

DAFTAR PUSTAKA

- [1] R. Djalante and M. Garschagen, *A Review of Disaster Trend and Disaster Risk Governance in Indonesia: 1900–2015*. 2017. doi: 10.1007/978-3-319-54466-3_2.
- [2] B. Tjasyono, *Meteorologi Indonesia*. Jakarta: Badan Meteorologi Klimatologi dan Geofisika, 2012.
- [3] J. H. Hashim and Z. Hashim, “Climate Change, Extreme Weather Events, and Human Health Implications in the Asia Pacific Region,” *Asia-Pacific J. Public Heal.*, vol. 28, pp. 8S-14S, 2015, doi: 10.1177/1010539515599030.
- [4] H. Wu, M. Huang, Q. Tang, D. B. Kirschbaum, and P. Ward, “Hydrometeorological Hazards: Monitoring, Forecasting, Risk Assessment, and Socioeconomic Responses,” *Hindawi Publishing Corporation Advances in Meteorology*, vol. 2016. Hindawi Limited, 2016. doi: 10.1155/2016/2367939.
- [5] U. Haque *et al.*, “The human cost of global warming: Deadly landslides and their triggers (1995–2014),” *Sci. Total Environ.*, vol. 682, pp. 673–684, Sep. 2019, doi: 10.1016/j.scitotenv.2019.03.415.
- [6] Z. Wang *et al.*, “The role of indigenous knowledge in integrating scientific and indigenous knowledge for community-based disaster risk reduction: A case of Haikou Village in Ningxia, China,” *Int. J. Disaster Risk Reduct.*, vol. 41, Dec. 2019, doi: 10.1016/j.ijdrr.2019.101309.
- [7] K. S. Wu, Y. rong He, Q. jin Chen, and Y. mao Zheng, “Analysis on the damage and recovery of typhoon disaster based on UAV orthograph,” *Microelectron. Reliab.*, vol. 107, Apr. 2020, doi: 10.1016/j.microrel.2019.06.029.
- [8] J. C. Doornkamp, “Coastal flooding, global warming and environmental management,” *J. Environ. Manage.*, vol. 52, pp. 327–333, 1998.
- [9] IPCC, “Climate Change 2007:Impacts, Adaptation and Vulnerability,” Cambridge, UK, 2007.

- [10] P. J. Webster, G. J. Holland, J. A. Curry, and H. R. Chang, “Atmospheric science: Changes in tropical cyclone number, duration, and intensity in a warming environment,” *Science* (80-.), vol. 309, no. 5742, pp. 1844–1846, Sep. 2005, doi: 10.1126/science.1116448.
- [11] M. H. I. Dore, “Climate change and changes in global precipitation patterns: What do we know?,” *Environment International*, vol. 31, no. 8. Elsevier Ltd, pp. 1167–1181, 2005. doi: 10.1016/j.envint.2005.03.004.
- [12] S. Solomon, “Climate change 2007 : The Physical Science Basis,” Cambridge University Press, Cambridge, 2007.
- [13] Misnawati and M. Perdanawanti, “Trend of Extreme Precipitation over Sumatera Island for 1981-2010,” *Agromet*, vol. 33, no. 1, pp. 41–51, Jun. 2019, doi: 10.29244/j.agromet.33.1.41-51.
- [14] A. Fadholi, R. Adzani, U. Gadjah Mada, and S. Meteorologi Depati Amir Pangkalpinang, “Analisis Frekuensi Curah Hujan Ekstrim Kepulauan Bangka Belitung Berbasis Data Climate Hazards Group Infra-Red Precipatation With Stations (CHIRPS),” *J. Pendidik. Geogr.*, vol. 18, no. 1, pp. 22–32, 2018.
- [15] M. Re and V. R. Barros, “Extreme rainfalls in SE South America,” *Clim. Change*, vol. 96, no. 1, pp. 119–136, Aug. 2009, doi: 10.1007/s10584-009-9619-x.
