



# Risk Management: **Ocean Forecast** System



Story of the Lost Ocean Buoy that found Its Way Home After a Week

After almost 1,300 days in the South China Sea, UMT's ocean buoy that valued at almost RM1million, that floats around 70Nm (130km) from the coast snapped and drifted away.

JNIVERSIT



NGS

Women's Day: Is Not about **Excluding Men** 

On March 8th every year we celebrate International Women's Day all over the world. Off course is not about excluding men, it is about celebrating and empowering women in our ocean science.



INOS Welcomed the 8th Cohort of The Erasmus Mundus TROPIMUNDO

More info and scholarship opportunity, please go to https://www.tropimundo.eu/



# <image>

MFAST IS POWERED BY INOSURF : INOS SUPERCOMPUTING FACILITY

Alaysia Marine Forecast System (MFAST) with an aim to provide reliable ocean forecast data has been developed to provide a highresolution Ocean Forecast System (OFS) to empower us for early preparation for maritime incidents due to hazards and disasters.

Nowadays, the society is largely dependent on the commercial OFS to predict the condition of the ocean. Nevertheless, the accuracy of this OFS is often doubtful in terms of realibility especially at the local scale. One of the key reasons is the resolution of the model is too scarce.

The MFAST is developed under the collaboration between Universiti Malaysia Terengganu (UMT) and First Institute of Oceanography (FIO), China, which is a subsidiary product of the Ocean Forecasting Demonstration System (OFDS) for Southeast Asian Water. OFDS is one of the Southeast Asian Global Ocean

# Risk Management: Ocean Forecast System



Observing System (SEAGOOS) pilot projects under the auspices of the IOC Sub-Commissions for the Western Pacific (IOC/WESTPAC).

MFAST is the first OFS in Malaysia to have a high-resolution ocean forecast data developed based on wave-tide-circulation coupled model established by the Laboratory of Marine Sciences and Numerical Modelling (MASNUM), FIO.

MFAST delivers up to 5 days forecast data of ocean current, temperature,

surface wave and wind between 3 °S – 15 °N and 96 – 123 °E at 3 hours interval.

### MFAST offers

comprehensive, continuous, and reliable forecast data for marine-related activities, facilitating optimum operations in the marine environment, such as marine surveillance, navigation, search and rescue operations, recreation, and scientific exploration in our region.



# Director's Note

ENVISIONING 2022: MAKING PURPOSEFUL IMPACT

fter a challenging year, INOS continues to achieve strong performance through various outcomes impacting the scientific communities, industries and society.

We realise how important our research is to the nation, thus this year we share a slogan, 'making purposeful impact' to our team. We want to be fully committed to making things right for our stakeholders by building trust through our research and innovation that purposely design to provide solution based on relevant needs.







### PURPOSEFUL IMPACT

### **Envision Marine Future**

This is a long-term effort demanding commitment through improving the quality of our postgraduates and talents, managing ocean facilities and data product efficiently and making our innovative and impactful research outcomes to various stakeholders.

We believe what we do in INOS will contribute to building a strong foundation for Malaysia's ocean future.



# Story of the Lost Ocean Buoy that Found Its Way Home After a Week

fter almost 1,300 days in the South China Sea, UMT's ocean buoy valued at almost RM1million floated around 70nm (130km) from the coast finally snapped and drifted away.

After collecting more than hundreds of thousand of data, notably capturing Typhoon Pabuk (2019) and Typhoon Rai tail effect recently, and providing scientist with valuable information, the ocean buoy was tracked only by GPS signal that sent it position every 4 hours.

Without searching location like Waze or Google Maps, the searching process was challenging, especially during the monsoon season. But luckily, we were equipped with our in-house MFAST forecast system that managed to predict up to 5 days drifting.

The buoy is equipped with automated weather system sensors and temperature and salinity (CTD) sensor. The data is transmitted in almost realtime through satellite communications.

After almost 7 days and drifted as far as 350km from its location, we managed to bring the buoy home.

# Ocean Buoy south china sea



This buoy has been very instrumental in providing continuous data support towards our marine forecast system. Malaysia Marine Forecast System (MFAST) is the 1st national operational marine forecast that offers 5-days prediction of ocean current, wave and temperature data that will support marinerelated operations, activities and search and rescue mission.

> MFAST marine forecast



The fact that the buoy were able to be accurately located by our MFAST, testifies the reliability of our forecast system. The system if far from perfect, but at this current performance, we hope it can be used by various sectors in the maritime and marine-based industries to support their operation.

## Success TEAM

INOS prompt SAR mission lead by Physical and Geological Oceanography Lab Technical Manager Shukri and his team Roslan and Azri. Of course, it would not be possible without the tireless effort of fishermen crew boat from Kuantan that made this mission a success. A truly remarkable and valuable experience.



Gender Equality Today for a Sustainable Tomorrow

# Women's Day: Is Not about Excluding Men

n March 8 every year we celebrate the International Women's Day all over the world. Of course it is not about excluding men, it is about celebrating and empowering women in our ocean science.

As we commemorate Women's Day recently, it is an opportunity to honour the vital and endless contributions made by our women scientists to our ocean science.

We note the theme "Gender Equality Today for a Sustainable Tomorrow" adopted this year by the United Nations. At INOS, we are about inspiring the younger generations to go for a career in ocean science, irrespective of race and gender. Diversity is important. Don't believe us? Science has proven that research benefits from a more diverse workforce.

We share here some photos of our women scientists making waves in ocean science.









Scientist

# International Women's Day (IWD)

The theme for this year's International Women's Day (IWD) is: "Gender equality today for a sustainable tomorrow," recognize the contribution of women and girls around the world who are leading the charge on climate change adaptation, mitigation, and response, to build a more sustainable future for all.

