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Notification of Acceptance

GCC2022 <gcc2022@easychair.org> Wed, Sep 14, 2022 at 5:15 PM
To: Muhammad Afiq Azman <mohdafiqazman96@gmail.com>

Dear Muhammad Afiq Azman,

Congratulations! We are pleased to inform you that your Abstract has been accepted and selected for presentation in 2nd GLOBAL CLEANUP CONGRESS 2022 (GCC2022). To ensure your participation at the conference, at least one author is expected to register on or before 16th September 2022. For details about the registration for the presentation, please have a look at this link: https://gcc2022.cleanupconference.com/register/

GCC2022 publication committee would like to provide you with one more opportunity to publish your full paper in either of the following journals listed journals below:

- Planning Malaysia Journal
- Journal of Wastes and Biomass Management (JWBM)

Kindly note that if you follow all the guidelines provided by the selected journal(s), and after a blind peer review, your full paper will be considered for publication. Your conference registration covers both presentation and publication charges, for details about this please have a look at https://gcc2022.cleanupconference.com/

Thank you very much for participating in GCC2022.

Regards
General Chair
GCC2022
gcc2022@iium.edu.my

EVENT AGENDA

GLOBAL CLEANUP CONGRESS 2022

20 – 21 September 2022

IIUM Cultural Centre (ICC), International Islamic University Malaysia, Gombak Campus

AGENDA**

DAY 1 **DATE: 20 September 2022 (Tuesday)**			
Time		**Agenda**	**Venue**
9:30 am	:	Opening ceremony	Main Hall
11:15 am	:	Morning Tea Break	Dining Area
11:30 am	:	Speech by **Mr Pubadi Govindasamy** **Senior Undersecretary** **Strategic Planning and International Division** **Ministry of Plantation Industries and Commodities (MPIC) Malaysia** Moderator: Assoc. Prof. Dr. Khairul Azami Sidek (IIUM)	Main Hall
12:15 pm	:	Speech of "*Waste to Wealth: Tapping a Hidden Resource*" by **Laureate Professor Ravi Naidu**	Main Hall

		CEO and Managing Director of CRC CARE, Australia **Chair of 2nd Global CleanUp Congress 2022** Moderator: Mr. Ratin Mathur (CRC Care Australia)	
1:00 pm	:	Lunch Break	Dining Area
2:00 pm	:	Speech of "*Climate Change Impact on Health in ASEAN*" by **Dr. Charles Lee** **Associate Professor, Program Convenor (Environmental and Occupational Health & Safety)** **Newcastle Australia Institute of Higher Education, University of Newcastle (Australia)** Moderator: Prof. Tpr. Dr. Mariana Mohamed Osman (IIUM)	Main Hall
2:30 pm	:	**Paper Presentation Session** Poster presentation: **Paper ID15, ID26, ID28, ID29** Remediation Technology: **Paper ID1, ID4, ID16, ID17, ID30** Waste Management: **Paper ID5, ID8, ID10, ID12, ID33, ID34** Waste Management: **Paper ID11, ID13, ID21, ID23, ID31**	Parallel Room 1 Parallel Room 2 Parallel Room 3
3:30 pm	:	Afternoon Tea break	Dining Area
3:45	:	Speech of "*Sustainable Remediation* –	Main

pm		*Intermediate Remediation*" by **Dr. Paul Nathanail** **Professor of Engineering Geology** **University of Nottingham, UK** **Managing Director of Land Quality Management Ltd** **Nottingham, UK** Moderator: Dr. Adamu Abubakar Ibrahim (IIUM)	Hall
5:00 pm	:	Closing of Day 1	

DAY 2 **DATE: 21 September 2022 (Wednesday)**			
Time		**Agenda**	**Venue**
9:00 am	:	Speech of "*Food Waste Valorization, with a Focus on Fish Culture*" by **Professor Wong Ming Hung** **Advisor (Environmental Science)** **The Education University of Hong Kong** Moderator: Assoc. Prof. Dr. Noor Faizul Hadry Nordin (IIUM)	Conference Room
9:45 am	:	Speech of "Integrated Waste Management with Value Creation in Palm Oil Mill" by	Conference Room

