

SANGOMA: Stochastic Assimilation for the Next Generation Ocean Model Applications

EU FP7 SPACE-2011-1 project 283580

Deliverable 6.10: Report on International Colloquium

Due date: 28/02/2015

Delivery date: 23/10/2015

Delivery type: Report , Public



J.-M. Beckers A. Barth Y. Yan M. Canter
University of Liège, BELGIUM

P.-J. Van Leeuwen S. Vetra-Carvalho
University of Reading, UK

L. Nerger P. Kirchgessner
Alfred-Wegener-Institut, GERMANY

A. Heemink N. van Velzen M. Verlaan U. Altaf
Delft University of Technology, NETHERLANDS

P. Brasseur J.-M. Brankart G. Candille S. Metref
CNRS-LEGI, FRANCE

P. de Mey
CNRS-LEGOS, FRANCE

L. Bertino F. Counillon
NERSC, NORWAY

Chapter 1

Colloquium Overview

The 47th International Liège Colloquium on Ocean Dynamics was focused on *Marine Environmental Monitoring, Modelling and Prediction*. In the Scientific Organizing Committee, a strong presence of SANGOMA partners ensured coverage of DA related issues:

Scientific Organizing Committee

- Barth, A., ULg, Belgium
- Beckers, J.-M., ULg, Belgium
- Bertino, L., NERSC, Norway
- Brasseur, P., LGGE, France
- Chassignet, E., FSU, USA
- De Mey, P. LEGOS, France
- Fennel, K., Dalhousie University, Canada
- Goosse, H., UCL, Belgium
- Kurapov, A., OSU, USA
- Lermusiaux, P., MIT, USA
- Le Traon, P.-Y., Ifremer/EuroGOOS, France
- Nerger, L., AWI, Germany
- Smith, N., TPOS 2020, Australia
- Stanev, E., HZG, Germany
- Van Leeuwen, P.-J., U-Reading, United Kingdom
- Verlaan, M., Deltares, Netherlands
- Wang, B., IAP, CAS, China
- Yan, Y., LISTIC, France

- Zhu, J., IAP, CAS, China

Keynote speakers were chosen to cover the main topics by well known experts:

- Joaquín Tintoré (SOCIB/UIB, Spain): The impact of new multi-platform observing and forecasting systems in science and society
- Pierre-Yves Le Traon (Ifremer/Mercator-Océan, France): Operational Oceanography in Europe: status, perspectives and challenges
- Katja Fennel (Dalhousie University, Canada)
- John Wilkin (Rutgers University, USA)
- Nadia Pinardi (INGV, Italy)
- Peter-Jan Van Leeuwen (University of Reading, United Kingdom)
- Pierre Lermusiaux (MIT, USA)

Place and date of the Conference: University of Liège - Place du 20-Août, 7 - 4000 Liège - Belgium
4-8 May 2015

<http://modb.oce.ulg.ac.be/?page=colloquium&year=2015>

Chapter 2

Terms of References

Ocean modelling has become a standard tool for management of ocean resources during the last decade. Observational networks are operating on a routine basis and numerical models are assimilating data for specific purposes. Though used routinely, monitoring, modelling and data assimilation still pose a series of open scientific questions that should be addressed in order to improve the products of those modelling, monitoring and prediction systems.

The aim of the colloquium is to bring together scientists in order to identify the most critical scientific improvements to be brought to these modelling and monitoring systems for marine environmental predictions and assessments. The colloquium will give the community an opportunity to express scientific needs and priorities based on experience from years of ocean observations and forecasting. Among the topics which should be covered by the presentations are the following:

- Monitoring and data related problems including, cost/benefit analyses of observation networks (data impact studies), definition for optimal spatial and temporal coverage, quality check of data, optimisation of observational systems, integration of multidisciplinary observations, strategies for data storage and reanalyses, new low cost observing techniques, data mining and big data problems
- Modelling and prediction aspects including error assessments, understanding and correction of biases, model error modeling, intercomparison strategies, specific adaptations for coastal zones vs. open ocean monitoring and modelling systems, incorporation of bio-geochemical and ecosystem modelling, coupling with atmospheric models, ice cover models, multi-model approaches and next generation models (e.g. finite volumes, adaptive grids).
- Data Assimilation aspects including development of new assimilation techniques, incorporation of coastal data into open ocean models or global systems, up and downscaling problems, and qualitative and quantitative assessments of ocean analysis, assimilation challenges related to bio-geochemical and ecosystem models and dealing with non-gaussian distributions
- Demonstrations of operational products and downstream applications (e.g. pollution management, climate predictions) are also welcome as well as presentations of existing operational systems and their defined needs for scientific development.

Chapter 3

Assessment for SANGOMA

The meeting was a full success with more people attending than expected for a rather focused topic. Major data assimilation experts were present and SANGOMA had several occasions to present their work both to colleagues in data assimilation techniques but also to experts in observations and operational users.

A special issue is in preparation for OCEAN DYNAMICS and 30 papers have been announced for submission, among which six from SANGOMA partners.

