Sciences*, 2025.
- [22] G. Kumar, J. Gerl, A. A. Nyberg, T. Bäck, G. DeLuca, P. Eleftheria, V. Guerriero, J. Hůlka, V. Karakostas, A. Lightfoot, B. Löher, M. Nilsson, P. Sjödin, M. Tallini, and R. Wyss, "Earthquake precursor measurements employing a network of radon sensors," *EPJ Nuclear Sciences amp; Technologies*, 2025.
- [23] A. D. K. Tareen, M. S. A. Nadeem, K. J. Kearfott, K. Abbas, M. A. Khawaja, and M. Rafique, "Descriptive analysis and earthquake prediction using boxplot interpretation of soil radon time series data," *Applied Radiation and Isotopes*, vol. 154, no. June, p. 108861, 2019.

- [24] A. D. K. Tareen, M. Nadeem, K. Kearfott, K. Abbas, M. A. Khawaja, and M. Rafique, "Descriptive analysis and earthquake prediction using boxplot interpretation of soil radon time series data." *Applied radiation and isotopes : including data, instrumentation and methods for use in agriculture, industry and medicine*, vol. 154, p. 108861, 2019.
- [25] N. Bashir, A. Rasheed, M. Osama, A. A. Mir, M. Rafique, S. U. Rahman, D. Nikolopoulos, M. A. Basit, A. Alam, A. D. K. Tareen, and K. J. Kearfott, "Predictive modelling of radon variations in time series using wavelets, multiple linear regression and arima," *Isotopes in Environmental and Health Studies*, vol. 61, pp. 662 – 686, 2025.
- [26] G. Soldati, V. Cannelli, and A. Piersanti, "Monitoring soil radon during the 2016–2017 central italy sequence in light of seismicity," *Scientific Reports*, vol. 10, 2020.
- [27] T. Haider, A. Barkat, U. Hayat, A. Ali, M. Awais, A. Alam, K. Rehman, and M. A. Shah, "Identification of radon anomalies induced by earthquake activity using intelligent systems," *Journal of Geochemical Exploration*, vol. 222, no. March 2020, p. 106709, 2021.
- [28] —, "Identification of radon anomalies induced by earthquake activity using intelligent systems," *Journal of Geochemical Exploration*, vol. 222, p. 106709, 2021.
- [29] J. Elío, E. Petermann, P. Bossew, and M. Janik, "Machine learning in environmental radon science," *Applied Radiation and Isotopes*, vol. 194, p. 110684, 2023.
- [30] A. Chatterjee and B. S. Ahmed, "IoT anomaly detection methods and applications: A survey," *Internet of Things*, vol. 19, p. 100568, 2022.
- [31] S. Zhang, Z. Shi, G. Wang, R. Yan, and Z. Zhang, "Application of the extreme gradient boosting method to quantitatively analyze the mechanism of radon anomalous change in Banglazhang hot spring before the Lijiang Mw 7.0 earthquake," *Journal of Hydrology*, vol. 612, p. 128249, 2022.
- [32] A. A. Mir, F. V. Çelebi, H. Alsolai, S. A. Qureshi, M. Rafique, J. S. Alzahrani, H. Mahgoub, and M. A. Hamza, "Anomalies Prediction in Radon Time Series for Earthquake Likelihood Using Machine Learning-Based Ensemble Model," *IEEE Access*, vol. 10, pp. 37 984–37 999, 2022.
- [33] A. A. Mir, F. Çelebi, H. Alsolai, S. A. Qureshi, M. Z. Rafique, J. S. Alzahrani, H. Mahgoub, and M. A. Hamza, "Anomalies prediction in radon time series for earthquake likelihood using machine learning-based ensemble model," *IEEE Access*, vol. 10, pp. 37 984–37 999, 2022.
- [34] T. O. Pratama, S. Sunarno, A. B. Wijatna, and E. Haryono, "Earthquake magnitude prediction in indonesia using a supervised method based on cloud radon data," *International Journal of Reconfigurable and Embedded Systems (IJRES)*, 2024.
- [35] K. Yotov, E. Hadzhikolev, and S. Hadzhikoleva, "Modeling the relationship between radon anomalies and seismic activity using artificial neural networks and statistical methods," *Mathematics*, 2025.

- [36] F. Díaz and R. Liza, “Radon anomalies and earthquake prediction: Trends and research hotspots in the scientific literature,” *Geosciences*, 2025.
