

DAFTAR PUSTAKA

- [1] M. Jehanzaib, M. Ajmal, M. Achite, and T. W. Kim, "Comprehensive Review: Advancements in Rainfall-Runoff Modelling for Flood Mitigation," *Climate*, vol. 10, no. 10, Oct. 2022, doi: 10.3390/cli10100147.
- [2] S. Zikri and W. R. Hasibuan, "Rainfall Prediction Analysis Using the Fuzzy Time Series Method in Medan City," *Journal of Artificial Intelligence and Engineering Applications*, vol. 4, no. 1, pp. 575–579, Oct. 2024, [Online]. Available: <https://ioinformatic.org/>
- [3] D. Aulia Zulfa and H. Cipta, "Prediction of Monthly Rainfall using Fuzzy Logic Tsukamoto in Medan Belawan," *Edumatsains: Jurnal Pendidikan Matematika dan Sains*, vol. 9, no. 2, pp. 132–147, Jan. 2025, doi: 10.33541/edumatsains.
- [4] S. Agustina, F. Fitri, D. Vionanda, and A. Salma, "Rainfall Forecasting in Medan City Using Singular Spectrum Analysis (SSA)," *UNP: Journal of Statistics and Data Science*, vol. 3, no. 1, pp. 149–156, May 2023.
- [5] H. Muliadi Nababan, B. Silitonga, and R. Siahaan, "Analisis Karakteristik Curah Hujan Kota Medan Bagian Utara dengan Menggunakan 3 Data Stasiun Hujan," *JRKMS: Jurnal Rekayasa Konstruksi Mekanik Sipil*, vol. 6, no. 2, pp. 107–118, Oct. 2023, doi: 10.54367/jrkms.v6i2.3017.
- [6] R. Syafitri Lubis *et al.*, "Dynamics of Rainfall and Temperature in North Sumatra Province: Comprehensive Analysis of Temporal Trends," *BAREKENG: Journal of Mathematics and Its Applications*, vol. 19, no. 1, pp. 215–226, Mar. 2025, doi: 10.30598/barekengvol19iss1pp0215-0226.
- [7] D. Saragih, "Problems and Solutions for the Flood Control Program in Medan City and its Surroundings," *Journal of the Civil Engineering Forum*, vol. 9, no. 1, pp. 47–58, Nov. 2022, doi: 10.22146/jcef.4784.
- [8] F. Fadhilah, M. Reza, and A. Tribhuwana, "Rainfall Prediction using Backpropagation Method and GIS for Disaster Mitigation Mapping," *Journal Transnational Universal Studies*, vol. 2, no. 10, pp. 518–529, Oct. 2024, doi: 10.58631/jtus.v2i10.112.
- [9] H. Du, M. L. Tan, F. Zhang, K. P. Chun, L. Li, and M. H. Kabir, "Evaluating the effectiveness of CHIRPS data for hydroclimatic studies," *Theor. Appl. Climatol.*, vol. 155, no. 3, pp. 1519–1539, Mar. 2024, doi: 10.1007/s00704-023-04721-9.

