UNIVERSITAS
GADJAH MADA
**Validasi dan Pemanfaatan Data Satelit Global Precipitation Measurement dalam Pengamatan Curah Hujan
dan Bencana Hidrometeorologi di Indonesia**
Ravidho Ramadhan, Dr. rer. nat. Wiwit Suryanto, S.Si, M.Si.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

DAFTAR PUSTAKA

Adler, R.F., Gu, G., Huffman, G.J., Sapiano, M.R.P., Wang, J.-J., 2020. GPCP and the Global Characteristics of Precipitation, in: Satellite Precipitation Measurement. Springer, hal. 677–697.

Adler, R.F., Sapiano, M.R.P., Huffman, G.J., Wang, J.-J., Gu, G., Bolvin, D., Chiu, L., Schneider, U., Becker, A., Nelkin, E., 2018. The Global Precipitation Climatology Project (GPCP) monthly analysis (new version 2.3) and a review of 2017 global precipitation. Atmosphere (Basel). 9, 138.

Aggarwal, P.K., Romatschke, U., Araguas-Araguas, L., Belachew, D., Longstaffe, F.J., Berg, P., Schumacher, C., Funk, A., 2016. Proportions of convective and stratiform precipitation revealed in water isotope ratios. Nat. Geosci. 9, 624–629.

Aldrian, E., Dümenil Gates, L., Widodo, F.H., 2007. Seasonal variability of Indonesian rainfall in ECHAM4 simulations and in the reanalyses: The role of ENSO. Theor. Appl. Climatol. 87, 41–59.

Aldrian, E., Dwi Susanto, R., 2003. Identification of three dominant rainfall regions within Indonesia and their relationship to sea surface temperature. Int. J. Climatol. 23. https://doi.org/10.1002/joc.950

Alexander, S., Tsuda, T., Furumoto, J., Shimomai, T., Kozu, T., Kawashima, M., 2006. A statistical overview of convection during the first CPEA campaign. J. Meteorol. Soc. Japan. Ser. II 84, 57–93.

Alfahmi, F., Boer, R., Hidayat, R., Sopaheluwakan, A., 2019. The impact of concave coastline on rainfall offshore distribution over Indonesian maritime continent. Sci. World J. 2019.

Allan, R.P., Barlow, M., Byrne, M.P., Cherchi, A., Douville, H., Fowler, H.J., Gan, T.Y., Pendergrass, A.G., Rosenfeld, D., Swann, A.L.S., 2020. Advances in understanding large-scale responses of the water cycle to climate change. Ann. N. Y. Acad. Sci. 1472, 49–75.

Anjum, M.N., Ahmad, I., Ding, Y., Shangguan, D., Zaman, M., Ijaz, M.W., Sarwar, K., Han, H., Yang, M., 2019. Assessment of IMERG-V06 precipitation product over different hydro-climatic regimes in the Tianshan Mountains, North-Western China. Remote Sens. 11. https://doi.org/10.3390/rs11192314

Aonashi, K., Ferraro, R.R., 2020. Microwave sensors, imagers and sounders, in: Satellite Precipitation Measurement. Springer, hal. 63–81.

Arshad, M., Ma, X., Yin, J., Ullah, W., Ali, G., Ullah, S., Liu, M., Shahzaman, M., Ullah, I., 2021. Evaluation of GPM-IMERG and TRMM-3B42 precipitation products over Pakistan. Atmos. Res. 249. https://doi.org/10.1016/j.atmosres.2020.105341

As-syakur, A.R., Imaoka, K., Ogawara, K., Yamanaka, M.D., Tanaka, T., Kashino, Y., Nuarsa, I.W., Osawa, T., 2019. Analysis of spatial and seasonal differences in the diurnal rainfall cycle over Sumatera revealed by 17-year

UNIVERSITAS
GADJAH MADA
**Validasi dan Pemanfaatan Data Satelit Global Precipitation Measurement dalam Pengamatan Curah Hujan
dan Bencana Hidrometeorologi di Indonesia**
Ravidho Ramadhan, Dr. rer. nat. Wiwit Suryanto, S.Si, M.Si.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

TRMM 3B42 dataset. Sola 15, 216–221.

As-Syakur, A.R., Osawa, T., Miura, F., Nuarsa, I.W., Ekayanti, N.W., Dharma, I.G.B.S., Adnyana, I.W.S., Arthana, I.W., Tanaka, T., 2016. Maritime Continent rainfall variability during the TRMM era: The role of monsoon, topography and El Niño Modoki. Dyn. Atmos. Ocean. 75. https://doi.org/10.1016/j.dynatmoce.2016.05.004

As-syakur, A.R., Tanaka, T., Osawa, T., Mahendra, M.S., 2013. Indonesian rainfall variability observation using TRMM multi-satellite data. Int. J. Remote Sens. 34. https://doi.org/10.1080/01431161.2013.826837

Atlas, D., Ulbrich, C.W., 1990. Early foundations of the measurement of rainfall by radar. Radar Meteorol. 86–97.

Ávila, A., Justino, F., Wilson, A., Bromwich, D., Amorim, M., 2016. Recent precipitation trends, flash floods and landslides in southern Brazil. Environ. Res. Lett. https://doi.org/10.1088/1748-9326/11/11/114029

Badan Informasi Geospasial Indonesia, 2021. Rapat Koordinasi Data Pulau Sepakati Jumlah Pulau Indonesia 17 Ribu [WWW Document]. URL https://www.big.go.id/%0Acontent/berita/rapat-koordinasi-data-pulau-sepakati-jumlah-pulau-indonesia-17-ribu

Bappenas, 2018. RAN API Review: Scientific Base Study of Atmospheric Climate Projections. Bappenas.

Baranowski, D.B., Flatau, M.K., Flatau, P.J., Karnawati, D., Barabasz, K., Labuz, M., Latos, B., Schmidt, J.M., Paski, J.A.I., Marzuki, 2020. Social-media and newspaper reports reveal large-scale meteorological drivers of floods on Sumatra. Nat. Commun. 11. https://doi.org/10.1038/s41467-020-16171-2

Battaglia, A., Kollias, P., Dhillon, R., Roy, R., Tanelli, S., Lamer, K., Grecu, M., Lebsock, M., Watters, D., Mroz, K., 2020. Spaceborne cloud and precipitation radars: Status, challenges, and ways forward. Rev. Geophys. 58, e2019RG000686.

Bayissa, Y., Tadesse, T., Demisse, G., Shiferaw, A., 2017. Evaluation of satellite-based rainfall estimates and application to monitor meteorological drought for the Upper Blue Nile Basin, Ethiopia. Remote Sens. https://doi.org/10.3390/rs9070669

Behrangi, A., Wen, Y., 2017. On the spatial and temporal sampling errors of remotely sensed precipitation products. Remote Sens. 9, 1127.

Berg, W., L'Ecuyer, T., Haynes, J.M., 2010. The distribution of rainfall over oceans from spaceborne radars. J. Appl. Meteorol. Climatol. 49, 535–543.

Birch, C.E., Webster, S., Peatman, S.C., Parker, D.J., Matthews, A.J., Li, Y., Hassim, M.E.E., 2016. Scale interactions between the MJO and the western Maritime Continent. J. Clim. 29, 2471–2492.

Bjerknes, J., 1969. Atmospheric teleconnections from the equatorial Pacific. Mon. Weather Rev. 97, 163–172.

BNPB, 2022. Rangkuman Bencana tahun 2021 [WWW Document]. URL https://gis.bnpb.go.id/arcgis/apps/sites/#/public/pages/bencana-besar-tahun-2021 (diakses 8.1.22).

BNPB, 2021. Indonesian disaster information data [WWW Document]. URL https://dibi.bnpb.go.id/xdibi/index (diakses 1.1.22).

UNIVERSITAS
GADJAH MADA
**Validasi dan Pemanfaatan Data Satelit Global Precipitation Measurement dalam Pengamatan Curah Hujan
dan Bencana Hidrometeorologi di Indonesia**
Ravidho Ramadhan, Dr. rer. nat. Wiwit Suryanto, S.Si, M.Si.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Brocca, L., Filippucci, P., Hahn, S., Ciabatta, L., Massari, C., Camici, S., Schüller, L., Bojkov, B., Wagner, W., 2019. SM2RAIN–ASCAT (2007–2018): Global daily satellite rainfall data from ASCAT soil moisture observations. Earth Syst. Sci. Data 11, 1583–1601.

Cahyanti, R., Hutama, R.B., Ramdlon, R.H., Dwiastuti, W., Hardiansyah, F.F., Basuki, A., 2017. Whirlwind prediction using cloud movement patterns on satellite image, in: 2017 International Electronics Symposium on Knowledge Creation and Intelligent Computing (IES-KCIC). IEEE, hal. 252–257.

Camici, S., Ciabatta, L., Massari, C., Brocca, L., 2018. How reliable are satellite precipitation estimates for driving hydrological models: A verification study over the Mediterranean area. J. Hydrol. 563, 950–961.

Cementconcrete.org, 2020. Rain Gauge: Uses, Types, diagram, rainfall measurement, Data Adjustment & site Selection [WWW Document]. URL https://cementconcrete.org/water-resources/hydrology/rain-gauge/2637/ (diakses 10.25.22).

Chahine, M.T., 1992. The hydrological cycle and its influence on climate. Nature 359, 373–380.

Chang, C.-P., Li, T., Yang, S., 2020. Seasonal prediction of boreal winter rainfall over the western Maritime Continent during ENSO. J. Meteorol. Res. 34, 294–303.

Chang, C.P., Wang, Z., Ju, J., Li, T., 2004. On the relationship between western maritime continent monsoon rainfall and ENSO during northern winter. J. Clim. 17, 665–672.

Chang, C.P., Wang, Z., McBride, J., Liu, C.H., 2005. Annual cycle of Southeast Asia - Maritime continent rainfall and the asymmetric monsoon transition. J. Clim. 18. https://doi.org/10.1175/JCLI-3257.1

Chen, C., Chen, Q., Duan, Z., Zhang, J., Mo, K., Li, Z., Tang, G., 2018. Multiscale comparative evaluation of the GPM IMERG v5 and TRMM 3B42 v7 precipitation products from 2015 to 2017 over a climate transition area of China. Remote Sens. https://doi.org/10.3390/rs10060944

Cheong, W.K., Timbal, B., Golding, N., Sirabaha, S., Kwan, K.F., Cinco, T.A., Archevarahuprok, B., Vo, V.H., Gunawan, D., Han, S., 2018. Observed and modelled temperature and precipitation extremes over Southeast Asia from 1972 to 2010. Int. J. Climatol. 38, 3013–3027.

Chiaravalloti, F., Brocca, L., Procopio, A., Massari, C., Gabriele, S., 2018. Assessment of GPM and SM2RAIN-ASCAT rainfall products over complex terrain in southern Italy. Atmos. Res. 206. https://doi.org/10.1016/j.atmosres.2018.02.019

Ciabatta, L., Marra, A.C., Panegrossi, G., Casella, D., Sanò, P., Dietrich, S., Massari, C., Brocca, L., 2017. Daily precipitation estimation through different microwave sensors: Verification study over Italy. J. Hydrol. 545, 436–450.

Ciach, G.J., 2003. Local random errors in tipping-bucket rain gauge measurements. J. Atmos. Ocean. Technol. 20, 752–759.

Cools, J., Vanderkimpen, P., El Afandi, G., Abdelkhalek, A., Fockedey, S., El Sammany, M., Abdallah, G., El Bihery, M., Bauwens, W., Huygens, M.,

UNIVERSITAS
GADJAH MADA
**Validasi dan Pemanfaatan Data Satelit Global Precipitation Measurement dalam Pengamatan Curah Hujan
dan Bencana Hidrometeorologi di Indonesia**
Ravidho Ramadhan, Dr. rer. nat. Wiwit Suryanto, S.Si, M.Si.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

2012. An early warning system for flash floods in hyper-arid Egypt. Nat. Hazards Earth Syst. Sci. 12, 443–457.

Craciun, C., Catrina, O., 2016. An objective approach for comparing radar estimated and rain gauge measured precipitation. Meteorol. Appl. 23, 683–690.

Curtis, S., Salahuddin, A., Adler, R.F., Huffman, G.J., Gu, G., Hong, Y., 2007. Precipitation extremes estimated by GPCP and TRMM: ENSO relationships. J. Hydrometeorol. 8, 678–689.

Da Silva, N.A., Webber, B.G.M., Matthews, A.J., Feist, M.M., Stein, T.H.M., Holloway, C.E., Abdullah, M.F.A.B., 2021. Validation of GPM IMERG Extreme Precipitation in the Maritime Continent by Station and Radar Data. Earth Sp. Sci. 8. https://doi.org/10.1029/2021EA001738

Dai, A., 2001. Global precipitation and thunderstorm frequencies. Part II: Diurnal variations. J. Clim. 14, 1112–1128.

