

DAFTAR PUSTAKA

- Abdikan, S., Sekertekin, A., Madenoglu, S., Ozcan, H., Peker, M., Pinar, M. O., Koc, A., Akgul, S., Secmen, H., Kecici, M., Tuncay, T., & Sanli, F. B. (2023). Surface soil moisture estimation from multi-frequency SAR images using ANN and experimental data on a semi-arid environment region in Konya, Turkey. *Soil & Tillage Research*, 228, 105646–105646. <https://doi.org/10.1016/j.still.2023.105646>
- Babaeian, E., Sadeghi, M., Jones, S. B., Montzka, C., Vereecken, H., & Tuller, M. (2019). Ground, proximal, and satellite remote sensing of soil moisture. *Reviews of Geophysics*, 57(2), 530–616. <https://doi.org/10.1029/2018rg000618>
- Bhogapurapu, N., Dey, S., Mandal, D., Bhattacharya, A., Karthikeyan, L., McNairn, H., & Rao, Y. S. (2022). Soil moisture retrieval over croplands using dual-pol l-band GRD SAR data. *Remote Sensing of Environment*, 271, 112900. <https://doi.org/10.1016/j.rse.2022.112900>
- BIG. (2024). *DEMNAS*. Tanah Air Indonesia. <https://tanahair.indonesia.go.id/demnas/#/>
- BPS. (2024). *Kabupaten Pati dalam Angka*. Badan Pusat Statstika.
- BPS. (2023). *Kabupaten Gunungkidul dalam Angka*. Badan Pusat Statstika.
- Cahyadi, A. (2017). Pengelolaan kawasan karst dan peranannya dalam siklus karbon di indonesia. *INA-Rxiv (OSF Preprints)*. <https://doi.org/10.31227/osf.io/8gh6d>
- Cahyadi, A., Adjis, T. N., Haryono, E., & Widyastuti, M. (2021). Hydrogeological characterization of the Semanu karst area in the upper reach of gremeng karst drainage basin, indonesia. *E3S Web of Conferences*, 325, 08006–08006. <https://doi.org/10.1051/e3sconf/202132508006>
- Cao, M., Wu, C., Liu, J., & Jiang, Y. (2020). Increasing leaf $\delta^{13}\text{C}$ values of woody plants in response to water stress induced by tunnel excavation in a karst trough valley: Implication for improving water-use efficiency. *Journal of Hydrology*, 586, 124895–124895. <https://doi.org/10.1016/j.jhydrol.2020.124895>
- Daffaendra, A. H., Mawandha, H. G., Ersavan, F., Setyawan, C., Kesuma, & Wijayanti, Y. (2023). Water availability identification of underground river in the gunung sewu karst area using inverse model. *IOP Conference Series. Earth and Environmental Science*, 1180(1), 012020–012020. <https://doi.org/10.1088/1755-1315/1180/1/012020>
- Dai, Q., Liu, Z., Shao, H., & Yang, Z. (2015). Karst bare slope soil erosion and soil quality: a simulation case study. *Solid Earth*, 6(3), 985–995. <https://doi.org/10.5194/se-6-985-2015>
- Dapor, M. (2016). Backscattering coefficient. *Springer Tracts in Modern Physics*, 69–83. https://doi.org/10.1007/978-3-319-47492-2_6
- Das, K., & Paul, P. K. (2015). Soil moisture retrieval model by using RISAT-1, C-band data in tropical dry and sub-humid zone of Bankura district of India. *The Egyptian Journal of Remote Sensing and Space Science*, 18(2), 297–310. <https://doi.org/10.1016/j.ejrs.2015.09.004>

- De Genevraye, P., & Samuel, L. (1972). Geology of the kendeng zone (central and east java). *Proceedings of the Indonesian Petroleum Association 1st Annual Convention & Exhibition*, 17–30.