- [37] H. Raad, V. Cornelius, S. Chan, E. Williamson, and S. Cro, “An evaluation of inverse probability weighting using the propensity score for baseline covariate adjustment in smaller population randomised controlled trials with a continuous outcome,” *BMC Medical Research Methodology*, 2020.
- [38] P. C. Austin and E. W. Steyerberg, “The number of subjects per variable required in linear regression analyses,” *Journal of Clinical Epidemiology*, 2015.
- [39] D. G. Jenkins and P. F. Quintana-Ascencio, “A solution to minimum sample size for regressions,” *Plos One*, 2020.
- [40] A. Tio and M. Makhsun, “Monitoring system of radon gas concentration in groundwater in real-time for earthquake detection,” *Sustainable Environmental and Optimizing Industry Journal*, 2022.
- [41] F. Külahci, M. Inceöz, M. Doğru, E. Aksoy, and O. Baykara, “Artificial neural network model for earthquake prediction with radon monitoring,” *Applied Radiation and Isotopes*, vol. 67, no. 1, pp. 212–219, 2009.
- [42] S. Singh, H. P. Jaishi, R. P. Tiwari, and R. C. Tiwari, “Time series analysis of soil radon data using multiple linear regression and artificial neural network in seismic precursory studies,” *Pure and Applied Geophysics*, 2017.
- [43] A. Barkat, A. Ali, U. Hayat, Q. G. Crowley, K. Rehman, N. Siddique, T. Haidar, and T. Iqbal, “Time series analysis of soil radon in Northern Pakistan: Implications for earthquake forecasting,” *Applied Geochemistry*, vol. 97, no. January, pp. 197–208, 2018.
- [44] A. D. K. Tareen, K. M. Asim, K. J. Kearfott, M. Rafique, M. S. A. Nadeem, T. Iqbal, and S. U. Rahman, “Automated anomalous behaviour detection in soil radon gas prior to earthquakes using computational intelligence techniques,” *Journal of Environmental Radioactivity*, vol. 203, pp. 48–54, Jul. 2019. [Online]. Available: <https://linkinghub.elsevier.com/retrieve/pii/S0265931X18301887>
- [45] T. O. Pratama, S. Sunarno, A. B. Wijatna, and E. Haryono, “Cloud radon data for earthquake magnitude prediction using machine learning,” *IAES International Journal of Artificial Intelligence (IJ-AI)*, vol. 13, no. 4, p. 4572, Dec. 2024. [Online]. Available: <https://ijai.iaescore.com/index.php/IJAI/article/view/25221>
- [46] M. Tsuchiya, H. Nagahama, J. Muto, M. Hirano, and Y. Yasuoka, “Detection of atmospheric radon concentration anomalies and their potential for earthquake prediction using Random Forest analysis,” *Scientific Reports*, vol. 14, no. 1, p. 11626, May 2024. [Online]. Available: <https://www.nature.com/articles/s41598-024-61887-6>
- [47] K. Yotov, E. Hadzhikolev, and S. Hadzhikoleva, “Modeling the Relationship Between Radon Anomalies and Seismic Activity Using Artificial Neural Networks and Statistical Methods,” *Mathematics*, vol. 13, no. 7, p. 1075, Mar. 2025. [Online]. Available: <https://www.mdpi.com/2227-7390/13/7/1075>

- [48] A. A. Mir, K. Kearfott, F. Çelebi, and M. Z. Rafique, “Imputation by feature importance (ibfi): A methodology to envelop machine learning method for imputing missing patterns in time series data,” *PLoS ONE*, vol. 17, 2022.
- [49] S. Zhang, Z. Shi, G. Wang, R. Yan, and Z. Zhang, “Groundwater radon precursor anomalies identification by decision tree method,” *Applied Geochemistry*, vol. 121, p. 104696, 2020.
- [50] C. Shyalika, R. Wickramarachchi, and A. Sheth, “A comprehensive survey on rare event prediction,” *ACM Computing Surveys*, vol. 57, pp. 1 – 39, 2023.
- [51] R. Zhang, Z. Chen, S. Chen, J. Zheng, O. Buyukozturk, and H. Sun, “Deep long short-term memory networks for nonlinear structural seismic response prediction,” *Computers Structures*, 2019.
- [52] B. Sadhukhan, S. Chakraborty, S. Mukherjee, and R. Samanta, “Climatic and seismic data-driven deep learning model for earthquake magnitude prediction,” vol. 11, 2023.
