

CURRICULUM VITAE

(gennaio 2018)

Nome: **Andrea Marion**

Posizione attuale: Professore Associato di Idraulica, docente di Idraulica Ambientale, Università di Padova.
Abilitazione a Professore di I fascia (ordinario) dal 2012

Luogo e data di nascita: Castelfranco Veneto, Treviso, 23/9/1965

Indirizzo lavorativo: Dipartimento di Ingegneria Industriale (DII)
Università di Padova
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Indirizzo personale: viale Brigata Cesare Battisti 32
31033 Castelfranco Veneto (TV)

Status familiare: coniugato con tre figli di età 18, 16 and 12

TITOLI ACCADEMICI E RUOLI OCCUPATI:

Laurea in Ingegneria Civile Idraulica. Università di Padova, Dicembre 1990.

Master of Science in Environmental Engineering Science, California Institute of Technology (USA), 1992.

Dottorato di Ricerca in Idrodinamica (Consorzio delle Università di Padova, Firenze, Genova e Trento) 1995.

Post-dottorato, Università di Padova, 1996-1998

Visiting Professor, Drexel University, Filadelfia, USA, 1999.

Ricercatore di Idraulica, Università di Padova, 1998-2011

PREMI E DISTINZIONI:

- Education Abroad Student at University of California at Berkeley, a.y. 1988-1989.
- Laurea con Lode, University of Padua, 1990.
- Borsa di Studio ISMES (Experimental Inst. for Models and Structures), Bergamo, Italy, 1990.
- Borsa di studio "A. Gini", Padova, 1991.
- Borsa di studio dell'Università di Padova per perseguire studi all'estero, 1992.
- "Walter L. and Reta M. Moore" Fellowship, California Inst. of Technology, 1992.
- Borsa di Mobilità all'estero, CNR, 2004.
- Borsa di Mobilità all'estero, CNR, 2005.
- Education Abroad Programme, Visiting Professor Fellowship to the University of California at S. Barbara, 2005
- Education Abroad Programme, Visiting Professor Fellowship at University of California at Santa Barbara, 2006
- Fellowship of the Leibniz-Institute of Freshwater Ecology and Inland Fisheries (IGB), Berlin (Germany), 2012/14

DIREZIONE DI CONFERENZE SCIENTIFICHE

- **XXXIV International School of Hydraulics**, Zelechow, Polonia, May 11-14 2015, Co-chair (with Prof. Paweł M. Rowiński, Polish Academy of Sciences)
- **International Symposium on Interfaces within Aquatic Ecosystems**, Aug. 29-30 2016, Co-chair (with Prof. C. Gibbins, University of Aberdeen)

VALUTATORE DELLA RICERCA

- Membro della Lista di Esperti, Comitato per la Valutazione della Ricerca (**CIVR**) Ministero dell'Università e Ricerca, 2005.
- Membro della Lista dei Revisori dei **GEV 07** e **GEV 08**, per la Valutazione della Qualità della Ricerca for the Evaluation of Quality of Research (VQR 2004-2010) dell'ANVUR, 2012- 2013
- Valutatore di progetti di ricerca per : University of Padua (post-doc positions), Italian Ministry of University and Research (PRIN Projects), UK EPSRC (Individual Grants), Royal Society of Scotland (Individual Grants).

ATTIVITA' DI RICERCA E FINANZIAMENTI

Commissione Europea

Coordinator of FP7-PEOPLE-2012-ITN HYTECH 'Hydrodynamic Transport in Ecologically Critical Heterogeneous Interfaces' (*Approx. budget 3,7 M€*)

Advisory Board: Heidi Nepf, MIT, USA; Gary Parker, Univ. Illinois, USA ; Bernhard Statzner, CNRS Lyon, France; Peter Davies, Univ. Dundee, UK.

Leaders and Partners: Vladimir Nikora, Univ. Aberdeen, UK; Simon Tait, Univ. Bradford, UK; Tjeerd Bouma, NIOZ, NL; Katinka Koll, Univ. Braunschweig, Germany; Sara Puijalon, CNRS Lyon, France; Francesco Balli, Politechn. Milan, Italy; 3 SMEs.

