

## **Distribution Of Dissolved Organic Carbon In River Mouth**

Fauna of the Kurile-Kamchatka Trench and Its Environment  
Dynamics and Characterization of Marine Organic Matter  
The Ocean Carbon Cycle and Climate  
Biogeochemistry of Marine Dissolved Organic Matter  
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Forming in the Pacific Ocean  
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### **Fauna of the Kurile-Kamchatka Trench and Its Environment**

This volume features papers presented at the International Symposium on the Eutrophication Process and Control in Large Shallow Lakes--with Special Reference to Lake Taihu, held in Nanjing, China in April 2005. Coverage includes: physical processes and their effects on shallow lake ecosystems; biogeochemistry of sediments and nutrient cycling in shallow lakes; and algal blooms and ecosystem response in shallow lakes.

### **Dynamics and Characterization of Marine Organic Matter**

### **The Ocean Carbon Cycle and Climate**

### **Biogeochemistry of Marine Dissolved Organic Matter**

Although there are some biological processes that are supported by UV radiation, most organisms are stressed by it in various ways, e.g. through DNA damage. Top international experts present an integrated overview of UV radiation and its effects on terrestrial, freshwater and marine Arctic biota. Increased stratospheric ozone depletion and the corresponding increase in ground levels of UV radiation as well as ambient, "natural" UV radiation as a key ecological factor in the Arctic spring and summer are discussed in detail. Additionally, basic information on Arctic ecosystems is given. The volume provides not only an excellent account of present-day knowledge of the subject, but also describes the state of the art on which future research can be built.

### **Dynamics and Characterization of Marine Organic Matter**

Over the past decade the scientific activities of the Joint Global Ocean Flux Study (JGOFS), which focuses on the role of the oceans in controlling climate change via the transport and storage of greenhouse gases and organic matter, have led to an increased interest in the study of the biogeochemistry of organic matter. There is also a growing interest in global climate fluctuations. This, and the need for a precise assessment of the dynamics of carbon and other bio-elements, has led to a demand for an improved understanding of biogeochemical processes and the chemical characteristics of both particulate and dissolved organic matter in the ocean. A large amount of proxy data has been published describing the changes of the oceanic environment, but qualitative and quantitative estimates of the vertical flux of (proxy) organic compounds have not been well documented. There is thus an urgent need to pursue this line of study and, to this end, this book starts with several papers dealing with the primary production of organic matter in the upper ocean. Thereafter, the book goes on to follow the flux and characterization of particulate organic matter, discussed in relation to the primary production in the euphotic zone and resuspension in the deep waters, including the vertical flux of proxy organic compounds. It goes on to explain the decomposition and transformation of organic matter in the ocean environment due to photochemical and biological agents, and the reactivity of bulk and specific organic compounds, including the air-sea interaction of biogenic gases. The 22 papers in the book reflect the interests of JGOFS and will thus serve as a valuable reference source for future biogeochemical investigations of both bio-elements and organic matter in seawater, clarifying the role of the ocean in global climate change.

### **Methods in Biogeochemistry of Wetlands**

#### **Aquatic Ecosystems**

Marine dissolved organic matter (DOM) is a complex mixture of molecules found throughout the world's oceans. It plays a key role in the export, distribution, and sequestration of carbon in the oceanic water column, posited to be a source of atmospheric climate regulation. *Biogeochemistry of Marine Dissolved Organic Matter, Second Edition*, focuses on the chemical constituents of DOM and its biogeochemical, biological, and ecological significance in the global ocean, and provides a single, unique source for the references, information, and informed

judgments of the community of marine biogeochemists. Presented by some of the world's leading scientists, this revised edition reports on the major advances in this area and includes new chapters covering the role of DOM in ancient ocean carbon cycles, the long term stability of marine DOM, the biophysical dynamics of DOM, fluvial DOM qualities and fate, and the Mediterranean Sea. Biogeochemistry of Marine Dissolved Organic Matter, Second Edition, is an extremely useful resource that helps people interested in the largest pool of active carbon on the planet (DOC) get a firm grounding on the general paradigms and many of the relevant references on this topic. Features up-to-date knowledge of DOM, including five new chapters The only published work to synthesize recent research on dissolved organic carbon in the Mediterranean Sea Includes chapters that address inputs from freshwater terrestrial DOM