- [53] W. Zhou, W. Lan, Z. Ye, Z. Ming, J. Chen, and Q. He, “Adaptive dendritic cell-negative selection method for earthquake prediction,” *Electronics*, 2022.
- [54] A. Roy and S. Chakraborty, “Seismic reliability analysis of structures by an adaptive support vector regression-based metamodel,” *Journal of Earthquake Engineering*, vol. 28, pp. 1590 – 1614, 2023.
- [55] A. Roy, S. Chakraborty, and S. Adhikari, “Seismic reliability analysis of nonlinear structures by active learning-based adaptive sparse bayesian regressions,” *International Journal of Non-Linear Mechanics*, 2024.
- [56] T. Wang, X. Jin, Y. Wei, and Y. Huang, “Real-time numerical shake prediction and updating for earthquake early warning,” *Earthquake Science*, vol. 30, pp. 251–267, 2017.
- [57] P. Gehl, R. Fayjaloun, L. Sun, E. Tubaldi, C. Negulescu, E. Özer, and D. D’Ayala, “Rapid earthquake loss updating of spatially distributed systems via sampling-based bayesian inference,” *Bulletin of Earthquake Engineering*, vol. 20, pp. 3995 – 4023, 2022.
- [58] K. Ohno, Y. Ohta, R. Hino, S. Koshimura, A. Musa, T. Abe, and H. Kobayashi, “Rapid and quantitative uncertainty estimation of coseismic slip distribution for large interplate earthquakes using real-time gnss data and its application to tsunami inundation prediction,” *Earth, Planets and Space*, vol. 74, pp. 1–18, 2021.
- [59] J. Kwon, Y. Zheng, and M. Jun, “Flexible spatio-temporal hawkes process models for earthquake occurrences,” *Spatial Statistics*, 2022.
- [60] Q. Wang, Y. Guo, L. Yu, and P. Li, “Earthquake prediction based on spatio-temporal data mining: An lstm network approach,” *IEEE Transactions on Emerging Topics in Computing*, vol. 8, pp. 148–158, 2020.

- [61] J. Liu, T. Zhang, C. Gao, and P. Wang, "Forecasting earthquake magnitude and epicenter by incorporating spatiotemporal priors into deep neural networks," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 61, pp. 1–13, 2023.
- [62] R. Tehseen, M. Farooq, and A. Abid, "A framework for the prediction of earthquake using federated learning," *PeerJ Computer Science*, vol. 7, 2021.
- [63] P. Hajikhodaverdikhan, M. Nazari, M. Mohsenizadeh, S. Shamshirband, and K. Chau, "Earthquake prediction with meteorological data by particle filter-based support vector regression," *Engineering Applications of Computational Fluid Mechanics*, vol. 12, pp. 679 – 688, 2018.
- [64] R. Abri and H. Artuner, "Lstm-based deep learning methods for prediction of earthquakes using ionospheric data," *GAZI UNIVERSITY JOURNAL OF SCIENCE*, 2022.
- [65] W. S. Putra, Sunarno, and I. W. Mustika, "Kalman filter for radon based earthquake early detection," *2024 International Conference on Informatics Electrical and Electronics (ICIEE)*, pp. 1–6, 2024.
- [66] M. Namvaran and A. Negarestani, "Noise reduction in radon monitoring data using kalman filter and application of results in earthquake precursory process research," *Acta Geophysica*, vol. 63, pp. 329–351, 2015.
- [67] A. Piersanti, V. Cannelli, and G. Galli, "The pollino 2012 seismic sequence: clues from continuous radon monitoring," *Solid Earth*, vol. 7, pp. 1303–1316, 2016.
- [68] A. D. K. Tareen, K. M. Asim, K. Kearfott, M. Rafique, M. Nadeem, T. Iqbal, and S. Rahman, "Automated anomalous behaviour detection in soil radon gas prior to earthquakes using computational intelligence techniques," *Journal of environmental radioactivity*, vol. 203, pp. 48–54, 2019.
- [69] V. Toader, C. Ionescu, I. Moldovan, A. Marmureanu, N.-S. Brisan, I. Lingvay, and A. Mihai, "The results and developments of the radon monitoring network in seismic areas," *Atmosphere*, 2023.
- [70] R. Ahmad and E. H. Alkhamash, "Online adaptive kalman filtering for real-time anomaly detection in wireless sensor networks," *Sensors (Basel, Switzerland)*, vol. 24, 2024.