- [16] H. Wang, Y. Chen, and Z. Chen, “Spatial distribution and temporal trends of mean precipitation and extremes in the arid region, northwest of China, during 1960-2010,” *Hydrol. Process.*, vol. 27, no. 12, pp. 1807–1818, Jun. 2013, doi: 10.1002/hyp.9339.
- [17] A. Ávila, F. Justino, A. Wilson, D. Bromwich, and M. Amorim, “Recent precipitation trends, flash floods and landslides in southern Brazil,” *Environ. Res. Lett.*, vol. 11, no. 11, Nov. 2016, doi: 10.1088/1748-9326/11/11/114029.
- [18] M. L. Tan and H. Santo, “Comparison of GPM IMERG, TMPA 3B42 and PERSIANN-CDR satellite precipitation products over Malaysia,” *Atmos. Res.*, vol. 202, pp. 63–76, Apr. 2018, doi: 10.1016/j.atmosres.2017.11.006.

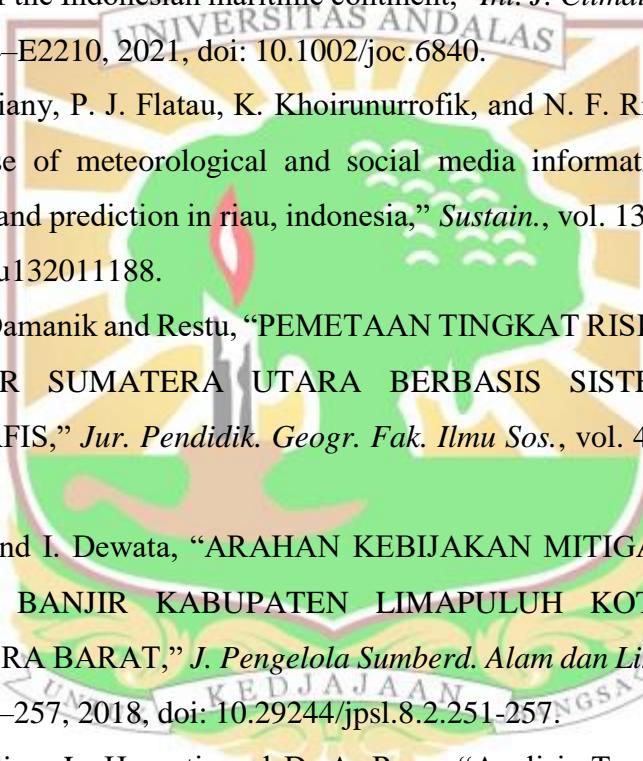
- [19] R. Ramadhan *et al.*, “Capability of GPM IMERG Products for Extreme Precipitation Analysis over the Indonesian Maritime Continent,” *Remote Sens.*, vol. 14, no. 2, Jan. 2022, doi: 10.3390/rs14020412.
- [20] R. Ramadhan *et al.*, “Ground Validation of GPM IMERG-F Precipitation Products with the Point Rain Gauge Records on the Extreme Rainfall Over a Mountainous Area of Sumatra Island,” *J. Penelit. Pendidik. IPA*, vol. 8, no. 1, pp. 163–170, Jan. 2022, doi: 10.29303/jppipa.v8i1.1155.
- [21] T. Karl, G. A. Meehl, C. D. Miller, and W. L. Murray, “Weather and Climate Extremes in a Changing Climate. Regions of Focus: North America, Hawaii, Caribbean, and U.S. Pacific Islands,” 2008. [Online]. Available: <http://www.noaanews.noaa.gov/stories/iq.htm>
- [22] Irmawan, “Respon Masyarakat Mali-Kalabahi Kabupaten Alor Nusa Tenggara Timur Terhadap Peringatan Dini Cuaca Ekstrim BMKG Sebagai Langkah Awal Untuk Mengurangi Resiko Bencana,” *Pros. Work. Cuaca Ekstrim*, vol. 2, no. 23, 2013.
- [23] D. Pertiwi and J. Paski, “Analisis Dinamika Atmosfer Kejadian Hujan Ekstrim (Studi Kasus Banjir di Tangerang Selatan 7 November 2021),” *Bul. Meteorol. Klimatologi dan Geofis.*, vol. 2, no. 2, pp. 1–10, 2022.