Annex: List of Participants and Final Program

47th Liège Colloquium on Ocean Dynamics : participants list

Titre	Nom	Prénom	Institut	Pays
Dr	Altaf	M.U.	Delft University of Technology, The Netherlands	The Netherlands
Professor	Amar	Youssef	Département des sciences de l'environnement - Faculté des sciences de la nature et de la vie - Université Djillali Liabes	Algeria
Mr	Aydogdu	Ali	Centro Euro-Mediterraneo per i Cambiamenti Climatici	Italy
Dr	Ayoub	Nadia	Laboratoire d'Etudes en Geophysique et Oceanographie Spatiales (LEGOS)	France
	Barbut	Léo	MUMM	Belgium
Dr	Barth	Alexander	GHER - University of Liège	Belgium
Prof	Beckers	Jean-Marie	GHER - University of Liège	Belgium
Dr	Ben Ismail	Sana	INSTM	Tunisia
Dr	Benkiran	Mounir	Mercator Ocean	France
Dr	Bidlot	Jean-Raymond	European Centre for Medium range Weather Forecasts	United Kingdom
	Brandini	Carlo	CNR Ibimet & Consorzio LAMMA	Italy
Dr	Brasseur	Pierre	CNRS/LGGE	France
Dr	Brix	Holger	Institute for Coastal Research Helmholtz-Zentrum Geesthacht	Germany
Mr	Brüning	Thorger	Bundesamt für Seeschifffahrt und Hydrographie (BSH)	Germany
Ms	Bulycheva	Elena	Atlantic Branch of the P.P. Shirshov Institute of Oceanology of Russian Academy of Sciences	Russia
	Canter	Martin		
Dr	Ceccaroni	Luigi	Barcelona Digital Technology Centre	Spain
Dr	Chiba	Sanae	RCGC/JAMSTEC	Japan
Prof.	Chu	Peter C.	Naval Postgraduate School	USA
Mr	Ciancia	Emanuele	University of Basilicata	Italy
Dr	Ciavatta	Stefano	Plymouth Marine Laboratory	United Kingdom
Dr	Conchon	Anna	CLS, Marine Ecosystems Department	France
Dr.	Dabrowski	Tomasz	Marine Institute	Ireland
	De Cauwer	Karien	MUMM	Belgium
Ms	Declerck	Amandine	Laboratoire MIO Université du Sud Toulon Var	France
Prof.	Deleersnijder	Eric	Université catholique de Louvain	Belgium
Dr	El Moussaoui	Abdelali	MERCATOR Océan	France
Ms	Escobar	Teresa	Marine Science Institute-University of the Philippines	Philippines
Dr.	Faruolo	Mariapia	CNR-IMAA	Italy
PhD	Federico	Ivan	CMCC - Centro Euro-Mediterraneo sui Cambiamenti Climatici	Italy

47th Liège Colloquium on Ocean Dynamics : participants list

Titre	Nom	Prénom	Institut	Pays
Professor	Fennel	Katja	Department of Oceanography Dalhousie University	Canada
Mr	Ford	David	Met Office	United Kingdom
Dr	Forget	Gael	Massachusetts Institute of Technology	USA
Dr	García Ladona	Emilio	Dept. Physical & Technological Oceanography Institut de Ciències del Mar (ICM-CSIC)	Spain
Mr	GARNIER	Florent	LGGE équipe MEOM	France
Mr	Gomez	Roberto	Helzel	Germany
Mr	Grayek	Sebastia	Helmholtz-Zentrum Geesthacht GmbH	Germany
Dr	Grégoire	Marilaure	Liege University	Belgium
Mr	Gregor	Luke	Department of Oceanography - University of Cape Town	South Africa
Dr	Gürses	Özgür	Institute of Marine Sciences, (IMS-METU)	Turkey
Prof.	He	Ruoying	Department of Marine, Earth & Atmospheric Sciences North Carolina State University	USA
Dr	Hernandez	Fabrice	IRD/Mercator Ocean	France
Prof.	Hetland	Robert	Department of Oceanography - 3146 TAMU Texas A&M University	USA
Dr	Hidas	Marton	Integrated Marine Observing System University of Tasmania	Australia
Dr	Hoteit	Ibrahim	KAUST	Saudi Arabia
Mr	Janeiro	João Miguel	CIMA - Instituto Superior de Engenharia - Universidade do Algarve	Portugal
Dr	Jones	Emlyn	CSIRO: Oceans and Atmosphere	Australia
Dr	Juza	Melanie	SOCIB	Spain
Mr	Kirchgessner	Paul	Alfred-Wegener-Institut Helmholtz-Zentrum für Polar- und Meeresforschung	Germany
Ms	Kotovitch	Marie	Ulg - AGO	Belgique
Dr	Kurapov	Alexander	College of Earth, Ocean, and Atmosphere Sciences Oregon State University	USA
Dr	Lacava	Teodosio	CNR - Institute of Methodologies for Environmental Analysis	Italy
Dr	Lana	Arancha	IMEDEA	Illes Balears,
Dr	Le Bars	Yoann	Université catholique de Louvain, SST/IMMC/MEMA	Belgium
Mr	Le Galloudec	Olivier	Mercator Ocean	France
Mr	Le Gland	Guillaume	LEMAR, IUEM	France
Dr	Le Traon	Pierre Yves	Mercator Ocean	France

