

REFERENCES

- [1] P. M. Forster *et al.*, “Indicators of Global Climate Change 2023: annual update of key indicators of the state of the climate system and human influence,” *Earth Syst. Sci. Data*, vol. 16, no. 6, pp. 2625–2658, Jun. 2024, doi: 10.5194/essd-16-2625-2024.
- [2] C. F. Candraningtyas, H. H. A. Matin, S. Suhardono, and Y. Wahyono, “Distribution Of Urban Heat Island Index In The Surabaya, Yogyakarta, And Bandung Using Remote Sensing,” *GeoEco*, vol. 11, no. 1, p. 145, Jan. 2025, doi: 10.20961/ge.v11i1.95660.
- [3] A. M. Dary, M. Agus Mardyanto, J. Hermana, and C. Imron, “Climate Change and Its Effect on Temperature and Precipitation Trends: Case Study in Surabaya Using RegCM5*,” 2025.
- [4] K. L. Ebi *et al.*, “Hot weather and heat extremes: health risks,” Aug. 21, 2021, *Elsevier B.V.* doi: 10.1016/S0140-6736(21)01208-3.
- [5] D. van Beekvelt, I. Garcia-Marti, and J. de Baar, “Towards high-resolution gridded climatology stemming from the combination of official and crowdsourced weather observations using multi-fidelity methods,” *PLOS Climate*, vol. 3, no. 1, Jan. 2024, doi: 10.1371/journal.pclm.0000216.
- [6] K. Bi, L. Xie, H. Zhang, X. Chen, X. Gu, and Q. Tian, “Accurate medium-range global weather forecasting with 3D neural networks,” *Nature*, vol. 619, no. 7970, pp. 533–538, Jul. 2023, doi: 10.1038/s41586-023-06185-3.
- [7] J. H. Bae and K. H. Min, “Forecast Characteristics of Radar Data Assimilation Based on the Scales of Precipitation Systems,” *Remote Sens. (Basel)*, vol. 14, no. 3, Feb. 2022, doi: 10.3390/rs14030605.
- [8] Y. Alkhezi, H. M. Alkhezi, and A. Shafee, “Modeling and forecasting of the high-dimensional time series data with functional data analysis and machine learning approaches,” *Front. Appl. Math. Stat.*, vol. 11, 2025, doi: 10.3389/fams.2025.1600278.
- [9] Elly Pusporani, Fitriana Nur Afifa, and Fidela Sahda Ilona Ramadhina, “Temperature Forecast at Djuanda International Airport using ARIMA, ANN, and Hybrid ARIMA-ANN,” *ComTech: Computer, Mathematics and Engineering Applications*, vol. 16, no. 2, pp. 139–151, Sep. 2025, doi: 10.21512/comtech.v16i2.13219.
- [10] J. Kim and T. J. Kim, “Application of Facebook’s Prophet Model for Forecasting Meteorological Data,” *Journal of the Korean Society of Hazard Mitigation*, vol. 21, no. 2, pp. 53–58, Apr. 2021, doi: 10.9798/kosham.2021.21.2.53.

