

DAFTAR PUSTAKA

- Adinugroho, W. C., Sidiyasa, K. (2006). Model Pendugaan Biomassa Pohon Mahoni (*Swietenia macrophylla King*) di Atas Permukaan Tanah. *Jurnal Penelitian Hutan dan Konservasi Alam*, 2006(III), 103-117.
- Akhter, M. (2006). Remote Sensing for Developing an Operational Monitoring Scheme for The Sundarban Reserve Forest, Bangladesh. *Thesis of Doctor of Natural Science*. Technizche Universitat Dresden, Germany.
- Algorina, F. (2018). Penggunaan Algoritma Hibrid Object-Based Image Analysis (OBIA) dan Support Vector Machine (SVM) untuk Pemetaan Famili Mangrove di Kawasan Taman Nasional Alas Purwo Kabupaten Banyuwangi, Jawa Timur. *Skripsi*. Universitas Gadjah Mada, Yogyakarta.
- Anand, A., Pandey, P. C., Petropoulos, G. P., Pavlides, A., Srivastava, P. K., Sharma, J. K., Malhi, R. K. M. (2020). Use of Hyperion for Mangrove Forest Carbon Stock Assessment in Bhitarkanika Forest Reserve: A Contribution Towards Blue Carbon Initiative. *Remote Sens.*, 2020(12), 597. <https://doi.org/10.3390/rs12040597>
- Arhatin, R. E., Wahyuningrum, P. I. (2013). Algoritma Indeks Vegetasi Mangrove Menggunakan Satelit Landsat ETM+. *Buletin PSP*, 2013(21), 215-228.
- Baloloy, A. B., Blanco, A. C., Candido, C. G., Argamosa, R. J. L., Dumalag, J. B. L. C., Dimapilis, L. L.C., Paringit, E. C. (2018). Estimation Of Mangrove Forest Above Ground Biomass Using Multispectral Bands, Vegetation Indices And Biophysical Variables Derived From Optical Satellite Imageries: Rapideye, Planetscope And Sentinel-2. *ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, 2018(1V-3).
- Barati, S., Rayegani, B., Saati, M., Sharifi, A., Nasri, M. (2011). Comparison the Accuracies of Different Spectral Indices for Estimation of

- Vegetation Cover Fraction in Sparse Vegetated Areas. *The Egyptian Journal of Remote Sensing and Space Sciences*, 2011(14), 49-56. <https://doi.org/10.1016/j.ejrs.2011.06.001>
- Bhandari, A. K., Kumar, A., Singh, G. K. (2012). Feature Extraction using Normalized Difference Vegetation Index (NDVI): A Case Study of Jabalpur City. *Procedia Technology*, 2012(6), 612-621. <https://doi.org/10.1016/j.protcy.2012.10.074>
- Bindu, G., Rajan, P., Jishnu, E.S., Joseph K. A. (2018). Carbon Stock Assessment of Mangroves Using Remote Sensing and Geographic Information System. *The Egyptian Journal of Remote Sensing and Space Sciences*, 2018(23), 1-9. <https://doi.org/10.1016/j.ejrs.2018.04.006>
- Brown, S. (1997). Estimating Biomass and Biomass Change of Tropical Forest: A Primer. *FAO Forestry Paper 134 (1997)*. FAO, USA.
- Cahyaningrum, S. T., Hartoko, A., Suryanti. (2014). Biomassa Karbon Mangrove Pada Kawasan Mangrove Pulau Kemujan Taman Nasional Karimunjawa. *Diponegoro Journal of Maquares*, 2014(3), 34-42.
- Candra, E. D., Hartono, Wicaksono, P. (2016). Above Ground Carbon Stock Estimates of Mangrove Forest Using Worldview-2 Imagery in Teluk Benoa, Bali. *IOP Conf. Ser.: Earth Environ. Sci.* 47 (2016). <http://iopscience.iop.org/1755-1315/47/1/012014>
- Cerón-Souza, I., Rivera-Ocasio, E., Medina, E., Jimenez, J. A., McMillan, W. O., Bermingham, E. (2010). Hybridization and Introgression in New World Red Mangroves, *Rhizophora* (Rhizophoraceae). *American Journal of Botany*, 2010(97). <http://www.amjbot.org/cgi/doi/10.3732/ajb.0900172>
- Danoedoro, P. (2012). *Pengantar Penginderaan Jauh Digital*. Yogyakarta: Penerbit ANDI.