47th Liège Colloquium on Ocean Dynamics : participants list

Titre	Nom	Prénom	Institut	Pays
Miss	Léger	Lory	Student - University of Liège	Belgium
Dr	Lellouche	Jean-Michel	Mercator Ocean	France
Professor	Lermusiaux	Pierre	Massachusetts Institute of Technology - Department of Mechanical Engineering	USA
Dr	Lesoinne	Stéphane	GHER - University of Liège	Belgium
Mr	Llasses Gascon	Josep	Mediterranean Institute for Advanced Studies (IMEDEA)	Spain
Dr	Lu	Youyu	Ocean and Ecosystem Sciences Division Fisheries and Oceans Canada Bedford Institute of Oceanography	Canada
Dr	Macias Moy	Diego Manuel	European Commission, Joint Research Center	Italy
	Martin	Canter	GHER - University of Liège	Belgium
Prof	Martins	Flávio	Universidade do Algarve Instituto Superior de Engenharia	Portugal
Mr	Mattern	Jann-Paul	Ocean Sciences Department University of California Santa Cruz	USA
Dr	Meyer	Elke	Helmholtz-Zentrum Geesthacht GmbH	Germany
Dr	Mihailov	Maria Emanuela	National Institute for Environmental Protection Research and Development, subunit National Institute for Marine Research and Development "Grigore	Romania
Dr	Mongin	Mathieu	CSIRO Hobart	Australia
Dr	Moreau	Sébastien	Université catholique de Louvain, Earth and Life Institute	Belgium
Mr	Mourre	Baptiste	SOCIB	Spain
Dr	Nerger	Lars	Alfred Wegener Institute	Germany
Ms	Nohe	Anja	Protistology & Aquatic Ecology - Dept. Biology - Ghent University	Belgium
Miss	Orban	Charlotte	Student - University of Liège	Belgium
Dr	Ourmieres	Yann	MIO / University of Toulon	France
	Ozer	José	MUMM	Belgium
Professor	Özsoy	Emin	Institute of Marine Sciences, METU	Turkey
Dr.	Paciello	Rossana	CNR - Institute of Methodologies for Environmental Analysis	Italy
Professor	PAN	JIAYI	Fok Ying Tung Remote Sensing Science Building - The Chinese University of Hong Kong	Hong Kong
Mr	Pasmans	Ivo	College of Earth, Ocean, and Atmospheric Sciences Oregon State University	USA
MSc	Pein	Johannes	Universitaet Oldenburg	Germany
Dr.	Petelin	Boris	National Institute of Biology	Slovenia
Dr	Pinardi	Nadia	Dept. of Physics and Astronomy, University of Bologna	Italy
	Ponsar	Stéphanie	MUMM	Belgium

47th Liège Colloquium on Ocean Dynamics : participants list

Titre	Nom	Prénom	Institut	Pays
Mr	Pringle	Nicholas	Operational Directorate for Nature - Royal Belgian Institute of Natural Sciences	Belgium
Dr	Qin	Zheng	Institute of Science, PLA University of Science and Technology	China
MSc	Rangel	Rafael Henrique Oliveira	Laboratório de Métodos Computacionais em Engenharia (LAMCE), Universidade Federal do Rio de Janeiro (UFRJ)	Brazil
Mr	Schulz-Stellenfleth	Johannes	Helmholtz-Zentrum Geesthacht GmbH	Germany
	Scory	Serge	MUMM	Belgium
Dr	Sentchev	Alexei	Laboratoire d'Océanographie et de Géosciences (CNRS UMR8187) - Université du Littoral - Côte d'Opale	France
Mr	Sepp Neves	Antonio Augusto	CIRSA - University of Bologna SINCEM Laboratory	Italy
Mr	Seyer	Thomas	Student - University of Liège	Belgium
Ms	Spinu	Alina	National Institute for Marine Research and Development "Grigore Antipa" Constanta	Romania
Dr	Stanev	Emil	Helmholtz-Zentrum Geesthacht GmbH	Germany
Dr	Staneva	Joanna	Helmholtz-Zentrum Geesthacht GmbH	Germany
Ms	Stoicescu	Stella-Theresa	Tallinn University of Technology Marine Systems Institute	Estonia
Prof.	Suh	SeungWon	Dept. of Ocean Science and Engineering Kunsan National University	Korea
Mr	Sumihar	Julius	Deltares	The Netherlands
Mr	Sursham	David	Plymouth Marine Laboratory	United Kingdom
Dr	Terseleer Lillo	Nathan	SUMO - OD Nature - RBINS	Belgium
Dr	Testut	Charles-Emmanuel	Mercator Ocean	France
Dr	Tinker	Jonathan	Met Office Hadley Centre	United Kingdom
Prof.	Tintoré	Joaquin	SOCIB and IMEDEA (CSIC-UIB)	Spain
Dr	Torsvik	Tomas	Institute of Cybernetics, Tallinn University of Technology	Estonia
Ms	Trindade	Ana Filipa Mestre	Institut de Ciències del Mar (ICM-CSIC)	Spain
Dr	Troupin	Charles	SOCIB - Sistema d'observació i predicció costaner de les Illes Balears	Palma de Mallorca SPAIN. E-07121
Mr	Vallaëys	Valentin	Université catholique de Louvain (UCL)	Belgium
Dr	van der Molen	Johan	Cefas	Uk
Professor	van Leeuwen	Peter Jan	University of Reading, Department of Meteorology	United Kingdom

47th Liège Colloquium on Ocean Dynamics : participants list

Titre	Nom	Prénom	Institut	Pays
Dr	Vandenbulcke	Luc	GHER - University of Liège	Belgium
	Vanhellemont	Quinten	MUMM	Belgium
Mr	Verrier	Simon	Mercator Ocean	France
Dr	Vervatis	Vassilios	Mercator Ocean	France
Dr	Vetra-Carvalho	Sanita	University of Reading, Department of Meteorology	United Kingdom
Dr	Viikmäe	Bert	Institute of Cybernetics at Tallinn University of Technology	Estonia
Dr	Vinci	Matteo	OGS (Istituto Nazionale di Oceanografia e di Geofisica Sperimentale)	Italy
	Watelet	Sylvain	GHER - University of Liège	Belgium
Mr	Westerlund	Antti	Finnish Meteorological Institute	Finland
Dr	While	James	Met Office	United Kingdom
Professor	Wilkin	John	Rutgers University	USA
Professor	Wolff	Joerg-Olaf	Institute for Chemistry and Biology of the Marine Environment (ICBM), Carl von Ossietzky Universität Oldenburg	Germany
Dr	Yan	Yajing	LISTIC, Université Savoie Mont Blanc	France
Professor	Yáñez	Eleuterio	Escuela de Ciencias del Mar Pontificia Universidad Católica de	Chile
Mr	Yaremchuk	Max	Naval Research Laboratory	USA
PhD candidate	Yu	Liuqian	Department of Oceanography, Dalhousie University	Canada
Dr	Zhang	Huai-min	National Centers for Environmental Information	USA