- [24] G. A. David, *An Introduction to Atmospheric Physics*, 2nd ed. New York: Cambridge University Press, 2010.
- [25] Z. W. Kundzewicz and A. Robson, “World Climate Programme Data and Monitoring,” Geneva, 2000. [Online]. Available: <http://www.wmo.ch/web/wcp/wcdmp/wcdmp.html>
- [26] X. Zhang *et al.*, “Detection of human influence on twentieth-century precipitation trends,” *Nature*, vol. 448, no. 7152, pp. 461–465, Jul. 2007, doi: 10.1038/nature06025.
- [27] Kepala BMKG, “Peraturan kepala BMKG Nomor 9 Tahun 2010,” *BMKG*, Jakarta, 2010.
- [28] A. Fadholi, B. Meteorologi, D. Klimatologi, and I. Geofisika, “Analisa Kondisi

- Atmosfer pada Kejadian Cuaca Ekstrim Hujan Es (Hail),” *J. Ilmu Fis. Indones.*, vol. 1, no. 2, 2012.
- [29] B. Prasetyo, N. Pusparini, I. Irwandi, and W. Fitria, “Aplikasi Radar Cuaca Untuk Identifikasi Fluktuasi Kondisi Cuaca Ekstrim,” *J. Fis. dan Apl.*, vol. 16, no. 3, p. 133, Oct. 2020.
- [30] J. Dessens, “Severe convective weather in the context of a nighttime global warming,” *Geophys. Res. Lett.*, vol. 22, no. 10, pp. 1241–1244, May 1995.
- [31] G. N. Harris, K. P. Bowman, and D.-B. Shin, “Comparison of Freezing-Level Altitudes from the NCEP Reanalysis with TRMM Precipitation Radar Brightband Data,” *Am. Meteorol. Soc.*, vol. 13, pp. 4137–4148, Dec. 2000.
- [32] M. Karmini, “Hujan Es (Hail) di Jakarta, 20 April 2000,” *J. Sains Teknol. Modif. Cuaca*, vol. 1, no. 1, pp. 27–32, 2000, [Online]. Available: <http://www.npmoc.navi.mil>.
- [33] E. . Frisby and H. . Sansom, “Hail Incidence in The Tropics,” *J. Appl. Meteorol.*, vol. 6, pp. 339–354, Apr. 1967.
- [34] Setianim Putri, *Sains Perubahan Iklim*. Jakarta: Bumi Aksara, 2020.
- [35] S. M. Dewi and M. Marzuki, “Analisis Pengaruh Pergeseran Lokasi ENSO terhadap Curah Hujan di Indonesia,” *J. Fis. Unand*, vol. 9, no. 2, pp. 176–182, Nov. 2020, doi: 10.25077/jfu.9.2.176-182.2020.
- [36] H. A. Rejeki, Munasik, and Kunarso, “The effect of ENSO to the variability of sea surface height in western Pacific Ocean and eastern Indian Ocean and its connectivity to the Indonesia Throughflow (ITF),” in *IOP Conference Series: Earth and Environmental Science*, Institute of Physics Publishing, Mar. 2017. doi: 10.1088/1755-1315/55/1/012066.
- [37] Y. Pasta Dewanti, Muliadi, and R. Adriat, “Pengaruh El Niño Southern Oscillation (ENSO) Terhadap Curah Hujan di Kalimantan Barat,” *Prism. Fis.*, vol. 6, no. 3, pp. 145–151, 2018, [Online]. Available: www.noaa.gov/data/indices/
- [38] I. Athoillah, R. Mariana Sibarani, and D. Eirene Doloksaribu, “Analisis Spasial

- El Nino Kuat Tahun 2015 dan La Nina Lemah Tahun 2016 (Pengaruhnya Terhadap Kelembapan, Angin dan Curah Hujan di Indonesia)," *J. Sains Teknol. Modif. Cuaca*, vol. 18, no. 1, pp. 33–41, 2017, [Online]. Available: www.esrl.noaa.gov/psd/data/gridded/.