		Prof. Dato' Dr. Mohd Ali Hassan **Universiti Putra Malaysia (UPM)** Moderator: Dr. Husna Ahmad Tajuddin (IIUM)	
10:30 am	:	Morning Tea Break	Dining Area
10:45 am	:	Speech of "Environmental Management" by **Mr. Andrew Pruszinski** **Director Operations** **Environment Protection Authority South Australia (SA EPA)** Moderator: Assoc. Prof. ChM. Dr. Yong Soon Kong (UiTM)	Conference Room
11:30 am	:	Forum of "*Agri-commodity Waste and Pollution Management*" by **1. Tuan Haji Muhtar Suhaili, CEO Malaysian Timber Council (MTC)** **2. Mr. Usman Ahmed, CEO Gamalux Sdn Bhd** **3. Ms. Geerija Manon, ESG Director, Malaysian Rubber Glove Manufacturers Association (MARGMA)** **4. Ir. Dr. Gideon Tan Xiang Yee, Head of Transformation Management Office, FGV Holdings Berhad**	Conference Room

		Moderator: Assoc. Prof. Dr. Suhaila Mohd Omar (IIUM)	
1:00 pm	:	Lunch Break	Dining Area
2:00 pm	:	All sessions combined: Speech of "*Smart and Sustainable Waste Management in Malaysia*" by **Mr. Hj. Ramli Mohd Tahir** **Managing Director & Board Member** **KDEB Waste Management Sdn Bhd** Moderator: Dr. Nurul Liyana Mohamad Zulkufli (IIUM)	Conference Room
2:45 pm	:	Speech by **Mr. Kamaruzaman Othman** **Director General** **Malaysian Timber Industrial Board (MTIB)** Moderator: Assoc. Prof. Dr. Zarina Zainuddin (IIUM)	Conference Room
3:30 pm	:	Afternoon Tea Break	Dining Area
3:45 pm	:	**Paper Presentation Session** Poster presentation: **Paper ID15, ID26, ID28, ID29** Remediation Technology: **Paper ID18, ID22, ID27, ID32** Waste Management: **Paper ID14, ID24, ID25, ID26**	Parallel Room 1 Parallel Room 2

		Agricommodity: **Paper ID7, ID9, ID19, ID20, ID35**	Parallel Room 3
4:30 pm	:	Closing of Day 2	

DAY 3 – OPTIONAL **DATE: 22 September 2022 (Thursday)**			
Time		**Agenda**	**Venue**
9:00 am	:	Visit to Bukit Tagar Sanitary Landfill, Selangor	Assemble at IIUM Grand Entrance
1:00 pm	:	Closing of Day 3	

**This agenda is subject to change*

Contact

Mr Maha Raj a/l Govindasamy

Trajectories of Floating Marine Debris Along the East Coast of Peninsular Malaysia

Muhammad Afiq Azman[1], Muhammad Zahir Ramli[2]•, Hooi Bein Goh[3], Zuraini Zainol[4]
[1,2,]International Islamic University Malaysia (IIUM), Jalan Gombak, 53100 Kuala Lumpur, Malaysia
[3]Global Water Consultants Sdn Bhd, Malaysia
[4]Universiti Malaysia Terengganu, Malaysia

Abstract

Marine debris issues have been one of the major problems that every nation is facing around the world Several studies have reported the accumulation of marine debris both in Peninsular and East of Malaysia in terms of its distribution on different places, temporal and seasons effect and the major debris type found on Malaysian coastline. However, the study on route and trajectories of floating debris in Malaysia remains to be accomplished. A numerical approach could be a better view and improve our knowledge on the behaviour and fate of marine debris in our coastline. Particle tracking model was used to provide 1) the possible sources of floating marine debris, 2) the distribution of floating marine debris during different seasons, and 3) the trajectory of marine debris released from our coastline. We use the Lagrangian ocean analysis tool, OceanParcels software as our main framework to simulate and model the particle integrated with ocean circulation model and stokes drift from the GLORYS12V1 and WAVERYS, a reanalysis ocean model and waves by European Center for Medium-Range Weather Forecasts (ECMWF). Particle tracking model shows an acceptable agreement.

Keywords: *Marine debris Plastic, Numerical modelling, Malaysia*

• The corresponding author mzbr@iium.edu.my. This paper is prepared for "*2nd Global CleanUp Congress on 20-21 September 2022 in Kuala Lumpur, Malaysia*". Organized by CRC CARE, the globalCARE Alliance™, the Ministry of Housing and Local Government Malaysia (KPKT) and the International Islamic University Malaysia (IIUM).