The 47th Liège Colloquium on Ocean Dynamics

"Marine Environmental Monitoring, Modelling and Prediction"

University of Liège, Place du 20-Août, 7 - 4000 Liège - Belgium

Program

Monday, May 4th, 2015

08:30 - 9:30 **Registration**

Chair: K. Fennel

Session 1 – Monitoring - in situ observations

09:30 - 10:00	Keynote: Joaquin Tintoré	Paradigm change in ocean studies: multi-platform observing and forecasting integrated approach in response to science and society needs
10:00 - 10:20	Troupin C., J.P. Beltran, B. Frontera, S. Gómara, S. Lora, D. March, K. Sebastian, J. Tintoré	Data management and applications at SOCIB data centre
10:20 - 10:40	Brix H., Baschek B., Breitbach G., Eschenbach C., Horstmann J., Petersen W., Riethmüller R., Schroeder F., Stanev E., Schulz-Stellenfleth J.	The Coastal Observing System for Northern and Arctic Seas (COSYNA): Challenges and Solutions for an Integrated Measurement and Modelling Approach
10:40 - 11:00	Coffee break	
11:00 - 11:20	Sentchev A , Yaremchuk M	Monitoring tidal dynamics by a high resolution current mapping system
11:20 - 11:40	Roberto Gomez, Thomas Helzel, Nicolas Thomas, Clifford Merz, Yonggang Liu, Robert Weisberg	Performance Comparison of Two Quality Control Methodologies for HF Radar Surface Current Data in the West Florida Shelf.
11:40 - 12:00	van Leeuwen S.M., P. Tett, D.K. Mills, J. van der Molen	Selecting effective monitoring locations: guidance from multi-decadal modelling
12:00 - 12:20	Gregor L., Kok S., Lévy M., Swart S., Monteiro P.M.S.	Sampling aliasing in the Southern Ocean and its impact on uncertainties in the annual mean flux of CO ₂
12:20 - 13:30	Break	

Chair: J. Tintoré

Session 1 – Monitoring - in situ observations

13:30 - 14:00	Keynote: Katja Fennel	Perspectives on combining observations from autonomous platforms with biogeochemical models
14:00 - 14:20	Vinci M., Giorgetti A., Lipizer M., Schaap D., Barth A.	Contribution of EMODnet Chemistry to the management and visualization of marine chemical data
14:20 - 14:40	De Cauwer K., A.V. Borges, K. Deneudt, X. Desmit, B. De Witte, J. Gauquie, A. Goffin, R. Lagring, A. Nohe, K. Sabbe, Y. Stojanov, F. Strobbe, L. Tyberghein, D. Van der Zande	4 decades of Belgian marine monitoring: uplifting historical data to today's needs – 4DEMON
14:40 - 15:00	García-Ladona E., M. García-Sotillo, A. Orma, J. Isern-Fontanet, P. Rodríguez-Rubio, E. Padorno, J. Jiménez-Madrid, D. Conti, E. Capó, A. Lana	The MEDGIB experiment, a valuable data set to test the MYOCEAN system in the Strait of Gibraltar and Alboran Sea
15:00 - 15:20	Coffee break	
15:20 - 15:40	Llasses J., G.Jordà, D.Gomis	Skills of different hydrographic networks to capture changes in the Mediterranean Sea at climate scales
15:40 - 16:00	Brandini C., Taddei S., Fattorini M., Doronzo B., Lapucci C., Ortolani A.	Optimization of an ocean observing system at regional/coastal scales, some case studies from the SICOMAR project.
16:00 - 16:20	Torsvik T., Kalda J.	Analysis of spatial and temporal scales for surface currents in the Gulf of Finland based on surface drifter motion

Session 2- Monitoring - remote sensing

16:20 - 16:40	Trindade A., M. Portabella, W. Lin, A. Stoffelen, A. Verhoef	Towards the characterization and removal/mitigation of scatterometer wind sampling errors
17:00 - 20:00	Ice Breaker party	

Tuesday, May 5th, 2015

Chair: E. Stanev

Session 2- Monitoring - remote sensing

09:00 - 9:20	Bulycheva E., Kostianoy A.	Spatial and temporal variability of oil pollution by satellite radar data in Southeastern Baltic Sea in 2004-2014
09:20 - 09:40	Zhang H-M, Huang B., Lawrimore J.	Improving Global Observations for Climate Change Monitoring using Global Surface Temperature
09:40 - 10:00	Vanhellemont Q., Ruddick K.	Processing very high resolution satellite data for coastal applications.
10:00 - 10:20	Ciancia E., Loureiro C.M., Mendonça A., Di Polito C., Lacava T., Pergola N., Satriano V., Tramutoli V., Martins A.	Assessing Ocean Colour products accuracy with in situ measurements: the case study of CONDOR seamount in the northeast Atlantic Ocean
10:20 - 10:40	Coffee break	

Session 3 - Modelling

10:40 - 11:00	Keynote: Wilkin J., Levin J., Zavala-Garay J.	Data Assimilative Modeling of the U.S. Mid-Atlantic Bight Shelf
11:10 - 11:30	He R.	A Coupled Ocean Circulation, Wave, Atmosphere and Marine Ecosystem Prediction System for the Northwest Atlantic Ocean
11:30 - 11:50	Bidlot J-R, PAEM Janssen, K Mogensen, O Breivik	Air-sea interaction and ocean waves.
11:50 - 12:10	Wolff J-O, Grashorn S., Lettmann K.A., Badewien T.H., Stanev E.	Wave energies and wave-induced longshore currents in an unstructured-grid model – circulation in front of barrier islands
12:10 - 13:30	Break	