### **Dissolved Organic Matter (DOM)**

Within the joint German-Russian research project "Siberian River Run-off (SIRRO)" multidisciplinary studies were carried out in the Ob and Yenisei estuaries and adjacent southern Kara Sea (Arctic Ocean). The overall goal of the project was to extend knowledge on understanding the freshwater and sediment input by the major Siberian rivers and its impact on the environments of the inner Kara Sea. The main results of oceanographical, biological, geochemical, geological and modelling studies are presented in four main chapters such as: Modern Discharge: Data and modelling; Discharge and biological processes; Discharge and organic carbon cycle; and Discharge and sediment records.

### **Aquatic Humic Substances**

A substantial increase in the number of studies using the optical properties (absorbance and fluorescence) of dissolved organic matter (DOM) as a proxy for its chemical properties in estuaries and the coastal and open ocean has occurred during the last decade. We are making progress on finding the actual chemical compounds or phenomena responsible for DOM's optical properties. Ultrahigh resolution mass spectrometry, in particular, has made important progress in making the key connections between optics and chemistry. But serious questions remain and the last major special issue on DOM optics and chemistry occurred nearly 10 years ago. Controversies remain from the non-specific optical properties of DOM that are not linked to discrete sources, and sometimes provide conflicting information. The use of optics, which is relatively easier to employ in synoptic and high resolution sampling to determine chemistry, is a critical connection to make and can lead to major advances in our understanding of organic matter cycling in all aquatic ecosystems. The contentions and controversies raised by our poor understanding of the linkages between optics and chemistry of DOM are bottlenecks that need to be addressed and overcome.

### **Advances in Organic Geochemistry**

Introduction This book contains papers given at a NATO Advanced Research Institute (A.R.I.) held at Caiscais, Portugal, in November, 1981. The subject of the A.R.I. was marine heterotrophy; this is defined as the process by which the carbon

autotrophically fixed into organic compounds by photosynthesis is transformed and respired. Obviously all animals and many microbes are heterotrophs but here we will deal only with the microbes. Also, we restricted the A.R.I. primarily to microbial heterotrophy in the water column even though we recognize that a great deal occurs in sediments. Most of the recent advances have, in fact, been made in the water column because it is easier to work in a fluid, apparently uniform medium. The reason for the A.R.I. was the rapid development of this subject over the past few years. Methods and arguments have flourished so it is now time for a review and for a sorting out. We wish to thank the NATO Marine Science Committee for sharing this view, F. Azam, A.-L. Meyer-Reil, L. Pomeroy, C. Lee, and B. Hargrave for organizational help, and H. Lang and S. Semino for valuable editing aid.

### **Dissolved Organic Carbon, Nitrogen and Phosphorus in the Sea**

Wetlands occur at the interface of upland and aquatic ecosystems, making them unique environments that are vital to ecosystem health. But wetlands are also challenging to assess and understand. Wetland researchers have developed specialized analytical methods and sampling techniques that are now assembled for the first time in one volume. More than 100 experts provide key methods for sampling, quantifying, and characterizing wetlands, including wetland soils, plant communities and processes, nutrients, greenhouse gas fluxes, redox-active elements, toxins, transport processes, wetland water budgets, and more.

### **Environmental Geochemistry in Tropical and Subtropical Environments**

This research report evaluates the fouling and flux decline performance of membranes after the source water is pretreated with coagulation, and identifies the conditions under which coagulation can improve membrane performance as well as the mechanisms that cause natural waters to foul membranes. Conducted at the University of Illinois, the experiments involved collecting raw water from lakes and rivers, coagulating the water in the laboratory, characterizing the physical and chemical composition of the water before and after coagulation, measuring flux decline as the water was filtered through MF and UF membranes, and examining the fouled membranes with scanning electron microscopy. No index is provided. Annotation copyrighted by Book News, Inc., Portland, OR