- [11] S. Kwarteng and P. Andreevich, “Comparative Analysis of ARIMA, SARIMA and Prophet Model in Forecasting,” *Research & Development*, vol. 5, no. 4, pp. 110–120, Oct. 2024, doi: 10.11648/j.rd.20240504.13.
- [12] K. P. Saini and A. Sharma, “A Comparison Between Long Short-Term Memory And Prophet For Time Series Analysis And Forecasting Technique,” *Educational Administration Theory and Practices*, Apr. 2024, doi: 10.53555/kuey.v30i4.2816.
- [13] N. Alamsyah, V. Restreva Danestiara, B. Budiman, R. Nursyanti, E. Setiana, and A. Hendra, “Optimized Facebook Prophet For Mpx Forecasting: Enhancing Predictive Accuracy With Hyperparameter Tuning,” *Jurnal Techno Nusa Mandiri*, vol. 22, no. 1, pp. 90–98, Mar. 2025, doi: 10.33480/techno.v22i1.6507.
- [14] B. Bischl *et al.*, “Hyperparameter Optimization: Foundations, Algorithms, Best Practices and Open Challenges,” Nov. 2021, [Online]. Available: <http://arxiv.org/abs/2107.05847>
- [15] T. Toharudin, R. S. Pontoh, R. E. Caraka, S. Zahroh, Y. Lee, and R. C. Chen, “Employing long short-term memory and Facebook prophet model in air temperature forecasting,” *Commun. Stat. Simul. Comput.*, vol. 52, no. 2, pp. 279–290, 2023, doi: 10.1080/03610918.2020.1854302.
- [16] A. H. Primandari and S. A. Iskandar, “A Multivariate Approach: Forecasting Jakarta Composite Using Prophet Facebook,” *Jurnal Statistika dan Aplikasinya*, vol. 8, no. 1, pp. 128–137, Jun. 2024, doi: 10.21009/jsa.08111.
- [17] F. M. H. Atamimi, W. Wintanti, and G. Abdillah, “Enhancing Prophet Time Series Forecasting on Sparse Data via Hyperparameter Optimization: A Case Study in Retail,” *Sinkron*, vol. 9, no. 2, pp. 1000–1007, Jun. 2025, doi: 10.33395/sinkron.v9i2.14804.
- [18] Sugiarto *et al.*, “Optimizing The XGBoost Model with Grid Search Hyperparameter Tuning for Maximum Temperature Forecasting,” *Journal of Applied Data Sciences*, vol. 6, no. 4, pp. 2517–2529, Dec. 2025, doi: 10.47738/jads.v6i4.885.
- [19] J. Jagannathan and C. Divya, “Time series analyzation and prediction of climate using enhanced multivariate prophet,” *International Journal of Engineering Trends and Technology*, vol. 69, no. 10, pp. 89–96, Oct. 2021, doi: 10.14445/22315381/IJETT-V69I10P212.
- [20] K. Kumari, M. Bhardwaj, and S. Sharma, “OSEMN Approach for Real Time Data Analysis,” *International Journal of Engineering and Management Research*, vol. 10, no. 02, pp. 107–110, Apr. 2020, doi: 10.31033/ijemr.10.2.11.

- [21] L.-H. Le, “Time series analysis and applications in data analysis, forecasting and prediction,” *HPU2 Journal of Science: Natural Sciences and Technology*, vol. 3, no. 1, pp. 20–29, Apr. 2024, doi: 10.56764/hpu2.jos.2024.3.1.20-29.
- [22] T. Hengl, G. B. M. Heuvelink, M. P. Tadić, and E. J. Pebesma, “Spatio-temporal prediction of daily temperatures using time-series of MODIS LST images,” *Theor. Appl. Climatol.*, vol. 107, no. 1–2, pp. 265–277, 2012, doi: 10.1007/s00704-011-0464-2.
- [23] A. N. Mironov and O. L. Shestopalova, “Automation of the process of building a time series model based on formalized expert knowledge,” in *E3S Web of Conferences*, EDP Sciences, Dec. 2023. doi: 10.1051/e3sconf/202346002015.
- [24] K. C. N. Dozie and C. C. Ibebuogu, “Decomposition with the Additive Model Using Buys-Ballot Technique of Quadratic Trend-Cycle Component in Descriptive Time Series Analysis,” *Asian Journal of Probability and Statistics*, vol. 25, no. 3, pp. 70–83, Nov. 2023, doi: 10.9734/ajpas/2023/v25i3564.
- [25] K. C. N. Dozie and M. U. Uwaezuoke, “The Proposed Buys-Ballot Estimates for Multiplicative Model with the Error Variances,” *Journal of Engineering Research and Reports*, vol. 25, no. 8, pp. 94–106, Sep. 2023, doi: 10.9734/jerr/2023/v25i8962.
- [26] Y. Malhi and J. Wright, “Spatial patterns and recent trends in the climate of tropical rainforest regions,” in *Philosophical Transactions of the Royal Society B: Biological Sciences*, Royal Society, Mar. 2004, pp. 311–329. doi: 10.1098/rstb.2003.1433.
- [27] G. Dudek, “STD: A Seasonal-Trend-Dispersion Decomposition of Time Series,” Apr. 2022, [Online]. Available: <http://arxiv.org/abs/2204.10398>
- [28] K. Kyo, H. Noda, and F. Fang, “An integrated approach for decomposing time series data into trend, cycle and seasonal components,” *Math. Comput. Model. Dyn. Syst.*, vol. 30, no. 1, pp. 792–813, 2024, doi: 10.1080/13873954.2024.2416631.
- [29] T. Iwakiri and M. Watanabe, “Mechanisms linking multi-year La Niña with preceding strong El Niño,” *Sci. Rep.*, vol. 11, no. 1, Dec. 2021, doi: 10.1038/s41598-021-96056-6.
- [30] Q. Wen, J. Gao, X. Song, L. Sun, H. Xu, and S. Zhu, “RobustSTL: A Robust Seasonal-Trend Decomposition Algorithm for Long Time Series.” [Online]. Available: www.aaai.org