Dai, A., Lin, X., Hsu, K.-L., 2007. The frequency, intensity, and diurnal cycle of precipitation in surface and satellite observations over low-and mid-latitudes. Clim. Dyn. 29, 727–744.

DeMoss, J.D., Bowman, K.P., 2007. Changes in TRMM rainfall due to the orbit boost estimated from buoy rain gauge data. J. Atmos. Ocean. Technol. 24, 1598–1607.

Derin, Y., Anagnostou, E., Berne, A., Borga, M., Boudevillain, B., Buytaert, W., Chang, C.H., Chen, H., Delrieu, G., Hsu, Y.C., Lavado-Casimiro, W., Manz, B., Moges, S., Nikolopoulos, E.I., Sahlu, D., Salerno, F., Rodríguez-Sánchez, J.P., Vergara, H.J., Yilmaz, K.K., 2019. Evaluation of GPM-era Global Satellite Precipitation Products over Multiple Complex Terrain Regions. Remote Sens. 11. https://doi.org/10.3390/rs11242936

Dinku, T., Hailemariam, K., Maidment, R., Tarnavsky, E., Connor, S., 2014. Combined use of satellite estimates and rain gauge observations to generate high-quality historical rainfall time series over Ethiopia. Int. J. Climatol. https://doi.org/10.1002/joc.3855

Donat, M.G., Alexander, L. V, Yang, H., Durre, I., Vose, R., Dunn, R.J.H., Willett, K.M., Aguilar, E., Brunet, M., Caesar, J., 2013. Updated analyses of temperature and precipitation extreme indices since the beginning of the twentieth century: The HadEX2 dataset. J. Geophys. Res. Atmos. 118, 2098–2118.

Ebert, E.E., Janowiak, J.E., Kidd, C., 2007. Comparison of near-real-time precipitation estimates from satellite observations and numerical models. Bull. Am. Meteorol. Soc. 88. https://doi.org/10.1175/BAMS-88-1-47

El Kenawy, A.M., Lopez-Moreno, J.I., McCabe, M.F., Vicente-Serrano, S.M., 2015. Evaluation of the TMPA-3B42 precipitation product using a high-density rain gauge network over complex terrain in northeastern Iberia. Glob. Planet. Change 133. https://doi.org/10.1016/j.gloplacha.2015.08.013

eoPortal, 2012. TRMM (Tropical Rainfall Measuring Mission) [WWW Document]. URL https://www.eoportal.org/satellite-missions/trmm#sensor-complement (diakses 5.11.24).

ETCCDI Climate Change Indices [WWW Document], 2009. URL

UNIVERSITAS
GADJAH MADA
**Validasi dan Pemanfaatan Data Satelit Global Precipitation Measurement dalam Pengamatan Curah Hujan
dan Bencana Hidrometeorologi di Indonesia**
Ravidho Ramadhan, Dr. rer. nat. Wiwit Suryanto, S.Si, M.Si.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

http://etccdi.pacificclimate.org/list_27_indices.shtml

Fang, J., Yang, W., Luan, Y., Du, J., Lin, A., Zhao, L., 2019. Evaluation of the TRMM 3B42 and GPM IMERG products for extreme precipitation analysis over China. Atmos. Res. https://doi.org/10.1016/j.atmosres.2019.03.001

Fortunato, A., Herwartz, H., López, R.E., Figueroa B, E., 2022. Carbon dioxide atmospheric concentration and hydrometeorological disasters. Nat. Hazards 112. https://doi.org/10.1007/s11069-021-05172-z

Freitas, E. da S., Coelho, V.H.R., Xuan, Y., Melo, D. de C.D., Gadelha, A.N., Santos, E.A., Galvão, C. de O., Ramos Filho, G.M., Barbosa, L.R., Huffman, G.J., Petersen, W.A., Almeida, C. das N., 2020. The performance of the IMERG satellite-based product in identifying sub-daily rainfall events and their properties. J. Hydrol. 589. https://doi.org/10.1016/j.jhydrol.2020.125128

Fujita, M., Kimura, F., Yoshizaki, M., 2010. Morning precipitation peak over the Strait of Malacca under a calm condition. Mon. Weather Rev. 138, 1474–1486.

Funk, C., Verdin, A., Michaelsen, J., Peterson, P., Pedreros, D., Husak, G., 2015. A global satellite-assisted precipitation climatology. Earth Syst. Sci. Data 7, 275–287.

Gao, Y., Zhong, X., Gan, F., 2023. Inspection of IMERG precipitation estimates during Typhoon Cempaka using a new methodology for quantifying and evaluating bias. J. Hydrol. 620, 129554.

Gaona, M.F.R., Overeem, A., Leijnse, H., Uijlenhoet, R., 2016. First-year evaluation of GPM rainfall over the Netherlands: IMERG day 1 final run (V03D). J. Hydrometeorol. 17, 2799–2814.

Gehne, M., Hamill, T.M., Kiladis, G.N., Trenberth, K.E., 2016. Comparison of global precipitation estimates across a range of temporal and spatial scales. J. Clim. 29. https://doi.org/10.1175/JCLI-D-15-0618.1

Gentilucci, M., Barbieri, M., Pambianchi, G., 2022. Reliability of the IMERG product through reference rain gauges in Central Italy. Atmos. Res. 278, 106340.

Grecu, M., Olson, W.S., 2020. Precipitation retrievals from satellite combined radar and radiometer observations, in: Satellite Precipitation Measurement. Springer, hal. 231–248.

Grecu, M., Olson, W.S., Munchak, S.J., Ringerud, S., Liao, L., Haddad, Z., Kelley, B.L., McLaughlin, S.F., 2016. The GPM combined algorithm. J. Atmos. Ocean. Technol. 33, 2225–2245.

Guo, H., Chen, S., Bao, A., Behrangi, A., Hong, Y., Ndayisaba, F., Hu, J., Stepanian, P.M., 2016. Early assessment of Integrated Multi-satellite Retrievals for Global Precipitation Measurement over China. Atmos. Res. 176–177. https://doi.org/10.1016/j.atmosres.2016.02.020

Gupta, H. V., Kling, H., Yilmaz, K.K., Martinez, G.F., 2009. Decomposition of the mean squared error and NSE performance criteria: Implications for improving hydrological modelling. J. Hydrol. https://doi.org/10.1016/j.jhydrol.2009.08.003

Habib, E., Krajewski, W.F., Kruger, A., 2001. Sampling errors of tipping-bucket

UNIVERSITAS
GADJAH MADA
**Validasi dan Pemanfaatan Data Satelit Global Precipitation Measurement dalam Pengamatan Curah Hujan
dan Bencana Hidrometeorologi di Indonesia**
Ravidho Ramadhan, Dr. rer. nat. Wiwit Suryanto, S.Si, M.Si.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

rain gauge measurements. J. Hydrol. Eng. 6, 159–166.
Haile, A.T., Rientjes, T., Gieske, A., Gebremichael, M., 2009. Rainfall variability over mountainous and adjacent lake areas: The case of Lake Tana basin at the source of the Blue Nile River. J. Appl. Meteorol. Climatol. https://doi.org/10.1175/2009JAMC2092.1
Haile, A.T., Tefera, F.T., Rientjes, T., 2016. Flood forecasting in Niger-Benue basin using satellite and quantitative precipitation forecast data. Int. J. Appl. Earth Obs. Geoinf. https://doi.org/10.1016/j.jag.2016.06.021
Hamada, J.-I., D YAMANAKA, M., Matsumoto, J., Fukao, S., Winarso, P.A., Sribimawati, T., 2002. Spatial and temporal variations of the rainy season over Indonesia and their link to ENSO. J. Meteorol. Soc. Japan. Ser. II 80, 285–310.
Hamada, J.-I., Mori, S., Kubota, H., Yamanaka, M.D., Haryoko, U., Lestari, S., Sulistyowati, R., Syamsudin, F., 2012. Interannual rainfall variability over northwestern Jawa and its relation to the Indian Ocean Dipole and El Niño-Southern Oscillation events. Sola 8, 69–72.
Hamza, A., Anjum, M.N., Cheema, M.J.M., Chen, X., Afzal, A., Azam, M., Shafi, M.K., Gulakhmadov, A., 2020. Assessment of IMERG-V06, TRMM-3B42V7, SM2RAIN-ASCAT, and PERSIANN-CDR precipitation products over the hindu kush mountains of Pakistan, South Asia. Remote Sens. https://doi.org/10.3390/rs12233871
Hashiguchi, H., Vonnisa, M., 2018. Long-term change in rainfall rate and melting layer height in Indonesia, in: 2018 Progress in Electromagnetics Research Symposium (PIERS-Toyama). IEEE, hal. 1154–1158.
Hassim, M.E.E., Lane, T.P., Grabowski, W.W., 2016. The diurnal cycle of rainfall over New Guinea in convection-permitting WRF simulations. Atmos. Chem. Phys. 16, 161–175.
Hayden, L., Liu, C., 2021. Differences in the diurnal variation of precipitation estimated by spaceborne radar, passive microwave radiometer, and IMERG. J. Geophys. Res. Atmos. 126, e2020JD033020.
Hendon, H.H., 2003. Indonesian rainfall variability: Impacts of ENSO and local air–sea interaction. J. Clim. 16, 1775–1790.
Hidayat, R., 2016. Modulation of Indonesian Rainfall Variability by the Madden-julian Oscillation. Procedia Environ. Sci. 33. https://doi.org/10.1016/j.proenv.2016.03.067
Hidayat, R., Kizu, S., 2010. Influence of the Madden–Julian Oscillation on Indonesian rainfall variability in austral summer. Int. J. Climatol. 30, 1816–1825.
Hirose, M., Takayabu, Y.N., Hamada, A., Shige, S., Yamamoto, M.K., 2017. Spatial contrast of geographically induced rainfall observed by TRMM PR. J. Clim. 30, 4165–4184.
Hohenegger, C., Schlemmer, L., Silvers, L., 2015. Coupling of convection and circulation at various resolutions. Tellus A Dyn. Meteorol. Oceanogr. 67, 26678.
Hong, Y., Hsu, K.-L., Sorooshian, S., Gao, X., 2004. Precipitation estimation from remotely sensed imagery using an artificial neural network cloud

UNIVERSITAS
GADJAH MADA
**Validasi dan Pemanfaatan Data Satelit Global Precipitation Measurement dalam Pengamatan Curah Hujan
dan Bencana Hidrometeorologi di Indonesia**
Ravidho Ramadhan, Dr. rer. nat. Wiwit Suryanto, S.Si, M.Si.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

classification system. J. Appl. Meteorol. 43, 1834–1853.

Hong, Y., Hsu, K., Moradkhani, H., Sorooshian, S., 2006. Uncertainty quantification of satellite precipitation estimation and Monte Carlo assessment of the error propagation into hydrologic response. Water Resour. Res. 42.

Hosseini-Moghari, S.M., Araghinejad, S., Ebrahimi, K., 2018. Spatio-temporal evaluation of global gridded precipitation datasets across Iran. Hydrol. Sci. J. 63. https://doi.org/10.1080/02626667.2018.1524986

Hosseini-Moghari, S.M., Tang, Q., 2020. Validation of gpm imerg v05 and v06 precipitation products over iran. J. Hydrometeorol. https://doi.org/10.1175/JHM-D-19-0269.1

Hou, A.Y., Kakar, R.K., Neeck, S., Azarbarzin, A.A., Kummerow, C.D., Kojima, M., Oki, R., Nakamura, K., Iguchi, T., 2014. The global precipitation measurement mission. Bull. Am. Meteorol. Soc. 95. https://doi.org/10.1175/BAMS-D-13-00164.1

Hou, A.Y., Skofronick-Jackson, G., Kummerow, C.D., Shepherd, J.M., 2008. Global precipitation measurement, in: Precipitation: Advances in measurement, estimation and prediction. Springer, hal. 131–169.

Houze Jr, R.A., 1997. Stratiform precipitation in regions of convection: A meteorological paradox? Bull. Am. Meteorol. Soc. 78, 2179–2196.

Houze Jr, R.A., Rasmussen, K.L., Zuluaga, M.D., Brodzik, S.R., 2015. The variable nature of convection in the tropics and subtropics: A legacy of 16 years of the Tropical Rainfall Measuring Mission satellite. Rev. Geophys. 53, 994–1021.

Hsu, K., Gao, X., Sorooshian, S., Gupta, H. V, 1997. Precipitation estimation from remotely sensed information using artificial neural networks. J. Appl. Meteorol. 36, 1176–1190.

Hu, C., Xia, J., She, D., Song, Z., Zhang, Y., Hong, S., 2021. A new urban hydrological model considering various land covers for flood simulation. J. Hydrol. 603, 126833.