- [39] S. P. Nugroho, "GEMA BNPB," Jakarta, 2016.
- [40] C. Wang, C. Deser, J.-Y. Yu, P. DiNezio, and A. Clement, "El Niño and Southern Oscillation (ENSO): A Review," *Springer Sci. Publ.*, pp. 85–106, 2017, doi: 10.1007/978-94-017-7499-4_4.
- [41] H. Jun-Ichi *et al.*, "Interannual rainfall variability over northwestern Java and its relation to the Indian Ocean Dipole and El Niño-Southern Oscillation events," *Sci. Online Lett. Atmos.*, vol. 8, no. 1, pp. 69–72, 2012, doi: 10.2151/sola.2012-018.
- [42] T. Vitri and Marzuki, "Analisis Pengaruh El Nino Southern Oscilation (ENSO) Terhadap Curah Hujan di Koto Tabang Sumatera Barat," *J. Fis. Unand*, vol. 3, no. 4, pp. 214–221, 2014.
- [43] R. A. Madden and P. R. Julian, "Observations of 40-50 Days Tropical Oscillation-A Review," *Mon. Weather Rev.*, vol. 12, pp. 814–837, May 1993.
- [44] L. Evana, S. Effendy, and D. E. Hermawan, "Pengembangan Model Prediksi Madden Julian Oscillation (MJO) Berbasis Pada Hasil Analisis Data Real Time Multivariat MJO (RMM1 dan RMM2)," *J. Agromet*, vol. 22, no. 2, pp. 144–159, 2008, [Online]. Available: <http://www.bom.gov.au/bmrc/clfor/cfstaff/matw/maproom/RMM///>
- [45] T. Nakazawa, "Tropical Super Clusters within Intraseasonal Variations over the Western Pacific," *J. Meteorol. Soc. Japan*, vol. 66, no. 6, pp. 823–839, Dec. 1988.
- [46] R. A. Madden and P. R. Julian, "Detection of 40-50 Day Oscillation in Zonal Wind in the Tropical Pacific," *J. Atmos. Sci.*, vol. 28, pp. 702–708, Jul. 1971.
- [47] Marzuki, H. Hashiguchi, T. Kozu, T. Shimomai, Y. Shibagaki, and Y. Takahashi, "Precipitation microstructure in different Madden-Julian Oscillation

- phases over Sumatra,” *Atmos. Res.*, vol. 168, pp. 121–138, Feb. 2016, doi: 10.1016/j.atmosres.2015.08.022.
- [48] A. Sobel, *Storm Surge*, 1st ed. New York: Harper Wave, 2014.
- [49] R. J. H. Dunn *et al.*, “Development of an Updated Global Land In Situ-Based Data Set of Temperature and Precipitation Extremes: HadEX3,” *J. Geophys. Res. Atmos.*, vol. 125, no. 16, Aug. 2020, doi: 10.1029/2019JD032263.
- [50] P. Pendidikan, D. Pelatihan, P. Bencana, and B. Nasional, “PANDUAN EDUKASI BENCANA BANJIR.”
- [51] D. Karnawati, S. Pengajar Pascasarjana Jurusan Teknik Sipil dan Jurusan Teknik Geologi, and F. Teknik, “THE MECHANISM OF ROCK MASS MOVEMENTS AS THE IMPACT OF EARTHQUAKE; GEOLOGY ENGINEERING REVIEW AND ANALYSIS,” 2007.
- [52] L. Afriani, *Kerawanan Longsor pada Lereng Tanah Lunak dan Penanganannya*. 2020.
- [53] BNPB, “Risiko Bencana Indonesia,” 2016.
