

Oral &
Poster
Program
IDS 2012

09.00-13.00 Diatom Research Editorial Meeting (closed meeting)

14.00-16.00 ISDR Council meeting (closed meeting)

16.00-18.00 Registration (Foyer)

**19.00-22.00 Ice-breaker reception sponsored by Proviron
(Peristilium)**

*Please note that all oral sessions are **parallel sessions!***

*Also note that some oral presentations (those before the coffee breaks) are **20 mins** while others (after the coffee breaks) are **15 mins**, both including a few minutes for questions. **Please take this into account when preparing your presentations.***

Monday, August 27, 2012

Aula Academica - Ghent University

08.00	Registration (Foyer) Mounting of posters (upper floors Peristilium)
08.45-09.00	Welcome address by the conference organisers and Prof. Dr. David Mann, president of the ISDR (Aula)
09.00-09.45	Key note lecture 1 (Aula) Life in a glasshouse: from cell wall morphogenesis to nano-technological applications Nicole Poulsen

Parallel Session 1: Molecular Biology I (Acad. Raadzaal)

Chaired by Tore Brembu and Marie J.J. Huysman

- 09.45-10.05 Cell-state transitions in the diatom *Thalassiosira pseudonana* during diurnal growth
Justin Ashworth
- 10.05-10.25 Control of light-dependent cell cycle onset by the diatom-specific cyclin dsCYC2
Marie J.J. Huysman
- 10.25-10.45
Coffee break
- 10.45-11.00 Genome sequencing and mutagenesis in the planktonic diatom *Pseudo-nitzschia multistriata*
Mariella Ferrante (first author: C. Fevola)
- 11.00-11.15 DiatomCyc
Gino J.E. Baart (First author: M. Fabris)
- 11.15-11.30 Application of new fluorescence-tagged amines and polymers in study of diatom physiology
Vladimir V. Annenkov
- 11.30-11.45 Metabolic insertion of organoalkoxysilanes into the frustule of the diatom *Thalassiosira weissflogii*
Yvonne Lang
- 11.45-13.00
Lunch

Parallel Session 2: Morphology (Aula)

Chaired by Eileen J. Cox & Shinya Sato

09.45-10.05 Identifying homology in morphological subcomponents of fultoportula

Matthew L. Julius

10.05-10.25 The importance of using correct descriptive terminology and an introduction to Diaterm – developing a revised glossary of terminology for diatomists

Eileen J. Cox

10.25-10.45

Coffee break

10.45-11.00 What constitutes a stigma? A review of isolated pore structures in raphid diatoms

Bart Van de Vijver

11.00-11.15 Morphological variation within saline and freshwater strains of *Fistulifera saprophila*

Jeffrey R. Johansen

11.15-11.30 The spines of *Corethron*; tying up loose ends

Richard M. Crawford

11.30-11.45 Recent discoveries of unusual silicoflagellate double skeletons, with evolutionary and taxonomic implications

Kevin McCartney

11.45-13.00

Lunch

Monday, August 27, 2012

Aula Academica - Ghent University

13.00-13.45	Key note lecture 2 (Aula) Diatom distributions in space and time – a case study from the Polar Regions Elie Verleyen
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Parallel Session 3: Paleoecology (Acad. Raadzaal)

Chaired by Suzanne McGowan and Dominic Hodgson

13.45-14.05 Holocene variability of the North American Monsoon: diatom-based evidence from lake sediments in western Mexico

Sarah Davies

14.05-14.25 Epilithic diatoms from West Greenland lakes across a climatic gradient: implications for palaeoclimate reconstructions

Suzanne McGowan

14.25-14.45 Millennial-scale variability of marine diatom paleoproductivity during the last 50 ka: an equator-to-subtropics comparison along western Africa

Oscar E. Romero

14.45-15.10

Coffee break

15.10-15.25 The last 150,000 years in the Nordic seas: sea surface temperature and sea ice reconstructions based on diatoms and organic proxies

Ulrike Hoff

15.25-15.40 Rapid oceanic changes at the Younger Dryas termination inferred from diatom analysis offshore Newfoundland

Christof Pearce

15.40-15.55 How clean is clean? A diatom-based paleolimnological reconstruction of reference conditions in lakes of New Jersey, USA

Mihaela D. Enache

15.55-16.10 Delineating Forensic Paleoecology as a sub-discipline; CSI diatoms?

Matthew L. Julius (first author: C. Stapleton)

16.10-18.00 **Poster session 1 sponsored by Fluid Imaging and Koeltz**

20.00-22.00 **Auction (Peristilium)**

Parallel Session 4: Life Cycles (Aula)

Chaired by David E. Jewson and Marina Montresor

13.45-14.05 Diatom life cycles: counting the costs
David E. Jewson

14.05-14.25 Investigation of the mating pathway in the diatom *Seminavis robusta*
Johannes Frenkel

14.25-14.45 Genotypic diversity and differentiation among benthic freshwater diatom populations as revealed by microsatellite analysis
Pieter Vanormelingen

14.45-15.10
Coffee break

15.10-15.25 Can digital imaging flow cytometry replace microscope measurements of diatom cell dimensions?
Rebecca J. Bixby

15.25-15.40 Effect of light on the accumulation of free amino acids in the marine diatom *Skeletonema costatum* resting cells during germination
Chang-Ping Chen

15.40-15.55 An astonishing cell expansion during auxosporulation in the araphid pennate diatom *Pseudostaurosira trainorii*
Shinya Sato