- [31] I. M. D. Maclean *et al.*, “On the measurement of microclimate,” *Methods Ecol. Evol.*, vol. 12, no. 8, pp. 1397–1410, Aug. 2021, doi: 10.1111/2041-210X.13627.
- [32] S. Burt, “Measurements of natural airflow within a Stevenson screen and its influence on air temperature and humidity records,” *Geoscientific Instrumentation, Methods and Data Systems*, vol. 11, no. 2, pp. 263–277, Aug. 2022, doi: 10.5194/gi-11-263-2022.
- [33] P. Chylek, J. A. Augustine, J. D. Klett, G. Lesins, and M. K. Dubey, “Daily mean temperature estimate at the US SURFRAD stations as an average of the maximum and minimum temperatures,” *Theor. Appl. Climatol.*, vol. 134, no. 1–2, pp. 337–345, Oct. 2018, doi: 10.1007/s00704-017-2277-4.
- [34] T. Purwa and B. Ngwarati, “Assessing Forecasting Performance of Daily Mean Temperature at 1st and 2nd Perak Station, Surabaya Using ARIMA and VARIMA Model with Outlier Detection,” *Jambura Journal of Mathematics*, vol. 4, no. 1, Jan. 2022, doi: 10.34312/jjom.v4i1.11975.
- [35] I. Purnama, R. R. Sri, and P. Sari, “Calibration Thermocouple K-Type On The Range Temperature-10°C To 30°C Using Astm Thermometer As Reference,” 2025. [Online]. Available: <https://journal.iset.or.id/index.php/J-MART/article/view/6/version/6>
- [36] W. A. Gough, A. Žaknić-Ćatović, and A. Zajch, “Sampling frequency of climate data for the determination of daily temperature and daily temperature extrema,” *International Journal of Climatology*, vol. 40, no. 13, pp. 5451–5463, Nov. 2020, doi: 10.1002/joc.6528.
- [37] J. Shen, D. Valagolam, and S. McCalla, “Prophet forecasting model: A machine learning approach to predict the concentration of air pollutants (PM2.5, PM10, O3, NO2, SO2, CO) in Seoul, South Korea,” *PeerJ*, vol. 8, 2020, doi: 10.7717/peerj.9961.
- [38] A. Thangaraj Nadar, S. Chandane, G. Nixon Raj, and N. Mahesh Pasi, “Automated Energy Billing with Blockchain and the Prophet Forecasting Model: A Holistic Approach.”
- [39] S. Kwarteng and P. Andreevich, “Comparative Analysis of ARIMA, SARIMA and Prophet Model in Forecasting,” *Research & Development*, vol. 5, no. 4, pp. 110–120, Oct. 2024, doi: 10.11648/j.rd.20240504.13.
- [40] T. Proietti, D. J. Pedregal, U. di Roma, and T. Vergata, “CEIS Tor Vergata Seasonality in High Frequency Time Series Seasonality in High Frequency Time Series,” 2021. [Online]. Available: <https://ssrn.com/abstract=3802611>
- [41] K. Saidani, N. Essaddi, and M. Besbes, “Harnessing Prophet model with rigorous cross validation for long term solar insolation prediction,” *Results in Engineering*, vol. 28, Dec. 2025, doi: 10.1016/j.rineng.2025.107915.