Huffman, G.J., 2019a. 1 November 2019 TMPA-to-IMERG Transition 1 2015–2019.

Huffman, G.J., 2019b. The transition in multi-satellite products from TRMM to GPM (TMPA to IMERG). Algorithm Inf. Doc. Available online https//docserver. gesdisc. eosdis. nasa. gov/public/project/GPM/TMPA-to-IMERG_transition. pdf (accessed 2 Novemb. 2021).

Huffman, George J., Adler, R.F., Bolvin, D.T., Gu, G., Nelkin, E.J., Bowman, K.P., Hong, Y., Stocker, E.F., Wolff, D.B., 2007. The TRMM Multisatellite Precipitation Analysis (TMPA): Quasi-global, multiyear, combined-sensor precipitation estimates at fine scales. J. Hydrometeorol. https://doi.org/10.1175/JHM560.1

Huffman, G.J., Bolvin, D.T., Braithwaite, D., Hsu, K., Joyce, R., Kidd, C., Nelkin, E.J., Sorooshian, S., Tan, J., Xie, P., 2019. NASA Global Precipitation Measurement (GPM) Integrated Multi-satellitE Retrievals for GPM (IMERG). Algorithm Theoretical Basis Document (ATBD) Version 06. Natl. Aeronaut. Sp. Adm.

UNIVERSITAS
GADJAH MADA
**Validasi dan Pemanfaatan Data Satelit Global Precipitation Measurement dalam Pengamatan Curah Hujan
dan Bencana Hidrometeorologi di Indonesia**
Ravidho Ramadhan, Dr. rer. nat. Wiwit Suryanto, S.Si, M.Si.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Huffman, G.J., Bolvin, D.T., Braithwaite, D., Hsu, K., Joyce, R., Kidd, C., Nelkin, E.J., Xie, P., 2015. NASA Global Precipitation Measurement (GPM) Integrated Multi-satellitE Retrievals for GPM (IMERG). Algorithm Theor. Basis Doc. Version 4.5.

Huffman, G.J., Bolvin, D.T., Braithwaite, D., Hsu, K.L., Joyce, R.J., Kidd, C., Nelkin, E.J., Sorooshian, S., Stocker, E.F., Tan, J., Wolff, D.B., Xie, P., 2020. Integrated Multi-satellite Retrievals for the Global Precipitation Measurement (GPM) Mission (IMERG), in: Advances in Global Change Research. https://doi.org/10.1007/978-3-030-24568-9_19

Huffman, G.J., Bolvin, D.T., Joyce, R., Kelley, O.A., Nelkin, E.J., Portier, A., Stocker, E.F., Tan, J., Watters, D.C., West, B.J., 2023. IMERG V07 Release Notes.

Huffman, George J, Bolvin, D.T., Nelkin, E.J., Wolff, D.B., Adler, R.F., Gu, G., Hong, Y., Bowman, K.P., Stocker, E.F., 2007. The TRMM Multisatellite Precipitation Analysis (TMPA): Quasi-global, multiyear, combined-sensor precipitation estimates at fine scales. J. Hydrometeorol. 8, 38–55.

Ichikawa, H., Yasunari, T., 2006. Time–space characteristics of diurnal rainfall over Borneo and surrounding oceans as observed by TRMM-PR. J. Clim. 19, 1238–1260.

Iguchi, T., 2020. Dual-frequency precipitation radar (DPR) on the global precipitation measurement (GPM) mission's core observatory, in: Satellite precipitation measurement. Springer, hal. 183–192.

Iguchi, T., Seto, S., Meneghini, R., Yoshida, N., Awaka, J., Le, M., Chandrasekar, V., Kubota, T., 2010. GPM/DPR level-2 algorithm theoretical basis document. NASA Goddard Sp. Flight Cent.

Illingworth, A.J., Barker, H.W., Beljaars, A., Ceccaldi, M., Chepfer, H., Clerbaux, N., Cole, J., Delanoë, J., Domenech, C., Donovan, D.P., 2015. The EarthCARE satellite: The next step forward in global measurements of clouds, aerosols, precipitation, and radiation. Bull. Am. Meteorol. Soc. 96, 1311–1332.

Iqbal, Z., Shahid, S., Ahmed, K., Wang, X., Ismail, T., Gabriel, H.F., 2022. Bias correction method of high-resolution satellite-based precipitation product for Peninsular Malaysia. Theor. Appl. Climatol. 148, 1429–1446.

Jiang, L., Bauer-Gottwein, P., 2019. How do GPM IMERG precipitation estimates perform as hydrological model forcing? Evaluation for 300 catchments across Mainland China. J. Hydrol. https://doi.org/10.1016/j.jhydrol.2019.03.042

Joyce, R.J., Janowiak, J.E., Arkin, P.A., Xie, P., 2004. CMORPH: A method that produces global precipitation estimates from passive microwave and infrared data at high spatial and temporal resolution. J. Hydrometeorol. 5, 487–503.

Joyce, R.J., Xie, P., 2011. Kalman filter–based CMORPH. J. Hydrometeorol. 12, 1547–1563.

Katiraie-Boroujerdy, P.S., Nasrollahi, N., Hsu, K. lin, Sorooshian, S., 2013. Evaluation of satellite-based precipitation estimation over Iran. J. Arid Environ. 97. https://doi.org/10.1016/j.jaridenv.2013.05.013

Kazovsky, L.G., 1985. An optical rain gauge based on forward scattering. IEEE

UNIVERSITAS
GADJAH MADA
**Validasi dan Pemanfaatan Data Satelit Global Precipitation Measurement dalam Pengamatan Curah Hujan
dan Bencana Hidrometeorologi di Indonesia**
Ravidho Ramadhan, Dr. rer. nat. Wiwit Suryanto, S.Si, M.Si.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Trans. Geosci. Remote Sens. 124–131.
Keikhosravi-Kiany, M.S., Masoodian, S.A., Balling Jr, R.C., 2023. Reliability of satellite-based precipitation products in capturing extreme precipitation indices over Iran. Adv. Sp. Res. 71, 1451–1472.
Khodadoust Siuki, S., Saghafian, B., Moazami, S., 2017. Comprehensive evaluation of 3-hourly TRMM and half-hourly GPM-IMERG satellite precipitation products. Int. J. Remote Sens. 38. https://doi.org/10.1080/01431161.2016.1268735
Kidd, C., 2018. NASA Global Precipitation Measurement (GPM) Precipitation Retrieval and Profiling Scheme (PRPS). Algorithm Theoretical Basis Doc., version 01-02, 16 pp.
Kidd, C., Becker, A., Huffman, G.J., Muller, C.L., Joe, P., Skofronick-Jackson, G., Kirschbaum, D.B., 2017. So, how much of the Earth's surface is covered by rain gauges? Bull. Am. Meteorol. Soc. 98. https://doi.org/10.1175/BAMS-D-14-00283.1
Kidd, C., Huffman, G., 2011. Global precipitation measurement. Meteorol. Appl. 18, 334–353.
Kidd, C., Matsui, T., Ringerud, S., 2021. Precipitation retrievals from passive microwave cross-track sensors: The precipitation retrieval and profiling scheme. Remote Sens. 13, 947.
Kidd, C., Takayabu, Y.N., Skofronick-Jackson, G.M., Huffman, G.J., Braun, S.A., Kubota, T., Turk, F.J., 2020. The global precipitation measurement (GPM) mission, in: Satellite precipitation measurement. Springer, hal. 3–23.
Kidd, C., Tan, J., Kirstetter, P., Petersen, W.A., 2018. Validation of the Version 05 Level 2 precipitation products from the GPM Core Observatory and constellation satellite sensors. Q. J. R. Meteorol. Soc. 144, 313–328.
Kiehl, J.T., Trenberth, K.E., 1997. Earth's annual global mean energy budget. Bull. Am. Meteorol. Soc. 78, 197–208.
Kim, D., Kim, H., Lee, M., 2017. Why does the MJO detour the Maritime Continent during austral summer? Geophys. Res. Lett. 44, 2579–2587.
Kim, H.-J., Jung, W., Suh, S.-H., Lee, D.-I., You, C.-H., 2022. The characteristics of raindrop size distribution at windward and leeward side over mountain area. Remote Sens. 14, 2419.
Kim, K., Park, J., Baik, J., Choi, M., 2017. Evaluation of topographical and seasonal feature using GPM IMERG and TRMM 3B42 over Far-East Asia. Atmos. Res. 187. https://doi.org/10.1016/j.atmosres.2016.12.007
Kim, T., Yang, T., Zhang, L., Hong, Y., 2022. Near real-time hurricane rainfall forecasting using convolutional neural network models with Integrated Multi-satellitE Retrievals for GPM (IMERG) product. Atmos. Res. 106037.
Kirschbaum, D., Adler, R., Adler, D., Peters-Lidard, C., Huffman, G., 2012. Global distribution of extreme precipitation and high-impact landslides in 2010 relative to previous years. J. Hydrometeorol. https://doi.org/10.1175/JHM-D-12-02.1
Kozu, T., Reddy, K.K., Mori, S., Thurai, M., Ong, J.T., Rao, D.N., Shimomai, T., 2006. Seasonal and diurnal variations of raindrop size distribution in Asian monsoon region. J. Meteorol. Soc. Japan. Ser. II 84, 195–209.

UNIVERSITAS
GADJAH MADA
**Validasi dan Pemanfaatan Data Satelit Global Precipitation Measurement dalam Pengamatan Curah Hujan
dan Bencana Hidrometeorologi di Indonesia**
Ravidho Ramadhan, Dr. rer. nat. Wiwit Suryanto, S.Si, M.Si.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Kubota, T., Shige, S., Hashizume, H., Aonashi, K., Takahashi, N., Seto, S., Hirose, M., Takayabu, Y.N., Ushio, T., Nakagawa, K., Iwanami, K., Kachi, M., Okamoto, K., 2007. Global precipitation map using satellite-borne microwave radiometers by the GSMaP project: Production and validation, in: IEEE Transactions on Geoscience and Remote Sensing. https://doi.org/10.1109/TGRS.2007.895337

Kummerow, C., Barnes, W., Kozu, T., Shiue, J., Simpson, J., 1998. The tropical rainfall measuring mission (TRMM) sensor package. J. Atmos. Ocean. Technol. 15, 809–817.

Kummerow, C., Hong, Y., Olson, W.S., Yang, S., Adler, R.F., McCollum, J., Ferraro, R., Petty, G., Shin, D.B., Wilheit, T.T., 2001. The evolution of the Goddard profiling algorithm (GPROF) for rainfall estimation from passive microwave sensors. J. Appl. Meteorol. 40. https://doi.org/10.1175/1520-0450(2001)040<1801:TEOTGP>2.0.CO;2

Kummerow, C., Simpson, J., Thiele, O., Barnes, W., Chang, A.T.C., Stocker, E., Adler, R.F., Hou, A., Kakar, R., Wentz, F., Ashcroft, P., Kozu, T., Hong, Y., Okamoto, K., Iguchi, T., Kuroiwa, H., Im, E., Haddad, Z., Huffman, G., Ferrier, B., Olson, W.S., Zipser, E., Smith, E.A., Wilheit, T.T., North, G., Krishnamurti, T., Nakamura, K., 2000. The status of the tropical rainfall measuring mission (TRMM) after two years in orbit. J. Appl. Meteorol. 39. https://doi.org/10.1175/1520-0450(2001)040<1965:tsottr>2.0.co;2

Kummerow, C.D., 2020. Introduction to passive microwave retrieval methods. Satell. Precip. Meas. 123–140.

Kummerow, C.D., Randel, D.L., Kulie, M., Wang, N.Y., Ferraro, R., Joseph Munchak, S., Petkovic, V., 2015. The evolution of the goddard profiling algorithm to a fully parametric scheme. J. Atmos. Ocean. Technol. 32. https://doi.org/10.1175/JTECH-D-15-0039.1

Kummerow, C.D., Tanelli, S., Takahashi, N., Furukawa, K., Klein, M., Levizzani, V., 2020. Plans for future missions, in: Satellite Precipitation Measurement. Springer, hal. 99–119.

Kurniadi, A., Weller, E., Min, S.K., Seong, M.G., 2021. Independent ENSO and IOD impacts on rainfall extremes over Indonesia. Int. J. Climatol. https://doi.org/10.1002/joc.7040

L'Ecuyer, T.S., Beaudoing, H.K., Rodell, M., Olson, W., Lin, B., Kato, S., Clayson, C.A., Wood, E., Sheffield, J., Adler, R., 2015. The observed state of the energy budget in the early twenty-first century. J. Clim. 28, 8319–8346.