Tuesday, August 28, 2012

Aula Academica - Ghent University

08.00 Registration (Foyer)

08.45-09.00 Tribute to Frank E. Round (1927-2010) (Aula)
David G. Mann

09.00-09.45 **Key note lecture 3 (Aula)**
Traditional taxonomy in the molecular age: controversies or synergies?
Rosa Trobajo

Parallel Session 5: Barcoding (Aula)

Chaired by Regine Jahn and Nina Lundholm

09.45-10.05 DNA-based species delimitation in diatoms
Linda K. Medlin

10.05-10.25 New biomonitoring approaches based on next generation sequencing: a test for freshwater diatom communities
Frédéric Rimet (First author: L. Kermarrec)

10.25-10.45
Coffee break

10.45-11.00 Next-Generation sequencing (NGS) methods in environmental barcoding – a progress report on biomonitoring of benthic river diatoms
Jonas Zimmerman

11.00-11.15 Reference library of DNA-barcoded diatoms – a use case for publishing data via the GBIF database AlgaTerra
Wolf-Henning Kusber

11.15-11.30 A molecular approach to the taxonomy of *Cocconeis placentula* sensu lato
Regine Jahn

11.30-11.45 A culture-based study of *Cocconeis lineata* Ehrenberg and *Cocconeis euglypta* Ehrenberg (Bacillariophyta): morphology, typification, and barcoding
Oscar E. Romero

11.45-13.00
Lunch

Parallel Session 6: Fossil diatoms (Acad. Raadzaal)

Chaired by Richard W. Jordan and Andrey Gladenkov

09 .45-10.05 Observations on Middle Eocene marine diatoms from the Central Arctic Ocean

Richard W. Jordan

10.05-10.25 Origin and historical development of freshwater fossil diatoms of the orders Aulacoseirales, Thalassiosirales, Stephanodiscales, and Coscinodiscales, from Asia versus Western USA: single or parallel events?

Galina K. Khursevich

10.25-10.45

Coffee break

10.45-11.00 *Drepanotheca* Schrader, *Anaulus* Ehrenb. and *Eunotogramma* Weisse: phylogenetics relationships of some 'non-araphid', 'non-centric' diatoms with both fossil and living relatives

David M. Williams

11.00-11.15 Late Miocene diatom flora from deep Hole Central-1 (the Bering Sea)

Andrey Gladenkov

11.15-11.30 Polymorphism in *Alveolophora* species (Aulacoseiraceae) from fossil deposits in western North America

Marina Usoltseva

11.30-11.45 Flying diatoms - a key to the path and origin of a dust storm

Juliane Fenner

11.45-13.00

Lunch

Tuesday, August 28, 2012

Aula Academica - Ghent University

13.00-13.45 **Key note lecture 4 (Aula)**
Aspects of diatom metabolism
Peter G. Kroth

Parallel Session 7: Molecular II (Acad. Raadzaal)

Chaired by Clayton Jeffreys and Yusuke Matsuda

13.45-14.05 Redox regulation of plastid metabolism by thioredoxin in the marine diatom *Phaeodactylum tricornutum*
Yusuke Matsuda

14.05-14.25 LHC-like superfamily proteins in diatoms
Ansgar Gruber (First author: S. Sturm)

14.25-14.45 First report of a 'plastid-to-nucleus retrograde signaling mechanism' in diatoms: Evidence that the redox state of the plastoquinone pool triggers the photoprotective response in *Phaeodactylum tricornutum*
Bernard Lepetit

14.45-15.10
Coffee break

15.10-15.25 Time and light dependent changes of expression levels of Calvin Cycle genes in *Phaeodactylum tricornutum*
Matthias Sachse

15.25-15.40 An integrative analysis of light responses in *Phaeodactylum tricornutum*
Tore Brembu

15.40-15.55 Sterol biosynthesis in *P. Tricornutum*
Michele Fabris

15.55-16.10 Enhancing lipid production of *Phaeodactylum tricornutum* through metabolic engineering
Michiel Matthijs

16.10-18.00 **Poster session 2 sponsored by Olympus and Taylor & Francis**

20.00-22.00 **DIATERM Workshop (Convenor E.J Cox) (Aula)**

20.00-22.00 **Demonstration of DiatomCyc, a diatom metabolism database (www.diatomcyc.org) (Acad. Raadzaal)**

Parallel Session 8: Taxonomy (Aula)

Chaired by Luc Ector and Eduardo A. Morales

13.45-14.05 Unexpected high diversity in *Chaetoceros*
Nina Lundholm

14.05-14.25 Testing the generic limits of the Biddulphiaceae (Bacillariophyceae): revisiting Ross & Sims (1971) with molecular data
Matt P. Ashworth

14.25-14.45 Examination of type material of araphid diatoms (Bacillariophyta) nomenclaturally associated to *Fragilaria*, *Staurosira* or *Pseudostaurosira*: a long history of species concept drift
Eduardo A. Morales

14.45-15.10
Coffee break

15.10-15.25 Diatom taxonomic consistency: resources and approaches at the Academy of Natural Sciences, Philadelphia, USA
Donald F. Charles

15.25-15.40 Morphology and taxonomy of four species of the marine planktonic diatom genus *Bacteriastrum* (Bacillariophyta) from the Adriatic Sea
Sunčica Bosak

15.40-15.55 Revision of the genus *Mastogloia*, section Sulcatae through electron microscopy
Chiara Pennesi

15.5-16.10 A new species of *Orthoseira* with an enigmatic distribution
Rex Lowe

Wednesday, August 29, 2012

Mid-symposium Excursions

8.20 Departure for Flanders Fields Excursion (return around 19.00)

The busses for the Flanders Field excursion will depart from the François Laurentplein (see map 2).