- [10] L. C. Conte, R. Tassi, and D. M. Bayer, "Satellite-based Rainfall Datasets: A Global Systematic Review of Applications, Accuracy, and Research Gaps," *IEEE Access*, vol. 14, pp. 29539–29565, Feb. 2026, doi: 10.1109/ACCESS.2026.3667060.
- [11] M. M. H. Khan, M. R. U. Mustafa, M. S. Hossain, S. Shams, and A. D. Julius, "Short-Term and Long-Term Rainfall Forecasting Using ARIMA Model," *International Journal of Environmental Science and Development*, vol. 14, no. 5, pp. 292–298, Oct. 2023, doi: 10.18178/ijesd.2023.14.5.1447.
- [12] Rahmadani, Mardiningsih, E. Rosmaini, and P. N. Khariah, "Kajian Metode Fuzzy Time Series-Chen dan Fuzzy Time Series-Markov Chain dan Terapan Pada Peramalan Curah Hujan," *MES: Journal of Mathematics Education and Science*, vol. 10, no. 1, pp. 22–33, Oct. 2024.
- [13] S. Huang, Y. Lv, H. Nie, T. Jin, Z. Ye, and J. Guo, "Machine Learning - Enhanced Runoff Prediction in Plain River Networks: Insights into Recurrent River Segments," *J. Hydrol. Eng.*, vol. 31, no. 2, pp. 1–15, Jan. 2026, doi: 10.1061/JHYEFF.HEENG-6586.
- [14] A. Y. Barrera-Animas, L. O. Oyedele, M. Bilal, T. D. Akinosho, J. M. D. Delgado, and L. A. Akanbi, "Rainfall prediction: A comparative analysis of modern machine learning algorithms for time-series forecasting," *Machine Learning with Applications*, vol. 7, pp. 1–20, Mar. 2022, doi: 10.1016/j.mlwa.2021.100204.
- [15] A. Sulasikin, Y. Nugraha, J. I. Kanggrawan, and A. L. Suherman, "Monthly Rainfall Prediction Using the Facebook Prophet Model for Flood Mitigation in Central Jakarta," in *8th International Conference on ICT for Smart Society: Digital Twin for Smart Society, ICISS 2021 - Proceeding*, Institute of Electrical and Electronics Engineers Inc., Aug. 2021. doi: 10.1109/ICISS53185.2021.9532507.
- [16] M. Esro, S. K. Subramaniam, A. F. T. Ibrahim, Y. J. Kumar, S. A. Anas, and S. Rajkumar, "A Comparative Analysis of Time-Series Models of ARIMA and Prophet IoT-Based Flood Forecasting in Sungai Melaka," *Advance Sustainable Science, Engineering and Technology*, vol. 7, no. 4, pp. 1–12, Aug. 2025, doi: 10.26877/asset.v7i4.1048.
- [17] Sulistiyowati and E. Zuliarso, "Decade Rainfall Prediction Using Prophet Algorithm and LSTM (Case Study in Banjarnegara Regency)," *JURNAL INOVTEK POLBENG*, vol. 10, no. 3, pp. 1432–1443, Nov. 2025.
- [18] A. Wijayanto, A. Sugiharto, and R. Santoso, "Identifikasi Dini Curah Hujan Berpotensi Banjir Menggunakan Algoritma Long Short-Term Memory (Lstm) Dan

- Isolation Forest,” *Jurnal Teknologi Informasi dan Ilmu Komputer*, vol. 11, no. 3, pp. 637–646, Jul. 2024, doi: 10.25126/jtiik.938718.
- [19] R. Y. Lewu, S. Slamet, S. Wulandari, W. Djatmiko, K. Kusrini, and M. Sulistiyono, “Prediction of Rainfall and Water Discharge in The Jagir River Surabaya with Long-Short-Term Memory (LSTM),” *Jurnal Riset Informatika*, vol. 5, no. 3, pp. 439–446, Jun. 2023, doi: 10.34288/jri.v5i3.558.
- [20] S. Yadav, “A Comparative Study of ARIMA, Prophet and LSTM for Time Series Prediction,” *Journal of Artificial Intelligence, Machine Learning and Data Science*, vol. 1, no. 1, pp. 1813–1816, Feb. 2023, doi: 10.51219/jaimld/sandeep-yadav/402.
- [21] A. Arini and H. Cipta, “Prediction of Monthly Rainfall with Using Monte Carlo Simulation in the Medan City Area,” *Jurnal Sisfokom (Sistem Informasi dan Komputer)*, vol. 13, no. 3, pp. 428–433, Nov. 2024, doi: 10.32736/sisfokom.v13i3.2307.
- [22] J. Kukulies *et al.*, “Mesoscale convective systems in the third pole region: Characteristics, mechanisms and impact on precipitation,” *Front. Earth Sci. (Lausanne)*, vol. 11, pp. 1–23, Apr. 2023, doi: 10.3389/feart.2023.1143380.
- [23] E. Dallan *et al.*, “How well does a convection-permitting regional climate model represent the reverse orographic effect of extreme hourly precipitation?,” *Hydrol. Earth Syst. Sci.*, vol. 27, no. 5, pp. 1133–1149, Mar. 2023, doi: 10.5194/hess-27-1133-2023.
- [24] H. Wang, M. Xue, N. Wu, J. He, W. Ding, and H. Deng, “Microphysical Characteristics of Frontal and Warm Sector Heavy Rainfall Over South China During the Pre-Summer Rainy Season,” *Journal of Geophysical Research: Atmospheres*, vol. 130, no. 10, May 2025, doi: 10.1029/2024JD043209.
- [25] F. Simanjuntak, I. Jamaluddin, T. H. Lin, H. A. W. Siahaan, and Y. N. Chen, “Rainfall Forecast Using Machine Learning with High Spatiotemporal Satellite Imagery Every 10 Minutes,” *Remote Sens. (Basel)*, vol. 14, no. 23, Dec. 2022, doi: 10.3390/rs14235950.
- [26] F. Meliani *et al.*, “The Influence of the Rainfall Extremes and Land Cover Changes on the Major Flood Events at Bekasi, West Jawa, and Its Surrounding Regions,” *MDPI*, vol. 14, no. 11, pp. 1–35, Oct. 2025, doi: 10.3390/resources14110169.
- [27] D. H. Kang, D. H. Nam, Y. S. Song, and B. S. Kim, “A Proposed Method for Calculating the Rainfall Threshold Based on the Multi-Method to Provide Heavy Rain

