

28th INTERNATIONAL LIEGE COLLOQUIUM  
ON OCEAN HYDRODYNAMICS  
"Modelling hydrodynamically dominated marine ecosystems"  
Liège, Belgium, May 6-10, 1996  
Final Program

## Monday May 6th, 1996

9.00 - 10.00 : Registration, Coffee, Display of Posters

### am Session 1 - Chair : B. Rothschild

10.00 - 10.45 : *On the theory of advective effects on dynamics of biological processes in the sea*  
Allan R. Robinson, Department of Earth and Planetary Sciences,  
Harvard University, Cambridge, USA

10.45 - 11.30 : *How much trophic resolution is needed in ecosystem models ?*  
Coleen L. Moloney, Marine Biology Research Institute, University of Cape Town, South Africa

11.30 - 12.15 : *How much trophic resolution may be abandoned in ecosystem models to allow for finer space-time resolution of hydro- and eco- dynamic processes ?*  
Ch. Lancelot and Denis Van Eeckhout,  
Laboratoire de Microbiologie Aquatique, University of Brussels, Belgium

### pm Session 2 - Chair : A.R. Robinson

2.00 - 2.45 : *The importance of being chaotic. A different approach to optimum complexity.*  
Jacques C.J. Nihoul, GHER, University of Liège, Belgium

2.45 - 3.30 : *Food-web mediated export of biogenic carbon in oceans : environmental control*  
Louis Legendre, Département de Biologie, Université Laval, Canada  
Fereidoun Rassoulzadegan, Station Zoologique de Villefrance-sur-mer, France.

3.30 - 4.00 : Coffee - Poster Display

4.00 - 4.45 : *Pelagic ecosystem models with multiple phytoplankton taxa*  
Rob Armstrong, Atmospheric and Oceanic Sciences Program, Princeton University, USA

4.45 - 5.30 : *Modelling hydrodynamically-mediated changes in the magnitude and nature of the trophic transfer process in three different ecosystems*  
Eva E. Plaganyi (1), Mike I. Lucas (1) and John G. Field (2)  
(1) Southern Ocean Group, University of Cape Town, South Africa  
(2) Marine Biology Research Institute, University of Cape Town, South Africa

6.30 Reception by the "Gouverneur de la Province de Liège" and the "députation permanente" at the Palais des Princes-Evêques.

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## Tuesday May 7th, 1996

### am Session 3 - Chair : G. Radach

9.00 - 9.45 : *Simulating the Adriatic Sea ecosystem dynamics*

M. Zavatarelli (1), J. Baretta (2), H. Baretta Bekker (2), N. Pinardi (1)

(1) Istituto per lo Studio delle Metodologie Geofisico Ambientali, Modena, Italy

(2) Ecological Modelling Center, Horsholm, Denmark

9.45 - 10.30 : *Influence of mesoscale dynamics on primary production : the spring bloom in the NW Mediterranean Sea.*

M. Levy, L. Memery and G. Madec,

Laboratoire d'Océanographie Dynamique et de Climatologie

LODYC, Université Pierre et Marie Curie, Paris, France.

10.30 - 11.00 : Coffee break - Poster Display

11.00 - 11.45 : *Investigations on river load scenarios using a box refined version of the ecosystem model ERSEM*

Hermann-J. Lenhart, Institut für Meereskunde, Universität Hamburg, Germany

11.45 - 12.30 : *Influence of advection and diffusion on primary production in the North Sea*

A. Moll and T. Pohlmann, Institut für Meereskunde, Universität Hamburg, Germany

### pm Session 4 - Chair : C.L. Moloney

2.00 - 2.45 : *3D hydrodynamic constraints on the dynamics of the North Western European Continental Shelf ecosystems*