Chair: J. Wilkin

Session 3 - Modelling

13:30 - 13:50	Gürses O., Aydoğdu A., Pinardi N., Özsoy E.	Modeling the Turkish Straits System: Circulation and Mixing based on Inter-Basin Coupling
13:50 - 14:10	Declerck A., Ourmières Y., Molcard A.	High-Resolution modeling along the North-Western Mediterranean coasts using NEMO: assessment and impact on the larger scale circulation.
14:10 - 14:30	Macias D., E. Garcia-Gorriz, A. Stips	Quantification and attribution of marine productivity changes in the Mediterranean Sea under climate change scenarios
14:30 - 14:50	Janeiro J., P. Relvas, A. Neves, F. Martins	Mesoscale patterns and their role on oil spill trajectories in the Southwest Iberian coast
14:50 - 15:10	Coffee break	
15:10 - 15:30	Pham Van C., Deleersnijder E., Soares-Frazae S., Hoitink T., Sassi M.	Unstructured-mesh simulations of flow and sediment fluxes in the Mahakam land-sea continuum, Indonesia
15:30 - 15:50	Schulz-Stellenfleth J., Stanev E.	Analysis of the up- and downscaling problem in the North Sea using a high resolution 2D barotropic model
15:50 - 16:10	Hazel J., Mechoso R., Small J., Curchister E.	Biases of Global Coupled Atmospheric-Ocean Models in the Tropical Oceans
16:10 - 16:30	Dabrowski T., Lyons K., Berry A., Nolan G., Cure M.	An operational hydrodynamic modelling system for Irish waters: description, validation and needs for further development

Wednesday, May 6th, 2015

Chair: N. Pinardi

Session 3 - Modelling

09:00 - 09:30	Keynote: Le Traon P-Y	Operational Oceanography in Europe: status, perspectives and challenges
09:30 - 09:50	Hetland R.D., Zhang W., DiMarco S.F., Fennel K.	Seasonal hypoxia in the context of continental shelf and bottom boundary layer dynamics
09:50 - 10:10	Mongin M., Jones E., Baird M.	Simulated Chla versus simulated MODIS OC3 in a biogeochemical model of the Great Barrier Reef (eReefs): implications for model calibration and data assimilation.
10:10 - 10:30	Lu Y., L. Zhai, J. Lei, S. Higginson, F. Dupont, F. Roy, G. Smith, F. Davidson, J. Chanut	Dependence of meso-scale eddy variability on lateral mixing parameterization in high-resolution ocean model simulations
10:30 - 10:50	Coffee	
10:50 - 11:10	Tinker J., R. Barciela, J. Krijnen, S. Dye	Investigating predictability in the North West European Shelf Seas
11:10 - 11:30	Westerlund A., L. Tuomi	Analysis of Vertical Mixing in the Northern Baltic Sea based on 3D Modelling and Data from Shallow-Water Argo Floats
11:30 - 11:50	Federico I., N. Pinardi, P. Oddo , G. Coppini, R. Lecci, T. Vukicevic	Operational coastal forecast system in Southern Adriatic Northern Ionian seas based on unstructured-grid model
	Lolla T., Subramani D., Haley P., Lermusiaux P.	Optimal Path Planning for Swarms of Vehicles
12:10 - 13:30	Break	
13:30 - 13:50	<h1>Poster Session with Coffee Break</h1>	
13:50 - 14:10		
14:10 - 14:30		
14:30 - 14:50		
14:50 - 15:10		

Chair: Y. Yan

Session 3 - Modelling

15:10 - 15:40	Keynote: Nadia Pinardi	Ocean prediction scientific paradigm and the development of the blue economy
15:40 - 16:00	Kurapov A. L., S. M. Durski, J. S. Allen, E. Bayler, E. Myers	The US West Coast Ocean Forecast System
16:00 - 16:20	Le Bars Y., Vallaes V., Deleersnijder E., Hanert E.	Modelling The Congo River Estuary: From a 2D to a 3D Model
16:20 - 16:40	D'Agostini A., L. P. Assad, H. T. Decco, E. N. Passos, <u>R. Rangel</u> , C. P. Souza, W. Cossich, F. R. Hochleitner, L. G. Ribeiro, L. Landau	Marine and Atmospheric Forecast System for Nautical Sports in Guanabara Bay (Brazil)
19:00 - 22:30	Colloquium Dinner: "Crowne Plaza Hotel" - 19:00: Reception at Crowne Plaza Hotel - 20:00: Dinner at Crowne Plaza Hotel	

Thursday, May 7th, 2015

Chair: A. L. Kurapov

Session 4 - Data assimilation - schemes and systems

09:00 - 09:30	Keynote: Lermusiaux P., Lolla T.	Bayesian Nonlinear Smoothing and Mutual Information for Adaptive Sampling
09:30 - 09:50	Yaremchuk M., A. Koch, P. Martin, G. Panteleev	Development of the adjoint-free 4dVar data assimilation technique for regional models
09:50 - 10:10	Chu P.C., Tokmakian R., Fan C.	Ocean Data Assimilation without Background Error Covariance Matrix
10:10 - 10:30	Nerger L., Kirchgessner P.	Building Ensemble-Based Data Assimilation Systems for High-Dimensional Models
10:30 - 10:50	Coffee	
10:50 - 11:20	Keynote: van Leeuwen P.J.	Non-Gaussian Data Assimilation Methods
11:20 - 11:40	Kirchgessner P., Tödter J., Nerger L.	A comparison of linear and non-linear data assimilation methods using the NEMO ocean model
11:40 - 12:00	Vetra-Carvalho S., Jan van Leeuwen P., Browne P.A.	Using EMPIRE to assess the impact of a fully non-linear data assimilation method with NEMO
12:00 - 12:20	Altaf M. U., Van Velzen N., Verlaan M., Heemink A. W.	OpenDA-NEMO framework for Ocean Data Assimilation
12:20 - 13:30	Break	

