Gandhi Napitupulu

Affiliation : [1]Coastal Hazards and Energy System Science Laboratory, Graduate School of Innovation and Practice for Smart Society, Hiroshima University, Hiroshima, Japan; [2]Environmental and Applied Oceanography Research Group, Faculty of Earth Science and Technology, Bandung Institute of Technology, Bandung, Indonesia
Address : Hiroshima, Japan
Email : gandhinapitupulu88@gmail.com
Phone : +62-823-6202-4912
LinkedIn : linkedin.com/in/gandhi-napitupulu

Motivated doctoral candidate in Engineering with a background in oceanography and a strong focus on coastal dynamics, blue carbon ecosystems, and environmental modeling. Currently conducting research at the Coastal Hazards and Energy System Science Laboratory, Hiroshima University, using high-resolution ocean modeling and satellite remote sensing to estimate blue carbon potential in coastal seas. Eager to leverage this interdisciplinary expertise to contribute to the Global Fishing Watch mission by applying GFW datasets to advance research on ocean transparency, support sustainable fisheries management, and foster international cooperation for effective and equitable ocean governance.

A. Education

1. **Hiroshima University, Japan**
    - Ph.D. in Engineering (2024 – Present)
    - Thesis: Estimation of blue carbon potential in the Seto Inland Sea using high-resolution ocean modelling and remote sensing
        - *Relevance*: Demonstrates strong interdisciplinary expertise in ocean carbon cycling, numerical ocean modelling, and remote sensing—highly relevant for research on ocean sustainability and ecosystem services.
        - *Skills developed*: High-resolution Ocean modelling, satellite data processing, blue carbon estimation, scientific programming.

2. **Bandung Institute of Technology, Indonesia**
    - Master of Science in Earth Science (2022-2023)
    - Thesis: Analysis of changes in wave behaviour passing through a cylindrical pile structure
        - *Relevance*: Focused on coastal engineering and wave-structure interaction, providing valuable insights for sustainable marine infrastructure development.
        - *Skills developed*: Coastal dynamics, hydrodynamic analysis, MATLAB modelling, ocean wave theory.

3. **Bandung Institute of Technology, Indonesia**
    - Bachelor of Oceanography (2018-2022)
    - Undergraduate Thesis: Ocean wave behaviour study around pile type beach structure through analysis of physical laboratory test data
        - *Relevance*: Built foundational knowledge in ocean wave dynamics and coastal engineering, emphasizing experimental methods and data interpretation.
        - *Skills developed*: Laboratory data analysis, wave mechanics, technical writing, teamwork in research.

B. Professional Experience

1. **Lecturer | Bandung Institute of Technology (ITB), Indonesia** *August 2023 – July 2024*
   Taught courses: Mathematical Methods for Oceanography I, Computational Oceanography, Ocean Wave, Fluid Mechanics.
2. **Practicum Coordinator | Bandung Institute of Technology (ITB), Indonesia** *2022 – 2023*
   Coordinated practicum activities for courses in Computational Oceanography, Ocean Wave, and Ocean Modeling 1.
3. **Tutorial Assistant | Bandung Institute of Technology (ITB), Indonesia** *2020 – 2022*
   Assisted in tutorial sessions for courses including Hydrodynamics, Fluid Mechanics, Environmental Oceanography, Mathematical Methods for Oceanography I, and Mathematical Methods for Oceanography II.

C. Skills

1. **Data Analysis:**
    - Statistical analysis: (MATLAB, Python, Java, C++, Fortran).
    - Climate data analysis: multi-years experienced working with large datasets (netCDF, GRIB, GeoTIFF, CSV, hdf5)
    - Weather data analysis: Experienced in processing and disseminating weather radar data.
    - Modeling program: Simulating WAves Nearshore/SWAN), SWASH, SCHISM/ Semi-implicit Cross-scale Hydroscience Integrated System Model (parallel computing)
2. **Marine & Meteorological Systems:** Installation, maintenance, and monitor the marine automatic weather stations across Indonesia.
3. **Technical Proficiency:** Electronics, Programming, Analytical Troubleshooting, Site Surveys, Equipment Operation.
4. **Languages:** Indonesian (Native), English (Intermediate)

