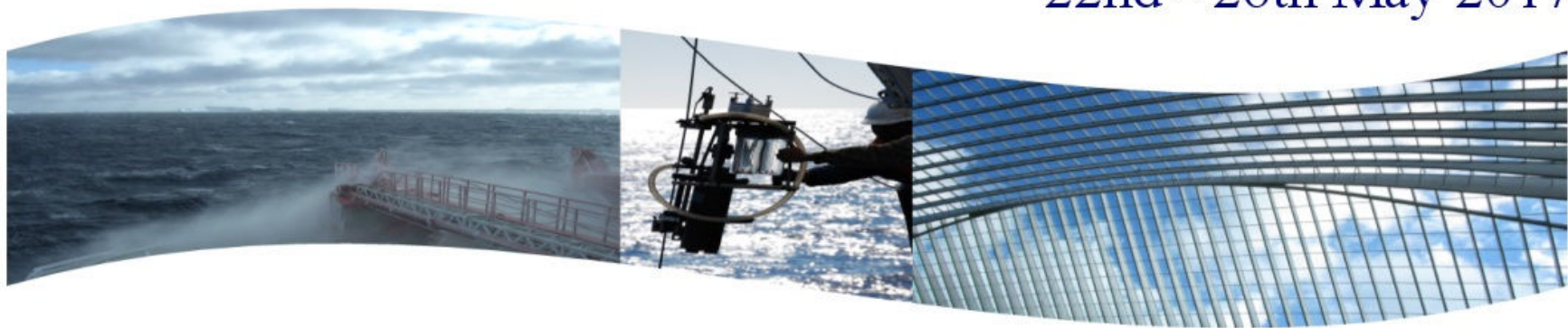


Marine Turbulence Re³-visited



The 49th International Liege colloquium
The 8th Warnemünde Turbulence Days

Liège, Belgium
22nd - 26th May 2017



PROGRAM

Monday, May 22th, 2017

08:30 - 9:20	Registration			
9:20 - 9:30	Welcome note			
Session 1 – Turbulence observations in the ocean or in the lab				
09:30 - 10:10	Keynote: W. Smyth	Marginal instability and deep cycle turbulence in the equatorial Pacific cold tongue	Oregon State University	USA
10:10 - 10:30	010 Bluteau C., Ivey G., Jones N.L., Rayson M.D.	Acquiring turbulence observations in oceanic stratified-sheared flows	University of Western Australia	Australia
10:30 - 10:50	116 Liu Z.	Fission of internal solitary waves over shoaling topography cascades tidal energy to turbulence	Xiamen University	China
10:50 - 11:10	82 Schultze L., Merckelbach L., Carpenter J.	Shallow stratified shelf sea turbulence and mixing rates measured by autonomous underwater gliders	Helmholtz-Zentrum Geesthacht	Germany
11:10 - 11:30 Coffee break				
11:30 - 11:50	067 Passaglia P.-Y., White B., Scotti A.	Shear-driven mixing at high buoyancy Reynolds numbers	University of North Carolina Chapel Hill	USA
11:50 - 12:10	036 Ghasemi A., Will A., Harlander U.	Mean flow generation by an intermittently unstable boundary layer over a sloping wall	Brandenburgische Technische Universität Cottbus-Senftenberg	Germany
12:10 - 14:00 Break				
14:00 - 14:20	035 Fer I., Bosse A., Ferron B., Bouruet-Aubertot P.	The dissipation of kinetic energy in the Lofoten Basin Eddy	University of Bergen	Norway
14:20 - 14:40	080 Scheifele B., Waterman S., Carpenter J.	Turbulent Dissipation Rates, Mixing, and Heat Fluxes in the Canadian Arctic from Glider-based Microstructure Measurements	University of British Columbia	Canada
14:40 - 15:00	051 Lenn Y.-D., Silvester J., Polton J., Morales Maqueda M.	Turbulent cooling of a UCDW eddy on the Antarctic continental slope	Bangor University	UK
15:00 - 15:20	048 Kimura S., Jenkins A., Dutrieux P., Forryan A., Naveira Garabato A., Firing Y.	Ocean mixing beneath Pine Island Glacier ice shelf, West Antarctica	Nansen Environmental and Remote Sensing Center and Bjerknes Centre for Climate Research	Norway
15:20 - 15:40	042 Holtermann P.L., Prien R., Umlauf L.	Evolution of turbulence in a rotating gravity current descending on a topographic slope	Leibniz-Institute for Baltic Sea Research	Germany
15:40 - 16:00 Coffee break				
16:00 - 16:20	075 Rippeth, T.P., Moum J.	Do observations adequately resolve the natural variability of oceanic turbulence: Revisited	Bangor University	UK
16:20 - 16:40	034 Evans D.G., Hemsley V., Frajka-Williams E., Martin A., Painter S., Naveira Garabato A.	Estimating turbulence from Seagliders	University of Southampton	UK
16:40 - 17:00	017 Caldeira R., Gomiz-Pascual J., Reis J.	Seamount induced turbulent mixing and their biological entrapment	OOM/ARDITI	Portugal
17:00 - 17:20	058 McMillan J., Hay A., Lueck R., Wolk F.	Measurements of the Rate of Dissipation of TKE in a High Reynolds Number Tidal Channel Using ADCPs and Shear Probes	Dalhousie University	Canada
17:20 - 20:00 Ice Breaker party				