Chair: S. Vetra-Carvalho

13:30 - 13:50	Barth A., Yan Y., Canter M., Alvera-Azcárate A. and Beckers J.-M.	Local ensemble assimilation scheme with global constraints and conservation.
Session 5 - Data assimilation with biogeochemical model		
13:50 - 14:10	Ford D., Barciela R.	Marine biogeochemical reanalysis for monitoring global air-sea CO ₂ fluxes
14:10 - 14:30	Jones E., M. Mongin, M. Baird	Assimilation of remotely-sensed surface reflectance into a coupled hydrodynamic - biogeochemical model of the Great Barrier Reef, Australia.
14:30 - 14:50	Ciavatta S., S. Kay, S. Saux Picart, M. Butenschon, J.I. Allen	Decadal reanalysis of key biogeochemical fluxes and ecosystem indicators in the North-West European Shelf
14:50 - 15:10	Coffee	
15:10 - 15:30	Mattern J-P, Song H., Edwards C.A., Moore A.M., Fiechter J.	Comparing models of different complexities in 4DVAR biogeochemical data assimilation
15:30 - 15:50	Garnier F., P. Brasseur, J.M. Brankart, E. Cosme, J. Verron	Data assimilation in a ¼ ° coupled physical-biogeochemical model of the North Atlantic using error modelling based on stochastic parametrizations of biogeochemical uncertainties
15:50 - 16:10	Conchon A., Senina I., Titau O., Lehodey P.	Acoustic data assimilation for estimating energy transfert parameters of a micronekton model

Session 6 - Data assimilation - state estimation of realistic ocean systems

16:10 - 16:30	Vandenbulcke L., Barth A., Beckers J.-M.	Assimilation of HF radar in the Ligurian Sea: Spatial and Temporal scale considerations.
---------------	--	--

Friday, May 8th, 2015

Chair: L. Nerger

Session 7 – Operational oceanography and applications

09:00 - 09:20 Brüning T., Janssen F. Turbulence modelling in the operational circulation model HBM - Status and Outlook

Session 6 - Data assimilation - state estimation of realistic ocean systems

09:20 - 09:40 While J., C. Mao, M. Martin, J. Roberts-Jones, A. McLaren, P. Sykes The Met Office's new analysis system for diurnal SST

09:40 - 10:00 Sumihar J., Zijl F., Verlaan M. Steady state Kalman filter for operational storm surge forecasting system based on the Dutch Continental Shelf Model v6

10:00 - 10:20 Forget G. ECCO version 4 : an integrated framework for non-linear inverse modeling and global ocean state estimation.

10:20 - 10:40 Coffee

Session 8 - Data assimilation - impact of observations

10:40 - 11:00 Ali Aydoğdu, Nadia Pinaridi, Jenny Pistoia, Micaela Martinelli, Andrea Belardinelli, Stefania Sparnocchia Assimilation Experiments for the Fishery Observing System in the Adriatic Sea

11:00 - 11:20 Grayek S., Schulz-Stellenfleth J., Stanev E. V. Observation System Evaluation and Simulation Experiments (OSE/OSSE) for the German Bight Observation Network with Emphasis on the Impact of Multi Platform Observations

11:20 - 11:40 Pein J., Grayek S., Schulz-Stellenfleth J., Stanev E.V. On the feasibility of data assimilation in estuarine systems. Ems Estuary.

11:40 - 12:00 Verrier S., Remy E., Le Traon P.-Y. Impact of currents and futures altimetric missions on ocean analysis and forecasting

12:00 - 13:30 Break

Chair: A. Barth

Session 6 - Data assimilation - state estimation of realistic ocean systems

13:30 - 13:50 Canter M., Barth A. Bias correction with data assimilation.

Session 7 – Operational oceanography and applications

13:50 - 14:10 Lellouche J.-M., Le Galloudec O., Greiner E., Bourdallé-Badie R., Reffray G., Garric G., Régnier C., Drévilon M., Testut C.-E., Benkiran M., Drillet Y. First quality assessment of the next Copernicus Marine Service high resolution global ocean monitoring and forecasting products

14:10 - 14:30 Zhan P., Y. Viswanadhapalli, G. Gopalakrishnan, H. Toy, B. Lui, B. El Fquih, B. Johns, I. Hoteit The Red Sea Forecasting System

14:30 - 14:50 Sepp-Neves A.A., Pinaridi N., Martins F., Samaras A., Giacomelli L., Janeiro J. IT – OSRA: applying super-ensemble simulations to estimate the oil spill hazard associated to operational and accidental oil spills

14:50 - 15:10 Coffee

15:10 - 15:30 Janeiro J., Neves A., Martins F., Relvas P. Integrating technologies for Oil Spill Monitoring in the South Iberian Coast

15:30 - 15:50 Ceccaroni L., Blaas M., Wernand M.R., Velickovski F., Blauw A., Subirats L. A decision support system for water quality in the Wadden Sea

15:50 - 16:10 Dabrowski T., Lyons K., Nolan G., Westbrook G., Berry A. Ocean modelling for forensic investigations and search and rescue operations