### **The Distribution of Dissolved Organic Carbon in the Peru Current System of the Pacific Ocean**

Aquatic Ecosystems explains the interplay between various movements of matter and energy through ecosystems mediated by Dissolved Organic Matter. This book provides information on how much DOM there is in a particular aquatic ecosystem and where it originates. It explains whether the DOM composition varies from time to time and place to place. It also details how DOM becomes incorporated into microbial food webs, and gives a better, clarifying, understanding to its significance of DOM. Dissolved Organic Matter (called DOM) is incredibly important in all aquatic ecosystems. Although it might seem that logs and leaves are more important, in fact the DOM is more crucial because the DOM is in a form that is

available for use by all the organisms living in the the water. Furthermore, DOM influences complex food webs by mediating the availability of aquatic nutrients, metals, salts and minerals. DOM also affects water clarity, which of course has alters the way animals and plants live and feed in the water. There are many ways to study DOM and this book focuses on several central questions. How much DOM is there in a particular aquatic ecosytem? Where does it come from? Does the composition of the DOM vary from time to time and place to palce? How does DOM become incorporated into microbial food webs, which are the basis of plant, invertebrate and vertebrate food webs? How can the answers to these and other questions about DOM be considered together so that a better understanding of the significance of DOM can emerge?

### **Laser-induced Fluorescence of Dissolved Organic Matter for Remote Sensing of Hydrogen Ion and Aluminum in Freshwater**

This book comprehensively introduces recent important studies on coral reefs from various research fields including biology, ecology, chemistry, the earth sciences, and conservation studies. Coral reef is one of the important ecosystems characterized by high biodiversity and the beauty. Coral reefs around Japan are located at the northern limit, composed by mainly fringing reefs along archipelago, and easily impacted by human activities. Thus, coral reef studies around Japan have provided important knowledge on basic sciences and conservation studies regarding coral reef ecosystem. This book would contribute to systematic understanding of vulnerable coral reef ecosystems due to human activities in the Indo-Pacific and Caribbean regions. The conservation efforts provide good reference to graduate and undergraduate students, and researchers in marine sciences, as well as those who are involved in coral reef studies.

### **Environmental Chemistry**

### **Linking Optical and Chemical Properties of Dissolved Organic Matter in Natural Waters**

In May of 1991, Victor Van Buren, who was then with Springer Verlag in New York City, asked us for timely topics in the earth sciences that would be appropriate for publication as a book. We all quickly agreed that recent interest and research activity on the role of organic acids in geological processes would make a timely book on this diverse and controversial topic. As coeditors, we outlined chapter topics for such a book that maintained a good balance between geological and geochemical interests. Specific authors were then sought for each of the chapter topics. We had exceptional success in getting leading researchers as authors, and their response was universally enthusiastic. This approach has been most gratifying in that it provides a cohesion and conciseness that is not always present in books representing compilations of papers from symposia. This book does not resolve the controver sies that exist regarding the significance of organic acids in geolog ical processes. However, it does present both sides of the controver sies in terms of available data and current interpretations. Readers may judge for themselves and envisage research necessary to resolve these controversies in the

future. We thank the authors of this book for their participation, dedication, and cooperation. We are also grateful for support from Dr. Wolfgang Engel and his staff at Springer-Verlag (Heidelberg) in expediting the editing and publication of this book in a timely manner.

### **Marine Carbon Biogeochemistry**

Atmosphere Aerosol, Phytoplankton and its Influence on Climate Forming in the Pacific Ocean: Measurement New Methods is a collection of new articles by young academics, students and PhD students who participated in the 1st International Sailing Conference of Climate Forcing, held on the board the Sailing Training Ship Nadezhda in the Sea of Japan and the Okhotsk Sea in August 2010. The collection presents a vivid overview of current problems in the research fields of atmosphere aerosol, phytoplankton communities, volcanic activities and hydroacoustics in order to investigate climate change's influence on phytoplankton communities. This collection of articles will be of interest to researchers and specialists in the fields of atmosphere and ocean monitoring, and climate forcing.