Latos, B., LEFORT, T., FLATAU, M.K., FLATAU, P.J., PERMANA, D.S., BARANOWSKI, D.B., PASKI, J.A.I., MAKMUR, E., SULYSTYO, E., PEYRILLÉ, P., FENG, Z., MATTHEWS, A.J., SCHMIDT, J.M., 2021. Equatorial waves triggering extreme rainfall and floods in southwest sulawesi, indonesia. Mon. Weather Rev. 149. https://doi.org/10.1175/MWR-D-20-0262.1

Leander, R., Buishand, T.A., 2007. Resampling of regional climate model output for the simulation of extreme river flows. J. Hydrol. 332, 487–496.

Lee, H., 2015. General Rainfall Patterns in Indonesia and the Potential Impacts of Local Seas on Rainfall Intensity. Water 7. https://doi.org/10.3390/w7041751

UNIVERSITAS
GADJAH MADA
**Validasi dan Pemanfaatan Data Satelit Global Precipitation Measurement dalam Pengamatan Curah Hujan
dan Bencana Hidrometeorologi di Indonesia**
Ravidho Ramadhan, Dr. rer. nat. Wiwit Suryanto, S.Si, M.Si.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Lee, J., Lee, E.H., Seol, K.H., 2019. Validation of Integrated MultisatellitE Retrievals for GPM (IMERG) by using gauge-based analysis products of daily precipitation over East Asia. Theor. Appl. Climatol. 137. https://doi.org/10.1007/s00704-018-2749-1

Lenderink, G., Buishand, A., Van Deursen, W., 2007. Estimates of future discharges of the river Rhine using two scenario methodologies: direct versus delta approach. Hydrol. Earth Syst. Sci. 11, 1145–1159.

Lestari, S., King, A., Vincent, C., Karoly, D., Protat, A., 2019. Seasonal dependence of rainfall extremes in and around Jakarta, Indonesia. Weather Clim. Extrem. 24, 100202.

Lestari, S., Syamsudin, F., Widiyastuti, Y., 2021. Characteristics of rainfall over Jakarta and its surroundings observed by Global Precipitation Measurement (GPM)-IMERG data, in: 2021 IEEE Asia-Pacific Conference on Geoscience, Electronics and Remote Sensing Technology (AGERS). IEEE, hal. 115–118.

Li, F., Ju, X., Lu, W., Li, H., 2019. A comprehensive analysis of spatial and temporal variability of extreme precipitation in the Nenjiang River Basin, Northeast China. Theor. Appl. Climatol. https://doi.org/10.1007/s00704-019-02846-4

Li, P., Xu, Z., Ye, C., Ren, M., Chen, H., Wang, J., Song, S., 2021. Assessment on imerg v06 precipitation products using rain gauge data in jinan city, shandong province, china. Remote Sens. https://doi.org/10.3390/rs13071241

Li, R., Shi, J., Ji, D., Zhao, T., Plermkamon, V., Moukomla, S., Kuntiyawichai, K., Kruasilp, J., 2019. Evaluation and hydrological application of TRMM and GPM precipitation products in a tropical monsoon basin of Thailand. Water (Switzerland) 11. https://doi.org/10.3390/w11040818

Li, R., Wang, K., Qi, D., 2018. Validating the integrated multisatellite retrievals for global precipitation measurement in terms of diurnal variability with hourly gauge observations collected at 50,000 stations in China. J. Geophys. Res. Atmos. 123, 10–423.

Li, Z., Tang, G., Hong, Z., Chen, M., Gao, S., Kirstetter, P., Gourley, J.J., Wen, Y., Yami, T., Nabih, S., Hong, Y., 2021. Two-decades of GPM IMERG early and final run products intercomparison: Similarity and difference in climatology, rates, and extremes. J. Hydrol. https://doi.org/10.1016/j.jhydrol.2021.125975

Liang, J., Catto, J.L., Hawcroft, M.K., Tan, M.L., Hodges, K.I., Haywood, J.M., 2023. Borneo Vortices in a warmer climate. npj Clim. Atmos. Sci. 6, 2.

Liao, Z., Hong, Y., Wang, J., Fukuoka, H., Sassa, K., Karnawati, D., Fathani, F., 2010. Prototyping an experimental early warning system for rainfall-induced landslides in Indonesia using satellite remote sensing and geospatial datasets. Landslides 7. https://doi.org/10.1007/s10346-010-0219-7

Ling, J., Zhao, Y., Chen, G., 2019. Barrier effect on MJO propagation by the Maritime Continent in the MJO Task Force/GEWEX atmospheric system study models. J. Clim. 32, 5529–5547.

Liu, C.Y., Aryastana, P., Liu, G.R., Huang, W.R., 2020. Assessment of satellite precipitation product estimates over Bali Island. Atmos. Res. 244. https://doi.org/10.1016/j.atmosres.2020.105032

UNIVERSITAS
GADJAH MADA
**Validasi dan Pemanfaatan Data Satelit Global Precipitation Measurement dalam Pengamatan Curah Hujan
dan Bencana Hidrometeorologi di Indonesia**
Ravidho Ramadhan, Dr. rer. nat. Wiwit Suryanto, S.Si, M.Si.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Liu, Z., Hou, H., Zhang, L., Hu, B., 2022. Event-Based Bias Correction of the GPM IMERG V06 Product by Random Forest Method over Mainland China. Remote Sens. 14, 3859.

Love, B.S., Matthews, A.J., Lister, G.M.S., 2011. The diurnal cycle of precipitation over the Maritime Continent in a high-resolution atmospheric model. Q. J. R. Meteorol. Soc. https://doi.org/10.1002/qj.809

Lu, C., Ye, J., Fang, G., Huang, X., Yan, M., 2021. Assessment of gpm imerg satellite precipitation estimation under complex climatic and topographic conditions. Atmosphere (Basel). 12. https://doi.org/10.3390/atmos12060780

Lu, N., 2022. Evaluation of IMERG Precipitation Products in the Southeast Costal Urban Region of China. Remote Sens. 14, 4947.

Lubis, S.W., Respati, M.R., 2021. Impacts of convectively coupled equatorial waves on rainfall extremes in Java, Indonesia. Int. J. Climatol. https://doi.org/10.1002/joc.6967

Ma, M., Wang, H., Jia, P., Tang, G., Wang, D., Ma, Z., Yan, H., 2020. Application of the GPM-IMERG Products in Flash Flood Warning: A Case Study in Yunnan, China. Remote Sens. 12, 1954.

Ma, Q., Li, Y., Feng, H., Yu, Q., Zou, Y., Liu, F., Pulatov, B., 2021. Performance evaluation and correction of precipitation data using the 20-year IMERG and TMPA precipitation products in diverse subregions of China. Atmos. Res. 249. https://doi.org/10.1016/j.atmosres.2020.105304

Ma, Y., Sun, X., Chen, H., Hong, Y., Zhang, Y., 2021. A two-stage blending approach for merging multiple satellite precipitation estimates and rain gauge observations: An experiment in the northeastern Tibetan Plateau. Hydrol. Earth Syst. Sci. 25, 359–374.

Ma, Y., Zhang, Y., Yang, D., Farhan, S. Bin, 2015. Precipitation bias variability versus various gauges under different climatic conditions over the Third Pole Environment (TPE) region. Int. J. Climatol. 35. https://doi.org/10.1002/joc.4045

Ma, Z., He, K., Tan, X., Xu, J., Fang, W., He, Y., Hong, Y., 2018. Comparisons of spatially downscaling TMPA and IMERG over the Tibetan Plateau. Remote Sens. 10. https://doi.org/10.3390/rs10121883

Ma, Z., Xu, J., Zhu, S., Yang, J., Tang, G., Yang, Y., Shi, Z., Hong, Y., 2020. AIMERG: A new Asian precipitation dataset (0.1°/half-hourly, 2000-2015) by calibrating the GPM-era IMERG at a daily scale using APHRODITE. Earth Syst. Sci. Data 12. https://doi.org/10.5194/essd-12-1525-2020

Maggioni, V., Massari, C., 2018. On the performance of satellite precipitation products in riverine flood modeling: A review. J. Hydrol. 558, 214–224.

Maggioni, V., Massari, C., Kidd, C., 2022. Errors and uncertainties associated with quasiglobal satellite precipitation products, in: Precipitation Science. Elsevier, hal. 377–390.

Maghsood, F.F., Hashemi, H., Hosseini, S.H., Berndtsson, R., 2020. Ground validation of GPM IMERG precipitation products over Iran. Remote Sens. 12. https://doi.org/10.3390/RS12010048

Mahmoud, M.T., Al-Zahrani, M.A., Sharif, H.O., 2018. Assessment of global precipitation measurement satellite products over Saudi Arabia. J. Hydrol.

UNIVERSITAS
GADJAH MADA
**Validasi dan Pemanfaatan Data Satelit Global Precipitation Measurement dalam Pengamatan Curah Hujan
dan Bencana Hidrometeorologi di Indonesia**
Ravidho Ramadhan, Dr. rer. nat. Wiwit Suryanto, S.Si, M.Si.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

559. https://doi.org/10.1016/j.jhydrol.2018.02.015
Mahmoud, M.T., Hamouda, M.A., Mohamed, M.M., 2019. Spatiotemporal evaluation of the GPM satellite precipitation products over the United Arab Emirates. Atmos. Res. 219, 200–212.
Marzuki, M., Hashiguchi, H., Shimomai, T., Randeu, W.L., 2016a. Cumulative distributions of rainfall rate over Sumatra. Prog. Electromagn. Res. M 49. https://doi.org/10.2528/PIERM16043007
Marzuki, M., Hiroyuki, H., Toshiaki, K., Toyoshi, S., Yoshiaki, S., Yukihiro, T., 2016b. Precipitation microstructure in different Madden-Julian Oscillation phases over Sumatra. Atmos. Res. 168. https://doi.org/10.1016/j.atmosres.2015.08.022
Marzuki, M., Suryanti, K., Yusnaini, H., Tangang, F., Muharsyah, R., Vonnisa, M., Devianto, D., 2021a. Diurnal variation of precipitation from the perspectives of precipitation amount, intensity and duration over Sumatra from rain gauge observations. Int. J. Climatol. 41. https://doi.org/10.1002/joc.7078
Marzuki, M., Yusnaini, H., Ramadhan, R., Muharsyah, R., Vonnisa, M., Harmadi, H., Tangang, F., 2024. Diurnal cycle of precipitation over coastal sea and small islands in the eastern region of Sumatra including season and Madden Julian Oscillation signatures. Atmos. Res. 299, 107180.
Marzuki, M., Yusnaini, H., Ramadhan, R., Tangang, F., Amirudin, A.A.B., Hashiguchi, H., Shimomai, T., Vonnisa, M., 2022. Characteristics of Precipitation Diurnal Cycle over a Mountainous Area of Sumatra Island including MJO and Seasonal Signatures Based on the 15-Year Optical Rain Gauge Data, WRF Model and IMERG. Atmosphere (Basel). 13. https://doi.org/10.3390/atmos13010063
Marzuki, Marzuki, Yusnaini, H., Ramadhan, R., Tangang, F., Amirudin, A.A. Bin, Hashiguchi, H., Shimomai, T., Vonnisa, M., 2022a. Characteristics of Precipitation Diurnal Cycle over a Mountainous Area of Sumatra Island including MJO and Seasonal Signatures Based on the 15-Year Optical Rain Gauge Data, WRF Model and IMERG. Atmosphere (Basel). 13, 63.
Marzuki, M., Yusnaini, H., Ramadhan, R., Tangang, F., Azim Bin Amirudin, A., Hashiguchi, H., Shimomai, T., Vonnisa, M., 2021b. Diurnal variation of precipitation over a mountainous area of Sumatra Island from 15-year optical rain gauge data. Manuscr. Submitt. Publ.
Marzuki, Marzuki, Yusnaini, H., Tangang, F., Muharsyah, R., Vonnisa, M., Harmadi, H., 2022b. Land - Sea Contrast of Diurnal Cycle Characteristics and Rain Event Propagations over Sumatra According to Different Rain Duration and Seasons. Atmos. Res. in-press.
Massari, C., Maggioni, V., 2020. Error and uncertainty characterization, in: Satellite precipitation measurement. Springer, hal. 515–532.
Masturyono, Heryanto, D.T., Mulyani, T., 2010. Prototype Of Automatic Rain Water Sampler ARWS_GSM SYS.
Mayor, Y.G., Tereshchenko, I., Fonseca-Hernández, M., Pantoja, D.A., Montes, J.M., 2017. Evaluation of error in IMERG precipitation estimates under different topographic conditions and temporal scales over Mexico. Remote

UNIVERSITAS
GADJAH MADA
**Validasi dan Pemanfaatan Data Satelit Global Precipitation Measurement dalam Pengamatan Curah Hujan
dan Bencana Hidrometeorologi di Indonesia**
Ravidho Ramadhan, Dr. rer. nat. Wiwit Suryanto, S.Si, M.Si.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Sens. https://doi.org/10.3390/rs9050503

Mazzoglio, P., Laio, F., Balbo, S., Boccardo, P., Disabato, F., 2019. Improving an extreme rainfall detection system with GPM IMERG data. Remote Sens. 11, 677.