- Disaster Impact Information,” *Water (Switzerland)*, vol. 15, no. 19, Oct. 2023, doi: 10.3390/w15193366.
- [28] V. Kumar, K. V. Sharma, T. Caloiero, D. J. Mehta, and K. Singh, “Comprehensive Overview of Flood Modeling Approaches: A Review of Recent Advances,” *Hydrology*, vol. 10, no. 7, Jul. 2023, doi: 10.3390/hydrology10070141.
- [29] D. Li *et al.*, “Prediction of Rainfall Time Series Using the Hybrid DWT-SVR-Prophet Model,” *Water (Switzerland)*, vol. 15, no. 10, May 2023, doi: 10.3390/w15101935.
- [30] A. A. Maulana and H. Rosalina, “Implementasi Metode Sarimax Untuk Prediksi Curah Hujan Jangka Pendek di Pagerageung, Tasikmalaya,” *Jurnal Sumber Daya Air*, vol. 20, no. 1, pp. 39–50, May 2024, doi: 10.32679/jsda.v20i1.874.
- [31] E. Purnama, “Aplikasi Metode Singular Spectrum Analysis (SSA) Pada Peramalan Curah Hujan di Provinsi Gorontalo,” *JAMBURA: Journal of Probability and Statistics*, vol. 3, no. 2, pp. 161–170, Nov. 2022, doi: 10.34312/jjps.v3i2.16537.
- [32] V. Kumar, N. Kedam, K. V. Sharma, K. M. Khedher, and A. E. Alluqmani, “A Comparison of Machine Learning Models for Predicting Rainfall in Urban Metropolitan Cities,” *Sustainability (Switzerland)*, vol. 15, no. 18, Sep. 2023, doi: 10.3390/su151813724.
- [33] M. M. Hossain, A. H. M. Faisal Anwar, N. Garg, M. Prakash, and M. Bari, “Monthly Rainfall Prediction at Catchment Level with the Facebook Prophet Model Using Observed and CMIP5 Decadal Data,” *Hydrology*, vol. 9, no. 6, Jun. 2022, doi: 10.3390/hydrology9060111.
- [34] A. Abbas, T. Ahmad, and I. Ahmad, “Regional modeling of zero-inflated precipitation in Pakistan by classical and Bayesian approaches,” *J. Hydrol. Reg. Stud.*, vol. 65, pp. 1–15, Jun. 2026, doi: 10.1016/j.ejrh.2026.103330.
- [35] C. Br Perangin-angin and S. Panggabean, “Optimalisasi Prediksi Curah Hujan di Kabupaten Karo Menggunakan Long Short-Term Memory,” *Mathunesa: Jurnal Ilmiah Matematika*, vol. 13, no. 2, pp. 629–634, 2025.
- [36] B. S. Patro and P. P. Bartakke, “Daily rainfall prediction using long short-term memory (LSTM) algorithm,” *Journal of Agrometeorology*, vol. 26, no. 4, pp. 509–511, Dec. 2024, doi: 10.54386/jam.v26i4.2745.
- [37] Z. Huang, J. Lin, L. Lin, J. Chen, L. Zheng, and K. Zhang, “A Sensitive LSTM Model for High Accuracy Zero-Inflated Time-Series Prediction,” *IEEE Access*, vol. 12, pp. 171527–171539, Nov. 2024, doi: 10.1109/ACCESS.2024.3498933.