13.45 Departure for Ghent City Tour

The half day Ghent city trip excursion will start at the STAM, the Ghent City Museum, at 14h. The excursion consist of a guided tour of the museum, transfer by boat to the city centre, followed by a guided tour of the city centre. The excursion is over at about 18h.

Thursday, August 30, 2012

Aula Academica - Ghent University

08.00 Registration (Foyer)

08.45-09.00 Tribute to Eugene F. Stoermer (1934-2012) (Aula)
J. Patrick Kociolek

09.00-09.45 **Key note lecture 5 (Aula)**
Life on the edge: how intertidal benthic diatoms thrive in coastal environments and why we should care
Graham J.C. Underwood

Parallel Session 9: Biodiversity & Biogeography I (Aula)

Chaired by Pieter Vanormelingen and Aloisie Poulíčková

09.45-10.05 The limits to rarity in diatoms and the interpretation of absence
David G. Mann

10.05-10.25 Using null models to test hypotheses about the drivers of freshwater diatom diversity and distribution
Jason Pither

10.25-10.45
Coffee break

10.45-11.00 Species distribution modeling of marine pelagic diatoms
Stefan Pinkernell

11.00-11.15 What are human impacts on diatom biodiversity?
R. Jan Stevenson

11.15-11.30 Immiscibility of diatom floras in Lake Baikal: scientific phenomenon or fantasy?
Maxim Kulikovskiy

11.30-11.45 Taxonomic composition of benthic diatoms (Bacillariophyta) from areas affected by invasive macroalgae *Caulerpa taxifolia* (Vahl) C. Agardh and *Caulerpa racemosa* (Forsskål) J. Agardh (Adriatic Sea, Croatia)
Ana Car

11.45-13.00
Lunch

Parallel Session 10: Ecology & Physiology of Microphytobenthos
(Acad. Raadzaal)

Chaired by Angela Wulff and Johann Lavaud

09.45-10.05 Photoprotection capacity differs among microphytobenthic diatoms inhabiting intertidal mudflats: Possible consequences on their spatial distribution related to the light environment

Alexandre Barnett

10.05-10.25 Spatio-temporal dynamics of microphytobenthos in the Tagus estuary (Portugal) detected by spatial remote sensing

Laurent Barillé

10.25-10.45

Coffee break

10.45-11.00 Microphytobenthos productivity estimation using hyperspectral remote-sensing: from species to the ecosystem level

Vona Méléder

11.00-11.15 The role of photoacclimation in benthic diatom photobehaviour

João Ezequiel

11.15-11.30 New methods to evaluate the relative efficiency of vertical migration and physiological mechanisms against photoinhibition in microphytobenthos

Martin Laviale

11.30-11.45 Development of microphytobenthic communities on hard artificial substrata in the brackish waters of the Gulf of Gdańsk

Aleksandra Zgrundo

11.45-13.00

Lunch

Thursday, August 30, 2012

Aula Academica - Ghent University

13.00-13.45	Key note lecture 6 A multifaceted and integrated approach to the study of marine planktonic diatoms Marina Montresor
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Parallel Session 11: Ecology & Physiology of Phytoplankton (Acad. Raadzaal)

Chaired by Klaas Timmermans and Michel Poulin

13.45-14.05 Ice diatoms - three case studies on effects of elevated CO₂ and temperature
Angela Wulff

14.05-14.25 Morphological and physiological effects in *Proboscia alata* (Bacillariophyceae) grown under different light and CO₂ conditions of the modern southern ocean
Klaas Timmermans

14.25-14.45 Bacterial communities help survivals of diatom populations from viral attacks
Kei Kimura

14.45-15.10
Coffee break

15.10-15.25 What's *Melosira arctica* doing in Wellington Channel, Nunavut, Canada?
Michel Poulin

15.25-15.40 Dynamics in diatom population abundance and activity inferred from stable isotope labeling of phospholipids fatty acid biomarkers in the Dutch Wadden Sea
Juliette Ly

15.40-15.55 Pennate diatom viruses are similar to centric diatom viruses
Yuji Tomaru

15.00-16.10 Winter phytoplankton composition in offshore waters of South Adriatic
Ljubimir Stijepo

16.10-18.00 **Poster session 3 sponsored by Walz and Proviron**

20.00-22.00 **Online Diatom Resources Workshop (convenor S. Spaulding) (Acad. Raadzaal)**

Parallel Session 12: Water Quality (Aula)

Chaired by Herman van Dam and Frédéric Rimet

- 13.45-14.05 Calibrating diatom indicators: how many samples are enough?
Euan D. Reavie
- 14.05-14.25 Recent and past diversity and ongoing environmental change within Central European ombrotrophic wetlands
Aloisie Poulíčková
- 14.25-14.45 MIDTAL microarrays for the detection of harmful algae: a commercial reality and mAQUA not far behind for diatoms in assessing water quality
Linda K. Medlin
- 14.45-15.10
Coffee break*
- 15.10-15.25 Spatial variability of the diatom community of Lake Wivenhoe, an Australian freshwater reservoir
Deborah Gale
- 15.25-15.40 Spatial distribution of epiphytic diatoms in relation to environmental factors in the Lake Ladoga
Alexander G. Rusanov
- 15.40-15.55 The role of diatom communities in the quality evaluation and ecological characterization of a regulated Mediterranean stream
Maurizio Battezzoro
- 15.5-16.10 Diatoms challenge to change people's awareness about riverine environment with aid of an international web-based educational system
Shigeki Mayama

Friday, August 31, 2012
Aula Academica - Ghent University

08.00 Registration (Foyer)

09.00-09.45 **Key note lecture 7 (Aula)**
Metagenomics: from parts lists to ecology
Jeroen Raes