Tuesday, May 23th, 2017

Session 2- Modeling of Ocean Turbulence

09:00 - 09:40	Keynote: Alberto Scotti	Energy and mixing in stratified turbulent flows	UNC, Marine Sciences	USA
09:40 - 10:00	091 Tailleux R.	Mathematical versus physical constraints on ocean mixing parameterisations	University of Reading	UK
10:00 - 10:20	061 Morel Y., Gula J., Ponte A.	New integral properties for Potential Vorticity and applications to the ocean dynamics	CNRS/LEGOS	France
10:20 - 10:40	095 Thomas J., Buhler O., Smith S.	Wave-vortex interactions in rotating shallow water	Courant Institute of Mathematical Sciences	USA
10:40 - 11:00	Coffee break			
11:00 - 11:20	094 Taylor J.	Large-eddy simulations of the interaction between sub-mesoscale eddies and three-dimensional turbulence	University of Cambridge	UK
11:20 - 11:40	014 Brereton A., Tejada-Martinez A., Polton J.	Mixing under internal tides: A Large-Eddy Simulation investigation	National Oceanography Centre	UK
11:40 - 12:00	068 Penney J., Morel Y., Haynes P., Auclair F., Nguyen C.	Influence of mixing on tracer evolution in stratified flows: theoretical aspects and numerical results.	CNRS/LEGOS	France
12:00 - 12:20	027 Costa A., Doglioli A., Marsalaix P., Petrenko A.	Comparison of in situ microstructure measurements to different turbulence closure schemes in a 3-D numerical ocean circulation model	Mediterranean Institute of Oceanography (MIO)	France
12:20 - 14:00	Break			
14:00 - 14:20	041 Hochet A., Tailleux R., Ferreira D., Kuhlbrodt T.	Isonutral control of effective diapycnal mixing in numerical ocean models with neutral rotated diffusion tensors	University of Reading	UK
14:20 - 14:40	019 Chavanne C., Klein P., Sasaki H.	Diagnosing the Upper Ocean 3D Circulation from High-Resolution Surface Data in a Realistic Simulation of the North Pacific Ocean	ISMER-UQAR	Canada
14:40 - 15:00	071 Polton J., Guihou K., Brereton A., Luneva M.	Pycnocline Mixing is Seasonally Stratified Shelf Seas	National Oceanography Centre	UK
15:00 - 15:20	021 Chu P.	Hilbert-Huang Transform to Estimate Turbulent Diffusion Coefficient from Lagrangian Drifter Trajectory	Naval Postgraduate School	USA
15:20 - 16:00	Coffee break			
16:00 - 16:20	090 Stashchuk N., Vlasenko V., Inall M.E., Aleynik D.	Horizontal dispersion in shelf seas: high resolution modelling as an aid to sparse sampling	University of Plymouth	UK
16:20 - 16:40	106 Vlasenko V., Stashchuk N., Nimmo-Smith A., Howell K.	North Atlantic water overflow through the Wyville Thomson Ridge: Observational evidence and numerical modelling	University of Plymouth	UK