- Deans, J. D., Moran, J., Grace, J. (1996). Biomass Relationships for Tree Species in Regenerating Semi-Deciduous Tropical Moist Forest in Cameroon. *Forest Ecology and Management*, 1996(83), 215-225.
- Direktorat Jenderal Kehutanan, Departemen Pertanian. 1978. Pedoman Sistem Silvikultur Hutan Payau. Surat Keputusan Direktur Jenderal Kehutanan. No 60/Kpts/DJ/I/1978.
- Donato, D. C., Kauffman, J. B., Murdiyarso, D., Kurnianto, S., Stidham, M., Kanninen, M. (2011). Mangroves Among The Most Carbon-rich Forests in The Tropics. *Nature Geoscience*, 2011(4), 293-297.
- European Space Agency. (2012). *Sentinel-2: ESA's Optical High-Resolution Mission for GMES Operational Services*. ESA Communications.
- Forestriko, H. F. (2016). Pemanfaatan Citra Landsat 8 untuk Estimasi Stok Karbon Hutan Mangrove di Kawasan Segara Anakan Cilacap, Jawa Tengah. *Skripsi*. Universitas Gadjah Mada, Yogyakarta.
- Frananda, H. (2011). Integrasi Penginderaan Jauh dan Sistem Informasi Geografis untuk Estimasi Stok Karbon Hutan Mangrove Kawasan Segoroanak Pada Kawasan Taman Nasional Alas Purwo, Banyuwangi, Jawa Timur. *Tesis*. Universitas Gadjah Mada, Yogyakarta.
- Frananda, H., Arif, N. (2015). Estimasi Karbon Hutan Mangrove Kawasan Segoro Anak Pada Kawasan Taman Nasional Alas Purwo Banyuwangi, Jawa Timur. *Simposium Nasional Sains Geoinformasi IV*.
- Frananda, H., Hartono, Jatmiko, R. H. (2015). Komparasi Indeks Vegetasi Untuk Estimasi Stok Karbon Hutan Mangrove Kawasan Segoro Anak Pada Kawasan Taman Nasional Alas Purwo Banyuwangi, Jawa Timur. *Majalah Ilmiah Globe*, 2015(17), 113-123.
- Fudloly, A. R. L., Fuad, M. A. Z., Purwanto, A. D. (2020). Perubahan Sebaran dan Kerapatan Hutan Mangrove di Pesisir Pantai Bama, Taman Nasional Baluran Menggunakan Citra Satelit SPOT 4 dan SPOT 6.

Depik Jurnal Ilmu-Ilmu Perairan, Pesisir dan Perikanan, 2020(9), 184-192.

Giri, C., Ochieng E., Tieszen L. L., Zhu Z., Singh A., Loveland T., Masek J., Duke N. (2011). Status and distribution of mangrove forests of the world using earth observation satellite data, *Glob. Ecol. Biogeogr.*, 2011(20), 154-159. <https://doi.org/10.1111/j.1466-8238.2010.00584.x>

Ghazali, I. (2011). *Aplikasi Analisis Multivariate dengan Program IBM SPSS 19*. Semarang: Badan Penerbit Universitas Diponegoro.

Hafizt, M. (2013). Kajian Estimasi Standing Carbon Stock Padang Lamun Menggunakan Citra Quickbird di Pulau Kemujan, Kepulauan Karimunjawa. *Skripsi*. Universitas Gadjah Mada, Yogyakarta.

Hairiah, K., Rahayu, S. (2007). *Pengukuran Karbon Tersimpan di Berbagai Macam Penggunaan Lahan*. World Agroforestry Center, ICRAF Southeast Asia.

Hamdan, O., Khairunnisa, M. R., Ammar, A. A., Hasmadi, I. M., Aziz, H. K. (2013). Mangrove Carbon Stock Assessment by Optical Satellite Imagery. *Journal of Tropical Forest Science*, 2013(25), 554-565.

Hanafi, N., Bernardianto, R. B. (2012). Pendugaan Cadangan Karbon Pada Sistem Penggunaan Lahan di Areal PT. Sikatan Wana Raya. *Media Sains*, 2012(4).

Harahab, N. (2009). Pengaruh Ekosistem Hutan Mangrove Terhadap Produksi Perikanan Tangkap (Studi Kasus di Kabupaten Pasuruan, Jawa Timur). *Jurnal Perikanan (J. Fish. Sci.)*, 2009(XI), 100-106.