### **Siberian River Run-Off in the Kara Sea**

Our desire to understand the global carbon cycle and its link to the climate system represents a huge challenge. These overarching questions have driven a great deal of scientific endeavour in recent years: What are the basic oceanic mechanisms which control the oceanic carbon reservoirs and the partitioning of carbon between ocean and atmosphere? How do these mechanisms depend on the state of the climate system and how does the carbon cycle feed back on climate? What is the current rate at which fossil fuel carbon dioxide is absorbed by the oceans and how might this change in the future? To begin to answer these questions we must first understand the distribution of carbon in the ocean, its partitioning between different ocean reservoirs (the "solubility" and "biological" pumps of carbon), the mechanisms controlling these reservoirs, and the relationship of the significant physical and biological processes to the physical environment. The recent surveys from the JGOFS and WOCE (Joint Global Ocean Flux Study and World Ocean Circulation Experiment) programs have given us a first truly global survey of the physical and biogeochemical properties of the ocean. These new, high quality data provide the opportunity to better quantify the present oceans reservoirs of carbon and the changes due to fossil fuel burning. In addition, diverse process studies and time-series observations have clearly revealed the complexity of interactions between nutrient cycles, ecosystems, the carbon-cycle and the physical environment.

### **Labile Organic Matter**

Nonliving organic matter (NLOM) comprises the bulk of the organic carbon stored in the terrestrial biosphere and a major part of the organic carbon in the sea. Organic substances, which include litter, marine detritus, dissolved organic matter, and soil organic matter, have diverse effects on the Earth's biogeochemical processes and serve as a major reservoir of biospheric carbon, which can be transformed to carbon dioxide, methane, and other "greenhouse" gases. Given this

broad spectrum of effects, efforts to adapt to or perhaps benefit from global change require a better understanding and an ability to predict the role of NLOM in the global environment. The overall objective of this volume is to provide experimental and modeling strategies for the assessment of the sensitivity of the global carbon cycle to changes in nonliving organic pools in terrestrial and aquatic ecosystems. The discussions in this volume consider how best to characterize and quantify pools and fluxes of NLOM, the role of NLOM cycling on a global scale, human and climatic perturbations of interactions between NLOM and nutrients, and biological, chemical, and physical processes that control the production and degradation of NLOM, with an emphasis on processes that affect the persistence of NLOM in the environment. One of the most unique aspects of this volume is that it represents extensive exchanges between leading international scientists from both aquatic and terrestrial backgrounds. It will be of particular interest to organic geochemists, microbiologists, ecologists, soil scientists, agricultural scientists, marine chemists, limnologists, and modelers. Goal of this Dahlem Workshop: to devise experimental and modeling strategies for assessment of the sensitivity of the global carbon cycle to changes in nonliving organic pools.

### **Chemicals as Intentional and Accidental Global Environmental Threats**

Photoinduced processes, caused by natural sunlight, are key functions for sustaining all living organisms through production and transformation of organic matter (OM) in the biosphere. Production of hydrogen peroxide ( $H_2O_2$ ) from OM is a primary step of photoinduced processes, because  $H_2O_2$  acts as strong reductant and oxidant. It is potentially important in many aquatic reactions, also in association with photosynthesis. Allochthonous and autochthonous dissolved organic matter (DOM) can be involved into several photoinduced or biological processes. DOM subsequently undergoes several physical, chemical, photoinduced and biological processes, which can be affected by global warming. This book is uniquely structured to overview some vital issues, such as: DOM;  $H_2O_2$  and  $ROOH$ ;  $HO\bullet$ ; Degradation of DOM; CDOM, FDOM; Photosynthesis; Chlorophyll; Metal complexation, and Global warming, as well as their mutual interrelationships, based on updated scientific results.