Parallel Session 13: Evolution & Phylogeny (Acad. Raadzaal)

Chaired by David G. Mann and Edward C. Theriot

09.45-10.05 Parmales: an insight into the origin and evolutionary success of diatoms
Akira Kuwata

10.05-10.25 The diatom phylogeny as inferred from nSSU and 6 chloroplast genes
Edward C. Theriot

10.25-10.45
Coffee break

10.45-11.00 Large-scale morphological convergence coincides with replicate radiations of diatoms into freshwaters
Andrew J. Alverson

11.00-11.15 Crossing the freshwater → brackish-water/marine boundary: new insights, such as morphology, biogeography and molecular data, from Thalassiosiraceae
Katarzyna Stachura-Suchoples

11.15-11.30 *Pinnularia borealis*: disentangling the evolutionary history of a terrestrial diatom using genetics, fossils and ecophysiological data
Caroline Souffreau

11.30-11.45 The blue diatoms from the genus *Haslea*: an overview
Romain Gastineau

11.45-13.00
Lunch

Parallel Session 14: Biodiversity & Biogeography II (Aula)

Chaired by Mark B. Edlund and Silvia E. Sala

09.45-10.05 Historical distribution and modern invasions: *Didymosphenia geminata* in the Rocky Mountains of the western US
Sarah Spaulding

10.05-10.25 Diatom distribution in six natural and impacted cut-off meanders of the Allier River (France)
Aude Beauger

10.25-10.45
Coffee break

10.45-11.00 Diatom communities and water quality of shoreline rock pools in the North American Great Lakes
Mark B. Edlund

11.00-11.15 Spatial scaling of diatom diversity in Dutch peatlands: comparison of three ecologically contrasting systems
Alejandra Goldenberg-Vilar

11.15-11.30 Influence of stream headwater flow biotopes on within-reach variability in benthic diatom assemblages
Maria Snell

11.30-11.45 Sand, dingos and diatoms
Jacob John

11.45-13.00
Lunch

Friday, August 31, 2012
Aula Academica - Ghent University

13.00-13.45 **Key note lecture 8 (Aula)**
Diatom-based biomonitoring in Canada: reflections on 10 years of development, improvement and persuasion
Isabelle Lavoie

13.45-15.55 Parallel Session 15: Ecotoxicology (Aula)
Chaired by Soizic Morin and Maria Kahlert

13.45-14.05 Use of "Species Sensitivity Distribution" for herbicides toxicity assessment on benthic diatom assemblages
Agnès Bouchez

14.05-14.25 Diatom immigration drives biofilm recovery after chronic copper exposure
Soizic Morin

14.25-14.45 Detecting toxin contamination in streams: Combining different forms of diatom valve malformation and changes in diatom biological traits for a screening method
Maria Kahlert

14.45-15.10
Coffee break

15.10-15.25 Use of passive samplers extracts for toxicity assessment of environmental realistic mixture of pesticides on natural biofilms communities
Sandra Kim Tiam

15.25-16.10 **Key note lecture 9 (Aula)**
Data rich, information poor? 10 years of the EU water framework directive in Europe
Martyn Kelly

16.15-18.00 ISDR General Meeting (Aula)

18.00-18.15 ISDR Council meeting (Aula)

20.00-... Banquet (Vooruit)

POSTER PROGRAM

There will be three poster sessions (Monday, Tuesday and Thursday). While all posters will remain posted throughout the whole symposium, we invite the presenting authors to be present at their poster during one poster session, according to the scheme below.

Posters need to be taken down before lunch on Friday, August 31, 2012.

Monday, August 27, 2012

Taxonomy of Freshwater Diatoms: posters P17–P34

Paleo-ecology: posters P68–P77

Molecular and Cell Biology, Biotechnology: posters P110–P123

Tuesday, August 28, 2012

Ecology: posters P1–P16

Taxonomy of Freshwater Diatoms: posters P35–P45

Taxonomy of Marine Diatoms: posters P78–P87

Biodiversity & Biogeography of Marine Diatoms: posters P99–P109

Thursday, August 30, 2012

Biodiversity & Biogeography of Freshwater Diatoms: posters P46–P67

Taxonomy of Marine Diatoms: posters P88–P98

Molecular and Cell Biology, Biotechnology: posters P124–P136

Posters organised by sessions

Ecology

- P1 ALLINGER Lisa
Viability Assessment of Diatom Assemblages in Ballast Water
- P2 KIMURA Kei
Dynamics of *Chaetoceros tenuissimus* and its viruses in Hiroshima Bay, Japan
- P3 TOMARU Yuji
Diatom viruses isolated from Japanese coastal waters
- P4 TAMMILEHTO Anna
Are toxic diatoms a problem in the Arctic? – focusing on *Calanus* spp. as potential vectors for domoic acid
- P5 FRANKENBACH Silja (presenting author: M. Laviale)
Geotactic behaviour in benthic diatoms
- P6 GERNEZ Pierre
Multispectral satellite remote-sensing of microphytobenthos chlorophyll a concentration using MERIS
- P7 RIBEIRO Lourenço
Extracting diatoms from intertidal sediments: a comparison of different methods
- P8 BARNETT Alexandre
Influence of the light climate (quantity and quality) on the coupling between migration, photosynthesis and cell division in microphytobenthic diatoms
- P9 BLOMMAERT Lander
Attached intertidal diatoms have stronger photoprotective capacity compared to motile diatoms
- P10 VAN WICHELEN Jeroen
Strong compositional changes in the centric diatom communities of the Scheldt-estuary: a result of improving water quality?
- P11 JORDAN Richard
Use of hand-held multisensor systems in phytoplankton studies of a Japanese lake
- P12 SALA Silvia E.
The expansion of the invasive diatom *Didymosphenia geminata* in Patagonia, Argentina
- P13 LUIS Ana
Mimicking pyritic mines conditions in the laboratory: Fe/SO₄²⁻- chronic exposure and Cu/Zn acute toxicity to fluvial periphyton in acidic and control conditions