- [38] H. Han *et al.*, “Time series forecasting model for non-stationary series pattern extraction using deep learning and GARCH modeling,” *Journal of Cloud Computing*, vol. 13, no. 1, pp. 1–19, Dec. 2024, doi: 10.1186/s13677-023-00576-7.
- [39] B. Khaw, R. Irwanto, R. Yunis, and E. Elly, “Analisis Time Series dan Perancangan Dashboard untuk Memprediksi Penjualan dengan Metode Prophet dan SARIMAX,” *Jurnal Sifo Mikroskil*, vol. 26, no. 2, pp. 207–221, Oct. 2025, doi: 10.55601/jsm.v26i2.1797.
- [40] R. Yunis, Andri, and Djoni, “Hybridization Model for Air Pollution Prediction Using Time Series Data,” *COGITO Smart Journal*, vol. 10, no. 1, pp. 1–14, Jun. 2024.
- [41] R. Yuan, “Rainfall prediction based on CNN-LSTM model under sliding window,” *Eur. J. Remote Sens.*, vol. 58, no. 1, 2025, doi: 10.1080/22797254.2025.2540106.
- [42] H. Frecenta, E. Y. Puspaningrum, and H. Maulana, “Prediksi Curah Hujan di Kab.Malang Menggunakan LSTM (Long Short Term Memory),” *Jurnal Informatika dan Sistem Informasi (JIFoSI)*, vol. 3, no. 1, pp. 51–55, Apr. 2022, [Online]. Available: https://dataonline.bmkg.go.id/data_iklim,
- [43] N. M. M. C. D. Devi, P. A. Bayupati, and N. K. A. Wirdiani, “Prediksi Curah Hujan Dasarian dengan Metode Vanilla RNN dan LSTM untuk Menentukan Awal Musim Hujan dan Kemarau,” *JEPIN (Jurnal Edukasi dan Penelitian Informatika)*, vol. 8, no. 3, pp. 405–411, Dec. 2022.
- [44] A. Rajab *et al.*, “Flood Forecasting by Using Machine Learning: A Study Leveraging Historic Climatic Records of Bangladesh,” *Water (Switzerland)*, vol. 15, no. 22, Nov. 2023, doi: 10.3390/w15223970.
- [45] F. A. A. Hadi *et al.*, “Machine learning techniques for flood forecasting,” *Journal of Hydroinformatics*, vol. 26, no. 4, pp. 779–799, Apr. 2024, doi: 10.2166/hydro.2024.208.
- [46] N. Byaruhanga, D. Kibirige, S. Gokool, and G. Mkhonta, “Evolution of Flood Prediction and Forecasting Models for Flood Early Warning Systems: A Scoping Review,” Jul. 01, 2024, *Multidisciplinary Digital Publishing Institute (MDPI)*. doi: 10.3390/w16131763.
- [47] Y. Darmawan, A. J. Lumbantoruan, M. Munawar, N. Nardi, F. Arifianto, and E. Ferdiansyah, “Evaluation of the Arima-Kalman model in predicting rainfall in Medan City in 2023 using observation data from 2013-2022,” Pekanbaru, Mar. 2025. doi: 10.31258/jkfi.22.1.15-22.

- [48] C. D. Usman, A. P. Widodo, K. Adi, and R. Gernowo, "Rainfall prediction model in Semarang City using machine learning," *Indonesian Journal of Electrical Engineering and Computer Science*, vol. 30, no. 2, pp. 1224–1231, May 2023, doi: 10.11591/ijeecs.v30.i2.pp1224-1231.
- [49] D. Chitwatkulsiri and H. Miyamoto, "Real-Time Urban Flood Forecasting Systems for Southeast Asia - A Review of Present Modelling and Its Future Prospects," *Water (Switzerland)*, vol. 15, no. 1, MDPI, Jan. 01, 2023. doi: 10.3390/w15010178.
- [50] T. Busker, B. van den Hurk, H. de Moel, and J. C. J. H. Aerts, "The Value of Precipitation Forecasts to Anticipate Floods," *Bull. Am. Meteorol. Soc.*, vol. 106, no. 3, pp. 473–491, Mar. 2025, doi: 10.1175/BAMS-D-24-0073.1.
- [51] Manoj and Gayathri, "EMD Analysis of Annual Rainfall in Chennai," *Journal of Indian Association for Environmental Management*, vol. 45, no. 3, pp. 1–6, Jan. 2025, [Online]. Available: <http://op.niscair.res.in/index/php/JIAEM/index>
- [52] P. Ganguli, S. Han, D. F. Munoz, and S. Pal, "Spatiotemporal Modelling and Assessment of Water-Related Multi-Hazards," *Frontiers in Water*, vol. 41, no. 1, pp. 307–311, Mar. 2025, doi: 10.1016/j.jglr.2014.12.007.
- [53] R. Y. Pradana, F. E. Nastiti, and I. Oktaviani, "Machine Learning Pengklasifikasikan Performa Karyawan Direct Sales Force Kartu Prabayar Menggunakan Metode Random Forest Classifier," *JEKIN - Jurnal Teknik Informatika*, vol. 4, no. 3, pp. 590–599, Aug. 2024, doi: 10.58794/jekin.v4i3.864.
- [54] J. García-López, S. Domínguez-Amarillo, and J. J. Sendra, "Clustering Open Data for Predictive Modeling of Residential Energy Consumption across Variable Scales: A Case Study in Andalusia, Spain," *Buildings*, vol. 14, no. 8, pp. 1–23, Aug. 2024, doi: 10.3390/buildings14082335.
- [55] I. Iskandar, N. A. Karim, F. Redzuan, and R. A. Majid, "The Development of CancerAtlas: Data Visualization on Number of Cancer Deaths Worldwide Analysis," *Applied Mathematics and Computational Intelligence*, vol. 14, no. 2, pp. 119–134, 2025.
- [56] S. Y. Ying, P. Keikhosrokiani, and M. P. Asl, "Opinion Mining on Viet Thanh Nguyen's The Sympathizer Using Topic Modelling and Sentiment Analysis," *Journal of Information Technology Management*, vol. 14, pp. 163–183, 2022, doi: 10.22059/jitm.2022.84895.
- [57] R. Pathiranage, R. Kawushini, D. S. Danquah, and T. Kaushan, "Enhancing Precipitation Forecasting with Time Series Models: A Comparative Study of Prophet