TRACKING THE TRAJECTORY OF MARINE LITTER

Muhammad Afiq Azman
(Institute of Oceanography and Maritime Studies IIUM)
Ts. Dr. Muhammad Zahir Ramli
(Institute of Oceanography and Maritime Studies IIUM)
Ir. Dr. Goh Hooi-Bein
(Global Water Consultant Sdn Bhd)
Dr. Zuraini Zainol
(Institute of Oceanography and Environment UMT)

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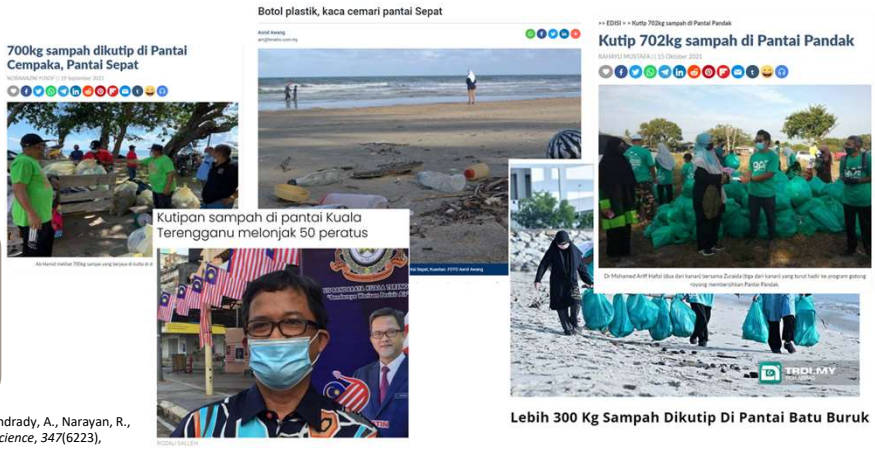
MARINE LITTER ISSUES IN MALAYSIA

Country / location						People	KG	KM of coast	Total items collected
Malaysia						12,817	36,895.48	1,463.15	546,614
Cigarette butts	Food wrappers (candy etc.)	Straws stirrers	Plastic forks Knives spoons	Plastic beverage bottles	Plastic bottle caps	Plastic grocery bags	Other plastic bags	Plastic lids	Plastic cups plates
148,691	139,958	21,715	81,841	47,004	9,132	12,111	2,759	15,915	6,836

Malaysia ranks 8th amongst the countries with mismanaged plastic waste in the world[1]

Annual leakage of 0.14 to 0.37 million tonnes of plastic waste into the the ocean[1]



[1]Jambeck, J. R., Geyer, R., Wilcox, C., Siegler, T. R., Perryman, M., Andrady, A., Narayan, R., & Law, K. L. (2015). Plastic waste inputs from land into the ocean. *Science*, *347*(6223), 768–771. https://doi.org/10.1126/science.1260352

2

SIMULATION MODEL IN ASEAN COUNTRIES FOR MARINE LITTER

Sampling and quantifying the sample are MOST COMMON method

However, SIMULATION method are only applied in Indonesia and Vietnam[1]

Simulation model method needs experts in hydrodynamic modeler to predict the trajectory of marine litter.

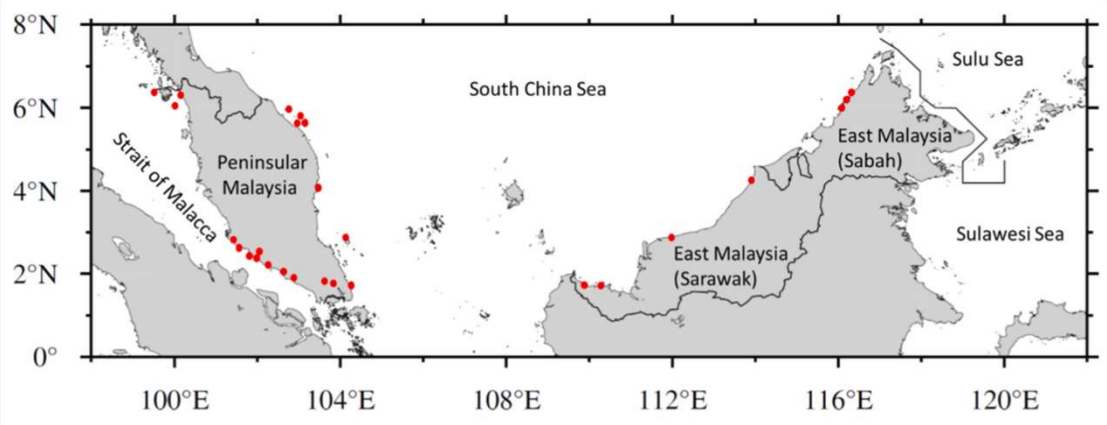
	BRN	KHM	IDN	LAO	MYS	MMR	PHL	SGP	THA	VNM
Review (literature/ social media)										
Sampling										
Monitoring										
Quantification										
Identification										
Laboratory experimental work										
Simulation model										