- P14 PITHER Jason
A null model analysis debunks widely-cited evidence of dispersal limitation among freshwater diatoms.
- P15 BOTTIN Marius
An easy-to-use package for ordination of diatom assemblages using Self- Organizing Kohonen maps
- P16 BESZTERI Bank
Exploring the possibilities of collection-based ecosystem research at the Hustedt Centre

Taxonomy of Freshwater Diatoms

- P17 VAN DE VIJVER Bart
A new centric diatom genus from the sub-Antarctic region with striking similarities to a Cretaceous fossil
- P18 CHANG Tsjang-Pi
SEM-study on *Cyclotella operculata* (C.Agardh) Kützing (Centrales, Bacillariophyceae)
- P19 CHANG Tsjang-Pi
A study on the type material of *Cyclotella kuetzingiana* Thwaites (Centrales, Bacillariophyceae)
- P20 ZADEH Amin Nagdi
Study of *Cyclotella* (Kützing) Brébisson of diatoms and their relationship with some of physico- chemical factors of water in Siahrood River, IRAN
- P21 CORNET Colette
Morphology and ultrastructure of the Paleocene *Aulacoseira gallica* (Ehrenberg 1854, Lauby 1910) comb.nov. from the bituminous schists in the maar of Menat (Puy-de-Dôme, Auvergne)
- P22 SNYDER Jeffrey
Morphological variations in *Pliocaenicus* and related *Thalassiosiraceae* during the Late Pliocene and Pleistocene in Lake El'gygytgyn, Chukotka, northeast Russia
- P23 JOHN Jacob
A new Diatom intermediate in characters between *Podosira* and *Hyalodiscus* from a temporary fresh water Lake in Western Australia
- P24 CHANTHIRATH Intana
Shape Analysis in the 3D Dimension: Are Centric Diatoms Finally Showing Some Character
- P25 GUERRERO José M.
The genus *Punctastriata* and the complex *Staurosirella pinnata* (Araphids, Bacillariophyceae) from lacustrine sediments in northwestern Patagonia, Argentina

- P26 DUBROVINA Uyliya
Tetracyclus species from Miocene deposit of Khnaka Lake (Russia, Promrye)
- P27 BEALS Jennifer
The type material of *Eunotia arcuoides* Foged
- P28 VESELA Jana
An attempt to revise the genus *Peronia* Bréb. et Arn. ex Kitton with two species new to science
- P29 CHUDAEV Dmitriy
Diatoms of the genus *Gomphonema* Ehrenberg from Lake Glubokoe (Moscow Area, European Russia) with some notes on the morphology of striae
- P30 JUETTNER Ingrid
Morphology and ecology of a new *Gomphonema* species from west and north Europe and re-examination of *Gomphonema exilissimum*
- P31 PONADER Karin
Taxonomic account of narrow-celled *Gomphonema* species with wide axial areas from Eastern US and Canada rivers
- P32 ENACHE Mihaela
A new species of *Platessa* Lange-Bertalot from the northeastern United States
- P33 HLUBIKOVA Dasa (presenting author: L. Ector)
Comparative study of types of several freshwater *Nitzschia* of the section *Dissipatae* with a description of a new species
- P34 KOPALOVÁ Kateřina
Four new small-celled naviculoid taxa from the Maritime Antarctic Region
- P35 MAIN Stephen
The genus *Craticula* in Iowa wetlands (USA)
- P36 NOVAIS Maria Helena
Morphological diversity within the *Achnantheidium minutissimum* species complex
- P37 QINGMIN You
The Diatom genera *Nitzschia* Hassall and *Hantzschia* Grunow from Xinjiang, China
- P38 SALA Silvia E.
Valve Morphology of *Didymosphenia geminata* in Patagonia, Argentina
- P39 TUJI Akihiro
Phylogeny of genus *Spicaticribra* and related taxa
- P40 JULIUS Matthew
Telling time with diatoms: Corroborating phylogenetic relationships and occurrence in the fossil record with molecular data

- P41 WETZEL Carlos
Transfer of the bryophytic diatom species *Navicula cataractarum* Hustedt to *Hygropetra* and comparison with *Frankophila* species
- P42 ZIDAROVA Ralitsa
Two unknown *Luticola* taxa from the Maritime Antarctic region
- P43 ZIDAROVA Ralitsa
The genus *Stauroneis* on Livingston and James Ross Island (Maritime Antarctic Region)
- P44 ZIDAROVA Ralitsa (Presenting author: B. Van de Vijver)
The genus *Neidium* in the Antarctic Region
- P45 URBANKOVA Pavla
Evaluation of candidate barcode markers on the diatom genus *Frustulia*