Note: the project will end on Dec.31, 2016.

Proposed Coordinator of Incoming Call: H2020-MSCA-ITN 'RIBES - River Flow Regulation, Fish Behaviour and Status' (*Approx. budget 3,8 M€*)

Advisory Board: J.J. Anderson, Univ. Washington (USA), C. Katopodis, Univ. Alberta (Canada), M.Lang, Humboldt st.Univ. (USA), Bernhard Statzner, CNRS, Lyon.

Partners: Univ. Aberdeen, UK; Univ. Southampton, UK; Leibniz Institut Berlin, Germany; Karlstads Univ, Sweden; Tallin Univ. of Technology, Estonia; Flemish Regional auth., Belgium; 3 SMEs.

At Hydraulic Research - Wallingford (UK):

Participant in the of the European Commission on: *Composition and texture of armoured beds* April-October 1995, March-October 1996 (with Univ. of Aberdeen and Glasgow, UK).

Project Leader in the Human Capital and Mobility Programme of the European Commission on: *Exchange of passive solutes between the main flow and the bed in rivers*, April-August 1997.

Project Leader in the Human Capital and Mobility Programme of the European Commission on: *Morphological effects of the control of river erosion by bed sills*, September-October 1997.

Project Leader in the Training and Mobility of Researchers Programme of the European Commission on: *Lateral diffusion and longitudinal dispersion of solutes in meandering channels*", June-September 1998.

Project Co-Leader in the Human Capital and Mobility of the European Commission Programme on: *Temporal evolution of scourholes downstern of bed sills*, July-November 1998 (with Univ. of Calabria).

At University of Hull, UK:

Participant Research Project "Investigation into the Physical Relationship between Water-worked Gravel Bed Armours and Turbulent In-Channel Flow Patterns", VI EU

Framework Programme, Integrated Infrastructure Initiative Hydralab III, in collaboration with University of Braunschweig and University of Bradford, 2007.

At WL Delft Hydraulics (The Netherlands):

Participant in the EC-Large Installations I Programme on: *Experimental observation of dynamic armouring*, June-August 1993.

Participant in the Large Installations II Programme of the European Commission on: *Experimental obseravtion of dynamic armouring*, March-July 1994.

Progetti di ricerca britannici

At University of Sheffield and University of Aberdeen (UK) :

External Collaborator in the EPSRC project : “Development of Probabilistic Methods for Predicting Entrainment & Transport Rates in Graded Sediments”, 2001-2004, led by University of Sheffield and Univ.of Aberdeen. (*project funding: £ 262,576*).
The project was graded outstanding overall – grade 5.

Progetti di ricerca italiani

Italian Ministry for University and Research

National Coordinator, PRIN (Research Project of National Importance) on “Models and measurements of flow/sediment interaction at spatial and temporal scales of physical interest”, 5 research teams, 2007-2010. (*project funding: 162k€*)

Italian Ministry for the Environment and the Territory

Project Leader of an Italian-Israeli Cooperation on Environmental Technologies, Project 5 “ An Integrated Approach to the Remediation of Polluted River Sediments I” 2004- 2005.

Project Leader of an Italian-Israeli Cooperation on Environmental Technologies, Project 5 “ An Integrated Approach to the Remediation of Polluted River Sediments II” 2005- 2006.

Project Leader of an Italian-Israeli Cooperation on Environmental Technologies, Project 5 “ An Integrated Approach to the Remediation of Polluted River Sediments III” 2006- 2007.

Scientific Supervisor. Italian-Israeli Cooperation on Environmental Techno-logies, Project 6 “Polishing Municipal Secondary Effluent For Stream Rehabilitation” 2005-2006, as consultant of SGI, General Engineering Firm.

Italian National Research Council (CNR)

Member of the National Group for the Defense from Chemical, Industrial and Ecological Hazards (GNDRCE).

Participant in the project "Pollution processes in fluvial streams and their surrounding zones" 2001-2004.