Wednesday, May 24th, 2017

Session 3 - Interaction of turbulence with internal gravity waves and balanced flow

09:00 - 09:40	Keynote: Dirk Olbers	Internal gravity waves as mediator of mixing and drag in the ocean circulation	Alfred Wegener Institute	Germany
09:40 - 10:00	032 Domina A., Palmer M., Sharples J., Vlasenko V., Stashchuk N., Green M.	The effect of stratification and topography on internal waves in a continental shelf sea	University of Liverpool	UK
10:00 - 10:20	006 Bartello P.	Between Quasigeostrophic and Stratified Turbulence	McGill University	Canada
10:20 - 10:40	108 Wain D.	Contribution of high and low frequency internal waves to boundary turbulence in a lake	University of Bath	UK
10:40 - 11:00	Coffee			
11:00 - 11:20	020 Chouksey M., Eden C., Brüggemann N.	Gravity wave emission from balanced flow en route to turbulence	Institut für Meereskunde, Universität Hamburg	Germany
11:20 - 11:40	028 Crowe M.N., Taylor J.R.	The Effects of Turbulent Viscosity on Frontogenesis and Diffusion	University of Cambridge	UK
11:40 - 12:00	057 Mashayek A., Alford M.H., Caulfield C., Peacock T.	Turbulence induced by overturning breaking waves: from small scale mixing to large scale overturning circulation	Scripps Institution of Oceanography/UC San Diego	USA
12:00 - 14:00	Break			
14:00 - 14:40	Keynote: Jacques Vanneste	Stimulated loss of balance and other mechanisms of wave-turbulence interactions	School of Mathematics, University of Edinburgh	UK
14:40 - 15:00	060 Monismith S., Koseff J., Walter R., Squibb M., Woodson C.B, Davis K.	Buoyancy fluxes in stratified flows: observations and parameterizations	Stanford University	USA
15:00 - 15:20	063 Nadiga B.	Interactions between balanced and imbalanced mode	University of Washington	USA
15:20 - 16:00	Coffee			
16:00 - 16:20	070 Pollmann F., Nycander J., Eden C., Olbers D.	How does internal tide generation vary in the horizontal?	Hamburg University	Germany
16:20 - 16:40	113 Zeitlin V., Gouzien E., Lahaye N., Dubos T.	Instabilities of vortices in thermal rotating shallow water model, and their nonlinear saturation	Laboratory of Dynamical Meteorology, Ecole Normale Supérieure, Paris	France
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 25th, 2017