Hastuti, A. W., Suniada, K. I., Islamy, F. (2017). Carbon Stock Estimation of Mangrove Vegetation Using Remote Sensing in Perancak Estuary, Jembrana District, Bali. *International Journal of Remote Sensing and Earth Sciences*, 2017(14), 137-150. <http://dx.doi.org/10.30536/j.ijreses.2017.v14.a2841>

- Hendrawan, Gaol, J. L., Susilo, S. B. (2018). Studi Kerapatan dan Perubahan Tutupan Mangrove Menggunakan Citra Satelit di Pulau Sebatik Kalimantan Utara. *Jurnal Ilmu dan Teknologi Kelautan Tropis*, 2018(10), 99-109. <http://dx.doi.org/10.29244/jitkt.v10i1.18595>
- Heriyanto, N. M., Subiandono, E. (2012). Komposisi Dan Struktur Tegakan, Biomassa Dan Potensi Kandungan Karbon Hutan Mangrove Di Taman Nasional Alas Purwo. *Jurnal Penelitian Hutan dan Konservasi Hutan*, 2012(9), 023-032.
- Hermayani, R. (2018). Analisis Citra Sentinel-1A untuk Estimasi Stok Karbon di Atas Permukaan (Above Ground Carbon) Hutan Mangrove Pulau Kemujan, Taman Nasional Karimunjawa. *Skripsi*. Universitas Gadjah Mada, Yogyakarta.
- Hilmi, E. (2003). Model Penduga Kandungan Pada Pohon Kelompok Jenis Rhizophora dan Bruguiera dalam Tegakan Hutan Mangrove di Riau. *Tesis*. Institut Pertanian Bogor, Bogor.
- Hirose, K., Syoj, M., Hang, H. T. M., Anh, N.H., Triet, T., Nam, V. N. (2004). Satellite Data Application for Mangrove Management. *International Symposium on Geoinformatics for Spatial Infrastructure Development in Earth and Allied Sciences 2004*.
- Howard, J. A. (1996). *Penginderaan Jauh untuk Sumberdaya Hutan: Teori dan Aplikasi*. Diterjemahkan oleh Hartono, Dulbahri, Suharyadi, Danoedoro, P., Jatmiko, R. H. Yogyakarta: Gadjah Mada University Press.
- [Http://landsat.usgs.gov/landsat8.php](http://landsat.usgs.gov/landsat8.php)
- Hudaya, Y. F., Hartono, Murti, S. H., Hadlyan, Y. (2015). Pendugaan Potensi Cadangan Karbon di Atas Permukaan Pada Hutan Mangrove di Kubu Raya Menggunakan Citra Alos Palsar. *Jurnal Penginderaan Jauh*, 2015(12), 43-58.

- International Panel on Climate Change. (2006). *IPCC Guildelines for National Greenhouse Gas Inventories*. IPCC National Greenhouse Gas Inventories Programme. IGES. Japan.
- Jensen, J. R. (2000). *Remote Sensing of The Environment: an Earth Resource Perspective*. Upper Saddle River, N. J.: Prentice Hall.
- Kamal, M., Phinn, S. (2011). Hyperspectral Data for Mangrove Species Mapping: A Comparison of Pixel Based and Object-Based Approach. *Remote Sensing*, 2011(3), 2222-2242. <https://doi.org/10.3390/rs3102222>
- Kamal, M., Wicaksono, P., Anggara, D. W., Hafizt, M. (2015). Pengaruh Resolusi Spasial Citra Penginderaan Jauh Terhadap Estimasi Leaf Area Index Mangrove di Kepulauan Karimunjawa, Jawa Tengah. *Simposium Nasional Sains Geoinformasi IV 2015*.
- Komiyama, A., Pongparn, S., dan Kato, S. (2005). Common Allometric Equations for Estimating. *Journal of Tropical Ecology*, 2005(21), 471-477. <http://doi.org/10.1017/S0266467405002476>
- Komiyama, A., Pongparn, S., dan Ong, J. E. (2008). Allometry, Biomass and Productivity of Mangrove Forest: A Review. *Aquatic Botany*, 2008(89), 128-137. <https://doi.org/10.1016/j.aquabot.2007.12.006>
- Kuenzer, C., Bluemel, A., Gebhardt, S., Quoc, T. V., Dech, S. (2011). Remote Sensing of Mangrove Ecosystems: A Review. *Remote Sensing*, 2011(3), 878-928. <https://doi.org/10.3390/rs3050878>
- Kusmana, C. (1996). Nilai Ekologis Ekosistem Hutan Mangrove. *Media Konservasi*, 1996(V), 17-24.
- Latifah, N., Febrianto, S., Endrawati, H., Zainuri, M. (2018). Pemetaan Klasifikasi dan Analisa Perubahan Ekosistem Mangrove Menggunakan Citra Satelit Multi Temporal di Karimunjawa, Jepara, Indonesia. *Jurnal Kelautan Tropis*, 2018(21), 97-102.