Regione Veneto (Veneto Regional Authority)

Project Leader European Social Fund for young Researchers, 2013

Fondazione CARIPARO (Bank Foundation)

Supervisor Doctoral Project Funding, 2009

At University of Padua:

Project Leader, Framework Agreement for collaborative work between the Dept. Of Industrial Engineering and SGI-Studio Galli, 2013-2014

Project Leader, Young Researchers Grant on "Hyporheic transport processes", 2000,

Project Leader research grants from the Italian Ministry for Scientific Research and Technology (funds "ex 60%"), 1998-2013

Project Leader, consultancy grant on "Comparative study for the optimization of treatment processes in the Salvatronda Plant", 2007.

Project Leader, consultancy grant on "Environmental effects of a few solutions for the extension of the Salvatronda Plant ", 2008.

Project Leader, University Project (PRAT) "Measurement and modelling of hyporheic fluxes in rivers", 2007-2008.

Participant, University Research Grant on "Natural and artificial river morphology", 2000.

Participant in 4 grants from the Italian National Research Council:

- 3 with the Group for Defence from Hydrogeological Hazards 1992-2002
- 1 with the Group for Defence from Chemical Environmental Hazards, 2000-2002

Participant in 3 grants from the Italian Ministry for Scientific Research and Technology

Participant, Programme Co.Ri.La. (Research Consortium for Venice Lagoon) 2003-2006, "Measurement and modelling of solutes and suspended matter in the catchment of Venice Lagoon"

At University di Trento, Italy

Research contract on experimental methods for bed material sampling, November 1995-February 1996.

Attività di ricerca negli USA

At California Inst. of Technology (USA)

Graduate Laboratory Assistant, 1991-1992.

At S. Anthony Falls Laboratory, University of Minnesota (Minneapolis, USA)

Project Co-Leader in the NSF Project: "Hyporheic fluxes induced by alternate bars" 2003 (with Northwestern Univ., USA), within the National Center for Earth-surface Dynamics Project .

Altre attività di ricerca

National Institute for Water and Atmospheric Research – NIWA (Christchurch, New Zealand) - Visiting Scientist, 2004.

Polish National Academy of Sciences

- Visiting Scientist at the Institute of Geophysics, EU Centre of Excellence, 2004
- Polar Mission to the Polish Research Station at Hornsund, Svalbard, June-July 2015.

DAM group.

Host of the VI DAM (Double Averaging Model) Meeting, Castelfranco Veneto, Italy, July 2007.

<i>Totale dei finanziamenti gestiti come responsabile circa 4.3 M€</i>
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SEMINARI E LEZIONI PUBBLICHE AD INVITO

- **XXXIV International School of Hydraulics**, Zelechow, Poland, Keynote on "*Research opportunities in environmental fluid mechanics in Horizon 2020*", 2015.
- **Seminar Tour in Midwest USA**, Lectures at Colorado State University, University of Colorado, Arizona State University, Sept. 2017.
- **Order of Chartered Engineers, Treviso, Italy**, Lecture on "Forensic Engineering: judiciary cases in Environmental Engineering", Treviso, Sept.30 2016.
- **City of Castelfranco Veneto (Italy)**, Public Lecture, "*The environmental challenges of climate changes*", 2016.
- **Seminar Tour in Western USA**, Lectures at Berkeley, Humboldt State University, University of Idaho, Sept. 2016.
- Invited Speaker at '**X Interdisciplinary Interdisciplinary Scientific Research Congress, Week of Science and Technology**', Ministerio Education Superior, Ciencia Y Tecnologia, S. Domingo, July 2014
- **La scienza in un bicchiere, Associazione Culturale 'Due Mulini'**, Castelfranco Veneto (TV), Public Lecture on "*Start by chance, move on by choice*", June 2014.
- Invited Speaker at '**LAB EUROPE: European project design – How to present a proposal in H2020**', Aula Nievo, Palazzo del Bo', University of Padua, February 2014
- **IGB Colloquium**, '*Interfacial mass retention and release by vegetation, surface biofilm and hyporheic zone in open channels*', Nov.7 2013, Berlin.
- **XXXII International School of Hydraulics**, Lochow, Poland, Invited lecture on "*A new theoretical framework to model incipient motion of sediment grains and implications for the use of modern experimental techniques*", 2012.
- **Phylosophy Evenings, Academic Theatre**, Castelfranco Veneto (TV), Public Lecture on "Science, Technology and Environment", 2009.
- **LOCCIONI Group**, Ancona, invited lecture on "Properties and applications of micro-hydroelectric plants adopting the archimedean screw", *Technical Lecture*, 2009
- **Order of Chartered Engineers, Padua**, invited lecture on "*Exploitation of renewable energy resources from surface waters using micro plants*", 2009.
- **University Rome III**, Doctoral School, "*Theoretical approach to hyporheic flows*", 2009.
- **University Rome III**, Doctoral School, "*Model and field measurement of hyporheic flows*", 2009.
- **Novi Cives**, School of Politics, invited lecture on "*Environment and economy*", 2008.
- **University of Aberdeen (UK)**, King's College of Engineering, "*Hyporheic flows*", 2008
- **Environmental Protection Agency, US EPA**, Metals Fate and Transport Modeling Workshop, invited talk, 2007