Posters

Session 1 and 2 – Monitoring

1	Bulycheva E., Kostianoy A.	Numerical modelling of risks of oil pollution in the Southeastern Baltic Sea and in the Gulf of Finland
2	Rami A., Khelifa S.	Determination of Mean Dynamic Topography over the Mediterranean Sea from Jason-2 Altimetry Measurements and EGM2008 Data
3	Tinz B., M. Bersch, R. Sadikni, N. Schade, D. Stammer, L. Gates	A high-resolution North Sea ocean-atmosphere climatology
4	Tinz B., R. Sedlatschek, T. Leiding, H. Otten-Balaccanu, L. Gates	Quality Checking of Maritime Climate Data
5	Gauquie J., K. De Cauwer, R. Lagring, B. De Witte	Challenges to combine 40 years of marine contamination data within 4DEMON
6	Chiba Sanae, Sayaka Yasunaka, Mtsuhiro Toratani	Toward the effective global ecological and biogeochemical observation planning - recommendation from the study on new ocean provinces
7	Troupin C., J.P. Beltran, B. Frontera, S. Gómara, S. Lora, D. March, K. Sebastian, J. Tintoré	Data management and applications at SOCIB data centre
8	Mihailov M-E, Buga L, Lazar L	Natural variability of the cold intermediate layer on the Romanian Black Sea shelf
9	Buga L., Lazar L., Spânu A.-D., Mihailov M.-E.	Analysis on the main climate variations on extreme winter condition on the Romanian Black Sea waters
10	Nemirovskaya, Kravchisina	The role of the anthropogenic and natural components in the pollution of the seas of rassian part the Western Arctic by oil
11	Stoicescu S.-T., Buhhalko N., Lips I., Lips U.	Assessment of eutrophication status of the Gulf of Finland using autonomous devices
12	Lacava T., G. Bernini, E. Ciancia, I. Coviello, C. Di Polito, M. Faruolo, C. Filizzola, A. Madonia, M. Marcelli, S. Pascucci, R. Paciello, A. Palombo, N. Pergola, V. Piermattei, S. Pignatti, F. Santini, V. Satriano, V. Tramutoli, F. Vallianatos	Integration of satellite data and in-situ measurements for coastal water quality monitoring: results from the IOSMOS (Ionian Sea water quality Monitoring by Satellite data) project
13	Torsvik T., Kalda J.	Analysis of spatial and temporal scales for surface currents in the Gulf of Finland based on surface drifter motion
14	Pringle N., Vanhellemont Q., Ruddick K.	Multi-sensor monitoring of suspended particulate matter in Belgian Waters
15	Lana A., M. Juza, B. Mourre, V. Fernández, A. Orfila, J. Tintoré	HF Radar ocean surface current observations in the Ibiza Channel: validation, seasonal analysis and model-data comparisons
16	Terseleer N., K. Degrendele, M. Roche, D. Van den Eynde, V.R.M. Van Lancker	Combining data and deterministic modelling to monitor and predict seabed evolution in areas of marine aggregate extraction
17	Semedi B., F. Rahmawan	Multi-sensor satellite remote sensing applied to stress level prediction of coral reef bleaching in Indonesia
18	Agirbas E., Engin S.	Multi-decadal changes in the Southern Black Sea Ecosystem
19	Al Azri A.	Challenges in Monitoring the Coastal water of Sea of Oman and Arabian Sea.
20	Pascual A., Lana A., Troupin C., Ruiz S., Paugere T., Escudier R., Tintoré J.	Assessing SARAL/AltiKa data in the coastal zone with HF radar observations
21	Ruiz S., Pascual A., Allen J., Olita A., Tovar A., Mahadevan A., Claret, Charles Troupin, Pierre Poulain, Temel Oguz, Joaquín Tintoré	ALBOREX: an intensive multi-platform and multidisciplinary experiment in the Alboran Sea
22	Heslop E. E., M. Juza , B. Mourre , J. Tintoré , J. Allen , J-L López-Jurado, M. Torner	Towards a better understanding of ocean variability, combining glider monitoring at a “choke” point and numerical simulation

Session 3 - Modelling

23	Mohamed Shaltout	Modelling the water and heat balances of the Mediterranean Sea using a two-basin model and available meteorological, hydrological, and ocean data
24	Moreau S., Vancoppenolle M., Delille B., Tison J.-L., Zhou J., Kotovitch M., Thomas D., Geilfus N.-X., Goosse H.	The role of sea ice in the carbon cycle of Polar Seas: 1D to 3D modeling
25	Ben Ismail S., Sammari C., Béranger K.	Summer surface circulation features along the Tunisian Coast (Central Mediterranean Sea)
26	Kuzin V., G. Platov, E. Golubeva, N. Lapteva	Simulation of river runoff in Siberia and propagation of fresh water in the Arctic in XX and XXI centuries
27	Barbut L., Vanden Bavière A., Delerue-Ricard S., Robbens J., Volckaert F.A.M., Lacroix G.	Use of survey assessment to calibrate a larval transport model of sole
28	Cossarini G., C. Solidoro, S. Querin, P. Lazzari, S. Salon, A. Teruzzi, G. Bolzon	Building an operational forecasting system for the biogeochemical properties of the Mediterranean Sea coastal areas
29	Krishna S.	Approaching statistical assessment of a marine ecosystem model (Data-Model synthesis project)
30	Pan J., Gu Y.	Temporal and Spatial Variability of Turbulent Mixing in the Pearl River Estuary and Plume Area as Revealed by a Numerical Modeling
31	Sivankutty R., Gnanaseelan C.	Indian Ocean warming trends simulated by an OGCM
32	Yáñez E., F. Plaza, C. Silva, F. Sánchez, M.A. Barbieri, A.Aranis	Climate change and pelagic resources in south-central Chile: Landings forecast for the A2 scenario
33	Tinker J., J. Lowe, J. Holt	A preliminary study into climate signal emergence in the North West European Shelf Seas
34	Mourre B., A. Funk, R. Onken, A. Russo, S. Falchetti, I. Borrione, J. Chiggiato, P. Oddo	Model representation of observed subsurface eddies off Western Sardinia
35	Mourre B., M. Juza, A. Alvarez Ellacuría, R. Escudier, J. Tintoré	Western Mediterranean operational ocean forecasts at SOCIB
36	Le Bars Y., Vallaëys V., Deleersnijder E., Hanert E.	Unstructured-mesh modelling of the hydrodynamics of the Congo River estuary and adjacent coastal zone
37	Gutknecht E., Reffray G., Gehlen M.	Evaluation of an operational ocean model configuration at 1/12° spatial resolution for the Indonesian seas: Physical/Biogeochemical coupling
38	Seungwon Suh, Hwayoung Lee	Effect of hydraulic gradient on overbanks wetting element in storm surge overtopping simulation
39	Le Gland G., Mémery L., Aumont O., Gorgues T.	Global oceanic simulations of trace elements
40	Staneva J., Wahle K., Behrens A., Stanev E.	Coupling of wave and circulation models in coastal-ocean predicting systems: A case study for the German Bight
41	Dabrowski T., Berry A., Lyons K., Nolan G., Westbrook G.	Operational Storm Surge Modelling at Irish Marine Institute