Legend: Method employed in marine plastics research; Method not employed in marine plastics research

[1]Y Lyons, ML Neo, A Lim, YL Tay and Vu Hai D from NUS (2020) Status of Research, Legal and Policy Efforts on Marine Plastics in ASEAN+3: A Gap Analysis at the Interface of Science, Law and Policy, COBSEA and NUS

3

MARINE LITTER STUDY IN MALAYSIA



Abundance and distribution remained patchy due to the lack of systematic records[1]

Limited on the beaches along the coasts of Peninsular Malaysia and few in Sabah and Sarawak.

Most common debris is from land-based activities.

[1]Fauziah, S. H., Rizman-Idid, M., Cheah, W., Loh, K.-H., Sharma, S., M.R, N., Bordt, M., Praphotjanaporn, T., Samah, A. A., Sabaruddin, J. S. bin, & George, M. (2021). Marine debris in Malaysia: A review on the pollution intensity and mitigating measures. *Marine Pollution Bulletin*, *167*(November 2020), 112258. https://doi.org/10.1016/j.marpolbul.2021.112258

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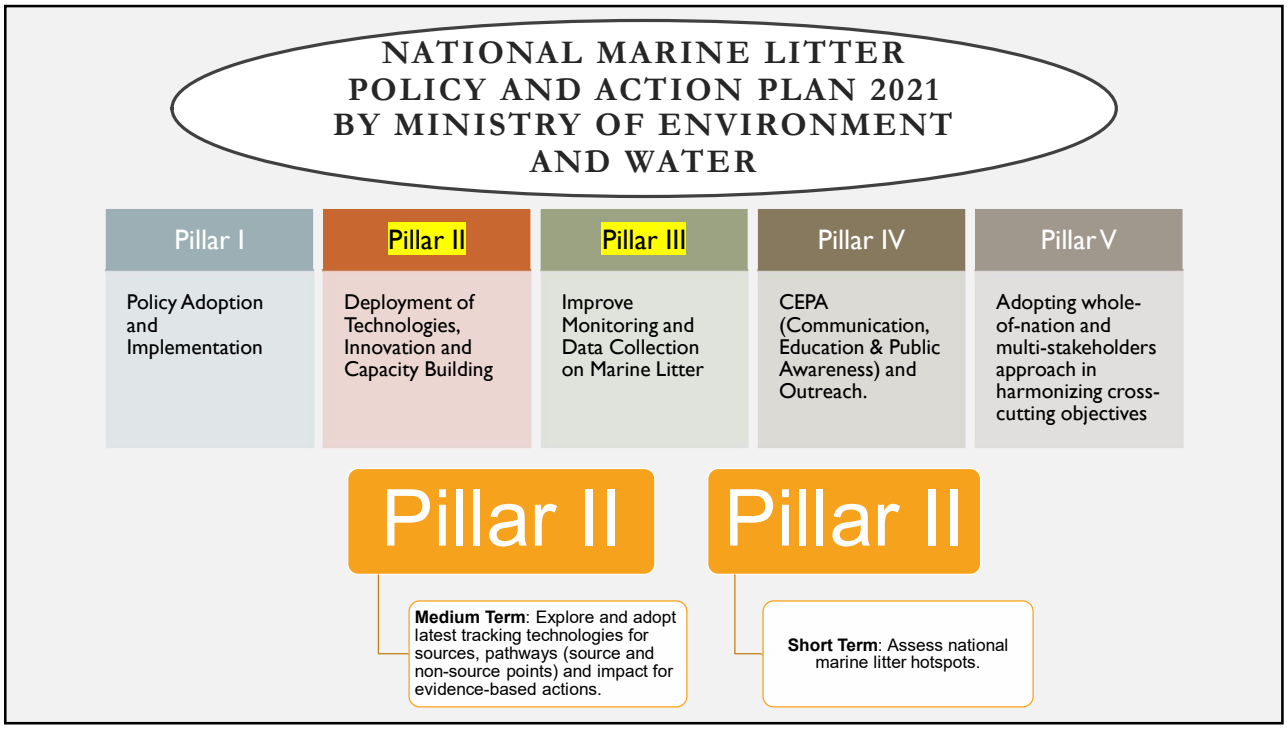