- Dubois, P. C., van Zyl, J., & Engman, T. (1995). Measuring soil moisture with imaging radars. *IEEE Transactions on Geoscience and Remote Sensing*, 33(4), 915–926. <https://doi.org/10.1109/36.406677>
- El Hajj, M., Baghdadi, N., Zribi, M., & Bazzi, H. (2017). Synergic Use of Sentinel-1 and Sentinel-2 Images for Operational Soil Moisture Mapping at High Spatial Resolution over Agricultural Areas. *Remote Sensing*, 9(12), 1292. <https://doi.org/10.3390/rs9121292>
- ESA. (2024). *Sentinel-1 radar vision for copernicus*. ESA. https://www.esa.int/Applications/Observing_the_Earth/Copernicus/Sentinel-1
- Faisol, A., Indarto, I., Novita, E., & Budiyono, B. (2020). Komparasi antara climate hazards group infrared precipitation with stations (chirps) dan global precipitation measurement (gpm) dalam membangkitkan informasi curah hujan harian di provinsi jawa timur. *Jurnal Teknologi Pertanian Andalas*, 24(2), 148. <https://doi.org/10.25077/jtpa.24.2.148-156.2020>
- Filipponi, F. (2019). Sentinel-1 GRD preprocessing workflow. *Proceedings*, 18(1), 11. <https://doi.org/10.3390/ecrs-3-06201>
- Gao, Q., Zribi, M., Escorihuela, M., & Baghdadi, N. (2017). Synergetic use of sentinel-1 and sentinel-2 data for soil moisture mapping at 100 m resolution. *Sensors*, 17(9), 1966. <https://doi.org/10.3390/s17091966>
- GéronA. (2017). *Hands-on machine learning with Scikit-Learn and TensorFlow : concepts, tools, and techniques to build intelligent systems*. O'reilly Media.
- Ghozali, I. (2015). *Aplikasi analisis multivariete IBM SPSS 23* (8th ed.). Badan Penerbit Universitas Diponegoro.
- Gish, T. J., Prueger, J. H., Daughtry, C. S. T., Kustas, W. P., McKee, L. G., Russ, A. L., & Hatfield, J. L. (2011). Comparison of field-scale herbicide runoff and volatilization losses: An eight-year field investigation. *Journal of Environmental Quality*, 40(5), 1432–1442. <https://doi.org/10.2134/jeq2010.0092>
- González-Zamora, Á., Sánchez, N., Pablos, M., & Martínez-Fernández, J. (2019). CCI soil moisture assessment with SMOS soil moisture and in situ data under different environmental conditions and spatial scales in Spain. *Remote Sensing of Environment*, 225, 469–482. <https://doi.org/10.1016/j.rse.2018.02.010>
- Graldi, G., Zardi, D., & Vitti, A. (2023). Retrieving soil moisture at the field scale from sentinel-1 data over a semi-arid mediterranean agricultural area. *Remote Sensing*, 15(12), 2997–2997. <https://doi.org/10.3390/rs15122997>
- Gujarati, D. N. (2003). *Basic econometrics* (4th ed.). Osborne McGraw-Hill.
- Gupta, A. (2005). *The physical geography of Southeast Asia*. Oxford University Press.
- Hadi, M. S., Nur, Setiawan, K., & Kamal, M. (2023). Evaluasi bobot kering tajuk dan bobot dompolan (head) beberapa genotipe sorgum (*sorghum bicolor* [L.]

- moench) melalui sidik lintas (path analysis). *Jurnal Agrotek Tropika/Jurnal Agrotek Tropika.*, 11(2), 181–181. <https://doi.org/10.23960/jat.v11i2.6174>
- Han, Q., Sun, K., Wang, H., Pei, Z., Chen, H., Yang, J., & Sun, X. (2024). Water Balance Characteristics of the Salix Shelterbelt in the Kubuqi Desert. *Forests*, 15(2), 278–278. <https://doi.org/10.3390/f15020278>
- Hastie, T., Tibshirani, R., & Friedman, J. (2009). *The elements of statistical learning, second edition : data mining, inference, and prediction* (2nd ed.). Springer.
- Haykin, S. (2009). *Neural networks and learning machines*. Prentice Hall/Pearson.