- Lestariningsih, W. A., Soenardjo, N., Pribadi, R. (2018). Estimasi Cadangan Karbon Pada Kawasan Mangrove Di Desa Timbulsloko, Demak, Jawa Tengah. *Buletin Oseanografi Marina*, 2018(7), 121-130.
- Li, X., Yeh, A. G., Wang, S., Liu, K., Liu, X., Qian, J., Chen, X. (2007). Regression and Analytical Models for Estimating Mangrove Wetland Biomass in South China Using Radarsat Images. *International Journal of Remote Sensing*, 2007(28), 5567-5582.
- Lillesand, T. M., Kiefer, R. W., Chipman, J. W. (2008). *Remote Sensing and Image Interpretation Sixth Edition*. New York: John Wiley and Sons.
- Matsushita, B., Yang, W., Chen, J., Onda, Y., Qiu, G. (2007). Sensitivity of the Enhanced Vegetation Index (EVI) and Normalized Difference Vegetation Index (NDVI) to Topographic Effects: A Case Study in High-Density Cypress Forest. *Sensors*, 2007(7), 2636-2651.
- Miyakuni, K., Heriansyah, I., Heriyanto, N. M., Kiyono, Y. (2004). Allometric Biomass Equations, Biomass Expansion Factors and Root-to-shoot Ratios of Planted *Acacia mangium* Willd. Forest in West Java, Indonesia. *J. For. Plann.*, 2004(10), 69-76.
- Murray, B. C., Pendleton, L., Jenkins, W. A. dan Sifleet, S. (2011). *Green Payments for Blue Carbon Economic Incentives for Protecting Threatened Coastal Habitats*. Durham: Nicholas Institute for Environmental Policy Solutions.
- Naji, T. A. H. (2018). Study Of Vegetation Cover Distribution Using DVI, PVI, WDV I Indices With 2d-Space Plot. *IOP Conf. Series: Journal of Physics*, 2018(1003).
- Noor, Y. R., Khazali, M., Suryadiputra, I. N. N. (2006). *Panduan Pengenalan Mangrove di Indonesia*. Jakarta: Wetlands International, Indonesia Programme.

- Parresol, B. R. (1999). Assessing Tree and Stand Biomass: A Review with Examples and Critical Comparisons. *Forest Science*, 1999(45), 573-593.
- Pendleton, L., Donato, D. C., Murray, B., Crooks, S., Jenkins, W. A., Sifleet, S., Craft, C., Fourqurean, J. W., Kauffman, J. B., Marba, N., Megonigal, P., Pidgeon, E., Herr, D., Gordon, D., Baldera, A. (2012). Estimating Global “Blue Carbon” Emissions from Conversion and Degradation of Vegetated Coastal Ecosystems. *PLOS ONE*, 2012(7). <https://doi.org/10.1371/journal.pone.0043542>
- Planet Labs. (2018). *Planet Imagery Product Specification*. Planet Labs Inc 2018
- Rahman, Effendi, H., Rusmana, I. (2017). Estimasi Stok Dan Serapan Karbon Mangrove Di Sungai Tallo, Makasar. *Jurnal Ilmu Kehutanan*, 2017(11), 19-28.
- Riduwan, A. (2007). *Rumus dan Data dalam Aplikasi Statistika*. Bandung: Alfabeta.
- Robinson, N. P., Allerd, B. W., Jones, M. O., Moreno, A., Kimball, J.S., Naugle, D. E., Erickson, T. A., Richardson, A. D. (2017). A Dynamic Landsat Derived Normalized Difference Vegetation Index (NDVI) Product for the Conterminous United States. *Remote Sens.*, 2017(9), 863. <https://doi.org/10.3390/rs9080863>
- Tucker, C. J. (1980). A Spectral Method for Determining The Percentage of Green Herbage Material in Clipped Sample. *Remote Sensing of Environment*, 9, 175-181
- Shofiyati, R. (2010). Integrasi Multi Resolusi Citra Satelit dengan Metode Sederhana untuk Memonitor Kondisi Lahan. *Informatika Pertanian*, 2010(19), 109-124.
- Sinaga, S. H., Suprayogi, A., Haniah. (2018). Analisis Ketersediaan Ruang Terbuka Hijau dengan Metode Normalized Difference Vegetation