### **Eutrophication of Shallow Lakes with Special Reference to Lake Taihu, China**

Over the past decade the scientific activities of the Joint Global Ocean Flux Study (JGOFS), which focuses on the role of the oceans in controlling climate change via the transport and storage of greenhouse gases and organic matter, have led to an increased interest in the study of the biogeochemistry of organic matter. There is also a growing interest in global climate fluctuations. This, and the need for a precise assessment of the dynamics of carbon and other bio-elements, has led to a demand for an improved understanding of biogeochemical processes and the chemical characteristics of both particulate and dissolved organic matter in the ocean. A large amount of proxy data has been published describing the changes of the oceanic environment, but qualitative and quantitative estimates of the vertical flux of (proxy) organic compounds have not been well documented. There is thus

an urgent need to pursue this line of study and, to this end, this book starts with several papers dealing with the primary production of organic matter in the upper ocean. Thereafter, the book goes on to follow the flux and characterization of particulate organic matter, discussed in relation to the primary production in the euphotic zone and resuspension in the deep waters, including the vertical flux of proxy organic compounds. It goes on to explain the decomposition and transformation of organic matter in the ocean environment due to photochemical and biological agents, and the reactivity of bulk and specific organic compounds, including the air-sea interaction of biogenic gases. The 22 papers in the book reflect the interests of JGOFS and will thus serve as a valuable reference source for future biogeochemical investigations of both bio-elements and organic matter in seawater, clarifying the role of the ocean in global climate change.

### **Tracers in the Sea**

### **Dissolved and Particulate Organic Carbon in Some Colorado Waters**

The publication was launched at the Global Symposium on Soil Organic Carbon (GSOC) held at FAO headquarters (Rome, 21-23 March 2017). It provides an overview to decision-makers and practitioners of the main scientific facts and information regarding the current knowledge and knowledge gaps on Soil Organic Carbon. It highlights how better information and good practices may be implemented to support ending hunger, adapting to and mitigating climate change and achieving overall sustainable development.

### **Biogeochemistry of Marine Dissolved Organic Matter**

This open access book discusses biogeochemical processes relevant to carbon and aims to provide readers, graduate students and researchers, with insight into the functioning of marine ecosystems. A carbon centric approach has been adopted, but other elements are included where relevant or needed. The book focuses on concepts and quantitative understanding of primary production, organic matter mineralization and sediment biogeochemistry. The impact of biogeochemical processes on inorganic carbon dynamics and organic matter transformation are also discussed.

### **Aquatic Organic Matter Fluorescence**

"Because of its dynamic nature, labile organic matter is a key player in terrestrial and aquatic ecosystems. Editors Zhongqi He and Fengchang Wu include contributions from more than 30 senior researchers and innovative junior investigators from six countries. With issue-oriented comprehensive reviews and problem-solving case studies, this collection brings together soil and aquatic scientists to provide a comprehensive understanding for managing the sources and fates of labile organic matter. A timely synthesis of recent research, this collection illustrates the remarkable range of advanced techniques and approaches for labile organic matter research. This book will serve as a valuable reference for university



faculty, graduate students, soil scientists, ecologists, limnologists, marine scientists, environmental scientists, agricultural engineers, and any who work with various aspects of labile organic matter in the environment."

## **Identifying Land Management Patterns in Dissolved Organic Carbon and Lignin in San Joaquin Valley Groundwater Beneath Dairies**

### **Heterotrophic Activity in the Sea**

#### **Soil Organic Carbon**

Due to its particular characteristics, the Mediterranean Sea is often viewed as a microcosm of the World Ocean. Its proportionally-reduced dimensions and peculiar hydrological circulation render it susceptible to environmental and climatic constraints, which are rapidly evolving. The Mediterranean is therefore an ideal site to examine, in order to better understand a number of key oceanographic phenomena. This is especially true of the Ligurian Sea where, due to its geology, oceanic conditions are found close to the coast. As such, 30 years ago, an offshore time-series site provided a fresh impetus to a long history of marine biology research, which has generated a very important body of data and knowledge. This is the second volume, in a two-volume series, that summarizes this research. Across these two books, the reader will find 13 chapters that examine the geology, physics, chemistry and biology of the Ligurian Sea ? always with the goal of providing key elements of oceanography in a changing world.

