

RADIONUCLIDES IN THE MARINE ENVIRONMENT:

SCIENTIFIC VIEW ON THE FUKUSHIMA DAI-ICHI NUCLEAR POWER STATION ACCIDENT

BY **7** OCEANOGRAPHERS

MICHIO AOYAMA
YAYOI INOMATA
HIDEKI KAERIYAMA
YUICHIRO KUMAMOTO
SHIGEYOSHI OTOSAKA
YUTAKA TATEDA
DAISUKE TSUMUNE



ISBN978-4-904074-76-3
C3044 ¥23000E

定価 25,300 円
(本体 23,000 円 + 税 10%)



9784904074763

海洋学 海洋汚染 原子力災害

発売所 **丸善出版**



1923044230006

On March 11, 2011, the Great East Japan Earthquake was the start of a severe nuclear accident at the Fukushima Dai-ichi Nuclear Power Station (hereafter FINPS), owned and operated by the Tokyo Electric Power Company (TEPCO). The tsunami caused by the earthquake flooded and destroyed the nuclear reactor cooling systems, then the blackout wrought by the tsunami caused the meltdown of three cores of Units 1, 2, and 3. Releases of radionuclides to the atmosphere had occurred by the meltdown and produced hydrogen gas explosions in mid of March 2011. After that highly contaminated water in the underground of the housings of cores and turbines had released to open water through the port of FINPS in April 2011.

Released radionuclides to our environment had dispersed globally in the atmosphere within a few weeks and radioactive concentration in the atmosphere decreased rapidly and deposited on the land surface because of the shorter residence time of radioactive materials in the atmosphere is several weeks while the dispersion of contaminated water in the ocean has been continuing even after ten years from the accident in 2011 because of the speed of the current in the ocean is about two orders of magnitude lower rather than of the speed of wind in the atmosphere and the residence time of dissolved radionuclides in the ocean surface water is around 10-20 years.

This book is published to summarize the knowledge of multiple fields in the marine environment during these ten years. At this moment, about 300 articles have been published on the behavior of artificial radioactivity in the marine environment. Although individual issues are described in each article, a compilation of scientific findings from the perspectives of oceanography, geochemistry, and environmental radioactivity may not be available from each article. Therefore, seven Japanese scientists, who have carried out studies of FINPS accident issues, agreed to publish this book based on the results of our previous studies and do discussions among the authors to get more deep insight regarding the impact of FINPS derived radionuclides on the marine environment.

In this book, we also tried explicitly to integrate the findings of oceanography and marine biology and presented what was newly discovered in the post-accident research. Furthermore, not only the knowledge published in the previously published articles, but also the data up to the very latest are used, and the extension of the findings or the new findings obtained as a result of the discussion among the authors of this book during these several months are described in this book, too.

Radionuclides in the Marine Environment

by M. Aoyama, Y. Inomata, H. Kaeriyama, Y. Kumamoto,
S. Otsuka, Y. Tateda and D. Tsumune

University of Tsukuba Press

RADIONUCLIDES IN THE MARINE ENVIRONMENT:

SCIENTIFIC VIEW ON THE FUKUSHIMA DAI-ICHI NUCLEAR POWER STATION ACCIDENT

BY 7 OCEANOGRAPHERS

**MICHIO AOYAMA
YAYOI INOMATA
HIDEKI KAERIYAMA
YUICHIRO KUMAMOTO
SHIGEYOSHI OTOSAKA
YUTAKA TATEDA
DAISUKE TSUMUNE**

Radionuclides in the Marine Environment

**Scientific view on
the Fukushima Dai-ichi Nuclear Power Station Accident
by 7 oceanographers**

by Michio Aoyama, Yayoi Inomata, Hideki Kaeriyama,
Yuichiro Kumamoto, Shigeyoshi Otsuka, Yutaka Tateda and Daisuke Tsumune

University of Tsukuba Press, Tsukuba, Japan

Copyright©2023

ISBN978-4-904074-77-0