- [54] NASA, “NASA. (n.d.). Core Observatory.” Accessed: Dec. 20, 2022. [Online]. Available: [nasahttps://gpm.nasa.gov/missions/GPM/core-observatory](https://gpm.nasa.gov/missions/GPM/core-observatory)
- [55] M. Thenmozhi and S. V Kottiswaran, “Analysis of Rainfall Trend Using Mann-Kendall Test and the Sen’S Slope Estimator in Udumalpet of Tirupur District in Tamil Nadu,” *Int. J. Agric.*, vol. 6, no. 2, pp. 131–138, 2016, [Online]. Available: www.tjprc.org
- [56] C. Montolalu and Y. Langi, “Pengaruh Pelatihan Dasar Komputer dan Teknologi Informasi bagi Guru-Guru dengan Uji-T Berpasangan (Paired Sample T-Test),” *d'CARTESIAN*, vol. 7, no. 1, p. 44, 2018, doi: 10.35799/dc.7.1.2018.20113.
- [57] I. Julian Akhri, “Kajian Hubungan Koefisien Korelasi Pearson (ρ), Spearman-Rho (r), Kendall-Tau (τ), Gamma (G) , dan Somers,” *e-Journal Statisca*, vol. 6, no. 1, pp. 51–58, 2019, [Online]. Available: <http://doi.org/10.22216/jen.v6i1.5256>

- [58] O. Cantica *et al.*, “Analisis Korelasi Kendal Tau Layanan Kesehatan Rumah Sakit Pemerintah dan Swastapada Empat Pulau di Indonesia,” *J. Stat. Univ. Jambi*, vol. 2, no. 1, pp. 32–38, 2023.
- [59] S. Shahid, “Trends in extreme rainfall events of Bangladesh,” *Theor. Appl. Climatol.*, vol. 104, no. 3–4, pp. 489–499, 2011, doi: 10.1007/s00704-010-0363-y.
- [60] R. Wilis and S. Nugroho, “The Decrasing Trend of Precipitation Observed at Watesheds in Padang for The Period 1975-2013,” *Sumatra J. Disaster, Geogr. Geogr. Educ.*, vol. 1, no. 2, p. 222, 2017, doi: 10.24036/sjdgge.v1i2.82.
- [61] M. K. Zaki, K. Noda, K. Ito, Komariah, and D. P. Ariyanto, “Long-term trends of diurnal rainfall and hydro-meteorological disaster in the new capital city of Indonesia,” *IOP Conf. Ser. Earth Environ. Sci.*, vol. 724, no. 1, pp. 0–7, 2021, doi: 10.1088/1755-1315/724/1/012046.
- [62] M. Marzuki, R. Ramadhan, H. Yusnaini, M. Vonnisa, R. Safitri, and E. Yanfatriani, “Changes in Extreme Rainfall in New Capital of Indonesia (IKN) Based on 20 Years of GPM-IMERG Data,” *Trends Sci.*, vol. 20, no. 11, p. 6935, 2023, doi: 10.48048/tis.2023.6935.
- [63] B. Prasetyo, H. Irwandi, and N. Pusparini, “Karakteristik Curah Hujan Berdasarkan Ragam Topografi Di Sumatera Utara,” *J. Sains Teknol. Modif. Cuaca*, vol. 19, no. 1, p. 11, 2018, doi: 10.29122/jstmc.v19i1.2787.
- [64] T. Petrow and B. Merz, “Trends in flood magnitude, frequency and seasonality in Germany in the period 1951-2002,” *J. Hydrol.*, vol. 371, no. 1–4, pp. 129–141, 2009, doi: 10.1016/j.jhydrol.2009.03.024.
- [65] M. Bertola, A. Viglione, D. Lun, J. Hall, and G. Blöschl, “Flood trends in Europe: Are changes in small and big floods different?,” *Hydrol. Earth Syst. Sci.*, vol. 24, no. 4, pp. 1805–1822, 2020, doi: 10.5194/hess-24-1805-2020.
- [66] S. Mostofi Zadeh, D. H. Burn, and N. O’Brien, “Detection of trends in flood magnitude and frequency in Canada,” *J. Hydrol. Reg. Stud.*, vol. 28, no. February, 2020, doi: 10.1016/j.ejrh.2020.100673.