#### **Organic Acids in Geological Processes**

Instantaneous amounts of organic carbon, both particulate and dissolved, in a number of freshwaters ranging from unproductive tarns to moderately productive reservoirs were measured by acid-persulfate digestion and infrared absorption. Organic carbon was designated as net seston carbon, filter seston carbon, or dissolved carbon based on filtering techniques. Repeated sampling showed amounts of organic carbon, either dissolved or particulate, fluctuated considerably over short periods of time; the dissolved fraction probably varying less than particulate forms. Almost daily measurements in samples incubated over three week periods also revealed erratic changes, with no clear reduction in total organic carbon. The data have descriptive value, although they cannot, at this time, be related satisfactorily to the general limnological knowledge.

#### **Aquatic Humic Substances**

In the summer of 1988, under NATO sponsorship, approximately 80 scientists lived and worked together in Plymouth for two weeks to evaluate the ecological role of protozoa in the sea. Through the convivial surroundings, close working conditions and special facilities that had been brought together for NATO ASI 604/87 a 'melting pot' of ideas was formed, which stimulated the multidisciplinary creativity

which is expressed in this book and in a second series of papers which will be published in Marine Microbial Food Webs under the title - "Protozoa and their Role in Marine Microbial Food Webs". Discussions of the role of protozoa in the microbial food web, in the cycling of carbon and nitrogen and the extent to which this web acts as a link or sink to metazoa in the water column were major themes of the ASI. Structured sessions covering oral and poster presentations, field work, modeling, laboratory practicals and demonstrations of techniques such as image analysis and flow cytometry, formed the core of the meeting. Participants took part enthusiastically in the practical sessions developing new concepts and obtaining new insights into their work. The practicals included a 'protozoo' and some beautiful films and videos. Field excursions were made to a range of sites including a unique marine sewage farm at Looe in Cornwall, (Jones this volume). Interactive workshops allowed scientists with no modelling experience to input their results to three simulation models and a flow analysis package.

### **UV Radiation and Arctic Ecosystems**

Humic substances occur in all kinds of aquatic systems, but are particularly important in northern, coniferous areas. They strongly modify the aquatic ecosystems and also constitute a major problem in the drinking water supply. This volume covers all aspects of aquatic humic substances, from their origin and chemical properties, their effects on light and nutrient regimes and biogeochemical cycling, to their role regarding organisms, productivity and food web organization from bacteria to fish. Special emphasis is paid to carbon cycling and food web organization in humic lakes, but aspects of marine carbon cycling related to humus are treated as well.

### **The Role of Nonliving Organic Matter in the Earth's Carbon Cycle**

Marine dissolved organic matter (DOM) is a complex mixture of molecules found throughout the world's oceans. It plays a key role in the export, distribution, and sequestration of carbon in the oceanic water column, posited to be a source of atmospheric climate regulation. *Biogeochemistry of Marine Dissolved Organic Matter, Second Edition*, focuses on the chemical constituents of DOM and its biogeochemical, biological, and ecological significance in the global ocean, and provides a single, unique source for the references, information, and informed judgments of the community of marine biogeochemists. Presented by some of the world's leading scientists, this revised edition reports on the major advances in this area and includes new chapters covering the role of DOM in ancient ocean carbon cycles, the long term stability of marine DOM, the biophysical dynamics of DOM, fluvial DOM qualities and fate, and the Mediterranean Sea. *Biogeochemistry of Marine Dissolved Organic Matter, Second Edition*, is an extremely useful resource that helps people interested in the largest pool of active carbon on the planet (DOC) get a firm grounding on the general paradigms and many of the relevant references on this topic. Features up-to-date knowledge of DOM, including five new chapters. The only published work to synthesize recent research on dissolved organic carbon in the Mediterranean Sea. Includes chapters that address inputs from freshwater terrestrial DOM.