Biodiversity & Biogeography of Freshwater Diatoms

- P46 BES Daniela (presenting author: L.C. Torgan)
Composition of the epilithic diatom flora from a subtropical river, Southern Brazil
- P47 MATIAS de FARIA Denise
Spatial periphytic diatoms between two summers in a large subtropical shallow lake
- P48 PLATA-DIAZ Yasmin (presenting author: Silvia E. Sala)
Regional variation of diatom assemblages in Colombian rivers: a first approach
- P49 FOFANA Cheikh Abdul Kader (presenting author: B. Van de Vijver)
Taxonomy and ecology of freshwater diatoms of the Senegal River
- P50 KOPALOVÁ Kateřina
The freshwater diatom flora from two contrasting Antarctic localities
- P51 KUMAR Aniket
Assessment of species diversity and distribution of diatoms in high altitude aquatic ecosystems of Trans Himalaya, India
- P52 BATTEGAZZORO Maurizio
Diatom assemblages in the springs of the Maritime Alps Natural Park (NW Italy)
- P53 MANOYLOV Kalina
Diatom community dynamics across ecoregions in Georgia, US
- P54 POTAPOVA Marina
Diatoms of North-Central Pennsylvania
- P55 RIOUAL Patrick
Diatom biodiversity and distribution in volcanic lakes of Northeastern China

- P56 RIVERA Sinziana F.
Changes in epiphytic diatom (Bacillariophyceae) community composition and structure in an eutrophic pond (Alalay Pond, Cochabamba, Bolivia)
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The influence of nutrient limitation on antioxidant activity and UV-susceptibility of *Phaeodactylum tricornutum*

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Nantes Culture Collection: microphytobenthos biodiversity for research and development advances
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BCCM/DCG, a new and dedicated diatom culture collection integrated in the Belgian Coordinated Collections of Micro-organisms
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Actin: A key player for locomotion
- P125 ANDERSEN Martin Veijle (presenting author: T. Brembu)
Purification and characterisation of an unusual DNA glycosylase in diatoms
- P126 TANAKA Atsuko
Organelle division and vesicular transport during cell division in the marine pennate diatom *Phaeodactylum tricorutum*
- P127 CHU Lili
Nucleotide transporters in diatom plastids
- P128 EWE Daniela
Living well with a scrambled metabolism: CO₂ fixation and carbohydrate pathways in diatoms
- P129 LIANG Jun-Rong
MALDI-TOF MS analysis of the extracellular polysaccharide released by *Thalassiosira pseudonana* (Bacillariophyta)
- P130 DANILOVTSEVA Elena N.
Synthesis and properties of new fluorescence dyes for in vivo staining of diatoms
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- P132 HLUBIKOVA Dasa (presenting author: L. Ector)
Use of pennate diatoms as templates for nanotexturation of elastic polymers
- P133 ORELLANA Monica
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Functional genetic diversity within *Frustulia rhomboides* species complex
- P135 DAVIDOVICH Nikolai
'Pseudopodial' activity of the gamete surface in araphid pennate diatoms
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Initial cells of a freshwater diatom *Frustulia crassinervia* (Brébisson) Lange-Bertalot & Krammer

Additional abstracts

DIATOM DISTRIBUTION IN SIX NATURAL AND IMPACTED CUT-OFF MEANDERS OF THE ALLIER RIVER (FRANCE) (*Oral Presentation*)

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Parapotamal cut-off meanders from different geological catchment regions (metamorphic-basalt, sedimentary) of the Allier River (117 km apart) differ in their degrees of infill or depth. In each region, three cut-off meanders were examined; one in each region was impacted by gravel extraction (upstream deepening) and halieutic improvement (downstream deepening) while the other were left in their natural state. For these sites, two of them were characterized by an important degree of silt accumulation while the two others were less silted-up. The sites were monitored for one year for physical and chemical characteristic. Diatoms samples, collected in summer and autumn 2009, were examined along with their associated biocenosis. The two catchments, differing in geology, land-use and water quality, sheltered different diatom communities. Added to catchment differences, physical and chemical differences were found between up- and downstream for each cut-off meander due to both the influence of the groundwater (buffering the water temperature among others) and the periodic inflow from the main channel (increased O₂ saturation concentration for example) (except an impacted upstream meander cut-off site). Moreover, more local factors came also into play. In the metamorphic reach (except one site), the connection with the groundwater, that acts as a hydro-geological reservoir could explained the highest mineralization and water hardness observed mainly upstream meander cut-off section and the presence of *Pseudostaurosira subsalina* (Hustedt) Morales and *Thalassiosira weissflogii* (Grunow) Fryxell & Hasle. For the sedimentary reach, besides the up- and downstream differences, other factors also lead to different communities such as the presence of cattle trampling in the cut-off meander leading to the presence of hypereutrophic and polysaprobic taxa or the potential local re-emergence of mineral springs associated with brackish taxa. Moreover, the up- or downstream deepening also induced differences: the extraction of sediment nearer to the river created a system where water input from the main channel flow in through a larger opening inducing allochthonous processes. This increased of the river's influence created a renewal of morphological and ecological conditions. Whereas the gravel extraction that modified the upstream zone increased the influence of groundwater on the site and an evolution independent from the main channel. Furthermore, this study has provided an important picture of the environmental variables, mechanisms and processes that drive the distribution of diatoms within the cut-off meanders along the Allier River and the results can be applied in the future to paleo-environmental studies.

AN EASY-TO-USE PACKAGE FOR ORDINATION OF DIATOM ASSEMBLAGES USING SELF-ORGANIZING KOHONEN MAPS (*Poster Presentation*)

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Diatom assemblages are particularly diverse and sensible to numerous factors such as environmental gradients or local productivity. Moreover, several studies have shown biogeographical-related patterns such as distance decay of similarity, or nestedness. These factors call for methodologies which are able to handle strong non-linear and complex gradients for studying the geographical and environmental distributions of species and assemblages.