Session 4, 5,6 and 8 - Data assimilation

42	Testut C.-E., Garric G., Chanut J., Bricaud C., Smith G.	Recent advances in the Mercator-Ocean reanalysis system: Application to an Arctic configuration
43	Nerger L., Altaf U., Barth A., Bertino L., Brankart J.-M., Brasseur P., Candille G., De Mey P., Fowler A., Kirchgessner P., van Leeuwen P.J., van Velzen N., Verlaan M., Vetra-Carvalho S., Beckers J.-M.	The SANGOMA Tools for Data Assimilation
44	Marmain J., A. Molcard, P. Forget, A. Barth, Y. Ourmières	Assimilation of HF radar surface currents to optimize forcing in the northwestern Mediterranean Sea
45	Sursham D., Ciavatta S. , Van Leeuwen P.J. , Browne, P.	Application of the Equivalent Weights Particle Filter to a Marine Biogeochemical Model
46	Pasmans I., Kurapov A.	Hybrid ensemble-4DVAR data assimilation in a coastal ocean model
47	Panteleev G., Yaremchuk M., Stroh J., Posey P., Hebert D.	Optimization of the high-frequency radar sites in the Bering Strait region
48	Vandebulcke L., Barth A., Capet A., Grégoire M.	The seamod.ro operational stochastic Black Sea forecasting system
49	Ponsar S., P Luyten	Generation of an ensemble for the assimilation of wave glider data in the Belgian coastal zone.
50	Benkiran M., G. Reffray	Impact of the assimilation of high-frequency data in a regional model
51	Le Galloudec O., J.-M. Lellouche, E. Greiner, R. Bourdalle-Badie, G. Reffray, G. Garric, C. Régnier, M. Dréville, C.-E. Testut, M. Benkiran, Y. Drillet	Evaluation of some future updates of the global Mercator Ocean analysis and forecasting system.
52	Altaf M.U., Van Velzen N., Verlaan M., Heemink A. W.	OpenDA-NEMO framework for Ocean Data Assimilation
53	Barth A., Canter M., Van Schaeystroock B., Vannitsem S., Massonnet F., Zunz V., Mathiot P., Alvera-Azcárate A., Beckers J.-M.	Assimilation of sea surface temperature, sea ice concentration and sea ice drift in a model of the Southern Ocean
54	Tödter J., Kirchgessner P., Nerger L., Ahrens B.	Ocean data assimilation with a simple nonlinear ensemble filter
55	Vervatis V., Testut C.E., De Mey P., Ayoub N., Chanut J., Drillet Y	Towards an ensemble prediction method for Mercator Océan forecasting system: application to a regional configuration
56	Losa S.N., Nerger L., Lorkowski I., Lebreton C., Bruening T., Janssen F., Brockmann C.	Developing a forecasting system of the North and Baltic Seas biogeochemistry
57	Ayoub N.K., P. De Mey, P. Marsaleix, J. Lamouroux, C. de Nicola	Constraining a coastal ocean model by SST and SSH observations using an Ensemble Kalman Filter
58	Staneva J., Grayek S., Schulz-Stellenfleth J., Stanev E.	North Sea-Baltic Sea Ocean State Predictions by assimilating of temperature and salinity data

Session 7 - Operational oceanography and applications

59	Meyer, E.M.I., Weisse, R.	Transformation of model data to information - experiences with coastDat-data
60	Nugrahadi M.S.	Investigation of the impact of development of National Capital Development for Integrated Coastal (NCICD) on the hydrodynamic and ecosystem of Jakarta Bay, Indonesia
61	Lora S., K. Sebastian, C. Troupin, J.P. Beltran, B. Frontera, S. Gómara, J. Tintoré	Oceanographic data at your fingertips: the SOCIB App for smartphones
62	Petelin B., Malačič V., Kononenko I., and Kukar M.	Applications of multi-level directed graphs in oceanography: the Mediterranean Sea case study
63	Proctor R., Oke P., Rosebrock U., Davey B., Fu X., Blain P., Pasquer B., Carroll G., Pigot S., Hidas M.	HIDAS, Australia's marine virtual laboratory
64	Hidas M.G. , R. Proctor, S. Mancini, P. Blain, G. Galibert	Infrastructure and Workflows for Australia's Integrated Marine Observing System
65	Viikmäe B., Soomere T., Torsvik T.	The impact of wind on optimising fairways in the Gulf of Finland
66	Drévilion M., Levier B., Régnier C., Mahdon R., Baetens K., Maksymczuk J., Hernandez F., The MyOcean Cal/Val Working Group, and MYOCEAN scientific Teams	Scientific quality of MyOcean analyses and forecasts: from operational quality control to user oriented metrics
67	Krestenitis Y., Androulidakis Y., Kombiadou K., Makris C., Baltika V., Kalantzi G.	WaveForUs: High-resolution Operational Forecast System of Oceanographic Features in the Thermaikos Gulf (Northern Aegean Sea, Greece)
68	Jurate Kriauciuniene, Darius Jakimavicius	Projections of water balance elements of Curonian Lagoon and their uncertainty
69	Amar Y, Amar S.B., Belmokhtar Z., Benyounes D.	The structure study and periphytic communities development on hard substrates submitted urban pollution: case of Sidi M'hamed Benali lake (western Algeria)