Co-funded by the Erasmus+ Programme of the European Union

Innovative teaching and learning strategies in modelling marine environment. for student
Project No. 610327-EPP-1-2019-1-DE-EPPKA2-CBHE-JP

Modelling Marine Environment (Text book)

Created by: Prof. Dr. Nguyen Ky Phung and Prof. Dr. Le Anh Tuan

Co-funded by the Erasmus+ Programme of the European Union

LECTURE NOTE
MARINE ENVIRONMENTAL MODELLING
(In Vietnamese)

MÔ HÌNH HÓA MÔI TRƯỜNG BIỂN

GS. TS. NGUYỄN KỲ PHÙNG, PGS.TS. LÊ ANH TUẤN

TP.HCM, 2021

TABLE OF CONTENTS

PREFACE

Currently, environmental pollution is an alarming problem that goes hand in hand with socio-economic development, especially in developing countries. In many places, the quality of water, soil, and air deteriorates rapidly beyond the self-cleaning capacity of nature. In the field of environmental management science and environmental engineering, environmental monitoring and prediction are important for problem-solving decisions. However, the measurement and monitoring of the environment is very costly and human effort.

In order to minimize these difficulties, scientists have been and continue to develop practical applications of physical and mathematical principles to simulate real-life events in nature and make predictions. necessary. Simulation of the environment is also helping people to create miniature or similar images or things, imitating reality to describe events as well as creating spatial and qualitative change scenarios, and time to predict contaminant transmission or resource quality recovery.

The subject of environmental modelling was formed from this foundation. Environmental modelling is for all scientists, technicians, managers, including sociologists working in the field of environment and natural resources. The word "modelling" is derived from the Latin word modellus. This word means a man-made style to represent a certain reality.

In addition to the introduction, the textbook " modelling marine environment " consists of 5 chapters with the following contents:

The target audience are bachelor's level students, interested in modelling marine environment.

Biography of author

1. Professor Nguyen Ky Phung have been working as a Senior Lecturer – Faculty Leader of Faculty of Marine Resources Management, Ho Chi Minh City University of Natural Resources and Environment – HCMUNRE, Vietnam. Professor Nguyen Ky Phung completed his M.Sc. in Oceanography and then pursued a PhD in Oceanography at St. Petersburg Hydro-meteorological University, Russia in 1993, and he has held postdoctoral fellowships at the Russian state Hydro-meteorological Institute. For eight years, he was Vice Director of Department of Science and Technology – DOST, Ho Chi Minh City, Viet Nam and Director of Institute for Computational Science and Technology – ICST, Vietnam. He also was Board member of National Marine Science and Technology Program, Ministry of Science and Technology; Environmental Protection and Climate Change Program, Department of Science and Technology, HCMC, Vietnam; Water and Environment Association, HCMC, Vietnam and also served for 4 years on the Board of the Sub Institute of Hydro-meteorology and Environment of South Vietnam, Ministry of Resources and Environment; 8 years on the Board of Faculty of Environment, University of Science, VNU-HCM.

Professor Nguyen Ky Phung's research interest is sustainable water resources management. His research focus on hydrodynamic in river estuary and sea; modelling sediment transportation in river and coastal area (waves, tides, distribution of salt); modelling and forecasting the distribution of pollution. He involves in a variety of national and international research and development projects, he was Project Coordinator of 49 research projects, author and co-author of 157 paper. He was also author of ten books: Characteristics of Hydro-meteorology in Ho Chi Minh City (2018); Coastal zone management in Southern Viet Nam (2016); Coastal resources and environmental management (2016); Environment statistics (2014); Hydro Meteorological Maps of Ho Chi Minh city (2014); Interaction of Land-Ocean in the South Viet Nam (2014); Climate Change and its Impacts on Ho Chi Minh City (2013); Calculation Methods in Environmental (2009); Ocean Resources and Environment, (2008); Modelling of surface water pollution (2007).

2. Assoc. Prof. Dr. Le Anh Tuan has been working at Can Tho University since 1982 and currently holds the position of Senior Lecturer at the College of Environment and Natural Resources. He also is the Former Vice Director of the Research Institute for Climate Change – Can Tho University, Vietnam. Dr. Tuan is currently a member of the Advisory Board of Vietnam River Network. He is also a coordinator of the Mekong River Delta Network for Environmental Protection and Climate Change Adaptation (MekongNet).