- Hegazi, E. H., Samak, A. A., Yang, L., Huang, R., & Huang, J. (2023). Prediction of soil moisture content from sentinel-2 images using convolutional neural network (CNN). *Agronomy*, 13(3), 656. <https://doi.org/10.3390/agronomy13030656>
- Huda, M. W. N., Mawandha, H. G., Ramadhan, M. A. G., & Ngadisih. (2022). The Utilization of Sentinel-1 Soil Moisture Satellite Imagery for Crop's Water Requirement Analysis in the Dryland Agriculture. *Advances in Biological Sciences Research/Advances in Biological Sciences Research*. https://doi.org/10.2991/978-94-6463-086-2_66
- Hussein, A. A., & Baylar, A. (2023). Hydrological Model Evaluation of Ground, GPM IMERG, and CHIRPS precipitation data for Shabelle Basin in Ethiopia. *Journal of Electronics, Computer Networking and Applied Mathematics*, 31, 41–60. <https://doi.org/10.55529/jecnam.31.41.60>
- ITC. (2023). [PP2-3-7-3] *Incidence Angle*. Living Textbook ITC University of Twente. <https://ltb.itc.utwente.nl/580/concept/111314#>
- Jin, L., Chen, S., Yang, H., & Zhang, C. (2024). Evaluation and Drivers of Four Evapotranspiration Products in the Yellow River Basin. *Remote Sensing*, 16(11), 1829–1829. <https://doi.org/10.3390/rs16111829>
- Kastridis, A., & Stathis, D. (2020). Evaluation of Hydrological and Hydraulic Models Applied in Typical Mediterranean Ungauged Watersheds Using Post-Flash-Flood Measurements. *Hydrology*, 7(1), 12. <https://doi.org/10.3390/hydrology7010012>
- Kuncoro, H. (2023). *Statistika Deskriptif untuk Analisis Ekonomi*. Bumi Aksara.
- Lenny Febriana Ideawati, Lily Montarcih Limantara, & Ussy Andawayanti. (2015). Analisis Perubahan Bilangan Kurva Aliran Permukaan (Runoff Curve Number) Terhadap Debit Banjir Di DAS Lesti. *Jurnal Teknik Pertanian*, 6(1).
- Lestari, P. (2018). *Penurunan kadar kesadahan total sumber mata air Kawasan Karst kendeng pati menggunakan zeolit zsm-5 berdasarkan variasi lama perendaman* [Skripsi].
- Li, H., Zhang, Z., Zhai, J., Yang, L., & Long, H. (2022). Correlation between Soil Structural Parameters and Soil Adhesion Based on Water Film Theory. *Coatings*, 12(11), 1743. <https://doi.org/10.3390/coatings12111743>
- Li, J., Yuan, D., Liu, J., Ma, M., & Li, Y. (2023). Evaluating the effects of water exchange between surface rivers and karst aquifers on surface flood simulations at different watershed scales. *Journal of Hydrology*, 623, 129851–129851. <https://doi.org/10.1016/j.jhydrol.2023.129851>

- Li, Z., Xu, X., Zhu, J., Xu, C., & Wang, K. (2019). Sediment yield is closely related to lithology and landscape properties in heterogeneous karst watersheds. *Journal of Hydrology*, 568, 437–446. <https://doi.org/10.1016/j.jhydrol.2018.10.076>
- Lillesand, T. M., Kiefer, R. W., & Chipman, J. W. (2015). *Remote sensing and image interpretation* (7th ed.). John Wiley & Sons, Inc.
- Liu, Q., Gu, X., Chen, X., Mumtaz, F., Liu, Y., Wang, C., Yu, T., Zhang, Y., Wang, D., & Zhan, Y. (2022). Soil Moisture Content Retrieval from Remote Sensing Data by Artificial Neural Network Based on Sample Optimization. *Sensors (Basel, Switzerland)*, 22(4), 1611. <https://doi.org/10.3390/s22041611>
- Liu, X., Du, M., Lei, H., Pan, H., Shang, C., Feng, K., & Wang, W. (2023). Distribution characteristics of drought resistance and disaster reduction capability and the identification of key factors—a case study of a typical area in the yun–gui plateau, china. *Sustainability*, 15(20), 15148–15148. <https://doi.org/10.3390/su152015148>
- Lu, Y., Song, W., Lu, J., Wang, X., & Tan, Y. (2017). An Examination of Soil Moisture Estimation Using Ground Penetrating Radar in Desert Steppe. *Water*, 9(7), 521. <https://doi.org/10.3390/w9070521>
- Mawardhi, M. (2011). *Tanah-Air-Tanaman: Asas Irigasi dan Konservasi Air* (1st ed.). Bursa Ilmu.
- Mohtashami, S., Eliasson, L., Hansson, L., Willén, E., Thierfelder, T., & Nordfjell, T. (2022). Evaluating the effect of DEM resolution on performance of cartographic depth-to-water maps, for planning logging operations. *International Journal of Applied Earth Observation and Geoinformation*, 108, 102728–102728. <https://doi.org/10.1016/j.jag.2022.102728>
- Mohti, A. B. (2006). *Mapping The Central Matang Mangrove Forest Reserve, Perak, Using Remote Sensing and Geographic Information System* [Master Thesis].