Miyamoto, K., Aiba, S., Aoyagi, R., Nilus, R., 2021. Effects of El Niño drought on tree mortality and growth across forest types at different elevations in Borneo. For. Ecol. Manage. 490, 119096.

Moazami, S., Na, W., Najafi, M.R., de Souza, C., 2022. Spatiotemporal bias adjustment of IMERG satellite precipitation data across Canada. Adv. Water Resour. 104300.

Moazami, S., Najafi, M.R., 2021. A comprehensive evaluation of GPM-IMERG V06 and MRMS with hourly ground-based precipitation observations across Canada. J. Hydrol. 594. https://doi.org/10.1016/j.jhydrol.2020.125929

Mohsan, M., Acierto, R.A., Kawasaki, A., Zin, W.W., 2018. Preliminary assessment of GPM satellite rainfall over Myanmar. J. Disaster Res. 13. https://doi.org/10.20965/jdr.2018.p0022

Mori, S., Jun-Ichi, H., Tauhid, Y.I., Yamanaka, M.D., Okamoto, N., Murata, F., Sakurai, N., Hashiguchi, H., Sribimawati, T., 2004. Diurnal land-sea rainfall peak migration over Sumatera Island, Indonesian Maritime Continent, observed by TRMM satellite and intensive rawinsonde soundings. Mon. Weather Rev. 132. https://doi.org/10.1175/1520-0493(2004)132<2021:DLRPMO>2.0.CO;2

Moron, V., Robertson, A.W., Qian, J.-H., 2010. Local versus regional-scale characteristics of monsoon onset and post-onset rainfall over Indonesia. Clim. Dyn. 34, 281–299.

Moron, V., Robertson, A.W., Qian, J.-H., Ghil, M., 2015. Weather types across the Maritime Continent: From the diurnal cycle to interannual variations. Front. Environ. Sci. 2, 65.

Muhammad, F.R., Lubis, S., 2022. Impacts of the boreal summer intraseasonal oscillation (BSISO) on precipitation extremes in Indonesia. Authorea Prepr.

Myhre, G., Alterskjær, K., Stjern, C.W., Hodnebrog, Marelle, L., Samset, B.H., Sillmann, J., Schaller, N., Fischer, E., Schulz, M., Stohl, A., 2019. Frequency of extreme precipitation increases extensively with event rareness under global warming. Sci. Rep. https://doi.org/10.1038/s41598-019-52277-4

NASA, 2023. IMPORTANT: Errors in GPROF Orbits within Select IMERG Final Data Products [WWW Document]. URL https://gpm.nasa.gov/data/news/important-errors-gprof-orbits-within-select-imerg-final-data-products

Nepal, B., Shrestha, D., Sharma, S., Shrestha, M.S., Aryal, D., Shrestha, N., 2021. Assessment of GPM-Era satellite products' (IMERG and GSMaP) ability to detect precipitation extremes over mountainous country nepal. Atmosphere (Basel). https://doi.org/10.3390/atmos12020254

Nesbitt, S.W., Zipser, E.J., 2003. The diurnal cycle of rainfall and convective intensity according to three years of TRMM measurements. J. Clim. 16, 1456–1475.

Nguyen, P., Ombadi, M., Gorooh, V.A., Shearer, E.J., Sadeghi, M., Sorooshian,

UNIVERSITAS
GADJAH MADA
**Validasi dan Pemanfaatan Data Satelit Global Precipitation Measurement dalam Pengamatan Curah Hujan
dan Bencana Hidrometeorologi di Indonesia**
Ravidho Ramadhan, Dr. rer. nat. Wiwit Suryanto, S.Si, M.Si.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

S., Hsu, K., Bolvin, D., Ralph, M.F., 2020. Persiann dynamic infrared–rain rate (PDIR-now): A near-real-time, quasi-global satellite precipitation dataset. J. Hydrometeorol. 21, 2893–2906.

Ning, S., Song, F., Udmale, P., Jin, J., Thapa, B.R., Ishidaira, H., 2017. Error Analysis and Evaluation of the Latest GSMap and IMERG Precipitation Products over Eastern China. Adv. Meteorol. https://doi.org/10.1155/2017/1803492

NOAA Climate, 2022. Oceanic Niño Index (ONI) Index developed by the Climate Prediction Center (CPC) of NCEP NOAA [WWW Document]. URL http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/ensostuff/ensoyears.shtml

Ogino, S.-Y., Yamanaka, M.D., Mori, S., Matsumoto, J., 2016. How much is the precipitation amount over the tropical coastal region? J. Clim. 29, 1231–1236.

Ogino, S., Yamanaka, M.D., Mori, S., Matsumoto, J., 2017. Tropical coastal dehydrator in global atmospheric water circulation. Geophys. Res. Lett. 44, 11–636.

Oh, J.-H., Kim, K.-Y., Lim, G.-H., 2012. Impact of MJO on the diurnal cycle of rainfall over the western Maritime Continent in the austral summer. Clim. Dyn. 38, 1167–1180.

Olson, W.S., Bauer, P., Kummerow, C.D., Hong, Y., Tao, W.-K., 2001. A melting-layer model for passive/active microwave remote sensing applications. Part II: Simulation of TRMM observations. J. Appl. Meteorol. Climatol. 40, 1164–1179.

Olson, W.S., Masunaga, H., Gpm, C.R.-R.A.T., 2016. GPM combined radar-radiometer precipitation algorithm theoretical basis document (version 4). NASA Washington, DC, USA.

Ouatiki, H., Boudhar, A., Chehbouni, A., 2023. Accuracy assessment and bias correction of remote sensing–based rainfall products over semiarid watersheds. Theor. Appl. Climatol. 154, 763–780.

Peatman, S.C., Matthews, A.J., Stevens, D.P., 2014. Propagation of the Madden–Julian Oscillation through the Maritime Continent and scale interaction with the diurnal cycle of precipitation. Q. J. R. Meteorol. Soc. 140, 814–825.

Peatman, S.C., Schwendike, J., Birch, C.E., Marsham, J.H., Matthews, A.J., Yang, G.-Y., 2021. A local-to-large scale view of Maritime Continent rainfall: Control by ENSO, MJO, and equatorial waves. J. Clim. 34, 8933–8953.

Petty, G.W., 2006. A first course in atmospheric radiation. Sundog Pub.

Pfahl, S., O'Gorman, P.A., Fischer, E.M., 2017. Understanding the regional pattern of projected future changes in extreme precipitation. Nat. Clim. Chang. https://doi.org/10.1038/nclimate3287

Pradhan, R.K., Markonis, Y., Vargas Godoy, M.R., Villalba-Pradas, A., Andreadis, K.M., Nikolopoulos, E.I., Papalexiou, S.M., Rahim, A., Tapiador, F.J., Hanel, M., 2022. Review of GPM IMERG performance: A global perspective. Remote Sens. Environ. 268, 112754. https://doi.org/10.1016/J.RSE.2021.112754

Purwaningsih, A., Lubis, S.W., Hermawan, E., Andarini, D.F., Harjana, T., Ratri,

UNIVERSITAS
GADJAH MADA
**Validasi dan Pemanfaatan Data Satelit Global Precipitation Measurement dalam Pengamatan Curah Hujan
dan Bencana Hidrometeorologi di Indonesia**
Ravidho Ramadhan, Dr. rer. nat. Wiwit Suryanto, S.Si, M.Si.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

D.N., Ridho, A., Risyanto, Sujalu, A.P., 2022. Moisture Origin and Transport for Extreme Precipitation over Indonesia's New Capital City, Nusantara in August 2021. Atmosphere (Basel). 13, 1391.

Qian, J.-H., 2008. Why precipitation is mostly concentrated over islands in the Maritime Continent. J. Atmos. Sci. 65, 1428–1441.

Qian, J.-H., Robertson, A.W., Moron, V., 2013. Diurnal cycle in different weather regimes and rainfall variability over Borneo associated with ENSO. J. Clim. 26, 1772–1790.

Qian, J.H., Robertson, A.W., Moron, V., 2010. Interactions among ENSO, the Monsoon, and Diurnal Cycle in Rainfall Variability over Java, Indonesia. J. Atmos. Sci. 67. https://doi.org/10.1175/2010JAS3348.1

Ramadhan, R., Marzuki, M., Suryanto, W., Sholihun, S., Yusnaini, H., 2023a. Seasonal Changes of Diurnal Rainfall Over New Capital City of Indonesia from High-Resolution Satellite Data, in: Proceedings of the International Conference on Radioscience, Equatorial Atmospheric Science and Environment and Humanosphere Science Book Subtitle. Springer Proceedings in Physics, hal. Chapter 41.

Ramadhan, R., Marzuki, M., Suryanto, W., Sholihun, S., Yusnaini, H., Harmadi, H., Vonnisa, M., 2024a. Modulation of Flood Events in Indonesia by Seasons, MJO, and La Nina, in: The 3rd Conference on Innovation in Technology and Engineering Science 2022 (CITES2022). AIP Conference Proceedings, hal. In Press.

Ramadhan, R., Marzuki, M., Suryanto, W., Sholihun, S., Yusnaini, H., Hashiguchi, H., Shimomai, T., 2024b. Bias Correction of IMERG Data in the Mountainous Areas of Sumatra Based on A Single Gauge Observation. Trends Sci. 21, 7592. https://doi.org/10.48048/tis.2024.7592

Ramadhan, R., Marzuki, M., Suryanto, W., Sholihun, S., Yusnaini, H., Hashiguchi, H., Shimomai, T., 2023b. Evaluating Validation Methods for Satellite Precipitation Products Using Point Gauge Observations over Complex Topography, in: Proceedings of the International Conference on Radioscience, Equatorial Atmospheric Science and Environment and Humanosphere Science Book Subtitle. Springer Proceedings in Physics, hal. Chapter 49.

Ramadhan, R., Marzuki, M., Suryanto, W., Sholihun, S., Yusnaini, H., Muharsyah, R., 2024c. Validating IMERG data for diurnal rainfall analysis across the Indonesian maritime continent using gauge observations. Remote Sens. Appl. Soc. Environ. 34, 101186. https://doi.org/10.1016/j.rsase.2024.101186

Ramadhan, R., Marzuki, M., Suryanto, W., Sholihun, S., Yusnaini, H., Muharsyah, R., 2024d. Rainfall variability in Indonesia new capital associated with the Madden-Julian Oscillation and its contribution to flood events. Quat. Sci. Adv. 13, 100163.

Ramadhan, R., Marzuki, M., Suryanto, W., Sholihun, S., Yusnaini, H., Muharsyah, R., Hanif, M., 2022a. Trends in rainfall and hydrometeorological disasters in new capital city of Indonesia from long-term satellite-based precipitation products. Remote Sens. Appl. Soc. Environ. 28, 100827.

UNIVERSITAS
GADJAH MADA
**Validasi dan Pemanfaatan Data Satelit Global Precipitation Measurement dalam Pengamatan Curah Hujan
dan Bencana Hidrometeorologi di Indonesia**
Ravidho Ramadhan, Dr. rer. nat. Wiwit Suryanto, S.Si, M.Si.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Ramadhan, R., Marzuki, M., Yusnaini, H., Muharsyah, R., Suryanto, W., Sholihun, S., Vonnisa, M., Battaglia, A., Hashiguchi, H., 2022b. Capability of GPM IMERG Products for Extreme Precipitation Analysis over the Indonesian Maritime Continent. Remote Sens. 14. https://doi.org/10.3390/rs14020412

Ramadhan, R., Marzuki, M., Yusnaini, H., Ningsih, A.P., Hashiguchi, H., Shimomai, T., Vonnisa, M., Ulfah, S., Suryanto, W., Sholihun, S., 2022c. 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 8, 163–170.

Ramadhan, R., Muharsyah, R., Yusnaini, H., Vonnisa, M., Hashiguchi, H., Suryanto, W., 2022d. Evaluation of GPM IMERG Products for Extreme Precipitation over Indonesia, in: Journal of Physics: Conference Series. IOP Publishing, hal. 12008.

Ramadhan, R., Yusnaini, H., Marzuki, M., Muharsyah, R., Suryanto, W., Sholihun, S., Vonnisa, M., Harmadi, H., Ningsih, A.P., Battaglia, A., 2022e. Evaluation of GPM IMERG performance using gauge data over Indonesian maritime continent at different time scales. Remote Sens. 14, 1172.

Randel, D.L., Kummerow, C.D., Ringerud, S., 2020. The Goddard Profiling (GPROF) precipitation retrieval algorithm, in: Satellite precipitation measurement. Springer, hal. 141–152.