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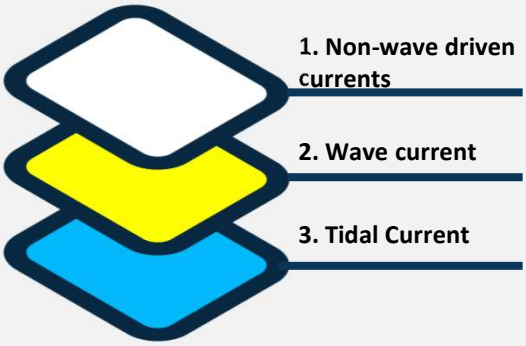
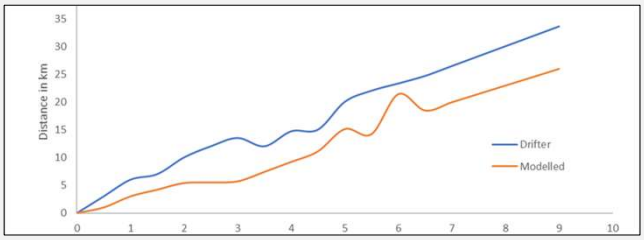
SOLUTION IN TRACKING MARINE LITTER

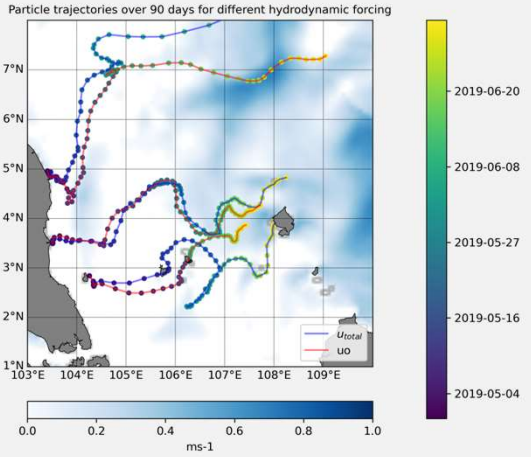
6

OCEAN CURRENTS COMPONENTS



1. Non-wave driven currents
2. Wave current
3. Tidal Current





- Including full forcings into simulation IMPROVES the performance of particle trajectory.
- REDUCES the overestimation of residence time and velocity of particle[1]

[1]Urbina, J. M. F. (2021). Eindhoven University of Technology Department of Applied Physics Lagrangian transport time scales in the Dutch Wadden Sea and their variability due to wind.

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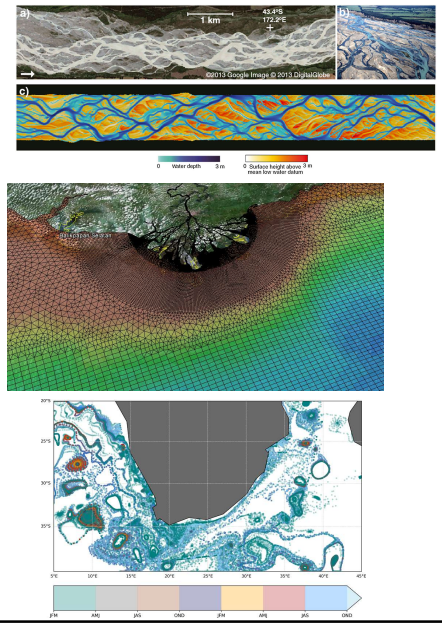
OPEN-SOURCE PLATFORM

OceanParcels

- Developed by Utrecht University in Netherland
- Covers the large domain and long-term simulation.
- Reduce the computational time.
- Has been used in the government agencies such as European Space Agency (ESA) for warm-water transport, microbe and debris.
- Available FOC (open-source)