- Motovilov, Y. G., Gottschalk, L., Engeland, K., & Rodhe, A. (1999). Validation of a distributed hydrological model against spatial observations. *Agricultural and Forest Meteorology*, 98–99, 257–277. [https://doi.org/10.1016/s0168-1923\(99\)00102-1](https://doi.org/10.1016/s0168-1923(99)00102-1)
- NASA. (2024). *Sentinel-1 c-band synthetic aperture radar (SAR)*. NASA. <https://www.earthdata.nasa.gov/sensors/sentinel-1-c-band-sar>
- Nugroho, N. P., Abdiyani, S., Susanti, P. D., Putra, R. P. B., Wahyuningrum, N., Haryanti, N., Purwanto, Raharjo, S. A. S., Nugroho, A. W., & Priyanto, E. (2020). Profil Daerah Aliran Sungai (DAS) Bribin dan Karakteristik Desa di DAS Bribin, Kabupaten Gunungkidul, Daerah Istimewa Yogyakarta. In *Profil Daerah Aliran Sungai (DAS) Bribin dan Karakteristik Desa di DAS Bribin, Kabupaten Gunungkidul, Daerah Istimewa Yogyakarta*. Proyek Penelitian Kanoppi 2: Center for International Forestry Research and Center for International Forestry Research.
- Ouyang, W., Wan, X., Xu, Y., Wang, X., & Lin, C. (2020). Vertical difference of climate change impacts on vegetation at temporal-spatial scales in the upper

- stream of the Mekong River Basin. *Science of the Total Environment*, 701, 134782–134782. <https://doi.org/10.1016/j.scitotenv.2019.134782>
- Pettorelli, N., Böhne, H. S. to , Shapiro , A. C., & Kapfer, P. G. (2018). *Satellite remote sensing for conservation* (Vol. 1(4)). WWF Conservation Technology Series.
- Pujilestari, S., Dwidayati, N., & Sugiman. (2017). Pemilihan Model Regresi Linier Berganda Terbaik pada Kasus Multikolinieritas Berdasarkan Metode Principal Component Analysis (PCA) dan Metode Stepwise. *UNNES Journal of Mathematics*, 6(1).
- Purba, T., Ningsih, H., Junaedi, P. A. S., Junairiah, B. G., & Firgiyanto, R. (2021). *Tanah dan Nutrisi Tanaman* (1st ed.). Yayasan Kita Menulis.
- Putri, E. S., Sari, A. W., Karim, R. A., Somantri, L., & Ridwana, R. (2020). Pemanfaatan citra sentinel-2 untuk analisis vegetasi di wilayah gunung mnglayang. *Jurnal Pendidikan Geografi Undiksha* , 9(2). <https://doi.org/10.23887/jjppg.v9i2.35357>
- Ramadhan, M. A. G., Mawandha, H. G., Huda, M. W. N., & Ngadisih. (2022). The Utilization of Sentinel-1 Soil Moisture Satellite Imagery for Runoff Coefficient Analysis. *IOP Conference Series. Earth and Environmental Science*, 1116(1), 012017–012017. <https://doi.org/10.1088/1755-1315/1116/1/012017>
- Rao, S. S., Kumar, S. D., Das, S. N., Nagaraju, M. S. S., Venugopal, M. V., Rajankar, P., Laghate, P., Reddy, M. S., Joshi, A. K., & Sharma, J. R. (2013). Modified Dubois Model for Estimating Soil Moisture with Dual Polarized SAR Data. *Photonirvachak*, 41(4), 865–872. <https://doi.org/10.1007/s12524-013-0274-3>
- Robock, A. (2003). HYDROLOGY | Soil Moisture. *Encyclopedia of Atmospheric Sciences*, 987–993. <https://doi.org/10.1016/b0-12-227090-8/00169-x>
- Santi, E., Paloscia, S., Pettinato, S., Notarnicola, C., Pasolli, L., & Pistocchi, A. (2013). Comparison between SAR Soil Moisture Estimates and Hydrological Model Simulations over the Scrivia Test Site. *Remote Sensing*, 5(10), 4961–4976. <https://doi.org/10.3390/rs5104961>
- Sentinel Online. (2024a). *Sentinel-1*. Sentinel Online. <https://sentinels.copernicus.eu/web/sentinel/missions/sentinel-1>
- Sentinel Online. (2024b). *Sentinel-2 Mission Guide*. Sentinel Online. <https://sentinels.copernicus.eu/web/sentinel/missions/sentinel-2>
- Setiawan, W. (2012). *Pengolahan citra penginderaan jauh*. UPI Press.