Retalis, A., Katsanos, D., Tymvios, F., Michaelides, S., 2020. Comparison of GPM imerg and TRMM 3B43 products over Cyprus. Remote Sens. 12. https://doi.org/10.3390/rs12193212

Revadekar, J. V, Kulkarni, A., 2008. The El Nino-Southern Oscillation and winter precipitation extremes over India. Int. J. Climatol. A J. R. Meteorol. Soc. 28, 1445–1452.

Rojas, Y., Minder, J.R., Campbell, L.S., Massmann, A., Garreaud, R., 2021. Assessment of GPM IMERG satellite precipitation estimation and its dependence on microphysical rain regimes over the mountains of south-central Chile. Atmos. Res. 253. https://doi.org/10.1016/j.atmosres.2021.105454

Rosenfeld, D., 2007. Is man actively changing the environment, in: Measuring precipitation from space. Springer, hal. 7–24.

Rozante, J.R., Vila, D.A., Chiquetto, J.B., Fernandes, A. de A., Alvim, D.S., 2018. Evaluation of TRMM/GPM blended daily products over Brazil. Remote Sens. 10. https://doi.org/10.3390/rs10060882

Sa'adi, Z., Shahid, S., Pour, S.H., Ahmed, K., Chung, E.-S., Yaseen, Z.M., 2020. Multi-variable model output statistics downscaling for the projection of spatio-temporal changes in rainfall of Borneo Island. J. Hydro-environment Res. 31, 62–75.

Sadeghi, L., Saghafian, B., Moazami, S., 2019. Evaluation of IMERG and MRMS remotely sensed snowfall products. Int. J. Remote Sens. 40. https://doi.org/10.1080/01431161.2018.1562259

Safitri, R., Marzuki, M., Shafii, M.A., Yusnaini, H., Ramadhan, R., 2022. Effects of Land Cover Change and Deforestation on Rainfall and Surface

UNIVERSITAS
GADJAH MADA
**Validasi dan Pemanfaatan Data Satelit Global Precipitation Measurement dalam Pengamatan Curah Hujan
dan Bencana Hidrometeorologi di Indonesia**
Ravidho Ramadhan, Dr. rer. nat. Wiwit Suryanto, S.Si, M.Si.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Temperature in New Capital City of Indonesia. J. Penelit. Pendidik. IPA 8, 2849–2858.

Saji, N.H., Goswami, B.N., Vinayachandran, P.N., Yamagata, T., 1999. A dipole mode in the tropical Indian Ocean. Nature 401, 360–363.

Salles, L., Satgé, F., Roig, H., Almeida, T., Olivetti, D., Ferreira, W., 2019. Seasonal effect on spatial and temporal consistency of the new GPM-based IMERG-v5 and GSMaP-v7 satellite precipitation estimates in Brazil's Central Plateau region. Water (Switzerland) 11. https://doi.org/10.3390/w11040668

Satgé, F., Hussain, Y., Bonnet, M.P., Hussain, B.M., Martinez-Carvajal, H., Akhter, G., Uagoda, R., 2018. Benefits of the successive GPM based Satellite Precipitation Estimates IMERG-V03, -V04, -V05 and GSMaP-V06, -V07 over diverse geomorphic and meteorological regions of Pakistan. Remote Sens. 10. https://doi.org/10.3390/rs10091373

Satiadi, D., Purwaningsih, A., Harjupa, W., Trismidianto, Andarini, D.F., Nauval, F., Saufina, E., Harjana, T., Risyanto, Rahmatia, F., 2023. Impacts of CENS and MJO phenomena on diurnal cycle of local convection, moisture convergence, and rainfall over land, coast, and sea areas in the western part of Java Island. Meteorol. Atmos. Phys. 135, 42.

Schmidli, J., Frei, C., Vidale, P.L., 2006. Downscaling from GCM precipitation: a benchmark for dynamical and statistical downscaling methods. Int. J. Climatol. A J. R. Meteorol. Soc. 26, 679–689.

Schneider, U., Becker, A., Finger, P., Meyer-Christoffer, A., Ziese, M., Rudolf, B., 2014. GPCC's new land surface precipitation climatology based on quality-controlled in situ data and its role in quantifying the global water cycle. Theor. Appl. Climatol. 115. https://doi.org/10.1007/s00704-013-0860-x

Setiawan, A.M., Koesmaryono, Y., Faqih, A., Gunawan, D., 2017. Observed and blended gauge-satellite precipitation estimates perspective on meteorological drought intensity over South Sulawesi, Indonesia, in: IOP Conference Series: Earth and Environmental Science. https://doi.org/10.1088/1755-1315/54/1/012040

Sharifi, E., Steinacker, R., Saghafian, B., 2018. Multi time-scale evaluation of high-resolution satellite-based precipitation products over northeast of Austria. Atmos. Res. https://doi.org/10.1016/j.atmosres.2018.02.020

Sharifi, E., Steinacker, R., Saghafian, B., 2016. Assessment of GPM-IMERG and other precipitation products against gauge data under different topographic and climatic conditions in Iran: Preliminary results. Remote Sens. 8, 135.

Shawky, M., Moussa, A., Hassan, Q.K., El-Sheimy, N., 2019. Performance assessment of sub-daily and daily precipitation estimates derived from GPM and GSMaP products over an arid environment. Remote Sens. 11. https://doi.org/10.3390/rs11232840

Shrestha, M., Acharya, S.C., Shrestha, P.K., 2017. Bias correction of climate models for hydrological modelling–are simple methods still useful? Meteorol. Appl. 24, 531–539.

Simpson, J., Kummerow, C., Tao, W.-K., Adler, R.F., 1996. On the tropical

UNIVERSITAS
GADJAH MADA
**Validasi dan Pemanfaatan Data Satelit Global Precipitation Measurement dalam Pengamatan Curah Hujan
dan Bencana Hidrometeorologi di Indonesia**
Ravidho Ramadhan, Dr. rer. nat. Wiwit Suryanto, S.Si, M.Si.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

rainfall measuring mission (TRMM). Meteorol. Atmos. Phys. 60, 19–36.

Siswanto, S., van Oldenborgh, G.J., van der Schrier, G., Jilderda, R., van den Hurk, B., 2016. Temperature, extreme precipitation, and diurnal rainfall changes in the urbanized Jakarta city during the past 130 years. Int. J. Climatol. 36, 3207–3225.

Skofronick-Jackson, G., Petersen, W.A., Berg, W., Kidd, C., Stocker, E.F., Kirschbaum, D.B., Kakar, R., Braun, S.A., Huffman, G.J., Iguchi, T., 2017. The Global Precipitation Measurement (GPM) mission for science and society. Bull. Am. Meteorol. Soc. 98, 1679–1695.

Smith, R., 2015. Lectures on Tropical Meteorology [WWW Document]. URL https://www.meteo.physik.uni-muenchen.de/~roger/Lectures/TropicalMetweb/TropicalMeteorology_Ch1.html (diakses 11.11.22).

Smitha, P.S., Narasimhan, B., Sudheer, K.P., Annamalai, H., 2018. An improved bias correction method of daily rainfall data using a sliding window technique for climate change impact assessment. J. Hydrol. 556, 100–118.

Sobel, A.H., Burleyson, C.D., Yuter, S.E., 2011. Rain on small tropical islands. J. Geophys. Res. Atmos. 116.

Soo, E.Z.X., Wan Jaafar, W.Z., Lai, S.H., Othman, F., Elshafie, A., 2022. Enhancement of Satellite Precipitation Estimations with Bias Correction and Data-Merging Schemes for Flood Forecasting. J. Hydrol. Eng. 27, 5022009.

Soo, E.Z.X., Wan Jaafar, W.Z., Lai, S.H., Othman, F., Elshafie, A., Islam, T., Srivastava, P., Othman Hadi, H.S., 2020. Precision of raw and bias-adjusted satellite precipitation estimations (TRMM, IMERG, CMORPH, and PERSIANN) over extreme flood events: case study in Langat river basin, Malaysia. J. Water Clim. Chang. 11, 322–342.

Spinoni, J., Barbosa, P., Bucchignani, E., Cassano, J., Cavazos, T., Christensen, J.H., Christensen, O.B., Coppola, E., Evans, J., Geyer, B., Giorgi, F., Hadjinicolaou, P., Jacob, D., Katzfey, J., Koenigk, T., Laprise, R., Lennard, C.J., Kurnaz, M.L., Delei, L.I., Llopart, M., McCormick, N., Naumann, G., Nikulin, G., Ozturk, T., Panitz, H.J., da Rocha, R.P., Rockel, B., Solman, S.A., Syktus, J., Tangang, F., Teichmann, C., Vautard, R., Vogt, J. V., Winger, K., Zittis, G., Dosio, A., 2020. Future global meteorological drought hot spots: A study based on CORDEX data. J. Clim. https://doi.org/10.1175/JCLI-D-19-0084.1

Stephens, G.L., Li, J., Wild, M., Clayson, C.A., Loeb, N., Kato, S., L'ecuyer, T., Stackhouse, P.W., Lebsock, M., Andrews, T., 2012. An update on Earth's energy balance in light of the latest global observations. Nat. Geosci. 5, 691–696.

Su, J., Li, X., Ren, W., Lü, H., Zheng, D., 2021. How reliable are the satellite-based precipitation estimations in guiding hydrological modelling in South China? J. Hydrol. 602, 126705.

Sun, Q., Miao, C., Duan, Q., Ashouri, H., Sorooshian, S., Hsu, K.L., 2018. A Review of Global Precipitation Data Sets: Data Sources, Estimation, and Intercomparisons. Rev. Geophys. 56. https://doi.org/10.1002/2017RG000574

Sun, S., Wang, J., Shi, W., Chai, R., Wang, G., 2021. Capacity of the

UNIVERSITAS
GADJAH MADA
**Validasi dan Pemanfaatan Data Satelit Global Precipitation Measurement dalam Pengamatan Curah Hujan
dan Bencana Hidrometeorologi di Indonesia**
Ravidho Ramadhan, Dr. rer. nat. Wiwit Suryanto, S.Si, M.Si.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

PERSIANN-CDR product in detecting extreme precipitation over huai river basin, China. Remote Sens. https://doi.org/10.3390/rs13091747

Sun, W., Sun, Y., Li, X., Wang, T., Wang, Y., Qiu, Q., Deng, Z., 2018. Evaluation and correction of GPM IMERG precipitation products over the capital circle in Northeast China at multiple spatiotemporal scales. Adv. Meteorol. 2018, 1–14.

Sungmin, O., Foelsche, U., Kirchengast, G., Fuchsberger, J., Tan, J., Petersen, W.A., 2017. Evaluation of GPM IMERG Early, Late, and Final rainfall estimates using WegenerNet gauge data in southeastern Austria. Hydrol. Earth Syst. Sci. 21. https://doi.org/10.5194/hess-21-6559-2017

Sungmin, O., Kirstetter, P.E., 2018. Evaluation of diurnal variation of GPM IMERG-derived summer precipitation over the contiguous US using MRMS data. Q. J. R. Meteorol. Soc. 144. https://doi.org/10.1002/qj.3218

Supari, S., Tangang, F., Juneng, L., Aldrian, E., 2016. Spatio-temporal characteristics of temperature and precipitation extremes in Indonesian Borneo, in: AIP Conference Proceedings. AIP Publishing.

Supari, Tangang, F., Juneng, L., Aldrian, E., 2017. Observed changes in extreme temperature and precipitation over Indonesia. Int. J. Climatol. https://doi.org/10.1002/joc.4829

Supari, Tangang, F., Juneng, L., Cruz, F., Chung, J.X., Ngai, S.T., Salimun, E., Mohd, M.S.F., Santisirisomboon, J., Singhruck, P., PhanVan, T., Ngo-Duc, T., Narisma, G., Aldrian, E., Gunawan, D., Sopaheluwakan, A., 2020. Multi-model projections of precipitation extremes in Southeast Asia based on CORDEX-Southeast Asia simulations. Environ. Res. https://doi.org/10.1016/j.envres.2020.109350

Supari, Tangang, F., Salimun, E., Aldrian, E., Sopaheluwakan, A., Juneng, L., 2018. ENSO modulation of seasonal rainfall and extremes in Indonesia. Clim. Dyn. 51. https://doi.org/10.1007/s00382-017-4028-8

Susanto, J., Zheng, X., Liu, Y., Wang, C., 2020. The impacts of climate variables and climate-related extreme events on island country's tourism: Evidence from Indonesia. J. Clean. Prod. 276, 124204.

Susilo, G.E., Yamamoto, K., Imai, T., Ishii, Y., Fukami, H., Sekine, M., 2013. The effect of ENSO on rainfall characteristics in the tropical peatland areas of Central Kalimantan, Indonesia. Hydrol. Sci. J. 58, 539–548.