Delft 3D

- Developed by University of Delft and Deltares in Netherland
- Provides detailed simulation for finer grid.
- Suitable for small-scale simulation.
- Has been used in many application of hydro-morphodynamic, water quality and oil spill pollution, storm surge prediction by industry and consultants.
- Available FOC (open-source)



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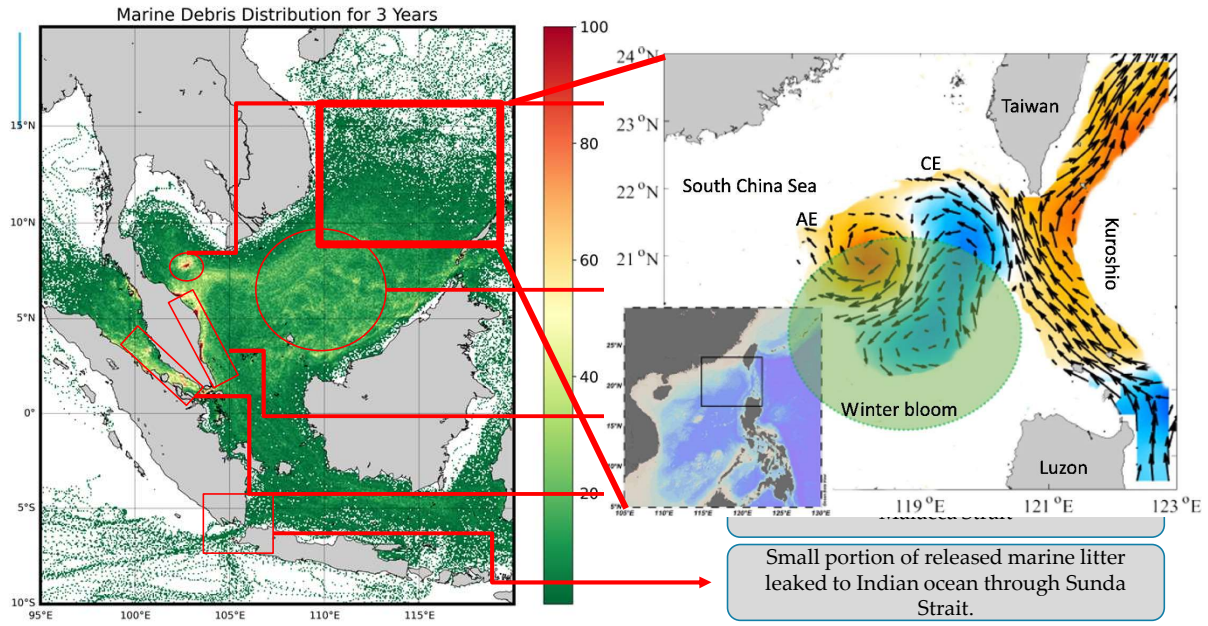
MARINE LITTER ACCUMULATION ALONG EAST COAST OF PENINSULAR MALAYSIA



Small portion of released marine litter leaked to Indian ocean through Sunda Strait.

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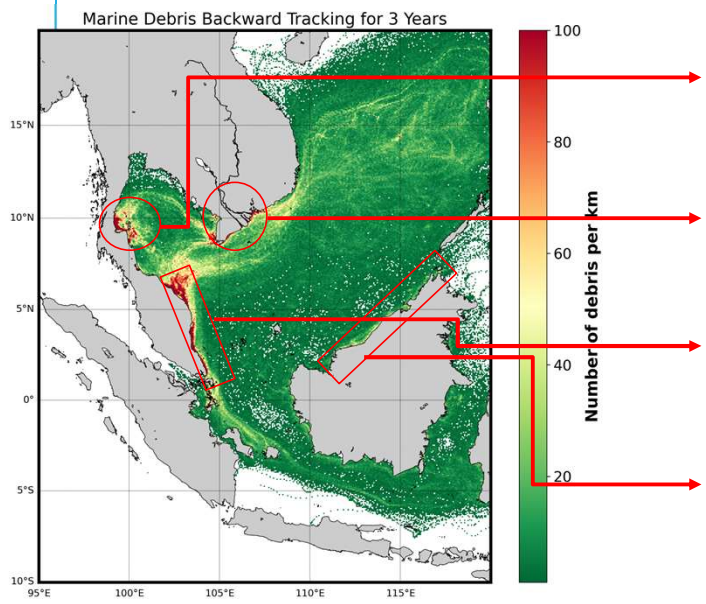
POSSIBLE SOURCES OF MARINE LITTER ALONG PAHANG COASTLINE



Bandon Bay, Thailand

Mekong, Ham Luang, Co Chien and Song Hau river along East Vietnam

68% marine litter are originated from East Coast Peninsular Malaysia.