- **Turin Politechnic**, Doctoral School, two 2-hour seminars on Sediment Transport, 2007.
- **University of Trieste**, Doctoral School, “Models and applications of Hyporheic flow studies”, 2007
- **XXVI International School of Hydraulics**, Goniadz, Poland, Invited lecture on “Recent model developments on hyporheic flows in rivers: laboratory and field applications”, 2006
- **XV National Congress of the Italian Society of Ecology**, invited lecture, Torino, 2005
- **University of California at S. Barbara (USA)**, 2005 , (2 seminars)
- **UNESCO**, English Section, Oxford (UK), Invited speaker on “Surface water – groundwater interactions in river corridors”, 2005
- **TU Delft**, Faculty of Civil Engineering and Geosciences, 30th Colloquium, 2004
- **Polish Academy of Sciences**, Dept. of Geophysics, Varsavia, 2004 (2 seminars)
- **University of Auckland, New Zealand**, 2004
- **NIWA, Christchurch, New Zealand**, 2004 (2 seminars)
- **University of Pavia**, Dept. of Hydraulic and Environmental Engineering, 2001.
- **Northwestern University, USA**, McCormick School of Engineering and Applied Sc., 2001.
- **Università di Padova**, Faculty of Veterinary Medicine, Corse of “Fish farming”, 1998 (2 seminars)
- **Università della Calabria, Italy**, Dipartimento di Difesa del Suolo “V. Marone”, 1996.
- **University of Aberdeen (UK)**, King’s College of Engineering, 1995
- **University of Glasgow (UK)**, Department of Geography and Topographic Science, 1995.
- **California Institute of Technology**, Pasadena (USA), Keck Laboratories of Hydraulics and Water Resources, 1992

ATTIVITÀ EDITORIAL E DI REVISIONE SCIENTIFICA

“**Hydrodynamic and mass transport at freshwater aquatic interfaces**”, Book, Rowinski and Marion eds, Series: GeoPlanet: Earth and Planetary Sciences, Springer Verlag, ISSN2190-5193, ISBN 978-3-319-27749-3, 2016.

Associate Editor of the Journal of Hydraulic Engineering, ASCE, 2008-2014, *Note: first italian scientist to take this role in JHE.*

Revisore per:

Water Resources Research- AGU, Journal of Hydraulic Engineering - ASCE, Journal of Hydraulic Research – IAHR, Advances in Water Resources, Surface Processes and Landforms, Journal of Environmental Engineering – ASCE, Acta Geophysica, Water Science and Technology, Advances in Water Resources, Geomorphology, Geophysical Review Letters, Review of Chemical Engineering, Ecological Engineering.

