






PERSONAL INFORMATION

Georg Umgiesser



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<table border="1"> <thead> <tr> <th>Enterprise</th> <th>University</th> <th>EPR</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/> Management Level</td> <td><input type="checkbox"/> Full professor</td> <td><input checked="" type="checkbox"/> Research Director and 1st level Technologist / First Researcher and 2nd level Technologist</td> </tr> <tr> <td><input type="checkbox"/> Mid-Management Level</td> <td><input type="checkbox"/> Associate Professor</td> <td><input type="checkbox"/> Level III Researcher and Technologist</td> </tr> <tr> <td><input type="checkbox"/> Employee / worker level</td> <td><input type="checkbox"/> Researcher and Technologist of IV, V, VI and VII level / Technical collaborator</td> <td><input type="checkbox"/> Researcher and Technologist of IV, V, VI and VII level / Technical collaborator</td> </tr> </tbody> </table>	Enterprise	University	EPR	<input type="checkbox"/> Management Level	<input type="checkbox"/> Full professor	<input checked="" type="checkbox"/> Research Director and 1st level Technologist / First Researcher and 2nd level Technologist	<input type="checkbox"/> Mid-Management Level	<input type="checkbox"/> Associate Professor	<input type="checkbox"/> Level III Researcher and Technologist	<input type="checkbox"/> Employee / worker level	<input type="checkbox"/> Researcher and Technologist of IV, V, VI and VII level / Technical collaborator	<input type="checkbox"/> Researcher and Technologist of IV, V, VI and VII level / Technical collaborator
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Education and Training

2009	Ph.D in Biomedical Sciences, Ecology and Environmental Sciences (03B), University of Klaipeda, Lithuania
1997	M.Sc in Physics, Faculty of Physics, University of Hamburg, Germany
1986	M.Sc in Oceanography, Institut für Meereskunde, University of Hamburg, Germany
1975	Maturity (Abitur), Liceo Scientifico Martin Behaim, Nuernberg, Germany

Work Experience

2024-now	Associate at CNR, Institute of Marine Sciences, Venice, Italy
2020-2023	Institute of Marine Sciences – National Research Council (ISMAR-CNR) Arsenale Tesa 104, Castello 2737/F,30122 Venezia, Italy Director of Research (Dirigente di Ricerca) Coordinating a group of scientists working on Coastal Oceanography and Numerical Modeling
2012-now	Marine Science and Technology Open Access Centre, Manto str. 84,LT-92294, Klaipėda, Lithuania Lead Scientist, Coordinating numerical modeling group, teaching
2001-2020	Institute of Marine Sciences – National Research Council (ISMAR-CNR) Senior Scientist (Primo Ricercatore)
1992-2001	Institute of Big Masses – National Research Council (ISDGM-CNR) San Polo 1364, 30125 Venezia, Italy Scientist, Numerical Modeling, Development of the Venice Lagoon Model
1983-1998	Technital (Planning Company), Via Carlo Cattaneo, 20, 37121 Verona, Italy Consultant, Development of the Venice Lagoon Model for the operational use of the mobile barriers

Consulting

2005	Consultant for Thetis, an engineering and consultancy company, on issues of dredging activities
2003	Consultant for ICRAM, an ocean research and technological institute, on issues of morphological changes in the Venice Lagoon

- 1999 Consultant for ANPA (Environmental Protection Agency) for the study of residence times in the lagoon of Venice
- 1997-2004 Consultant for the Venice Municipality and the Ministry of Environment on issues concerning the hydrological equilibrium of the Venice Lagoon
- 1997 Consultant for Technomare, a planning and engineering company, on issues concerning the Taranto basin
- 1990 Consultant for ISMES (now ISMGEO S.r.l.), an engineering company, on issues of model development