Session 4 - Session: Turbulence in the surface and bottom boundary layers

09:00 - 09:40	Keynote: Leif Thomas	Symmetric Instability (SI)-Turbulence: A Unique Form of Boundary Layer Turbulence	School of Earth, Energy and Environmental, Stanford Unviersity	USA
09:40 - 10:00	45 Johnson L., Lee C., D'Asaro E.	Submesoscale Turbulence in a Mixed Layer Front: Observations, Dynamics and Implications	Applied Physics Lab, University of Washington	USA
10:00 - 10:20	39 Grisouard N., Fox M., Nijjer J.	Conservation laws and inertial-symmetric instability	University of Toronto	Canada
10:20 - 10:40	15 Buckingham C., Lucas N., Naveira Garabato A., Rippeth T., Yu X., Belcher S.	Submesoscale instabilities and enhanced dissipation at ocean fronts	British Antarctic Survey	UK
10:40 - 11:00	Coffee			
11:00 - 11:20	53 Liu G., Perrie W.	Underwater Glider Measurements and Simulations of Storm-Induced Abrupt Upper Ocean Mixing	Dalhousie University	Canada
11:20 - 11:40	74 Reichl B., Hallberg R., Griffies S., Adcroft A., Li Q., Fox-Kemper B.	An Energetically Constrained Ocean Surface Boundary Layer Parameterization including Surface Wave Effects for Climate Applications	Princeton University/NOAA GFDL	USA
11:40 - 12:00	119 Yu X., Naveira Garabato A., Martin A., Buckingham C., Brannigan L.	The Annual Cycle of Upper-Ocean Potential Vorticity and its Relationship with Submesoscale Instabilities: Insights from Mooring Observations	University of Southampton	UK
12:00 - 12:20	89 Soloviev A., Dean C., Lukas R., Donelan M., Terray E.	Langmuir cells and ramp-like structures in the upper ocean turbulent boundary layer	Nova Southeastern University	USA
12:20 - 14:00	Break			
14:00 - 14:20	29 Cyr F., Buckley M., van der Lee E., Lappe C., van Haren H., Umlauf L.	High-resolution observations of wind-driven mixing in the Baltic Sea	Fisheries and Oceans Canada (DFO)	
14:20 - 14:40	100 Umlauf L., Lappe C.	Boundary mixing in nontidal basins: Observations from the Baltic Sea	Leibniz-Institute for Baltic Sea Research NIOZ Netherlands Institute for Sea Research, The	Germany Netherlands
14:40 - 15:00	083 Schulz K., Endoh T., Umlauf L.	Slope-induced tidal straining: Analysis of rotational effects	and Utrecht University, Yerseke	Netherlands
15:00 - 15:20	103 Venayagamoorthy S.K.	Prediction of turbulent diapycnal mixing in density stratified flows	Colorado State University	USA
15:20 - 15:40	107 Voet G., Alford M.H., Girton J.B., Carter G.S., Klymak J.M.	Abyssal Turbulent Mixing in the Samoan Passage	Scripps Institution of Oceanography, UC San Diego	USA

15:40 - 17:00

Poster Session with free beer and coffee

Friday, May 26th, 2017

Session 5 - Turbulence and the marine ecosystem

09:00 - 09:40	Keynote: Peter J.S. Franks	Oceanic turbulence from a planktonic perspective	Scripps Institution of Oceanography, University of California	USA
09:40 - 10:00	102 Variano E., Pujara N., Bordoloi A.	Kinematics of non-spherical particles in turbulence: effect of size and shape	University of Berkley	USA
10:00 - 10:20	111 Yamazaki H., Mandal S., Takeuchi M., Homma H., Tanaka M.	Oceanic turbulence and highly intermittent phytoplankton dynamics	Tokyo University of Marine Science and Technology	Japan
10:20 - 10:40	92 Takeuchi M., Doubell M., Jackson G., Yamazaki H.	Turbulence controls size distribution of aggregates: in-situ observations by a microstructure profiler and a cabled observatory	Tokyo University of Marine Science and Technology	Japan
10:40 - 11:00	Coffee			
11:00 - 11:20	104 Villamaña M., Mouriño-Carballido B., Marañón E., Cermeño P., Chouciño P., Estrada M., Fernández-Castro B., G. Figueiras F., Otero-Ferrer J.-L., Reguera B.	What is the role of mixing in controlling microphytoplankton community composition?	Universidade de Vigo	Spain
11:20 - 11:40	93 Tanaka M.,	Flow-limited diurnal vertical migration	Tokyo University of Marine Science and Technology	Japan
11:40 - 12:00	30 Dean C., Soviev A.	Bioturbulence Produced by Diel Vertical Migration of Zooplankton	Nova Southeastern University	USA
12:00 - 12:20	54 Luneva M., Wakelin S., Palmer M.	Assessment of the impact of the turbulence closure schemes on the nutrient availability in shelf sea models.	National Oceanography Centre	UK
12:20 - 14:00	Break			
14:00 - 14:20	77 Ruiz Villarreal M., García-García L.M., Marta-Almeida M., Mouriño-Carballido B., Cobas M.	Turbulence and mixing in the NW Iberian shelf in response to upwelling events	Instituto Español de Oceanografía (IEO)	Spain
14:20 - 14:40	76 Renosh P.R., Schmitt F.G., Loisel H.	Multiscale analysis of ocean color turbulent heterogeneities: comparisons of SST and Chl-a multifractal properties using 2D structure functions	Conservatoire National des Arts et Métiers, Laboratoire CEDRIC	France
14:40 - 15:00	8 Bettencourt J., Rossi V., Garçon V., Haynes P., Morel Y.	Impact of submesoscale turbulence in dissolved O ₂ in an upwelling system	LEGOS	France