- [71] X. Li, S. Feng, N. Hou, R. Wang, H. Li, M. Gao, and S. Li, "Surface microseismic data denoising based on sparse autoencoder and kalman filter," *Systems Science Control Engineering*, vol. 10, pp. 616 – 628, 2022.
- [72] F. Ambrosino, W. D. Cesare, V. Roca, and C. Sabbarese, "Mathematical and geophysical methods for searching anomalies of the radon signal related to earthquakes," *Journal of Physics: Conference Series*, vol. 1226, 2019.
- [73] D. H. K. Mohammed, F. K lahcı, and A. Muhammed, "Determination of possible responses of radon-222, magnetic effects, and total electron content to earthquakes on the north anatolian fault zone, turkiye: an arima and monte carlo simulation," *Natural Hazards*, vol. 108, pp. 2493 – 2512, 2021.

- [74] Y. Fujinawa, "A method for estimating earthquake occurrence probability using first- and multiple-order markov chain models," *Natural Hazards*, vol. 4, pp. 7–22, 1991.
- [75] S. Minson, A. Baltay, E. Cochran, T. Hanks, M. Page, S. K. Mcbride, K. Milner, and M. Meier, "The limits of earthquake early warning accuracy and best alerting strategy," *Scientific Reports*, vol. 9, 2019.
- [76] A. Zollo, S. Colombelli, A. Caruso, and L. Elia, "An evolutionary shaking-forecast-based earthquake early warning method," *Earth and Space Science*, vol. 10, 2023.
- [77] D. Wald, "Practical limitations of earthquake early warning," *Earthquake Spectra*, vol. 36, pp. 1412 – 1447, 2020.
- [78] C. Peng, P. Jiang, Q. Ma, J. Su, Y. Cai, and Y. Zheng, "Chinese nationwide earthquake early warning system and its performance in the 2022 lushan m6.1 earthquake," *Remote. Sens.*, vol. 14, p. 4269, 2022.
- [79] G. Cremen and C. Galasso, "Earthquake early warning: Recent advances and perspectives," *Earth-Science Reviews*, 2020.
- [80] M. Izzatullah, T. van Leeuwen, and D. Peter, "Bayesian seismic inversion: a fast sampling langevin dynamics markov chain monte carlo method," *Geophysical Journal International*, 2021.
- [81] A. J. Najafabadi, C. Haberland, T. Ryberg, V. Verwater, E. L. Breton, M. Handy, and M. Weber, "Relocation of earthquakes in the southern and eastern alps (austria, italy) recorded by the dense, temporary swath-d network using a markov chain monte carlo inversion," *Solid Earth*, vol. 12, pp. 1087–1109, 2020.
- [82] G. K. Stuart, S. Minkoff, and F. Pereira, "A two-stage markov chain monte carlo method for seismic inversion and uncertainty quantification," *GEOPHYSICS*, 2019.
- [83] A. Papoulis, *Probability, Random Variables, and Stochastic Processes*. New York: McGraw-Hill, 2002.
- [84] R. G. Gallager, *Stochastic Processes Theory for Applications*. New York: Cambridge University Press, 2013.
- [85] Z. Qiao, G. Wang, H. Fu, and X. Hu, "Identification of groundwater radon precursory anomalies by critical slowing down theory: A case study in yunnan region, southwest china," *Water*, vol. 14, no. 4, 2022.
- [86] A. Muhammad, F. K ulahcı, and S. Birel, "Investigating radon and TEC anomalies relative to earthquakes via AI models," *Journal of Atmospheric and Solar-Terrestrial Physics*, vol. 245, no. September 2022, p. 106037, 2023.
- [87] E. Hauksson, "Radon content of groundwater as an earthquake precursor: Evaluation of worldwide data and physical basis," *Journal of Geophysical Research*, vol. 86, pp. 9397–9410, 1981.

- [88] A. Muhammad, F. K lahcı, H. Salh, and P. A. Hama Rashid, "Long Short Term Memory networks (LSTM)-Monte-Carlo simulation of soil ionization using radon," *Journal of Atmospheric and Solar-Terrestrial Physics*, vol. 221, no. May, p. 105688, 2021.
- [89] N. Metropolis and S. Ulam, "The monte carlo method," *Journal of the American Statistical Association*, vol. 44, no. 247, pp. 335–341, 1949.
- [90] C. P. Robert and G. Casella, *Monte Carlo Statistical Methods*, 2nd ed. Springer, 2004.