- 
- [67] D. S. Hadmoko, F. Lavigne, J. Sartohadi, C. Gomez, and D. Daryono, “Spatio-Temporal Distribution of Landslides in Java and the Triggering Factors,” *Forum Geogr.*, vol. 31, no. 1, pp. 1–15, Jul. 2017, doi: 10.23917/forgeo.v31i1.3790.
- [68] V. A. Gensini and H. E. Brooks, “Spatial trends in United States tornado frequency,” *npj Clim. Atmos. Sci.*, no. May, 2018, doi: 10.1038/s41612-018-0048-2.
- [69] T. Ferijal, O. Batelaan, and M. Shanafield, “Rainy season drought severity trend analysis of the Indonesian maritime continent,” *Int. J. Climatol.*, vol. 41, no. S1, pp. E2194–E2210, 2021, doi: 10.1002/joc.6840.
- [70] A. A. Fitriany, P. J. Flatau, K. Khoirunurrofik, and N. F. Riama, “Assessment on the use of meteorological and social media information for forest fire detection and prediction in riau, indonesia,” *Sustain.*, vol. 13, no. 20, 2021, doi: 10.3390/su132011188.
- [71] M. R. S. Damanik and Restu, “PEMETAAN TINGKAT RISIKO BANJIR DAN LONGSOR SUMATERA UTARA BERBASIS SISTEM INFORMASI GEOGRAFIS,” *Jur. Pendidik. Geogr. Fak. Ilmu Sos.*, vol. 4, no. 1, pp. 29–42, 2012.
- [72] I. Umar and I. Dewata, “ARAHAN KEBIJAKAN MITIGASI PADA ZONA RAWAN BANJIR KABUPATEN LIMAPULUH KOTA , PROVINSI SUMATERA BARAT,” *J. Pengelola Sumberd. Alam dan Lingkung.*, vol. 8, no. 2, pp. 251–257, 2018, doi: 10.29244/jpsl.8.2.251-257.
- [73] M. Muchlian, L. Honesti, and D. A. Roza, “Analisis Trend Risiko Bencana Tanah Longsor di Indonesia.”
- [74] R. Rahmad and A. Nurman, “Aplikasi SIG untuk Pemetaan Tingkat Ancaman Longsor di Kecamatan Sibolangit , Kabupaten Deli Serdang , Sumatera Utara,” vol. 32, no. 1, pp. 1–13, 2018.
- [75] B. Tjahjono, B. Barus, and N. Darojati, “Hubungan Indeks Osilasi Selatan dan Indeks Curah Hujan terhadap Kejadian Kekeringan di Kabupaten Indramayu , Jawa Barat , Indonesia,” *J. Reg. Rural Dev. Plan.*, vol. 1, no. 1, pp. 64–73, 2017.

- [76] R. N. Ariyani, Muliadi, and R. Adriat, “Analisis Nilai Indeks Iklim Ekstrim Periode Tahun 1990-2019 di Kalimantan Barat,” *Prism. Fis.*, vol. 9, no. 3, pp. 309–314, 2021.
- [77] E. Hermawan and K. Komalaningsih, “Karakteristik Indian Ocean Dipole Mode Di Samudera Hindia Hubungan-Nya Dengan Perilaku Curah Hujan Di Kawasan Sumatera Barat Berbasis Analisis Mother Wavelet,” *J. Sains Dirgant.*, vol. 5, no. 2, pp. 109–129, 2008.
- [78] A. Muñoz-Torrero Manchado, S. Allen, J. A. Ballesteros-Cánovas, A. Dhakal, M. R. Dhital, and M. Stoffel, “Three decades of landslide activity in western Nepal: new insights into trends and climate drivers,” *Landslides*, vol. 18, no. 6, pp. 2001–2015, 2021, doi: 10.1007/s10346-021-01632-6.
- [79] J. Mateo, D. Ballart, C. Brucet, M. Aran, and J. Bech, “A study of a heavy rainfall event and a tornado outbreak during the passage of a squall line over Catalonia,” *Atmos. Res.*, vol. 93, no. 1–3, pp. 131–146, 2009, doi: 10.1016/j.atmosres.2008.09.030.