Tasks, Nominations

- 2020 Honor of the Order of Cultural Merit for Scientific Research released by the President of Romania
- May 2014-now Italian coordinator of Danubius-RI, an ESFRI project that entered the roadmap 3/2016
- 2012-now Member of ETWCH-4 expert team of JCOMM on Waves and Coastal Hazards
- 2011-now Responsible ISMAR in the MONGOOS (ex MOON) network
- Sep 2001-Mar 2002 Stay for 6 months as Visiting Professor at the University of Kyushu, Fukuoka, Japan
- 1999-2003 Head of Oceanographic Department at ISDGM-CNR in Venice
- 1997 Named part of the "Unità Operativa di coordinamento degli interventi finalizzati al riequilibrio idrogeologico, alla salvaguardia ambientale e al disinquinamento della laguna di Venezia e del bacino scolante" by Minister Edo Ronchi as an expert of high qualification (Decreto del Ministro dell'Ambiente, 19.09.1997)
- 1987-1990 Collaboration with the Danish Hydraulic Institute (DHI) in Copenhagen

Language

Mother tongue(s)	German					
Other language(s)	UNDERSTANDING		SPEAKING		WRITING	
	Listening	Reading	Spoken interaction	Spoken production		
English	C2	C2	C2	C2	C2	
Italian	C2	C2	C2	C2	C2	
French	B1	C1	B2	B1	A2	

Academic Activities

- 2013-2016 Masters course held at University of Granada (Spain) on Técnicas Ciencias de la Calidad del Agua: Diagnóstico, Tratamiento y Predicción
- 2012-2015, 2017 Masters course held at University of Klaipeda (Lithuania) on Eco-hydrology informatics and modeling of aquatic ecosystems
- 2015-2016 Masters course held at Malta University, unit OMS5004 'Data Resources in Operational Oceanography'
- 2009-2015, 2017 Master Course on Sediment Dynamics in NOCS, Southampton, UK
- 2011-now Member of PhD committee at University of Klaipeda, Lithuania
- 2015 Member of PhD committee at University of Venice
- 2003-2005 University course held at University of Padua (Physics) on Numerical Techniques in Physics and Oceanography
- 2002-2005 University course held at University of Venice (Environmental Sciences) on Models in Oceanography
- 2002 Member of PhD committee at University of Venice
- 2001 Lectures for PhD course at University of Venice
- 1998-2001 University course held at University of Venice (Environmental Sciences) on Dynamics of the Big Masses
- 1996-1997 University course held at University of Venice (Environmental Sciences) on Mathematical Models

Supervision of Theses

Supervision of 12 M.Sc theses and 14 Ph.D. dissertations

Software Development

The hydrodynamic model SHYFEM consists of a 3D shallow water finite element hydrodynamic model, coupled with a wind wave model and with both an Eulerian and a Lagrangian module, for simulating active tracers transport and diffusion. SHYFEM has been developed at ISMAR-CNR (Institute of Marine Sciences - National Research Council; Umgiesser et al., 2004) and been successfully applied to several coastal environments. The model resolves the shallow water equations in their formulations with water levels and transports. The finite element method permits to reproduce complex morphologies and bathymetries. SHYFEM accounts for both barotropic and baroclinic pressure gradients, wind drag forcing, bottom friction dissipation, Coriolis forcing and wind wave forcing.

The SHYFEM Model has been originally conceived and developed by Georg Umgiesser (Umgiesser and Bergamasco, 1993, 1995; Umgiesser et al., 2004, 2005). During the development of SHYFEM many scientists have contributed to the success of the modeling framework. A sediment transport module has been linked to the hydrodynamic module (Sedtrans, Li and Amos, 1995, 2001, Ferrarin et al., 2006, 2008; Neumeier et al., 2008), various biogeochemical models have been coupled to the core, like EUTRO (Umgiesser et al., 2003), ERSEM and AquaBC. The model has also been two-way coupled with a wind wave model (Roland et al., 2009; Ferrarin et al., 2013). Moreover, the model allows for the computation of various time scales (Cucco and Umgiesser, 2006; Cucco et al., 2009).