Posters

Session 1 – Turbulence observations in the ocean or in the lab

004	Ávila A. R., Calil P.H R.	First turbulence observations in the southern Brazilian shelf	Universidade Federal do Rio Grande	Brasil
011	Bolado-Penagos M., Gomiz-Pascual J.J., Vázquez A., Bruno M., Caldeira R.M.	Microstruture turbulence profiles at the Gibraltar Strait	Universidad de Cádiz	Spain
013	Bosse A., Fer I.	Final-scale dynamics and energy dissipation of the Lofoten Basin Eddy measured by Seaglidiers	University of Bergen	Norway
023	Cimatoribus A., van Haren H.	A statistical look at ocean turbulence from high resolution Eulerian observations	EPFL	Switzerland
025	Clement L., Thurnherr A.M.	Near-inertial waves in a Mid-ocean Deep Fracture Zone	EPF	USA
040	Hall R.	Preliminary comparison of microstructure data collected from Seaglider and Slocum glider platforms	University of East Anglia	UK
043	Inall M., Brearley A.	Fast-ice control of TKE dissipation rate on the West Antarctic Peninsula shelf	SAMS	UK
049	Korotenko K., Sentchev A.	Vertical structure of the turbulence intensity and power density in an asymmetrical tidal flow : the turbulence measurements in the Eastern English channel	Shirshov Institute of Oceanology, Moscow	Russia
066	Palmer M.	Direct measurements of mixing efficiency from ocean mixing glider measurements	NOC	UK
072	Purwandana A.	Fate of internal solitary waves in Manado Bay, Indonesia	LOCEAN	France
079	Scannell B.	A Modification to the Structure Function Method to Correct for the Impact of Wave Orbital Velocity Shear	Bangor University	UK
081	Schmitt F.	Comparisons between transect and fixed point measurements in an oceanic turbulent flow: comparisons between intermittency parameters	CNRS, Laboratory of Oceanology and Geosciences	France
087	Shatravin A. and Ostrovskii A.	Regional dynamics influence on small-scale mixing in the boundary current regions of the North Western Mediterranean and the northwestern Japan Sea	Shirshov Institute of Oceanology	Russia
105	Vladoiu A., Bouruet-Aubertot P., Cuypers Y., Ferron B., Schroeder K., Borghini M., Bryden H., Ben Ismail S.	Characterisation of mixing efficiency from microstructure measurements in the Sicily Channel	L'OCEAN UPMC, Paris	France
115	Kritsotalakis S.	A preliminary study of small scale turbulence and its association with (sub-) mesoscale processes in the Denmark Strait overflow plume	Alfred-Wegener-Institute for Polar and Marine Research	Germany
117	Karimova S.	Regimes of oceanic turbulence in the Western Mediterranean represented by satellite data	University of Liege	Belgium
120	Frajka-Williams E.	Turbulent dissipation at the western boundary of the Atlantic in an eddy	University of Southampton	UK