D. Publications & Presentations:

Publications (Last 5 years)	Year
Seasonal Variability of Surface Heat Transport in the Banda Sea. Napitupulu, G., Fekranie, N. A., Millina, A. V., Putri, M. R., Kartadikaria, A. R., Setiawan, A., ... & Fajary, F. R. (2025). ***Thalassas: An International Journal of Marine Sciences,*** *41*(2), 1–20. Springer.	2025
Eddy-induced modulation of marine heatwaves and cold spells in a tropical region: A case study in the Natuna Sea area. Napitupulu, G. (2025). ***Ocean Dynamics****, 75*(3), 28. Springer.	2025
Karakteristik dan Variasi Musiman Eddy di Perairan Pasifik Bagian Barat Laut. Akbar, M. A., Radjawane, I. M., Nurdjaman, S., Napitupulu, G., & Hatmaja, R. B. (2025). ***Buletin Oseanografi Marina****, 14*(1), 69–80.	2025
Assessment of marine debris using UAV imagery in Cinta Coast, Indonesia. Radjawane, I. M., Marco, J. D., Suryono, D. D., Salim, H. L., Tarya, A., Nurdjaman, S., & Napitupulu, G. (2025). ***Aquaculture, Aquarium, Conservation & Legislation****, 18*(2), 622–638.	2025
Impact of marine heatwaves and cold spells on coral reef ecosystem in a tropical region: A case study of Lombok Waters, Indonesia. Napitupulu, G., Nagi, A., Nurdjaman, S., Radjawane, I. M., Rachmayani, R., Ramadhan, M. R., ... & Kelvin, F. M. (2025). ***Marine Systems & Ocean Technology****, 20*(1), 16. Springer.	2025
Heat transport variability within the inlet and outlet of Makassar Strait. Yudowaty, S. O., Radjawane, I. M., Fajary, R., & Napitupulu, G. (2025). ***Malaysian Applied Geography (MAGG)****, 3*(1), 38–44.	2025
Variability of Sea Surface Temperature and Salinity In Makassar Strait During The Last Glacial Maximum. Larasati, O. D. D., Hendrizan, M., Rachmayani, R., & Napitupulu, G. (2024). ***Bulletin of the Marine Geology****, 39*(2).	2024
Zooplankton distribution from backscatter data of ADCP instrument in West Sumatra Waters. Napitupulu, G., Farihah, R. A., Manik, H. M., Larasati, O. D. D., Napitupulu, M., Bernawis, L. I., ... & Kusmanto, E. (2024). ***Bulletin of the Marine Geology****, 39*(2).	2024
Transformasi Gelombang Reguler Akibat Pemecah Gelombang Tiang Pancang Dua Baris Selang-Seling. Suprijo, T., Napitupulu, G., Ginting, J. W., Simanjuntak, E. M., Abdullah, F. A., & Khadami, F. (2024). ***Jurnal Teknik Hidraulik****, 15*(2), 99–112.	2024
Response of upwelling parameter before, during, and after tropical cyclone (Case study: Tropical Cyclone Marcus. Akbar, M. A., Sosaidi, D. S., Napitupulu, G., & Tahir, A. A. R. (2024). ***Jurnal Meteorologi dan Geofisika****, 25*(1), 25–33. BMKG.	2024