- [42] C. W. S. Chen, L. L. Hsieh, and B. X. Y. Chu, “Structural time series modelling for weekly forecasting of enterovirus outpatient, inpatient, and emergency department visits,” *PLoS One*, vol. 20, no. 5 May, May 2025, doi: 10.1371/journal.pone.0323070.
- [43] N. Alamsyah, V. Restreva Danestiara, B. Budiman, R. Nursyanti, E. Setiana, and A. Hendra, “Optimized Facebook Prophet For Mpox Forecasting: Enhancing Predictive Accuracy With Hyperparameter Tuning,” *Jurnal Techno Nusa Mandiri*, vol. 22, no. 1, pp. 90–98, Mar. 2025, doi: 10.33480/techno.v22i1.6507.
- [44] W. Sulandari, Y. Yudhanto, R. Hapsari, M. D. Wijayanti, and H. F. Pardede, “Implementation Of Prophet In American Electricity Forecasting With And Without Parameter Tuning,” *MEDIA STATISTIKA*, vol. 17, no. 1, pp. 93–104, Dec. 2024, doi: 10.14710/medstat.17.1.93-104.
- [45] A. F. Hamdani, D. Swanjaya, and R. Helilintar, “Facebook Prophet Model with Bayesian Optimization for USD Index Prediction,” 2023.
- [46] B. Bischl *et al.*, “Hyperparameter Optimization: Foundations, Algorithms, Best Practices and Open Challenges,” Nov. 2021, [Online]. Available: <http://arxiv.org/abs/2107.05847>
- [47] V. Cerqueira, L. Roque, and C. Soares, “Modelradar: aspect-based forecast evaluation,” *Mach. Learn.*, vol. 114, no. 10, Oct. 2025, doi: 10.1007/s10994-025-06877-z.
- [48] T. O. Hodson, “Root-mean-square error (RMSE) or mean absolute error (MAE): when to use them or not,” Jul. 19, 2022, *Copernicus GmbH*. doi: 10.5194/gmd-15-5481-2022.
- [49] J. Qi, J. Du, S. M. Siniscalchi, X. Ma, and C.-H. Lee, “On Mean Absolute Error for Deep Neural Network Based Vector-to-Vector Regression,” Aug. 2020, doi: 10.1109/LSP.2020.3016837.
- [50] T. Sentat, H. Wijaya, and S. Jubaidah, “Accuracy Assessment of an Android-Based Pharmacokinetic Application for Amikacin Using Mean Absolute Percentage Error (MAPE),” *Malaysian Journal of Medical Research*, vol. 09, no. 02, pp. 01–05, 2025, doi: 10.31674/mjmr.2025.v09i02.001.
- [51] J. M. Nápoles-Duarte, A. Biswas, M. I. Parker, J. P. Palomares-Baez, M. A. Chávez-Rojo, and L. M. Rodríguez-Valdez, “Stmol: A component for building interactive molecular visualizations within streamlit web-applications,” *Front. Mol. Biosci.*, vol. 9, Sep. 2022, doi: 10.3389/fmolb.2022.990846.

This page is intentionally left blank.