Eric J.M. Delhez, GHER, University of Liège, Belgium

2.45 - 3.30 : *Ecological modelling of the English Channel*

Thierry Hoch and Pierre Garreau, IFREMER,

Centre de Brest, Université de Bretagne Occidentale, France

3.30 - 4.00 : Coffee break - Poster Display

4.00 - 4.45 : *1D modelling of the plankton dynamics in the North Sea and in the North Atlantic*

Wilfried Kühn, Institute für Meereskunde, Hamburg, Germany

4.45 - 5.30 : *The effect of hydrodynamics on biological processes in a 1D coupled physical- microbiological model*

Fa Chen and Roger Proctor,

Proudman Oceanographic Laboratory, Bidston Observatory, Birkenhead, UK

5.30 - 6.15 : *1D ecohydrodynamic model of the Ross Sea*

J.H. Hecq (1), P. Brasseur (2), A Goffart (1) and H. Goose (3)

(1) Unité d'Ecohydrodynamique, University of Liège, Belgium

(2) University of Grenoble, France

(3) University of Louvain-La-Neuve, Unité d'Ecohydrodynamique, Belgium.

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## Wednesday May 8th 1996

### am Session 5 - Chair : E. Wolanski

9.00 - 9.45 : *Modelling biological responses to physical variability in Southern African shelf-sea environments*

Coleen L. Moloney and Eva Plaganyi,

Marine Biology Research Institute, University of Cape Town, South Africa

9.45 - 10.30 : *Hydrodynamic and ecosystem model of coastal region applied to Akkeshi Bay, Japan*

Michio J. Kishi, Ocean Research Institute, University of Tokyo, Japan

10.30 - 11.00 : Coffee break - Poster Display

11.00 - 11.45 : *Numerical model of oxygen deficient water mass in Dokai Bay, Japan*

Tetsuo Yanagi (1), Ko-ichi. Inoue (1), Shigeru Montani (2) and Machiko Yamada (3)

(1) Department of Civil and Ocean Engineering, Ehime University, Matsuyama, Japan

(2) Faculty of Agriculture, Kagawa University, Japan

(3) Aqua Institute of Kitakyushu-City, Japan

11.45 - 12.30 : *Investigation of the vertical structure in an ecosystem model using assimilation of data from JGOFS time series sites*

Y.H. Spitz (1), J.R. Moisan (2), M.R. Abbott (1), J. Richman (1)

(1) College of Oceanic and Atmospheric Sciences, Oregon State University, Corvallis, USA

(2) Scripps Institution of Oceanography, La Jolla, USA

### pm Session 6 - Chair : U. Umluata

2.00 - 2.45 : *Riley vs. Talling or how to calculate phytoplankton production in the turbulent upper mixed layer.*

H. Baumert, Institut für Meereskunde, Universität Hamburg, Germany.

2.45 - 3.30 : *Modeling of carbon biogeochemical cycles in cold seas : an application to the Gulf of Saint Lawrence*

Ru Cheng Tian and Alain Vezina,

Maurice Lamontagne Institute of Ocean Science, Mont-Joli, Canada

3.30 - 4.00 : Coffee break - Poster Display

4.00 - 4.45 : *Natural variability of a pelagic ecosystem*

Joachim W. Dippner, Max-Planck Institut für Meteorologie, Hamburg, Germany

4.45 - 5.30 : *Water quality simulation of Lake Hamana using a 3D physical-biological model*

Koichi Taguchi, CTI Co. Ltd, Nagoya, Japan and

Kisaburo Nakata, National Institute for Resources and Environment, Japan

8.00 Colloquium dinner at the Château de Colonster

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## Thursday May 9th 1996

### am Session 7 - Chair : T. Oguz

9.00 - 9.45 : *Modelling the fate of fish larvae in the Great Barrier Reef*

E. Wolanski and P. Doherty, Australian Institute of Marine Science, Townsville, Australia

9.45 - 10.30 : *Multifractal parameterization of phytoplankton distribution in turbulent flows*