Tabata, Y., Hashiguchi, H., Yamamoto, M.K., Yamamoto, M., Yamanaka, M.D., Mori, S., Syamsudin, F., Manik, T., 2011. Observational study on diurnal precipitation cycle in equatorial Indonesia using 1.3-GHz wind profiling radar network and TRMM precipitation radar. J. Atmos. Solar-Terrestrial Phys. 73, 1031–1042.

Tan, J., Huffman, G.J., Bolvin, D.T., Nelkin, E.J., 2019a. IMERG V06: Changes to the morphing algorithm. J. Atmos. Ocean. Technol. 36. https://doi.org/10.1175/JTECH-D-19-0114.1

Tan, J., Huffman, G.J., Bolvin, D.T., Nelkin, E.J., 2019b. Diurnal cycle of IMERG V06 precipitation. Geophys. Res. Lett. 46, 13584–13592.

Tan, J., Petersen, W.A., Kirstetter, P.E., Tian, Y., 2017. Performance of IMERG as a function of spatiotemporal scale. J. Hydrometeorol. 18.

UNIVERSITAS
GADJAH MADA
**Validasi dan Pemanfaatan Data Satelit Global Precipitation Measurement dalam Pengamatan Curah Hujan
dan Bencana Hidrometeorologi di Indonesia**
Ravidho Ramadhan, Dr. rer. nat. Wiwit Suryanto, S.Si, M.Si.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

https://doi.org/10.1175/JHM-D-16-0174.1

Tan, J., Petersen, W.A., Tokay, A., 2016. A novel approach to identify sources of errors in IMERG for GPM ground validation. J. Hydrometeorol. 17. https://doi.org/10.1175/JHM-D-16-0079.1

Tan, M.L., Duan, Z., 2017. Assessment of GPM and TRMM precipitation products over Singapore. Remote Sens. 9. https://doi.org/10.3390/rs9070720

Tan, M.L., Samat, N., Chan, N.W., Roy, R., 2018. Hydro-meteorological assessment of three GPM Satellite Precipitation Products in the Kelantan River Basin, Malaysia. Remote Sens. https://doi.org/10.3390/rs10071011

Tan, M.L., Santo, H., 2018. Comparison of GPM IMERG, TMPA 3B42 and PERSIANN-CDR satellite precipitation products over Malaysia. Atmos. Res. 202. https://doi.org/10.1016/j.atmosres.2017.11.006

Tang, G., Behrangi, A., Long, D., Li, C., Hong, Y., 2018. Accounting for spatiotemporal errors of gauges: A critical step to evaluate gridded precipitation products. J. Hydrol. 559, 294–306.

Tang, G., Clark, M.P., Papalexiou, S.M., Ma, Z., Hong, Y., 2020a. Have satellite precipitation products improved over last two decades? A comprehensive comparison of GPM IMERG with nine satellite and reanalysis datasets. Remote Sens. Environ. 240, 111697. https://doi.org/10.1016/J.RSE.2020.111697

Tang, G., Clark, M.P., Papalexiou, S.M., Ma, Z., Hong, Y., 2020b. Have satellite precipitation products improved over last two decades? A comprehensive comparison of GPM IMERG with nine satellite and reanalysis datasets. Remote Sens. Environ. https://doi.org/10.1016/j.rse.2020.111697

Tang, G., Ma, Y., Long, D., Zhong, L., Hong, Y., 2016a. Evaluation of GPM Day-1 IMERG and TMPA Version-7 legacy products over Mainland China at multiple spatiotemporal scales. J. Hydrol. https://doi.org/10.1016/j.jhydrol.2015.12.008

Tang, G., Zeng, Z., Long, D., Guo, X., Yong, B., Zhang, W., Hong, Y., 2016b. Statistical and hydrological comparisons between TRMM and GPM level-3 products over a midlatitude basin: Is day-1 IMERG a good successor for TMPA 3B42V7? J. Hydrometeorol. 17, 121–137.

Tangang, F., Chung, J.X., Juneng, L., Salimun, E., Ngai, S.T., Jamaluddin, A.F., Mohd, M.S.F., Cruz, F., Narisma, G., Santisirisomboon, J., 2020. Projected future changes in rainfall in Southeast Asia based on CORDEX–SEA multi-model simulations. Clim. Dyn. 55, 1247–1267.

Tangang, F., Supari, S., Chung, J.X., Cruz, F., Salimun, E., Ngai, S.T., Juneng, L., Santisirisomboon, Jerasorn, Santisirisomboon, Jaruthat, Ngo-Duc, T., Phan-Van, T., Narisma, G., Singhruck, P., Gunawan, D., Aldrian, E., Sopaheluwakan, A., Nikulin, G., Yang, H., Remedio, A.R.C., Sein, D., Hein-Griggs, D., 2018. Future changes in annual precipitation extremes over Southeast Asia under global warming of 2°C. APN Sci. Bull. https://doi.org/10.30852/sb.2018.436

Tangang, F.T., Juneng, L., Salimun, E., Vinayachandran, P.N., Seng, Y.K., Reason, C.J.C., Behera, S.K., Yasunari, T., 2008. On the roles of the northeast cold surge, the Borneo vortex, the Madden-Julian Oscillation, and

UNIVERSITAS
GADJAH MADA
**Validasi dan Pemanfaatan Data Satelit Global Precipitation Measurement dalam Pengamatan Curah Hujan
dan Bencana Hidrometeorologi di Indonesia**
Ravidho Ramadhan, Dr. rer. nat. Wiwit Suryanto, S.Si, M.Si.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

the Indian Ocean Dipole during the extreme 2006/2007 flood in southern Peninsular Malaysia. Geophys. Res. Lett. 35.

Teutschbein, C., Seibert, J., 2012. Bias correction of regional climate model simulations for hydrological climate-change impact studies: Review and evaluation of different methods. J. Hydrol. 456, 12–29.

Thomas, V., LLpez, R., 2016. Global Increase in Climate-Related Disasters. SSRN Electron. J. https://doi.org/10.2139/ssrn.2709331

Valipour, M., M. Bateni, S., R. Dalezios, N., Almazroui, M., Heggy, E., Şen, Z., N. Angelakis, A., 2021. Hydrometeorology: Review of Past, Present and Future Observation Methods, in: Hydrology. https://doi.org/10.5772/intechopen.94939

Velasquez, P., Messmer, M., Raible, C.C., 2020. A new bias-correction method for precipitation over complex terrain suitable for different climate states: a case study using WRF (version 3.8. 1). Geosci. Model Dev. 13, 5007–5027.

Veloria, A., Perez, G.J., Tapang, G., Comiso, J., 2021. Improved rainfall data in the Philippines through concurrent use of GPM IMERG and ground-based measurements. Remote Sens. 13. https://doi.org/10.3390/rs13152859

Vila, D.A., de Goncalves, L.G.G., Toll, D.L., Rozante, J.R., 2009. Statistical evaluation of combined daily gauge observations and rainfall satellite estimates over continental South America. J. Hydrometeorol. 10. https://doi.org/10.1175/2008JHM1048.1

Villafuerte, M.Q., Matsumoto, J., 2015. Significant influences of global mean temperature and ENSO on extreme rainfall in Southeast Asia. J. Clim. 28, 1905–1919.

Wang, C., Tang, G., Han, Z., Guo, X., Hong, Y., 2018. Global intercomparison and regional evaluation of GPM IMERG Version-03, Version-04 and its latest Version-05 precipitation products: Similarity, difference and improvements. J. Hydrol. 564. https://doi.org/10.1016/j.jhydrol.2018.06.064

Wang, D., Wang, X., Liu, L., Wang, Dagang, Huang, H., Pan, C., 2019. Evaluation of TMPA 3B42V7, GPM IMERG and CMPA precipitation estimates in Guangdong Province, China. Int. J. Climatol. 39. https://doi.org/10.1002/joc.5839

Wang, H., Wang, L., He, J., Ge, F., Chen, Q., Tang, S., Yao, S., 2020. Can the GPM IMERG hourly products replicate the variation in precipitation during the wet season over the Sichuan Basin, China? Earth Sp. Sci. 7, e2020EA001090.

Wang, J., Petersen, W.A., Wolff, D.B., 2021. Validation of satellite-based precipitation products from TRMM to GPM. Remote Sens. 13. https://doi.org/10.3390/rs13091745

Wang, P.K., 2013. Physics and dynamics of clouds and precipitation. Cambridge University Press.

Wang, S., Liu, J., Wang, J., Qiao, X., Zhang, J., 2019. Evaluation of GPM IMERG V05B and TRMM 3B42V7 Precipitation products over high mountainous tributaries in Lhasa with dense rain gauges. Remote Sens. 11. https://doi.org/10.3390/rs11182080

Wang, W., Lu, H., Zhao, T., Jiang, L., Shi, J., 2017. Evaluation and comparison of

UNIVERSITAS
GADJAH MADA
**Validasi dan Pemanfaatan Data Satelit Global Precipitation Measurement dalam Pengamatan Curah Hujan
dan Bencana Hidrometeorologi di Indonesia**
Ravidho Ramadhan, Dr. rer. nat. Wiwit Suryanto, S.Si, M.Si.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

daily rainfall from latest GPM and TRMM products over the Mekong River Basin. IEEE J. Sel. Top. Appl. Earth Obs. Remote Sens. 10. https://doi.org/10.1109/JSTARS.2017.2672786

Wang, Y., Miao, C., Zhao, X., Zhang, Q., Su, J., 2023. Evaluation of the GPM IMERG product at the hourly timescale over China. Atmos. Res. 285, 106656.

Wang, Y., Wu, Q., 2022. Comparison of multi-satellite precipitation data from the global precipitation measurement mission and tropical rainfall measurement mission datasets: Seasonal and diurnal cycles. Adv. Meteorol. 2022, 1–20.

Wang, Z., Zhong, R., Lai, C., Chen, J., 2017. Evaluation of the GPM IMERG satellite-based precipitation products and the hydrological utility. Atmos. Res. 196, 151–163.

Watters, D., Battaglia, A., 2021. The NASA-JAXA Global Precipitation Measurement mission – part I: New frontiers in precipitation. Weather. https://doi.org/10.1002/wea.3865

Watters, D., Battaglia, A., 2019. The summertime diurnal cycle of precipitation derived from IMERG. Remote Sens. 11, 1781.

Watters, D., Battaglia, A., Allan, R.P., 2021. The diurnal cycle of precipitation according to multiple decades of global satellite observations, three CMIP6 models, and the ECMWF reanalysis. J. Clim. https://doi.org/10.1175/JCLI-D-20-0966.1

Wei, G., Lü, H., Crow, W.T., Zhu, Y., Wang, J., Su, J., 2018. Evaluation of satellite-based precipitation products from IMERG V04A and V03D, CMORPH and TMPA with gauged rainfall in three climatologic zones in China. Remote Sens. 10. https://doi.org/10.3390/rs10010030

Wei, L., Jiang, S., Ren, L., Zhang, L., Wang, M., Liu, Y., Duan, Z., 2022. Bias correction of GPM IMERG Early Run daily precipitation product using near real-time CPC global measurements. Atmos. Res. 279, 106403.

Wild, M., Folini, D., Hakuba, M.Z., Schär, C., Seneviratne, S.I., Kato, S., Rutan, D., Ammann, C., Wood, E.F., König-Langlo, G., 2015. The energy balance over land and oceans: an assessment based on direct observations and CMIP5 climate models. Clim. Dyn. 44, 3393–3429.

Wild, M., Hakuba, M.Z., Folini, D., Dörig-Ott, P., Schär, C., Kato, S., Long, C.N., 2019. The cloud-free global energy balance and inferred cloud radiative effects: an assessment based on direct observations and climate models. Clim. Dyn. 52, 4787–4812.

Wilks, D.S., 2011. Statistical Methods in the Atmospheric Sciences.

Wiwoho, B.S., Astuti, I.S., Alfarizi, I.A.G., Sucahyo, H.R., 2021. Validation of three daily satellite rainfall products in a humid tropic watershed, Brantas, Indonesia: implications to land characteristics and hydrological modelling. Hydrology 8, 154.

Wong, J.S., Razavi, S., Bonsal, B.R., Wheater, H.S., Asong, Z.E., 2017. Inter-comparison of daily precipitation products for large-scale hydro-climatic applications over Canada. Hydrol. Earth Syst. Sci. 21. https://doi.org/10.5194/hess-21-2163-2017

Worku, L.Y., Mekonnen, A., Schreck III, C.J., 2019. Diurnal cycle of rainfall and

UNIVERSITAS
GADJAH MADA
**Validasi dan Pemanfaatan Data Satelit Global Precipitation Measurement dalam Pengamatan Curah Hujan
dan Bencana Hidrometeorologi di Indonesia**
Ravidho Ramadhan, Dr. rer. nat. Wiwit Suryanto, S.Si, M.Si.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

convection over the Maritime Continent using TRMM and ISCCP. Int. J. Climatol. 39, 5191–5200.