- [91] N. Metropolis, "The beginning of the monte carlo method," *Los Alamos Science*, vol. 15, pp. 125–130, 1987.
- [92] M. Mousavi, S. Akkar, and M. Erdik, "A candidate proxy to be used in intensity-based triggering mechanism for parametric cat-bond insurance: Istanbul case study," *Earthquake Spectra*, 2019.
- [93] W. Xu, M. Gao, and H. Zuo, "Generation of a stochastic seismic event set based on a new seismicity model in china's earthquake catastrophe model," *Seismological Research Letters*, 2021.
- [94] A. Ansari, E. Firuzi, and L. Etemadsaeed, "Delineation of seismic sources in probabilistic seismic-hazard analysis using fuzzy cluster analysis and monte carlo simulation," *Bulletin of the Seismological Society of America*, 2015.
- [95] G. H. Duva Sinaga, S. A. Purba, and A. F. Simanullang, "Coulomb stress analysis and monte carlo simulation in predicting sinabung pyroclastic flow," *World Journal of Advanced Research and Reviews*, 2022.
- [96] Y. Yan, Z. Liu, J. Feng, Y. Zhang, and X. Xu, "Monte-carlo method for substation seismic risk assessment," 2023.
- [97] Y. Yan, T. Wang, Z. Liu, Y. Yuan, J. Feng, and Y. Zhang, "Research on the application of statistical theory and monte-carlo method on disconnector seismic damage analysis," 2023.
- [98] C. da, "Attempt to an analysis of the biological neural system algorithm of human body induced earthquake precursors," 2022.
- [99] K. Goda and S. Jie, "Uncertainty modeling and visualization for tsunami hazard and risk mapping: A case study for the 2011 tohoku earthquake," *Stochastic Environmental Research and Risk Assessment*, 2015.
- [100] D. H. Khalid Mohammed, F. K lahcı, and A. Muhammed, "Determination of possible responses of radon-222, magnetic effects, and total electron content to earthquakes on the north anatolian fault zone, turkiye: An arima and monte carlo simulation," *Natural Hazards*, 2021.
- [101] H. Crowley and J. J. Bommer, "Modelling seismic hazard in earthquake loss models with spatially distributed exposure," *Bulletin of Earthquake Engineering*, 2006.

- [102] I. E. Mulia, T. Ishibe, K. Satake, A. R. Gusman, and S. Murotani, "Regional probabilistic tsunami hazard assessment associated with active faults along the eastern margin of the sea of japan," *Earth Planets and Space*, 2020.
- [103] C. Yavuz, K. Yılmaz, and G. Onder, "Multi-hazard analysis of flood and tsunamis on the western mediterranean coast of turkey," *Natural Hazards and Earth System Science*, 2022.
- [104] N. Takahashi and S. Toda, "Evaluating variability in coseismic slips of paleoearthquakes from an incomplete slip history: An example from displaced terrace flights across the kamishiro fault, central japan," *Progress in Earth and Planetary Science*, 2021.
- [105] K. Binder and D. W. Heermann, *Monte Carlo Simulation in Statistical Physics: An Introduction*, 5th ed. Berlin: Springer-Verlag, 2012.
- [106] R. Y. Rubinstein and D. P. Kroese, *Simulation and the Monte Carlo Method*, 3rd ed. New Jersey: Wiley, 2016.
- [107] A. Barbu and S. Zhu, *Monte Carlo Methods*. Springer Nature Singapore, 2020.
- [108] R. E. Kalman, "A new approach to linear filtering and prediction problems," *Journal of Basic Engineering*, vol. 82, no. 1, pp. 35–45, 1960.
- [109] M. S. Grewal and A. P. Andrews, *Kalman Filtering: Theory and Practice with MATLAB*, 4th ed. New Jersey: John Wiley & Sons, 2014.
- [110] D. Simon, *Optimal State Estimation: Kalman, H infinity, and Nonlinear Approaches*. New Jersey: John Wiley & Sons, Inc., 2006.
- [111] K. Satake, "Geological and historical evidence of irregular recurrent earthquakes in japan," *Philosophical Transactions of the Royal Society a Mathematical Physical and Engineering Sciences*, 2015.
- [112] W. Xu, J. Wu, and M. Gao, "Temporal distribution model and occurrence probability of m6.5 earthquakes in north china seismic zone," 2022.