A self-organizing Kohonen map (SOM) is a neural network with an unsupervised learning. This method allows both an unbiased classification of the communities and a simultaneous visualization of biological and environmental gradients on a two-dimensional plane. Its potential to account for complex non-linear gradients leads to high efficiency to describe biological communities. SOM have been successfully used to describe, among others, spatial variations of diatom assemblages (Tison et al. 2005) or the impact of pesticides on diatom communities (Morin et al. 2009). However, as for other neural networks, many parameters must be set (number of neurons, dissimilarity measures, number of steps, neighborhood function). We developed a new R package with a SOM parameterization specifically suited for diatom assemblages. Further developments will consist in creating a graphical user interface, in order to make this method easy to use by the diatomists community. Here we present the possibilities provided by this package, together with examples of its use for redefining French diatom biotypology.

References:

Morin, S., et al. 2009. Linking diatom community structure to pesticide input as evaluated through a spatial contamination potential (Phytopixal): A case study in the Neste river system (South-West France). - *Aquatic Toxicology* 94: 28-39.

Tison, J., et al. 2005. Typology of diatom communities and the influence of hydro-ecoregions: A study on the French hydrosystem scale. - *Water Research* 39: 3177-3188.

TAXONOMIC COMPOSITION OF BENTHIC DIATOMS (BACILLARIOPHYTA) FROM AREAS AFFECTED BY INVASIVE MACROALGAE *CAULERPA TAXIFOLIA* (VAHL) C. AGARDH AND *CAULERPA RACEMOSA* (FORSSKÅL) J. AGARDH (ADRIATIC SEA, CROATIA) (*Oral Presentation*)

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There is a considerable lack of data on marine benthic diatoms in the Adriatic. This study focuses on the taxonomy of epiphytic diatoms in areas of invasive macroalgae of the genus *Caulerpa* sp. on the eastern Adriatic Sea coast. Material was collected during two years (autumn 2008 – autumn 2010) from an area influenced by *Caulerpa taxifolia* in the bay of Stari Grad (the Island of Hvar), and from areas influenced by macroalga *Caulerpa racemosa* in Dubrovnik and on the Island of Mljet (Gonoturska Bay). In order to compare epiphyte assemblages, sampling of coexisting autochthonous brown and green algae was conducted on the same stations. Light and electron microscopy will provide for the first time the information on the general morphology and ultrastructure of species, and enable a determination of the taxonomy of diatoms. Knowledge of the diatom community structure in the areas of *Caulerpa* spp. is important for studies of the toxic effects of the host.

MORPHOLOGY AND TAXONOMY OF THE MARINE PLANKTONIC DIATOMS OF THE GENUS *ASTEROMPHALUS* (BACILLARIOPHYTA) FROM ANTARCTIC AND ARGENTINEAN SHELF WATERS (*Poster Presentation*)

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Diatoms of the genus *Asteromphalus* Ehrenberg are common, although not abundant, planktonic forms, widespread in marine waters all over the world. The most conspicuous morphological character is the presence of hyaline rays on the valve face, which function is unknown as yet. There are previous investigations on this genus in Antarctic waters, but many details have not been studied, especially the morphological variation. This work is based on the analysis of samples from several localities in the Antarctic waters and the Argentinean shelf, with light and scanning electron microscopy. Seven taxonomic identities have been found, including 9 species: *Asteromphalus darwinii*/*A. parvulus*, *A. emergens*, *A. flabellatus*, *A. heptactis*, *A. hookeri*, *A. humboldtii* and *A. hyalinus*/*A. leboimei*. Some morphological characters traditionally used have limited or none taxonomic value when used alone, due to their high degree of variation: valve diameter, number of rays, proportion of the central area, shape of separation lines, but brought together they could be diagnostic, besides other that may be additionally useful, such as (1) shape and location of the central area, (2) density and arrangement of the areolae, (3) shape and width of the rays, (4) insertion of the singular ray in the central area, (5) height of the valve mantle, and (6) details of the cingular bands. The morphological variation detected in two taxonomic entities could lead to a proposal of corresponding synonymies and emended diagnosis of at least two species.

BENTHIC DIATOMS OF THE BLACK SEA: INTER-REGIONAL ANALYSIS OF DIVERSITY AND TAXONOMIC STRUCTURE (*Poster Presentation*)

Elena Nevrova

Institute of Biology of Southern Seas NASU

The interregional evaluation of Black Sea benthic diatom diversity was performed by Taxonomic Distinctness Indices (TaxDI) and the comparative estimation of diatom assemblages' taxonomic structure in various environments was carried out.

Updated inventory of Black Sea benthic *Bacillariophyta* from 5 regions (Caucasian, Crimean, Bulgarian, Romanian coasts and North-Western shelf) holds 1093 species (942 sp. and infraspecific taxa), pooled in 141 genera, 60 families, 32 orders and 3 classes, according to the recent systems. The latest check-list of Crimean coast includes 886 species (800 sp. & ssp.), belonging to 127 genera, 57 families, 27 orders. Thus, the highest species richness of diatoms, ever registered in the Black Sea, was recorded near Crimea (81% of the total species number). Regarding other regions, the total richness and relative share of species were lower: for the NW shelf were marked 504 sp. & ssp. (46 % but without dwellers of brackish-water lagoons), for Bulgarian coast – 271 (25 %); for Romanian – 358 (33 %); for Caucasian – 298 (27 %).

The highest similarity (evaluated by Bray-Curtis coefficient) was encountered between pairs NW shelf – Romania (63,1) and NW shelf – Caucasus (58,6), the lowest similarity was registered for the pairs Crimea – Bulgaria (36,3) and Crimea – Romania (41,5).