The model is maintained at ISMAR and is used at a variety of sites all over Italy, Europe and Extra-Europe. It is applied independently at the following institutes:

- IAS, CNR, Oristano, Italy
- CMCC, Lecce, Italy
- DIFA, University of Bologna, Italy
- INOGS, Trieste, Italy
- GeoEcomar, Bucarest, Romania
- Forel Institute, Geneve, Svizzera
- Institute of Oceanology of Russian Academy of Sciences, Kaliningrad, Russia
- Klaipeda University; Klaipeda, Lithuania
- Istanbul University, Istanbul, Turkey
- ARPA-FVG, Palmanova, Italy
- ARPAE, Bologna, Italy
- ISPRA, Rome and Venice, Italy
- Comune di Venezia (water level forecast), Venice, Italy

Most of the above-mentioned institutions have also signed the "SHYFEM Community Model Memorandum of Agreement". This agreement has made SHYFEM a community model. The model can be freely downloaded from the website, where also more information can be found: <http://www.ismar.cnr.it/shyfem>

Publication record

Google Scholar: H-Index: 51 i10-Index: 141 total citations: 7155

Orchid: <http://orcid.org/0000-0001-9697-275X>

Articles ISI: 127

Other articles: 39

Contribution to books and collective works: 23

Selected Publications

1. Umgiesser, G. (2020). The impact of operating the mobile barriers in Venice (MOSE) under climate change. *Journal for Nature Conservation*, 54, 125783.
2. Maicu, F., De Pascalis, F., Ferrarin, C., & Umgiesser, G. (2018). Hydrodynamics of the Po River-Delta-Sea System. *Journal of Geophysical Research: Oceans*, 123(9), 6349-6372.
3. Trincardi, F., Barbanti, A., Bastianini, M., Benetazzo, A., Cavaleri, L., Chiggiato, J., Papa, A., Pomaro, A., Sclavo, M., Tosi, L., & Umgiesser, G. (2016). The 1966 flooding of Venice: What time taught us for the future. *Oceanography*, 29(4), 178-186.
4. Ferrarin, C., Bajo, M., Bellafiore, D., Cucco, A., De Pascalis, F., Ghezzi, M., & Umgiesser, G. (2014). Toward homogenization of Mediterranean lagoons and their loss of hydrodiversity. *Geophysical Research Letters*, 41(16), 5935-5941.
5. Weisse, R., Bellafiore, D., Menéndez, M., Méndez, F., Nicholls, R. J., Umgiesser, G., & Willems, P. (2014). Changing extreme sea levels along European coasts. *Coastal engineering*, 87, 4-14.
6. Umgiesser, G., Ferrarin, C., Cucco, A., De Pascalis, F., Bellafiore, D., Ghezzi, M., & Bajo, M. (2014). Comparative hydrodynamics of 10 Mediterranean lagoons by means of numerical modeling. *Journal of Geophysical Research: Oceans*, 119(4), 2212-2226.

7. Ferrarin, C., Roland, A., Bajo, M., Umgiesser, G., Cucco, A., Davolio, S., Buzzi, A., Malguzzi, P., & Drofa, O. (2013). Tide-surge-wave modelling and forecasting in the Mediterranean Sea with focus on the Italian coast. *Ocean Modelling*, 61, 38-48.
8. De Pascalis, F., Pérez-Ruzafa, A., Gilabert, J., Marcos, C., & Umgiesser, G. (2012). Climate change response of the Mar Menor coastal lagoon (Spain) using a hydrodynamic finite element model. *Estuarine, Coastal and Shelf Science*, 114, 118-129.
9. Bajo, M., & Umgiesser, G. (2010). Storm surge forecast through a combination of dynamic and neural network models. *Ocean Modelling*, 33(1-2), 1-9.
10. Roland, A., Cucco, A., Ferrarin, C., Hsu, T. W., Liao, J. M., Ou, S. H., Umgiesser, G., & Zanke, U. (2009). On the development and verification of a 2-D coupled wave-current model on unstructured meshes. *Journal of Marine Systems*, 78, S244-S254.
11. Bajo, M., Zampato, L., Umgiesser, G., Cucco, A., & Canestrelli, P. (2007). A finite element operational model for storm surge prediction in Venice. *Estuarine, Coastal and Shelf Science*, 75(1-2), 236-249.
12. Cucco, A., & Umgiesser, G. (2006). Modeling the Venice Lagoon residence time. *Ecological modelling*, 193(1-2), 34-51.
13. Umgiesser, G., Canu, D. M., Cucco, A., & Solidoro, C. (2004). A finite element model for the Venice Lagoon. Development, set up, calibration and validation. *Journal of Marine Systems*, 51(1-4), 123-145.