Worldometer, 2022. Indonesian Population [WWW Document].

Wu, C.-H., Hsu, H.-H., 2009. Topographic influence on the MJO in the Maritime Continent. J. Clim. 22, 5433–5448.

Wu, J., Zhou, B.T., Xu, Y., 2015. Response of precipitation and its extremes over China to warming: CMIP5 simulation and projection. Acta Geophys. Sin. https://doi.org/10.6038/cjg20150903

Wu, P., Arbain, A.A., Mori, S., Hamada, J.I., Hattori, M., Syamsudin, F., Yamanaka, M.D., 2013. The effects of an active phase of the Madden-Julian Oscillation on the extreme precipitation event over western Java Island in January 2013. Sci. Online Lett. Atmos. https://doi.org/10.2151/sola.2013-018

Wu, P., Hamada, J.-I., Mori, S., Tauhid, Y.I., Yamanaka, M.D., Kimura, F., 2003. Diurnal variation of precipitable water over a mountainous area of Sumatra Island. J. Appl. Meteorol. Climatol. 42, 1107–1115.

Wu, P., Manabu, D.Y., Matsumoto, J., 2008. The formation of nocturnal rainfall offshore from convection over western Kalimantan (Borneo) Island. J. Meteorol. Soc. Japan. Ser. II 86, 187–203.

Xavier, P., Lim, S.Y., Ammar Bin Abdullah, M.F., Bala, M., Chenoli, S.N., Handayani, A.S., Marzin, C., Permana, D., Tangang, F., Williams, K.D., 2020. Seasonal dependence of cold surges and their interaction with the Madden–Julian Oscillation over Southeast Asia. J. Clim. 33, 2467–2482.

Xiao, S., Xia, J., Zou, L., 2020. Evaluation of multi-satellite precipitation products and their ability in capturing the characteristics of extreme climate events over the Yangtze River Basin, China. Water (Switzerland). https://doi.org/10.3390/W12041179

Xin, Y., Yang, Y., Chen, X., Yue, X., Liu, Y., Yin, C., 2022. Evaluation of IMERG and ERA5 precipitation products over the Mongolian Plateau. Sci. Rep. 12, 21776.

Xu, F., Guo, B., Ye, B., Ye, Q., Chen, H., Ju, X., Guo, J., Wang, Z., 2019. Systematical Evaluation of GPM IMERG and TRMM 3B42V7 Precipitation Products in the Huang-Huai-Hai Plain, China. Remote Sens. 11. https://doi.org/10.3390/rs11060697

Xu, S., Shen, Y., Niu, Z., 2019. Evaluation of the IMERG version 05B precipitation product and comparison with IMERG version 04A over mainland China at hourly and daily scales. Adv. Sp. Res. 63. https://doi.org/10.1016/j.asr.2019.01.014

Yamanaka, M.D., 2016. Physical climatology of Indonesian maritime continent: An outline to comprehend observational studies. Atmos. Res. https://doi.org/10.1016/j.atmosres.2016.03.017

Yamanaka, M.D., Ogino, S.-Y., Wu, P.-M., Jun-Ichi, H., Mori, S., Matsumoto, J., Syamsudin, F., 2018. Maritime continent coastlines controlling Earth's climate. Prog. Earth Planet. Sci. 5, 1–28.

Yanase, A., Yasunaga, K., Masunaga, H., 2017. Relationship between the direction of diurnal rainfall migration and the ambient wind over the southern Sumatra Island. Earth Sp. Sci. 4, 117–127.

UNIVERSITAS
GADJAH MADA
**Validasi dan Pemanfaatan Data Satelit Global Precipitation Measurement dalam Pengamatan Curah Hujan
dan Bencana Hidrometeorologi di Indonesia**
Ravidho Ramadhan, Dr. rer. nat. Wiwit Suryanto, S.Si, M.Si.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Yang, M., Liu, G., Chen, T., Chen, Y., Xia, C., 2020. Evaluation of GPM IMERG precipitation products with the point rain gauge records over Sichuan, China. Atmos. Res. https://doi.org/10.1016/j.atmosres.2020.105101

Yang, Z., Hsu, K., Sorooshian, S., Xu, X., Braithwaite, D., Verbist, K.M.J., 2016. Bias adjustment of satellite-based precipitation estimation using gauge observations: A case study in Chile. J. Geophys. Res. Atmos. 121, 3790–3806.

Yeggina, S., Teegavarapu, R.S. V, Muddu, S., 2020. Evaluation and bias corrections of gridded precipitation data for hydrologic modelling support in Kabini River basin, India. Theor. Appl. Climatol. 140, 1495–1513.

Yin, H., Sun, Y., 2018. Detection of anthropogenic influence on fixed threshold indices of extreme temperature. J. Clim. https://doi.org/10.1175/JCLI-D-17-0853.1

Yin, J., Porporato, A., 2017. Diurnal cloud cycle biases in climate models. Nat. Commun. 8, 2269.

Yokoi, S., Mori, S., Katsumata, M., Geng, B., Yasunaga, K., Syamsudin, F., Nurhayati, Yoneyama, K., 2017. Diurnal cycle of precipitation observed in the western coastal area of Sumatra Island: Offshore preconditioning by gravity waves. Mon. Weather Rev. 145, 3745–3761.

Yoneyama, K., Zhang, C., 2020. Years of the maritime continent. Geophys. Res. Lett. 47, e2020GL087182.

Yong, B., Wang, J., Ren, L., You, Y., Xie, P., Hong, Y., 2016. Evaluating four multisatellite precipitation estimates over the Diaoyu Islands during typhoon seasons. J. Hydrometeorol. 17. https://doi.org/10.1175/JHM-D-15-0165.1

Yoshimot, S., Amarnath, G., 2017. Applications of satellite-based rainfall estimates in flood inundation modeling-A case study in Mundeni Aru River Basin, Sri Lanka. Remote Sens. https://doi.org/10.3390/rs9100998

Yu, L., Leng, G., Python, A., Peng, J., 2021. A comprehensive evaluation of latest GPM IMERG V06 early, late and final precipitation products across China. Remote Sens. 13. https://doi.org/10.3390/rs13061208

Yuan, F., Wang, B., Shi, C., Cui, W., Zhao, C., Liu, Y., Ren, L., Zhang, L., Zhu, Y., Chen, T., 2018. Evaluation of hydrological utility of IMERG Final run V05 and TMPA 3B42V7 satellite precipitation products in the Yellow River source region, China. J. Hydrol. 567, 696–711.

Yuan, F., Zhang, L., Soe, K.M.W., Ren, L., Zhao, C., Zhu, Y., Jiang, S., Liu, Y., 2019. Applications of TRMM- and GPM-era multiple- satellite precipitation products for flood simulations at sub-daily scales in a sparsely gauged watershed in Myanmar. Remote Sens. https://doi.org/10.3390/rs11020140

Yuan, F., Zhang, L., Win, K.W.W., Ren, L., Zhao, C., Zhu, Y., Jiang, S., Liu, Y., 2017. Assessment of GPM and TRMM multi-satellite precipitation products in streamflow simulations in a data-sparse mountainous watershed in Myanmar. Remote Sens. 9, 302.

Yucel, I., Onen, A., Yilmaz, K.K., Gochis, D.J., 2015. Calibration and evaluation of a flood forecasting system: Utility of numerical weather prediction model, data assimilation and satellite-based rainfall. J. Hydrol. 523, 49–66.

Yuda, I.W.A., Osawa, T., Nagai, M., Prasetia, R., 2021. The Regionalization of

UNIVERSITAS
GADJAH MADA
**Validasi dan Pemanfaatan Data Satelit Global Precipitation Measurement dalam Pengamatan Curah Hujan
dan Bencana Hidrometeorologi di Indonesia**
Ravidho Ramadhan, Dr. rer. nat. Wiwit Suryanto, S.Si, M.Si.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Indonesian Maritime Continent Rainfall based on Integrated Multi-satellite Retrievals for GPM (IMERG), in: IOP Conference Series: Earth and Environmental Science. IOP Publishing, hal. 12065.

Yuda, I.W.A., Prasetia, R., As-Syakur, A.R., Osawa, T., Nagai, M., 2020. An assessment of IMERG rainfall products over Bali at multiple time scale, in: E3S Web of Conferences. https://doi.org/10.1051/e3sconf/202015302001

Yulihastin, E., Wahyu Hadi, T., Sari Ningsih, N., Ridho Syahputra, M., 2020. Early morning peaks in the diurnal cycle of precipitation over the northern coast of West Java and possible influencing factors, in: Annales Geophysicae. Copernicus Publications Göttingen, Germany, hal. 231–242.

Yusnaini, H., Ramadhan, R., Marzuki, M., Ningsih, A.P., Hashiguchi, H., Shimomai, T., Vonnisa, M., Harmadi, H., Suryanto, W., Sholihun, S., 2022. Statistical Comparison of IMERG Precipitation Products with Optical Rain Gauge Observations over Kototabang, Indonesia. J. ILMU Fis. Univ. ANDALAS 14, 10–20.

Zellou, B., Rahali, H., 2019. Assessment of the joint impact of extreme rainfall and storm surge on the risk of flooding in a coastal area. J. Hydrol. 569, 647–665.

Zhang, A., Chen, C., Wu, L., 2023. Regional Variability of Raindrop Size Distribution from a Network of Disdrometers over Complex Terrain in Southern China. Remote Sens. 15, 2678.

Zhang, C., 2013. Madden–Julian oscillation: Bridging weather and climate. Bull. Am. Meteorol. Soc. 94, 1849–1870.

Zhang, C., Ling, J., 2017. Barrier effect of the Indo-Pacific Maritime Continent on the MJO: Perspectives from tracking MJO precipitation. J. Clim. 30. https://doi.org/10.1175/JCLI-D-16-0614.1

Zhang, L., Xin, Z., Zhang, C., Song, C., Zhou, H., 2022. Exploring the potential of satellite precipitation after bias correction in streamflow simulation in a semi-arid watershed in northeastern China. J. Hydrol. Reg. Stud. 43, 101192.

Zhang, X., Alexander, L., Hegerl, G.C., Jones, P., Tank, A.K., Peterson, T.C., Trewin, B., Zwiers, F.W., 2011. Indices for monitoring changes in extremes based on daily temperature and precipitation data. Wiley Interdiscip. Rev. Clim. Chang. 2, 851–870.

Zhang, Y., Hanati, G., Danierhan, S., Liu, Q., Xu, Z., 2020. Evaluation and comparison of daily gpm/trmm precipitation products over the tianshan mountains in china. Water (Switzerland) 12. https://doi.org/10.3390/w12113088

Zhao, H., Yang, S., You, S., Huang, Y., Wang, Q., Zhou, Q., 2018. Comprehensive evaluation of two successive V3 and V4 IMERG final run precipitation products over Mainland China. Remote Sens. 10. https://doi.org/10.3390/rs10010034

Zhou, C., Gao, W., Hu, J., Du, Liangmin, Du, Lin, 2021. Capability of imerg v6 early, late, and final precipitation products for monitoring extreme precipitation events. Remote Sens. https://doi.org/10.3390/rs13040689

Zhou, L., Koike, T., Takeuchi, K., Rasmy, M., Onuma, K., Ito, H., Selvarajah, H., Liu, L., Li, X., Ao, T., 2022. A study on availability of ground observations

UNIVERSITAS
GADJAH MADA
**Validasi dan Pemanfaatan Data Satelit Global Precipitation Measurement dalam Pengamatan Curah Hujan
dan Bencana Hidrometeorologi di Indonesia**
Ravidho Ramadhan, Dr. rer. nat. Wiwit Suryanto, S.Si, M.Si.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

and its impacts on bias correction of satellite precipitation products and hydrologic simulation efficiency. J. Hydrol. 127595.

Zhou, T., Yu, R., Chen, H., Dai, A., Pan, Y., 2008. Summer precipitation frequency, intensity, and diurnal cycle over China: A comparison of satellite data with rain gauge observations. J. Clim. 21, 3997–4010.

Zhou, Y., Nelson, K., Mohr, K.I., Huffman, G.J., Levy, R., Grecu, M., 2019. A spatial-temporal extreme precipitation database from GPM IMERG. J. Geophys. Res. Atmos. 124, 10344–10363.

Zhou, Y., Wang, S., Fang, J., 2022. Diurnal cycle and dipolar pattern of precipitation over Borneo during an MJO event: Lee convergence and offshore-propagation. J. Atmos. Sci.

Zhu, S., Shen, Y., Ma, Z., 2021. A new perspective for charactering the spatio-temporal patterns of the error in GPM IMERG over mainland China. Earth Sp. Sci. 8.