L. Seuront (1), F. Schmitt (2), Lagadeuc (1) D. Schertzer (2)

(1) Station Marine de Wimereux, France

(2) Laboratoire de Météorologie Dynamique, Université Pierre et Marie Curie, Paris, France

10.30 - 11.00 : Coffee break - Poster Display

11.00 - 11.45 : *Numerical simulation of carbon cycle in the North Pacific Ocean*

Kisaburo Nakata, Sigeaki Aoki, National Institute for Resources and Environment, Ibaraki, Japan

Akio Ishida, Kansai Environmental Engineering Center Co., Osaka, Japan

Koichi Taguchi, CTI Co. Ltd, Nagoya, Japan

11.45 - 12.30 : *Modelling the interannual variability of a Mediterranean coastal ecosystem in relation with hydrodynamics*

G.Lacroix (1,2), P. Nival (2)

(1) GHER, University of Liège, Belgium

(2) Laboratoire d'Ecologie du Plancton Marin, Université Paris VI, Villefranche-sur-mer, France

### pm Session 8 - Chair : L. Legendre

2.00 - 6.00 : *The CHASE Experiment*

*Universal multifractal analysis of plankton and related physical variables gathered during the CHASE experiment*

Y. Tessier (2), M.R. Claereboudt (1,4), S. Lovejoy (2), R. Nowak (2), J. Roff (4),

E. Bourget (1), G. Ingram (3), D. Schertzer (6)

*The CHASE experiment : modelling centimetre to kilometre scale variability in zooplankton abundance in coastal waters*

W.F.C. Currie (4), M.R. Claereboudt (1,4), Y. Tessier (2) and J.C. Roff (4)

*The CHASE Experiment : nearshore distribution and abundance of zooplankton in relation to hydrodynamics*

Philippe Archambault (1), Bohyun Bang (3), Edwin Bourget (1),

John C. Roff (4) and R. Grant Ingram (3)

*The CHASE experiment : coupling scales of topographic heterogeneity, hydrodynamics and spatial structure of shore benthic communities*

Frédéric Guichard (1), Edwin Bourget (1), Jean- Loup Robert (5)

*Complex and vector cascade approach to multifractal marine data for CHASE*

R. Nowak (2), S. Lovejoy (2), Y. Tessier (2), M. Claereboudt (1,4), P. Garrido (2),

J. Roff (4), G. Ingram (3), D. Schertzer (6), E. Bourget (1)

(1) GIROQ, Département de Biologie, Université Laval, Québec, Canada

(2) GIROQ, Physics Department, Mc Gill University, Québec, Canada

(3) GIROQ, Department of Oceanic and Atmospheric Sciences, Mc Gill University, Canada

(4) Department of Zoology, College of Biological Science, University of Guelph, Canada

(5) GREF, Département de Génie Civil, Université Laval, Québec, Canada (6) L.M.D., Paris, France

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## Friday May 10th 1996

### am Session 9 - Chair : T. Komatsu

9.00 - 9.45 : *Simulation of annual plankton productivity cycle in the Black Sea by a coupled physical- biological model*

Temel Oguz (1), Hugh Ducklow (2), Paola Malanotte-Rizzoli (3) and Umit Unluata (1)

(1) Institute of Marine Sciences, Middle East Technical University, Erdemli, Icel, Turkey

(2) Virginia Institute of Marine Sciences, College of William and Mary, Gloucester Point, USA

(3) Earth and Planetary Sciences, Massachusetts Institute of Technology, USA

9.45 - 10.30 : *Three-dimensional model of the Black Sea's plankton blooms*

Marilaure Grégoire and Jacques C.J. Nihoul, GHER, University of Liège, Belgium

10.30 - 11.15 : *Northern North Sea ecosystem : importance and role of the hydrodynamic constraints on a spring bloom*

F. Touratier, GHER, University of Liège, Belgium

11.15 - 11.30 : Coffee-Poster Display