- [113] J. Murjaya, D. Karnawati, S. Pramumijoyo, S. Supriyanto, R. S. Yuliatmoko, P. Supendi, and S. Rohadi, "Recurrence time analysis of the 1883 (mw 8.6 ~ 9.1) paleo megathrust earthquake in west bengkulu, sumatra, indonesia, using plate kinematic model for supporting mitigation program," *Scientific Reports*, 2020.
- [114] R. Nakata, T. Hori, M. Hyodo, and K. Ariyoshi, "Possible scenarios for occurrence of m7 interplate earthquakes prior to and following the 2011 tohoku-oki earthquake based on numerical simulation," *Scientific Reports*, 2016.
- [115] C. Wu, J. Gomberg, E. Ben-Naim, and P. A. Johnson, "Triggering of repeating earthquakes in central california," *Geophysical Research Letters*, 2014.
- [116] M. Bebbington and D. Harte, "The linked stress release model for spatio-temporal seismicity: formulations, procedures and applications," *Geophysical Journal International*, vol. 154, no. 3, pp. 925–946, Sep. 2003. [Online]. Available: <https://academic.oup.com/gji/article/154/3/925/714371>

- [117] P. A. Cowie, G. P. Roberts, J. M. Bull, and F. Visini, "Relationships between fault geometry, slip rate variability and earthquake recurrence in extensional settings: Fault geometry control on earthquake rupture," *Geophysical Journal International*, vol. 189, no. 1, pp. 143–160, Apr. 2012. [Online]. Available: <https://academic.oup.com/gji/article-lookup/doi/10.1111/j.1365-246X.2012.05378.x>
- [118] Y. Zhang, Y. Ashkenazy, and S. Havlin, "Asymmetry in Earthquake Interevent Time Intervals," *Journal of Geophysical Research: Solid Earth*, vol. 126, no. 9, p. e2021JB022454, Sep. 2021. [Online]. Available: <https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2021JB022454>
- [119] J. S. Neely, L. Salditch, B. D. Spencer, and S. Stein, "The Generalized Long-Term Fault Memory Model and Applications to Paleoseismic Records," *Bulletin of the Seismological Society of America*, vol. 114, no. 4, pp. 1994–2007, Aug. 2024. [Online]. Available: <https://pubs.geoscienceworld.org/bssa/article/114/4/1994/635704/The-Generalized-Long-Term-Fault-Memory-Model-and>
- [120] C. Olah, "Understanding lstm networks," <https://colah.github.io/posts/2015-08-Understanding-LSTMs/>, Aug. 2015, accessed: 2026-05-09.
- [121] C. Chen, X. Lin, and G. Terejanu, "An approximate bayesian long short- term memory algorithm for outlier detection," in *2018 24th International Conference on Pattern Recognition (ICPR)*, 2018, pp. 201–206.
- [122] S. Kavetha, A. S. Ja'afar, M. Z. A. Aziz, A. A. Md Isa, M. S. Johal, and N. Hashim, "Development of location estimation algorithm utilizing rssi for lora positioning system," *Jurnal Teknologi*, 2021.
- [123] K. Ibwe, S. Pande, A. T. Abdalla, and G. M. Gadiel, "Indoor positioning using circle expansion-based adaptive trilateration algorithm," *Journal of Electrical Systems and Information Technology*, 2023.
- [124] K. Huang, K. He, and X. Du, "A hybrid method to improve the ble-based indoor positioning in a dense bluetooth environment," *Sensors*, 2019.
- [125] A. Noertjahyana, I. A. Wijayanto, and J. Andjarwirawan, "Development of mobile indoor positioning system application using android and bluetooth low energy with trilateration method," 2017.
- [126] W. Njima, M. Chafii, A. Nimr, and G. Fettweis, "Convolutional neural networks based denoising for indoor localization," 2021.
- [127] N. Podevijn, P. A. David, J. Trogh, L. Martens, P. Suanet, K. Hendrikse, and W. Joseph, "Tdoa-based outdoor positioning with tracking algorithm in a public lora network," *Wireless Communications and Mobile Computing*, 2018.
- [128] Y. Zhang, H.-C. Lin, J. Zhao, Z. Ma, S. Zhang, and H. Liu, "Development of high-accuracy multi-degrees-of-freedom indoor ultrasonic positioning approach for automated guided vehicles," *Sensors and Materials*, 2019.
- [129] N. Ma, Y. Bai, and S. Meng, "Return period evaluation of the largest possible earthquake magnitudes in mainland china based on extreme value theory," *Sensors*, 2021.