East Malaysia

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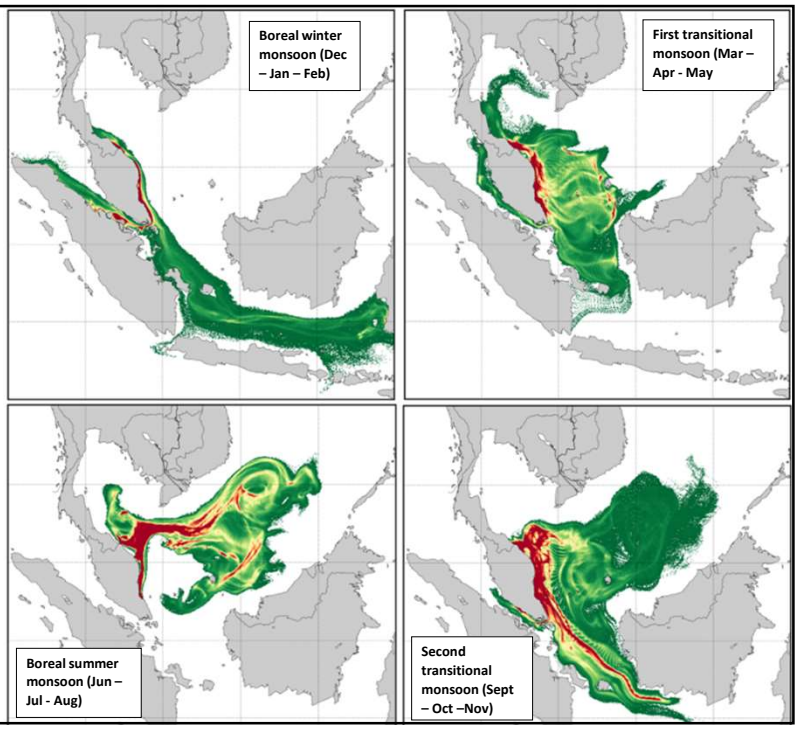
SEASONAL PATTERN



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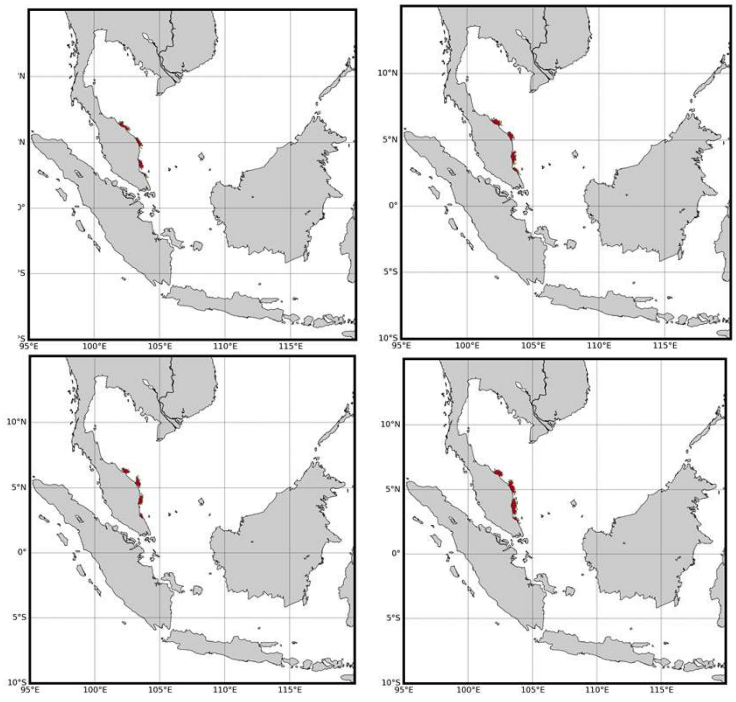

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LIMITATION

Observational data (e.g Drifters)

Datasets are independent (overestimation of Ekman and stokes currents)

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