Pengaruh sirkulasi arus geostropik dan ageostropik terhadap upwelling di perairan Selatan Jawa. Radjawane, I. M., Yusarita, A., Kuswardani, A. R. T. D., & Napitupulu, G. (2024). ***Buletin Oseanografi Marina**, 13*(3), 448–463. LIPI.	2024
Monthly variability of wind-induced upwelling and its impact on chlorophyll-a distribution in the southern and northern parts of the Indonesian Archipelago. Napitupulu, G. (2024). ***Ocean Dynamics***, 1–20. Springer.	2024
Respon singkat konsentrasi klorofil-a terhadap perubahan arus eddy permukaan di wilayah perairan Teluk Tolo dan sekitarnya. Napitupulu, G., Lukman, A. A., Hatmaja, R. B., Kartadikaria, A. R., Radjawane, I. M., Millina, A. V., Akbar, M. A., & Napitupulu, M. (2024). ***Jurnal Geologi Kelautan**, 22*(1). BRIN.	2024
Seasonal and intra-seasonal variability of ocean thermal potential energy in the Indonesian Exclusive Economic Zone. Suprijo, T., Napitupulu, G., Ningsih, N. S., Sinaga, D. B. J., & Rachman, A. (2024). ***Bulletin of the Marine Geology**, 39*(1). BRIN.	2024
Spatiotemporal variation of particulate matter (PM2.5) concentration in the Indonesian Maritime Continent. Napitupulu, G., Zulfikar, R., Yulianti, K. K., Sinuraya, D. E., Waryatno, N. F. P., & Fekranie, N. A. (2024**). *Malaysian Journal of Tropical Geography**, 50*(1), 1–17. University of Malaya.	2024
Seasonal variability of sea surface chlorophyll-a at West Borneo Island. Radjawane, I. M., Saleh, E., Napitupulu, G., Abdillah, M. R., & Hassan, M. A. M. (2024). ***Indonesian Journal of Geography**, 1*(1). UGM.	2024
Ketidakseragaman sebaran spasial variabilitas musiman eddy di perairan Barat Laut Indonesia. Kartadikaria, A. R., Napitupulu, G., Rangga, K., Radjawane, I. M., & Abdullah, F. A. R. (2024). ***Jurnal Kelautan Tropis**, 27*(1), 1–16. UNDIP.	2024
Karakteristik estuari di Muara Angke pada musim timur. Radjawane, I. M., Mughny, G. P., & Napitupulu, G. (2024). ***Jurnal Kelautan Tropis**, 27*(1), 28–38. UNDIP.	2024
The one-dimensional (1D) numerical model: An application to oxygen diffusion in mitochondria cell. Napitupulu, G., Nagi, A., Putri, M. R., & Radjawane, I. M. (2023). ***ComTech: Computer, Mathematics and Engineering Applications**, 14*(2), 101–118. Telkom University.	2023
Pelacakan mundur partikel sampah dengan metode Euler-Lagrange di Pelabuhan Ratu. Radjawane, I. M., Basuki, I. N., & Napitupulu, G. (2023). ***Limits: Journal of Mathematics and Its Applications**, 20*(3), 371–391. ITB.	2023

Kajian perilaku gelombang akibat adanya struktur tiang pancang silinder melalui analisis spektrum energi. Napitupulu, G., Suprijo, T., Khadami, F., Abdullah, F. A. R., Sesami, H., Prasetyo, A., & Simanjuntak, E. (2023). ***Jurnal Ilmu dan Teknologi Kelautan Tropis**, 15*(1), 13–30. IPB University.	2023
Pengelolaan dan pemanfaatan kawasan pesisir Pulau Miangas sebagai pulau kecil terluar Indonesia. Nagi, A., Jamaluddin, Napitupulu, G., Nurdjaman, S., Setyobudiandi, I., & Radjawane, I. M. (2023). ***Jurnal Kebijakan Perikanan Indonesia**, 15*(1), 33–48. BRSDM KKP.	2023
Pemetaan zona potensial penangkapan ikan tongkol di perairan Teluk Banten. Nagi, A., Napitupulu, G., Radjawane, I. M., Nurdjaman, S., Supriadi, D., & Nurhayati, D. (2023). ***Buletin Oseanografi Marina**, 12*(3), 379–394. LIPI.	2023
Utilization of the coastal area of Miangas Island as the outermost small island of Indonesia. Nagi, A., Napitupulu, G., Setyobudiandi, I., & Kawaroe, M. (2023). ***Akuatikisle: Jurnal Akuakultur, Pesisir dan Pulau-Pulau Kecil**, 7*(1), 85–92. IPB.	2023
Impact of climate change on coral reefs degradation at West Lombok, Indonesia. Nurdjaman, S., Nasution, M. I., Johan, O., Napitupulu, G., & Saleh, E. (2023). ***Jurnal Kelautan Tropis**, 26*(3), 451–463. UNDIP.	2023
Analysis of upwelling in the southern Makassar Strait in 2015 using Aqua-MODIS satellite image. Napitupulu, G., Nurdjaman, S., Fekranie, N. A., Suprijo, T., & Subehi, L. (2022). ***Journal of Water Resources and Ocean Science**, 11*(4), 64–70. Science Publishing Group.	2022
Variability analysis of significant wave heights and wind waves in Riau Archipelago Sea part ALKI 1. Napitupulu, G., Tarya, A., Pratama, I. G. M., & Winardhie, I. S. (2022). ***Jurnal Pesisir dan Laut Tropis**, 10*(3), 241–255. UNRI.	2022