- Siddiq, A. T. (2019). *Perhitungan jumlah bukit pada kawasan gunung sewu menggunakan metode focal maximum function dan slope position classification* [Skripsi].
- Sihombing, P. R., Suryadiningrat, S., Sunarjo, D. A., & Yuda, Y. P. A. C. (2022). Identifikasi Data Outlier (Pencilan) dan Kenormalan Data Pada Data Univariat serta Alternatif Penyelesaiannya. *Jurnal Ekonomi Dan Statistik Indonesia*, 2(3), 307–316. <https://doi.org/10.11594/jesi.02.03.07>
- Silva, M. L. D. N., Libardi, P. L., & Gimenes, F. H. S. (2018). Soil Water Retention Curve as Affected by Sample Height. *Revista Brasileira de Ciencia Do Solo*, 42(0). <https://doi.org/10.1590/18069657rbcs20180058>

- Singh, A., Gaurav, K., Meena, G. K., & Kumar, S. (2020). Estimation of soil moisture applying modified dubois model to sentinel-1; A regional study from central india. *Remote Sensing*, 12(14), 2266. <https://doi.org/10.3390/rs12142266>
- Soleimani, R., Chavoshi, E., Shirani, H., & Pour, I. E. (2020). Comparison of Stepwise Multilinear Regressions, Artificial Neural Network, and Genetic Algorithm-Based Neural Network for Prediction the Plant Available Water of Unsaturated Soils in a Semi-arid Region of Iran (Case Study: Chaharmahal Bakhtiari Province). *Communications in Soil Science and Plant Analysis*, 51(17), 2297–2309. <https://doi.org/10.1080/00103624.2020.1822385>
- Srivastava, H. S., Patel, P., Navalgund, R. R., & Sharma, Y. (2008). Retrieval of surface roughness using multi-polarized Envisat-1 ASAR data. *Geocarto International*, 23(1), 67–77. <https://doi.org/10.1080/10106040701538157>
- Srivastava, H. S., Patel, P., Sharma, Y., & Navalgund, R. R. (2009). Large-Area soil moisture estimation using multi-incidence-angle RADARSAT-1 SAR data. *IEEE Transactions on Geoscience and Remote Sensing*, 47(8), 2528–2535. <https://doi.org/10.1109/tgrs.2009.2018448>
- Su, W., Shao, H., Xian, W., Xie, Z., Zhang, C., & Yang, H. (2023). Quantification of Spatiotemporal Variability of Evapotranspiration (ET) and the Contribution of Influencing Factors for Different Land Cover Types in the Yunnan Province. *Water*, 15(18), 3309–3309. <https://doi.org/10.3390/w15183309>
- Sugiyono. (2018). *Metode Penelitian Bisnis : Pendekatan Kuantitatif, Kualitatif, Kombinasi dan R&D*. Alfabeta.
- Sulastoro. (2013). Karakteristik sumberdaya air di daerah karst (studi kasus daerah pracimantoro). *Journal of Rural and Development*, 4(1).