PUBBLICAZIONI

Metrica delle pubblicazioni:

SCOPUS: articoli 71, citazioni 1195, h-index 21

GOOGLE SCHOLAR: products 112, citations 1723, h-index 25

a) Riviste Referenziate

a.1) Riviste internazionali

1. Sabokrouhiyeh, N., Bottacin-Busolin, A., Savickis, J., Nepf, H., Marion A. “A numerical study of the effect of wetland shape and inlet-outlet configuration on wetland performance” **Ecological Engineering**, Volume 105, 1 August 2017, Pages 170-179
2. Zaramella M., Marion A., Lewandowski J., Nützmänn G. “Assessment of transient storage exchange and advection–dispersion mechanisms from concentration signatures along breakthrough curves”, **Journal of Hydrology**, Vol.538, 794-801, 2016.
3. Cecchetto M., Tregnaghi M., Bottacin-Busolin A., Tait S.J., Marion A. “Statistical Description on the Role of Turbulence and Grain Interference on Particle Entrainment from Gravel Beds”, **Journal of Hydraulic Engineering**, 10.1061/(ASCE)HY.1943-7900.0001224, Aug. 2016.
4. Savickis J., Bottacin-Busolin A., Zaramella M., Sabokrouhiyeh N., Marion A., “ Effect of a meandering channel on wetland performance”, **Journal of Hydrology**, Vol.535, 204-210, 2016.
5. Piper A.T., Manes C., Siniscalchi F., Marion A., Wright R.M.and Kemp P.S.“ Response of seaward-migrating European eel (*Anguilla anguilla*) to manipulated flow fields”, **Proceedings of the Royal Society B**, Vol.282, N. 1811, 2015.
6. Maggiolo D., Marion A. and Guarnieri M. “Lattice Boltzmann Modeling of Water Cumulation at the Gas Channel-Gas Diffusion Layer Interface in Polymer Electrolyte Membrane Fuel Cells”, **Journal of Fuel Cell Science and Technology**, Vol.11, Issue 6, doi: 10.1115/1.4028952, 2014
7. Marion A., Nikora V., Puijalón S., Bouma T., Koll K., Ballio F., Tait S., Zaramella M., Sukhodolov A., O’Hare M., Wharton G., Aberle J., Tregnaghi M., Davies P., Nepf H., Parker G., Statzner B. “Hydrodynamics and ecology: the critical role of interfaces in biophysical interaction”, **Journal of Hydraulic Research**, Vol. 52, Issue 6, doi:10.1080/00221686.2014.968887, 2014