Proceeding Publications (Last 5 years)	**Year**
Near-bed flow dynamics and bed shear stress in a mangrove-vegetated estuary. Khadami, F., Suprijo, T., Hidayat, A. R., Radjawane, I. M., Tarya, A., & Napitupulu, G. (2025, February). ***IOP Conference Series: Earth and Environmental Science**, 1464*(1), 012014. IOP Publishing.	2025
Investigating Meridional Structure of North Equatorial Current and Equatorial Under Current During Indonesia PRIMA Cruise 2017. Napitupulu, G., Larasati, O. D. D., Radjawane, I. M., Khadami, F., & Kusmanto, E. (2024). **Springer Proceedings in Physics**, 305, INCREASE 2023. Springer, Singapore.	2024
Influence of Madden Julian Oscillation Based on Rainfall on Variability of Particulate Matter 2.5 Concentration in Indonesian Maritime Continent. Sinuraya, D. E., Fitriani, R., Fajary, F. R., & Napitupulu, G. (2024). ***Springer Proceedings in Physics**, 305*, INCREASE 2023. Springer, Singapore.	2024

Effect of Marine Heat Waves for Coral Bleaching in Lombok Waters. Nagi, A., Nurdjaman, S., Radjawane, I. M., Napitupulu, G., Habibullah, A. D., & Park, H. (2024). ***IOP Conference Series: Earth and Environmental Science**, 1350*(1), 012037. IOP Publishing.	2024
Variability of Chlorophyll-a in Karimata Strait, Indonesia and Labuan, Malaysia. Napitupulu, G., Radjawane, I. M., Saleh, E., Sujatmiko, K. A., & Azamuddin, M. (2023). ***Annual Report of Asia & ASEAN Center for Educational Research**, 3*(1), 59–60.	2023
Identification of Seasonal Water Mass Characteristics in West Sumatra Waters. Napitupulu, G., Radjawane, I. M., Azuga, N. A., Pratama, K. R., Fekranie, N. A., & Park, H. (2022). ***International Conference on Radioscience, Equatorial Atmospheric Science and Environment***, 531–543. Springer Nature Singapore.	2022
Analysis of Upwelling Variations Caused by ENSO Intensification in the Southern Makassar Strait. Napitupulu, G., Fekranie, N. A., Nurdjaman, S., Suprijo, T., & Subehi, L. (2022). ***International Conference on Radioscience, Equatorial Atmospheric Science and Environment***, 437–448. Springer Nature Singapore.	2022
Numerical Modelling of Wave Attenuation in Pile Breakwater. Abdullah, F. A. R., Suprijo, T., Diastomo, H., & Napitupulu, G. (2022). ***IOP Conference Series: Earth and Environmental Science**, 1047*(1), 012029. IOP Publishing.	2022
Analysis of Wind Generated Wave Characteristics by SWAN Model in Balikpapan Bay. Napitupulu, G., Nuruddin, M. F., Fekranie, N. A., & Magdalena, I. (2021**). *IOP Conference Series: Earth and Environmental Science**, 930***(1), 012067. IOP Publishing.	2021

Presentations (Last 5 years):	**Year**
Spatiotemporal Variation of Sea Surface Chlorophyll-A in the Seto Inland Sea **International Conference on Asian and Pacific Coasts (Busan, Korea)**	2025
Seagrass Mapping in the Seto Inland Sea using Remote Sensing Data Analysis **Japan Society of Civil Engineers (JSCE) (Fukuoka, Japan)**	2025
Surface Chlorophyll-a Variability in Karimata Strait and Labuan Island Seas **International Research Session for Next Generation, Chiba University (Chiba, Japan)**	2023
Study of Wave Behavior due to Cylinder Pile Structure Through Energy Spectrum Analysis **Borneo Ocean Talks, University Malaysia Sabah (Sabah, Malaysia)**	2022

Speaker (Last 5 years):	**Year**
Ecological responses of coral reefs to marine heatwaves and cold spells in the tropical Indo-Pacific: A case from Lombok, Indonesia **World Aquaculture, Fisheries and Seafood Conference (Rome, Italy/hybrid)**	2025

E. Relevant Trainings

Trainings (Last 5 years):	Year
Satellite Utilization Expert Training *(Marine Technology Cooperation Research Center, Jakarta, Indonesia)*	2023
Marine Equipment Training *(Marine Technology Cooperation Research Center, Cirebon, Indonesia)*	2023
Marine Survey Equipment Operation and Field Survey Training *(Operating different types of the marine survey equipment)*	2022