- Syarovy, M., Nugroho, A. P., Sutiarto, L., Suwardi, Sri Muna, M., Wiratmoko, A., Sukarman, & Primananda, S. (2022). Utilization of big data in oil palm plantation to predict production using artificial neural network model. *Advances in Biological Sciences Research/Advances in Biological Sciences Research*. https://doi.org/10.2991/978-94-6463-086-2_67
- Tao, L., Wang, G., Chen, X., Li, J., & Cai, Q. (2019). Estimation of soil moisture using a vegetation scattering model in wheat fields. *Journal of Applied Remote Sensing*, 13(04), 1. <https://doi.org/10.1117/1.jrs.13.4.044503>
- Taye, G., Tesfaye, S., Parijs, I. V., Poesen, J., Vanmaercke, M., Wesemael, B. van , Guyassaa, E., Nyssen, J., Deckers, J., & Haregeweyn, N. (2024). Impact of soil and water conservation structures on the spatial variability of topsoil moisture content and crop productivity in semi-arid Ethiopia. *Soil & Tillage Research*, 238, 105998–105998. <https://doi.org/10.1016/j.still.2023.105998>
- Topp, G. C., Davis, J. L., & Annan, A. P. (1980). Electromagnetic determination of soil water content: Measurements in coaxial transmission lines. *Water Resources Research*, 16, 574–582. <https://doi.org/10.1029/WR016i003p00574>
- Torres, R., Snoeijs, P., Geudtner, D., Bibby, D., Davidson, M., Attema, E., Potin, P., Rommen, B., Floury, N., Brown, M., Traver, I. N., Deghayes, P., Duesmann,

- B., Rosich, B., Miranda, N., Bruno, C., L'Abbate, M., Croci, R., Pietropaolo, A., & Huchler, M. (2012). GMES Sentinel-1 mission. *Remote Sensing of Environment*, 120, 9–24. <https://doi.org/10.1016/j.rse.2011.05.028>
- Utomo, M., Sudarsono, Rusman, B., Sabrina, T., Lumbanraja, J., & Wawan. (2016). *Ilmu Tanah Dasar-Dasar dan Pengelolaan* (1st ed.). Prenada Media Group.
- Wallach, D., & Goffinet, B. (1989). Mean squared error of prediction as a criterion for evaluating and comparing system models. *Ecological Modelling*, 44(3-4), 299–306. [https://doi.org/10.1016/0304-3800\(89\)90035-5](https://doi.org/10.1016/0304-3800(89)90035-5)
- Widnyana, I. M. G., Tika, I. W., & Sumiyati. (2017). Kajian pola titik layu tanaman paprika (*Capsicum Annuum* L.) dan kapasitas lapang pada beberapa media tanam. *Jurnal BETA (Biosistem Dan Teknik Pertanian)*, 5(1), 146–151.
- Xiao, L., Li, R., Jing, J., Yuan, J., & Tang, Z. (2024). Suspended Sediment Dynamics and Linking with Watershed Surface Characteristics in a Karst Region. *Journal of Hydrology*, 630, 130719–130719. <https://doi.org/10.1016/j.jhydrol.2024.130719>
- Yang, S., Zhao, Y., Yang, D., & Lan, A. (2024). Analysis of vegetation NDVI changes and driving factors in the karst concentration distribution area of asia. *Forests*, 15(3), 398–398. <https://doi.org/10.3390/f15030398>
- Yao, P., Shi, J., Zhao, T., Lu, H., & Al-Yaari, A. (2017). Rebuilding Long Time Series Global Soil Moisture Products Using the Neural Network Adopting the Microwave Vegetation Index. *Remote Sensing*, 9(1), 35. <https://doi.org/10.3390/rs9010035>
- Yuan, L., Li, L., Zhang, T., Chen, L., Liu, W., Hu, S., & Yang, L. (2021). Modeling soil moisture from multisource data by stepwise multilinear regression: An application to the chinese loess plateau. *ISPRS International Journal of Geo-Information*, 10(4), 233–233. <https://doi.org/10.3390/ijgi10040233>
- Zhang, T., Zhang, L., Jiang, L., Zhao, S., Zhao, T., & Li, Y. (2012). Effects of spatial distribution of soil parameters on soil moisture retrieval from passive microwave remote sensing. *Science China Earth Sciences*, 55(8), 1313–1322. <https://doi.org/10.1007/s11430-011-4339-2>
- Zheng, X., Wei, X., & Zhang, S. (2017). Tree species diversity and identity effects on soil properties in the Huoditang area of the Qinling Mountains, China. *Ecosphere*, 8(3), e01732. <https://doi.org/10.1002/ecs2.1732>
- Zhou, Q., Zhu, A-Xing., Yan, W., & Sun, Z. (2022). Impacts of forestland vegetation restoration on soil moisture content in humid karst region: A case study on a limestone slope. *Ecological Engineering*, 180, 106648. <https://doi.org/10.1016/j.ecoleng.2022.106648>
- Zuhdi, A. M. H., Wahjunie, E. D., & Tarigan, S. D. (2022). Retensi air tanah pada jenis tanah dan penggunaan lahan di kabupaten lamongan. *Jurnal Tanah Dan Iklim*, 46(1), 13–21. <http://dx.doi.org/10.21082/jti.v46n1.2022.13-21>