- Index dan Soil Adjusted Vegetation Index Menggunakan Citra Satelit Sentinel-2A (Studi Kasus: Kabupaten Demak). *Jurnal Geodesi Undip*, 2018(7), 202-211.
- Siregar, C. A., Dharmawan, I. W. S. (2008). Karbon Tanah dan Pendugaan Karbon Tegakan *Avicennia marina* (Forsk.) Vierh. di Ciasem, Purwakarta. *Jurnal Penelitian Hutan dan Konservasi Alam*, 2008(V), 317-328.
- Sitanggang, G. (2010). Kajian Pemanfaatan Satelit Masa Depan: Sistem Penginderaan Jauh Satelit LDCM (Landsat 8). *Berita Dirgantara*, 2010(11), 47-55.
- Standar Nasional Indonesia (SNI). (2011). *Pengukuran dan Perhitungan Cadangan Karbon – Pengukuran Lapangan untuk Penaksiran Cadangan Karbon Hutan (Ground Based Forest Carbon Accounting)*. Jakarta: Badan Standardisasi Nasional.
- Sudjana. (2002). *Metode Statistika*. Bandung: Tarsito.
- Sugiyono. (2011). *Memahami Penelitian Kualitatif*. Bandung: Alfabeta.
- Suryono, Soenardjo, N., Wibowo, E., Ario, R., Rozy, E. F. (2018). Estimasi Kandungan Biomassa dan Karbon di Hutan Mangrove Perancak Kabupaten Jembaran Provinsi Bali. *Buletin Oseanografi Marina*, 2018(7), 1-8.
- Sutanto. (1987). *Penginderaan Jauh Jilid 2*. Yogyakarta: Gadjah Mada University Press.
- Taman Nasional Alas Purwo. (2011). *Seri Buku Informasi dan Potensi Mangrove Taman Nasional Alas Purwo*. Banyuwangi: Balai Taman Nasional Alas Purwo.
- Tucker, C. J. (1980). A Spectral Method for Determining The Percentage of Green Herbage Material in Clipped Sample.. *Remote Sensing of Environment*, 1980(9), 175-181. [https://doi.org/10.1016/0034-4257\(80\)90007-3](https://doi.org/10.1016/0034-4257(80)90007-3)

- Vaiphasa, C., Ongsomwang, S., Vaiphasa, T., Skidmore, A. K. (2005). Tropical Mangrove Species Discrimination Using Hyperspectral data: A Laboratory Study. *Estuarine, Coastal and Shelf Science*, 2005(65), 371-379. <https://doi.org/10.1016/j.ecss.2005.06.014>
- Wicaksono, P. (2010). Integrated Model of Water Column Correction Technique for Improving Satellite Based Benthic Habitat Mapping. *Tesis*. Universitas Gadjah Mada, Yogyakarta.
- Wicaksono, P., Danoedoro, P., Hartono, Nehren, U., Ribbe, L. (2011). Preliminary Work of Mangrove Ecosystem Carbon Stock Mapping in Small Island Using Remote Sensing: Above and Below Ground Carbon Stock Mapping on Medium Resolution Satellite Image. In *Proceedings of SPIE 8174, Remote Sensing for Agriculture, Ecosystem, and Hydrology XIII, 81741B*, edited by C. M. U. Neale and A. Maltese. Prague: SPIE Remote Sensing
- Wicaksono, P., Danoedoro, P., Hartono, Nehren, U. (2015). Mangrove Biomass Carbon Stock Mapping of the Karimunjawa Islands using Multispectral Remote Sensing. *International Journal of Remote Sensing*, 2015(37), 26-52. <http://dx.doi.org/10.1080/01431161.2015.1117679>
- Wicaksono, P. (2015). Remote Sensing Model Development for Seagrass and Mangroves Carbon Stock Mapping. *Disertasi*. Universitas Gadjah Mada, Yogyakarta.
- Wicaksono, P. (2017). Mangrove Above Ground Carbon Stock Mapping Of Multi-Resolution Passive Remote Sensing Systems. *International Journal of Remote Sensing*, 2017(38), 1551-1578. <https://doi.org/10.1080/01431161.2017.1283072>
- Winarso, G. (2018). Metode Cepat Pemantauan Hutan Mangrove Menggunakan Data Penginderaan Jauh. *Seminar Nasional Geomatika 2018: Penggunaan dan Pengembangan Produk Informasi Geospasial Mendukung Daya Saing Nasional*.

www.worldagroforestry.org

- Yuniawati, Suhartana, S. (2014). Potensi Karbon Pada Limbah Pemanenan Kayu Acacia Crasscarpa. *Jurnal Ilmu Lingkungan*, 2014(12), 21-31.
- Yuwono, R. A. (2017). Pemanfaatan Citra Satelit Landsat 8 OLI untuk Pemetaan Kerapatan Kanopi Hutan Mangrove di Segara Anakan, Kabupaten Cilacap, Jawa Tengah. *Skripsi*. Universitas Gadjah Mada, Yogyakarta.