8. Boano F., Harvey J.W., Marion A., Packman A.I., Revelli R., Ridolfi L. and Wörman A. "Hyporheic Flow and Transport Processes: Mechanisms, models, and biogeochemical implications", **Review of Geophysics**, doi: 10.1002/2012RG000417, 2014
9. Marion A. Book Review "Fluid Mechanics of Environmental Interfaes", **Journal of Hydraulic Research**, Vol. 52, Issue 4, doi:10.1080/00221686.2014.945500, 2014
10. Musner T., Bottacin Busolin A. and Marion A. "A contaminant transport model for wetlands accounting for distinct residence time bimodality", **Journal of Hydrology**, vol. 515, 237-246, 2014
11. Maggiolo D., Manes C. and Marion A. "Momentum transport and laminar friction in rough-wall duct flows", **Physics of Fluids**, Vol.25, Issue 9, doi: 10.1063/1.481845, 2013
12. Tregnaghi M., Bottacin-Busolin A., Marion A. and Tait S.J. "Stochastic determination of entrainment risk in uniformly sized sediment beds at low transport stages I: Theory", **Journal of Geophysical Research - Earth Surface**, Vol. 117, doi:10.1029/2011JF002134, 2012.
13. Tregnaghi M., Bottacin-Busolin A., Tait S.J. and Marion A. "Stochastic determination of entrainment risk in uniformly sized sediment beds at low transport stages II: Experiments", **Journal of Geophysical Research - Earth Surface**, Vol. 117, doi:10.1029/2011JF002135, 2012.
14. Bottacin Busolin A., Marion, A., Musner, T., Tregnaghi, M., Zaramella, M., "Evidence of distinct contaminant transport patterns in rivers using tracer tests and a multiple domain retention model", **Advances in Water Resources**, Volume 34, 737-746, doi: 10.1016/j.advwatres.2011.03.005, 2011.
15. Tregnaghi, M., Marion, A., Bottacin Busolin A., Tait, S.J. "Modelling time varying scouring at bed sills", **Earth Surface Processes and Landforms**, Volume 36, 13, 1761-1769, doi: 10.1002/esp.2198, 2011.
16. Bottacin Busolin A., Marion, A. "Combined role of advective pumping and mechanical dispersion in bed form- induced hyporheic exchange. **Water Resources Research**, Volume 46, W08518, doi: 10.1029/2009WR008892, 2010.
17. Tregnaghi, M., Marion, A., Coleman, S.E., Tait, S.J. "Effect of flood recession on scouring at bed sills. **Journal of Hydraulic Engineering - ASCE**, Vol. 136, 204-213, doi:10.1061/(ASCE)HY.1943-7900.0000164, 2010.
18. Bottacin-Busolin A., Singer G., Zaramella M., Battin T.J., Marion A. "Effects of Streambed Morphology and Biofilm Growth on the Transient Storage of Solutes. **Environmental Science & Technology**, Vol. 43, 19, 7337-7342, doi:10.1021/es900852w, 2009.
19. Tregnaghi, M., Marion, A., Coleman, S.E. "Scouring at bed sills as a response to flash floods. **Journal of Hydraulic Engineering**, Vol. 135, No. 6, 466-475, doi: 10.1061/_ASCE_HY.1943-7900.0000033, 2009.
20. Giraldi, D., Michieli Vitturri, M., Zaramella, M., Marion, A., Iannelli, R. "Hydrodynamics of vertical subsurface flow constructed wetlands: Tracer tests with rhodamine WT and numerical modelling, **Ecological Engineering**, Volume 35, Issue 2, 265-273, doi:10.1016/j.ecoleng.2008.06.004, 2009.
21. Marion, A., Zaramella, M., Bottacin-Busolin, A. "Solute transport in rivers with multiple storage zones: The STIR model, **Water Resources Research**, 44, W10406, doi:10.1029/2008WR007037, 2008.
22. Marion, A., Packman, A.I., Zaramella, M., Bottacin-Busolin, A. "Hyporheic Flows in Stratified Beds, **Water Resources Research**, 44, W09433, doi:10.1029/2007WR006079, 2008.
23. Bottacin-Busolin, A., Tait, S.J., Marion, A., Chegini, A., Tregnaghi, M. "Probabilistic description of grain resistance from simultaneous flow field and grain motion measurements, **Water Resources Research**, 44, W09419, doi:10.1029/2007WR006224, 2008.