## **Coagulation Pretreatment for Membrane Filtration**

Dissolved Organic Matter (DOM) is a major factor controlling global biogeochemical cycles of carbon, macro- and micronutrients and toxic metals. It plays a pivotal role both in mobilisation (chemical weathering), transport (organic complexes and colloids), biological uptake and deposition (microbial and photo-degradation) of a number of essential macro- (C, N, P) and micro- (Fe, Zn, Mn, Ni, Cu Co) nutrients. The interest of scientists to DOM is rapidly increasing. Between 1950 and 2017, more than 30,000 scientific papers on DOM were published (Web of Science All Database Search); however, more than half of them were produced over the past nine years and over the last two and a half years, more than 5,400 papers were published. Such attention to DOM is clearly motivated by a combination of global climate change issues and the main role of DOM in CO<sub>2</sub> exchange between the atmosphere and the surface waters. Despite such a large range of scientific problems concerning DOM properties, origins, and applications, there is a very strong geographical bias in terms of the amount of research devoted to various geographical regions of the world. The majority of information concerns temperate zones and boreal regions of Scandinavia and Northern America, with very little information available on Siberia and Russia. Thus, among the less than 30,000 scientific articles devoted to various aspects of DOM since 1950, only 150-200 of them are devoted to DOM in Russia or Siberia. This book is essentially oriented towards filling these gaps of our knowledge. Among thirteen chapters, eleven of them are devoted to various aspects of DOM in Russia and Siberia. Another important and still poorly characterised aspect of natural DOM is its colloidal status: four chapters of this book deal with the colloidal speciation of DOM in rivers and lakes. Given the breadth of physico-chemical, geochemical, biological, and geographical aspects of DOM covered in this book, it will be useful for a large audience of environmental scientists, limnologists, physico-chemists, soil and landscape scientists and biogeochemists.

## **The Mediterranean Sea in the Era of Global Change 2**

Environmental chemistry is a new, fast developing science aimed at deciphering fundamental mechanisms ruling the behaviour of pollutants in ecosystems. Applying this knowledge to current environmental issues leads to the remediation of environmental media, and to new, low energy, low emission, sustainable processes. This book describes the state-of-the-art advances regarding the pollution of water, soils, atmosphere, food and living organisms by toxic metals, fossil fuels, pesticides and other organic pollutants. Furthermore, the ecotoxicology section presents novel bio-assays to assess the toxicity of various pollutants such as dioxins and endocrine disrupters within complex media. The green chemistry section highlights novel chemical reactions based upon environmentally friendly conditions. The analytical chemistry section describes very sensitive methods which trace the fate of pollutants in complex ecosystems.

## **Linking Optical and Chemical Properties of Dissolved Organic Matter in Natural Waters**

This book incorporates twenty contributions on diverse aspects of the

environmental geochemistry in tropical and sub-tropical environments, drawing together extensive original research not readily available elsewhere. Coverage includes intercontinental comparisons drawn on paleoclimatology, environmental impacts of mining and geochemistry of continental shelf sediments.

## **Water-quality characteristics and ground-water quantity of the Fraser River Watershed, Grand County, Colorado, 1998-2001**

### **Coral Reef Studies of Japan**

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## **Atmosphere Aerosol, Phytoplankton and its Influence on Climate Forming in the Pacific Ocean**

This multidisciplinary book presents a critical assessment of our knowledge of chemical threats to environmental security, with special reference to prevention of chemical releases, rapid detection, risk assessment and effective management of emergency situations and long-term consequences of chemical releases. The technologies evaluated concern mainly prevention and management of both intentional and accident releases of chemicals into the environment. The book features contributors from a range of relevant scientific fields.

### **Protozoa and Their Role in Marine Processes**

Humic substances occur in all kinds of aquatic systems, but are particularly important in northern, coniferous areas. They strongly modify the aquatic ecosystems and also constitute a major problem in the drinking water supply. This volume covers all aspects of aquatic humic substances, from their origin and chemical properties, their effects on light and nutrient regimes and biogeochemical cycling, to their role regarding organisms, productivity and food web organization from bacteria to fish. Special emphasis is paid to carbon cycling and food web organization in humic lakes, but aspects of marine carbon cycling related to humus

are treated as well.

## **Photobiogeochemistry of Organic Matter**

Core text on principles, laboratory/field methodologies, and data interpretation for fluorescence applications in aquatic science, for advanced students and researchers.

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