(UNDP, 2022)

# The 2nd LRGS Scientific Cruise to Malacca Strait



Scientist

◊ 4

# Stations

◊ 44

Duration

09 - 19 March 2022
 (10 days)

### Cost

♦ Almost RM200,000 spent







- Chemical Oceanography
  AP Dr. Poh Seng Chee
- Physical Oceanography
  Dr. Nur Hidayah Roseli
- Biological Oceanography
  Dr. Hii Kieng Soon
- Geological Oceanography
  Dr. Fatin Izzati Minhat







# Cruise

THE LONGEST DISTANCE FROM SHORELINE TO STATION = 159.00 km

THE DEEPEST SAMPLING POINT Malacca Strait = 90m (near Langkawi) South China Sea = 63m (near Terengganu)



# **INOS Seminar Series**

## Satellite and UAV Remote Sensing to Improve Coastal Ecosystem Mapping under Complex Environmental Conditions

Want to know how the marine ecosystems can be mapped remotely? The seminar by the Remote Sensing and Marine Informatics research group highlighted drone as the new arsenal in marine remote sensing research in Malaysia. The use of drone is more practical, cost saving and accurate compared to other remote sensing techniques. Several researches as by the group were highlighted including coral mapping and conducted development of new algorithm for image processing.



JUST IN

CASE YOU

MISSED IT

Don't worry if you missed out on our seminar series, you can watch the recordings!

RECORDING LINK HERE

### Green Turtles in the Blue Economy

How one can relate conservation and profit making? Can these work in tandem, benefitting man and the environment? Join us to listen to our sea turtle expert – Dr. Uzair Rusli who will prove that conservation can be used to uplift the socio-economic status of the people, using the sea turtle (of course) as a case study.





# HICoE: Research, Impact and Future





HICoE Higher Education Center of Excellence

I n November 2011, INOS was awarded the status of Potential Higher Institution Centre of Excellent (HICoE) by MoHE under the R&I Thrust, and subsequently became the 7th full-fledged HICoE programme in July 2012 under the "Sustainability of Marine Ecology" niche area. INOS was designated as the focal point and leader in marine science, focussing on the South China Sea area.

Although our core focus has always been in the broad area of oceanography, realignment took place under this HICoE programme

with the aim to bolster three main research areas; marine processes and marine ecology that have always been our strength, and an emerging field of ocean governance that provides the science policy nexus to achieve the Sustainable Development Goals.

The HICoE status has elevated our visibility and attracted research collaborations from across the country and around the world.

To read more about INOS's making impact through HICoE program, download our report here:







INOS WELCOMED THE 8TH COHORT OF THE ERASMUS MUNDUS TROPIMUNDO



TROPIMUNDO is an ECfunded and excellence-labelled Erasmus Mundus Joint Master Degree in Tropical Biodiversity and Ecosystems. It aims to bring together

experts with long-standing worldwide expertise in tropical coastal ecosystems. It is the first Master Science program that integrates the knowledge and skills related to four adjacent interlinked tropical ecosystems under threat (tropical rainforests and woodlands, wetlands, - both terrestrial and coastal such as mangrove forests, seagrass beds and coral reefs).

TROPIMUNDO is unique in incorporating a 2nd semester (with theoretical courses and a significant field course) in the tropics in Peru (UCP), Cameroon (UDsch), Malaysia (UMT) or Australia (UQ). Furthermore TROPIMUNDO brings together European expert higher education institutes, with long-standing worldwide expertise in tropical rainforests and woodlands and in coastal ecosystems in Belgium (ULB, VUB), France (UPMC, MNHN) and Italy (UNIFI).

ROPIMUNDO

They integrate world class scientific education and research expertise on the aforementioned tropical ecosystems and experience in designing and teaching in international MSc programs.

MSc prgm.



Info & Scholarship opportunity More info and scholarship opportunity,

please go to https://

www.tropimundo.eu/





### CONGRATULATIONS TNCPI

INOS congratulates Prof. Dr Marinah Mohd Ariffin on your appointment as the Deputy Vice-Chancellor (Research and Innovation). May you guide this fine university with compassionate confidence!







Institute of Oceanography and Environment (INOS) Universiti Malaysia Terengganu (UMT) 21030 Kuala Nerus Terengganu, MALAYSIA Tel: +609-6683195 Fax: +609-6692166 TOMSY2022 | THE 3<sup>RD</sup> TROPICAL OCEAN AND MARINE SCIENCES SYMPOSIUM



# Ocean Research for a Sustainable Future

The 3rd Tropical Ocean and Marine Sciences International Symposium (TOMSY2022) is a biannually scientific event hosted by The Institute of Oceanography and Environment (INOS), Universiti Malaysia Terengganu.

This symposium aims to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences and research results about all aspects of ocean and marine sciences especially in the tropical areas.

With the theme "Ocean Research for a Sustainable Future", the organizing committee are pleased to invite you to participate in TOMSY2022 which will be held through hybrid on 06 and 07 November 2022.

The scientific programme includes keynote, invited and oral presentations.

### Editorial Board

Prof. Ts. Dr. Mohd Fadzil bin Mohd Akhir (Advisor) Prof. Dr. Wan Izatul Asma Binti Wan Talaat (Proofreader) Dr. Mohd Uzair bin Rusli Dr. Siti Tafzilmeriam binti Sheikh Abdul Kadir Azida binti Abdullah Ahmad Fakhrurrazi bin Mokhtar Muhammad Izuan bin Nadzri

UMT Website: http://www.umt.edu.my INOS Website: https://inos.umt.edu.my Facebook: https://www.facebook.com/inosumt