International Projects

- Sustain/CCMS, Lagoon Ecosystem Modeling for Sustainable Management, financed by NATO-CCMS, 11/1995 - 11/2001, Role: PI for ISMAR
- PROVESS, Processes of Vertical Exchange in Shelf Seas, financed by EU (FP4-MUST III programme, Grant agreement ID: MAS3970159), 3/1998 - 5/2002, Role: PI for ISMAR
- F-ECTS, Feed-backs of Estuarine Circulation and Transport of Sediments on Phytobenthos, financed by EU (FP4-MAST III programme, Grant agreement ID: MAS3970145), 4/1998 - 6/2001, Role: PI for ISMAR
- RII/UNESCO, I Canali interni di Venezia (The inner canals of Venice), financed by UNESCO, 1/1998 – 12/1999, Role: PI for ISMAR
- NPS/CCMS, Modeling Nutrient Load and Response in River and Estuary Systems, financed by NATO-CCMS, 5/2000 - 8/2003, Role: PI for ISMAR
- MAMA, The Mediterranean network to Access and upgrade the Monitoring and forecasting Activity in the region, financed by EU (FP5-EESD, Grant agreement ID: EVR1-CT-2001-20010), 1/2002 - 12/2004, Role: PI for Ismar
- LEMSM/CCMS, Lagoon Ecosystem Modeling for Sustainable Management, financed by NATO-CCMS, 11/2002 - 11/2009, Role: PI for ISMAR
- CuronianEco, Sustainable management of Lithuanian's marine resources through an innovative system of monitoring, modeling tools and an ecosystem approach, financed by EEA and Norwegian Financial Mechanism, 9/2008 – 4/2011, Role: PI for ISMAR
- Theseus, Innovative technologies for safer European coasts in a changing climate, financed by EU (FP7, Grant agreement ID: 244104), 12/2009 - 12/2013, Role: PI for ISMAR
- Unesco SeaLevel, Local Sea Level Rise Scenarios - Focus on the Mediterranean Sea and the Adriatic Sea, financed by Unesco, 09/2010 - 04/2011, Role: PI
- SkadarLake, Lake Skadar-Shkoder Integrated Ecosystem Management Project, financed by World Bank (Montenegro), 11/2010 - 08/2011, Role: PI for ISMAR
- RomanianCoast, Reduction of Coastal Erosion on the Black Sea Coast, financed by Romanian Water Basin Administration Dobrogea-Litoral, 12/2010 - 12/2011, Role: PI for ISMAR
- eSV, ESA Data User Element Storm Surge Project Venice (eSurge Venice), financed by ESA (European Space Agency), 11/2011 - 4/2014, Role: PI for ISMAR
- Danubius-PP, Preparatory Phase for ESFRI project DANUBIUS-RI, financed by EU (H2020, Grant agreement ID: 739562), 12/2016 – 11/2019, Role: PI for ISMAR
- ENVRI-FAIR, ENVironmental Research Infrastructures building Fair services, financed by EU (H2020, Grant agreement ID: 824068), 01/2019 – 06/2023, Role: Participant
- DOORS, Developing Optimal and Open Research Support for the Black Sea, financed by EU (H2020, Grant agreement ID: 101000518), 06/2021 – 05/2025, Role: Participant

According to law 679/2016 of the Regulation of the European Parliament of 27th April 2016, I hereby express my consent to process and use my data provided in this CV