Mean TaxDI values (Δ^+ and Λ^+) for diatom assemblages from these regions were calculated and its deviation from expected average level, corresponding to Black Sea master-list, was assessed. At the infraspecific level, the value of Δ^+ for Crimean coast was the lowest (81,25) and almost approached the value of expected mode for the whole Black Sea diatom flora (82,18), whereas the value of Δ^+ for Romania coast was highest (85,84) and greatly overdrawn the upper limit of 95% probability contour. It may evidence about great share of polyspecies branches in the hierarchical tree and lead to decreasing the vertical evenness in diatom taxocene structure for Crimea. On the contrary, the great number of oligospecies branches closing up on genus and family taxonomic levels, have determined more flattened pattern of taxonomical tree structure for Romania. As a result, the maximum value of species/genus ratio (6,98) was observed in diatom assemblage of Crimea comparatively with the minimum value of this ratio for Romania (4,2).

The obtained taxonomical evaluation result provides the statistically reliable assessment of diatom assemblages' structure and would be employed for measures on conservation of marine flora diversity at the modern anthropogenic transformation of the Black Sea shores.

PROGNOSTIC ESTIMATION OF BENTHIC DIATOMS SPECIES RICHNESS AT DIFFERENT ENVIRONMENTAL CONDITIONS AND SAMPLING EFFORTS (CRIMEA, THE BLACK SEA) (*Poster Presentation*)

Alexei Petrov & Elena Nevrova

Institute of Biology of Southern Seas NASU

Benthic diatoms species richness had analyzed based on materials collected in 1996-2009 at 8 coastal locations of SW Crimea. Totally 93 stations were sampled on sandy-muddy substrate within depth range 6–48 m. At total, 433 diatom species and infraspecific taxa were found by results of cell calculations in Goryaev chamber and microscoping of permanent slides. Prognostic estimation of the expected species richness (S_{exp}) was performed by application of 4 algorithms (Jack-knife-1 & 2, Chao-2 and Karakassis- S_{∞}). The statistical assessment of the estimators' results accuracy and evaluation of optimal ratio between minimal sampling efforts and maximal information about species richness at the certain sampling location were conducted. The estimation accuracy of the S_{exp} is increased proportionally to sampling efforts. Magnitude of S_{exp} , resulted by estimator S_{∞} , has displayed the most similar values to the really observed species number (S_{obs}). Overestimation of S_{obs} values (no more than 10–13 %) was found under consideration of 12–15 samples or less, and slightly underestimation (3–5%) when number of samples exceeds 40–43. The other estimators gave large overestimated results of the expected species richness (Chao – from 21 to 70% higher than S_{obs} , Jack-knife – 23–58%), calculated by randomization for increasing row of all samples. Based on relative error (RE) and squared relative deviation (SRD) the estimators' accuracy depending on biotopes peculiarities and sampling efforts was evaluated. Shown, all estimators have given overestimated results of the S_{exp} (1.3 – 1.8 times) under consideration of few samples (4–6). Under extension of station number up to 15–20, Chao and Jack-knife estimators have given decreasing of the RE and SRD values. Estimator S_{∞} quite precisely evaluates parameter S_{exp} after the first 7-8 permutated samples. The parameters of generalized log-dependence between samples number (1 to 93) and ratio (%) of species richness, totally registered in coastal areas of SW Crimea (433 sp.) were determined. Detection of about 50% of all species registered in SW Crimea on sandy-muddy substrates within 5–45 m depth range is required consideration of no less than 10 randomized stations. Similarly, revelation of 67% of total species richness is necessary to study no less than 20 stations, and 80% ones – about 40 stations (on assumption the equal probability of any species presence in samples). Application of this dependence can be recommended for prognosis of diatom species richness in relation to different sampling efforts under exploring of ecologically similar and previously not studied areas of the Black sea.

DIGITAL HOLOGRAPHIC MICROSCOPY AS A USEFUL TOOL FOR ANALYSING ALGAE (Poster Presentation)

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Digital holography has advanced in recent years into the field of microscopy and also the marine sciences. Several advantages make the technology particularly promising for microscopy applications in algal studies. Compared to classical light microscopy, digital holographic microscopy (DHM) has the ability to achieve a greater depth of focus (through hologram reconstruction) and the ability to obtain so-called phase information. Based on the optical phase information, digital holographic microscopy is able to detect differences and changes occurring in cell optical density. Furthermore, transparent substances of a different optical density compared to the surrounding medium, such as, for example, extracellular polymeric substances in the algae's immediate surroundings, can also be visualized. Results will be presented on how the novel features of digital holographic microscopy can improve algal classification work but also how behaviour, movement and interactions of diatoms can be studied.

Corrections to the abstract book

The poster by J. John (Sand, dingos and diatoms) will be presented as an oral presentation.

The oral presentation by S. Leterme (Effect of salinity changes on the morphology and the cellular processes of diatoms) will be presented as a poster.

The oral presentation by M. Orellana (Molecular signatures along the growth curve of a diatom under different CO₂ conditions) will be presented as a poster.

The lecture by C. Stapleton (Delineating forensic paleoecology as a subdiscipline; CSI diatoms?) will be presented by M. Julius.

The talks by T.M. Kiran, K. Stoof-Leichsenring and H. Zetzsche are cancelled.

The poster by R. Ramanibai is cancelled.

The name of Lili Chu was misspelled as Lily Chu in the abstract book.

In the oral presentation by A. Bouchez (Use of “Species Sensitivity Distribution” for herbicides toxicity assessment on benthic diatom assemblages), one author should be added: Agnès Bouchez, Floriane Larras, **Sylvain Guyot**, Frédéric Rimet, Bernard Montuelle