and Other Machine Learning Algorithms,” *International Journal of Advanced Trends in Computer Applications (IJATCA)*, vol. 10, no. 2, pp. 18–29, Mar. 2025, [Online]. Available: www.ijatca.com

- [58] P. P. Sithole and I. C. Obagbuwa, “Rainfall Prediction in South Africa Using Time-Series Analysis,” *Applied Computational Intelligence and Soft Computing*, vol. 2025, no. 1, pp. 1–13, Nov. 2025, doi: 10.1155/acis/5599720.
- [59] S. Albahli, “LSTM vs. Prophet: Achieving Superior Accuracy in Dynamic Electricity Demand Forecasting,” *Energies (Basel)*, vol. 18, no. 278, pp. 1–23, Jan. 2025, doi: 10.3390/en18020278.
- [60] H. Balti *et al.*, “Big data based architecture for drought forecasting using LSTM, ARIMA, and Prophet: Case study of the Jiangsu Province, China,” in *International Congress of Advanced Technology and Engineering (ICOTEN)*, Taiz: IEEE, Feb. 2022, pp. 1–8.
- [61] Y. Hidayat, B. Handoko, and Y. Pradjanata, “Rainfall Forecasting in Central Lombok Using an Enhanced Facebook Prophet Model with Multiplicative Seasonality,” *Organic Farming*, vol. 11, no. 3, pp. 173–184, Sep. 2025, doi: 10.56578/of110303.
- [62] H. A. Alif *et al.*, “Machine learning-driven rainfall forecasting model for sustainable and adaptive infrastructure planning,” *Discover Sustainability*, vol. 7, no. 1, pp. 1–20, Feb. 2026, doi: 10.1007/s43621-026-02699-8.
- [63] L. A. Al-Samrraie *et al.*, “Deep Learning Models Based on CNN, RNN, and LSTM for Rainfall Forecasting: Jordan as a Case Study,” *Mathematical Modelling of Engineering Problems*, vol. 12, no. 7, pp. 2456–2466, Jul. 2025, doi: 10.18280/mmep.120724.
- [64] H. He and S. Dai, “A Prediction Model for Stock Market Based on the Integration of Independent Component Analysis and Multi-LSTM,” *Electronic Research Archive*, vol. 30, no. 10, pp. 3855–3871, Aug. 2022, doi: 10.3934/era.2022196.
- [65] W. Chango *et al.*, “SARIMA vs. Prophet: Comparative Efficacy in Forecasting Traffic Accidents Across Ecuadorian Provinces,” *Computation*, vol. 14, no. 1, pp. 1–29, Jan. 2026, doi: 10.3390/computation14010005.
- [66] Md. M. Rana, N. Jahan, and S. Dey, “Flood forecasting using Prophet and LSTM models: A case study for Sylhet Sadar, Bangladesh,” *Hydrology Research*, vol. 57, no. 5, pp. 1–17, May 2026, doi: 10.1016/j.hydrch.2026.100020.