Session 2- Modeling of Ocean Turbulence

018	Chalamalla V.K., Santilli E., Scotti A., Sarkar S.	Multi-scale modeling of instabilities, internal waves and turbulence with SOMAR-LES	University of North Carolina Chapel Hill	USA
022	Cimatoribus A., Lemmin U., Reiss R., Barry A.	Lake Geneva as a natural laboratory for coastal transport processes	EPFL	Switzerland
031	Deleersnijder E., Burchard H., Delandmeter P., Delhez E.J.M., Hanert E., Mouchet A., Umlauf L.	Using the age to diagnose the evolution of turbulence kinetic energy and, possibly, other variables unrelated to the concentration of a constituent	Université catholique de Louvain	Belgium
047	Kang X., Xia M.	A numerical study of wind and tidal mixing in Maryland Coastal Bays	University of Maryland Eastern Shore	USA
059	Mohammadi Aragh M., Klingbeil K., Brüggemann N., Eden C., Burchard H.	The impact of advection schemes on restratification due to lateral shear and baroclinic instabilities	Alfred Wegener Institute	Germany
069	Penney J., Stastna M.	Direct numerical simulation of Rayleigh-Taylor instabilities subject to double-diffusion	LEGOS	France
097	Toberman M., Inall M., Polton J., Pelling H., Palmer M., Rippeth T.	The role of barotropic to baroclinic tidal energy conversion: a view towards improved turbulent mixing parameterisation in shelf Seas	The Scottish Association for Marine Science	Scotland

Session 3 - Interaction of turbulence with internal gravity waves and balanced flow

024	Clary J., Chavanne C., Nadeau L.-P.	Is it possible to estimate KE transfers from HF radar?	UQAR-ISMER	
085	Senior N.	On the Relationship Between Turbulent Cascades and Eddy Tilts	University of East Anglia	UK
007	Basdurak N.B., Burchard H.	Submesoscale turbulence in the surface boundary layer: Fronts	Leibniz Institute for Baltic Sea Research	Germany

Session 4 - Turbulence in the surface and bottom boundary layers

052	Liang C-R, Shang X-D, Chen G-Y	Spatial distribution of turbulent mixing in the upper ocean of the South China Sea	South China Sea Institute of Oceanology, Chinese Academy of Sciences	China
062	Morvan M., Carton X., L'Hegaret P.	The generation of submesoscale eddies and of turbulence by a row of mesoscale surface eddies in the Sea of Oman	LOPS/IUEM, UBO, Brest	France
098	Toorman E., Ouda M.	Marine turbulence in nearshore and surfzone areas	KU Leuven	Belgium
099	Troy C., Cannon D.	Benthic turbulence in the deep waters of a large lake	Purdue University	USA

Session 5 - Turbulence and the marine ecosystem

044	Jang C.J., Lee J.H., Kim C.H.	Enhanced vertical mixing by internal tides in the northern East China Sea in summer	Korea Institute of Ocean Science & Technology	Korea
046	Jung H., Jang C.J., Kang H-W	Effects of vertical mixing on low trophic ecosystem in the Ulleung Basin, East Sea	Korea Institute of Ocean Science & Technology	Korea
055	Maneesh T.P., Smitha B.R.	Mesoscale Eddy Induced Nutrient pumping and its Biological Response in the North Eastern Arabian Sea during Winter-Spring Transition	Cochin University of Science and Technology, Kochi	India
073	Reale M., Solidoro C., Giorgi F., Di Biagio V., Mariotti L., Farneti R.	Preliminary results over the Med-CORDEX domain of a new high resolution Regional earth system model with an active biogeochemical component	ICTP (Trieste,Italy)-OGS (Trieste,Italy)	Italy
096	Tippenhauer S., Wulff T., Von Appen W.J.	AUV based study on physical and ecological processes at fronts	Alfred Wegener Institute for Polar and Marine Research, Bremerhaven	Germany
110	Xia M., Jiang L.	How climate changed driven turbulent mixing impact the water quality dynamics: A case study in Chesapeake Bay, USA	University of Maryland Eastern Shore	USA
121	Ivanov E., Capet A., Barth A., Delhez E., Soetaert K., Grégoire M.	3D hydrodynamical modelling of the Southern Bight of the North Sea: first achievements and perspectives	MAST, University of Liège	Belgium