24. Caruso B. S., Cox T. J., Runkel R. L., Velleux M. L., Bencala K. E., Nordstrom D. K., Julien P. Y., Butler B. A., Alpers C. N., Marion A., Smith K. S.
*Metals fate and transport modelling in streams and watersheds: state of the science and USEPA workshop review. **Hydrological Processes***, Vol. 22, 19, Special Issue, 4011-4021, doi:10.1002/hyp.7114, 2008.
25. Tregnaghi, M., Marion, A., Gaudio, R.
*Affinity and similarity of local scour holes at bed sills. **Water Resources Research***, 43, W11417, doi:10.1029/2006WR005559, 2007.
26. Packman, A.I., Marion, A., Zaramella, M., Chen, C., Gaillard, J-F, Keane, D.
*Development of layered sediment structure and its effects on pore water transport and hyporheic exchange. **Water, Air, and Soil Pollution: Focus***, Vol.6, N. 5-6, doi:10.1007/s11267-006-9057-y, 2006.
27. Marion, A., Zaramella M.
*Effects of Velocity Gradients and Secondary Flow on the Dispersion of Solutes in Curved Channels. **Journal of Hydraulic Engineering-ASCE***, vol. 132 (12), pp. 1295-1302, 2006.
28. Marion, A., Tregnaghi, M., Tait, S.J.
*Sediment supply and local scouring at bed sills in high gradient streams. **Water Resources Research***, 42, W06416, doi:10.1029/2005WR004124, 2006.
29. Zaramella, M., Marion, A., Packman, A.
*Applicability of the Transient Storage Model to the hyporheic exchange of metals. **Journal of Contaminant Hydrology***. vol. 84, pp. 21-35, 2006.
30. Marion, A., Zaramella M.
*A residence time model for stream-subsurface exchange of contaminants. **Acta Geophysica Polonica***, vol. 53 (4), pp. 527-538, 2005.
31. Marion, A., Zaramella M.
*On the diffusive behaviour of bedform-induced hyporheic exchange in rivers. **Journal of Environmental Engineering-ASCE***. Volume 131, n. 9, pp. 1260-1266, 2005.
32. Marion, A., Lenzi, M., Comiti, F.
*Effect of sill spacing and sediment size grading on scouring at grade-control structures. **Earth Surface Processes and Landforms***, vol. 29, pp. 983-993, 2004.
33. Lenzi, M., Comiti, F., Marion, A.
*Scouring at Bed Sills in a Mountain River: Plima River, Italian Alps. **ASCE, Journal of Hydraulic Engineering***, vol. 130 (3), pp. 267-269, 2004.
34. Marion, A., Tait, S.J., McEwan, I.K.
*The analysis of small-scale gravel bed topography during armouring. **Water Resources Research***, 39 (12), 1334, doi:10.1029/2003WR002367, 2003.
35. Tait, S.J., Marion, A., Camuffo, G.
*Effect of environmental conditions on the erosional resistance of cohesive sediment deposits in sewers. **Water Science and Technology, IWA***, Vol.47, N.4, 27-34, 2003.
36. Lenzi, M., Marion, A., Comiti, F.
*Local scouring at grade-control structures in alluvial mountain rivers. **Water Resources Research***, 39 (7), 1176, doi:10.1029/2002WR001815, 2003.
37. Zaramella, M., Packman, A., Marion, A.
*Application of the transient storage model to analyze advective hyporheic exchange with deep and shallow sediment beds. **Water Resources Research***, 39 (7), 1198, doi:10.1029/2002WR001344, 2003.
38. Gaudio, R., Marion, A.
*Time evolution of scouring downstream of bed sills. **IAHR, Journal of Hydraulic Research***, Vol.41, N.3, 271-284, 2003.
39. Marion, A., Zaramella, M., Packman, A.
*Parameter estimation of the Transient Storage Model for stream-subsurface exchange. **Journal of Environmental Engineering, ASCE***, Vol.129, N.5, 456-463, 2003.
40. Lenzi, M., Marion, A., Comiti, F.

- Interference processes on scouring at bed sills. Earth Surface Processes and Landforms*, Vol.28, pp.99-110, 2003.
41. Boxall, J., Guymer, I., Marion, A.
Transverse Mixing in Sinuous Natural Open Channel Flows. Journal of Hydraulic Research, IAHR, vol. 41 (2), 153-165, 2003.
 42. Lenzi, M., Marion, A., Comiti, F. , Gaudio, G.
Local scouring in low and high gradient streams at bed sills. Journal of Hydraulic Research, IAHR, vol. 40 (6), 731-739, 2002.
 43. Boxall, J., Guymer, I., Marion, A.
Locating Outfalls on Meandering Channels to Optimise Transverse Mixing. J. of the Chart. Inst. of Water and Environ. Manag., London, Vol.16, N.3, 194-198, 2002.
 44. Marion, A., Bellinello, M., Guymer, I., Packman, A.
Effect of bed form geometry on the penetration of non-reactive solutes into a stream bed. Water Resources Research, 38 (10), 1209, doi:10.1029/2001WR000264, 2002.
 45. Sibanda, E., McEwan, I., Marion, A.
Measuring The Structure Of Mixed Grain Size Sediment Beds. ASCE, Journal of Hydraulic Engineering, Vol.126, N.5, pp. 347-353, 2000.
 46. Gaudio, R., Marion, A., Bovolin, V.
Morphological effects of bed sills in degrading rivers. IAHR, Journal of Hydraulic Research, Vol.38, N.2, pp. 89-96, 2000.
 47. Marion, A., Fraccarollo, L.
Grain size distribution in gravel-bed rivers and its determination.Excerpta, Vol.12, 223-249, 1998.
 48. Di Silvio, G., Marion, A.
Discussion on "Transfer function for the deposition of poorly sorted gravel in response to streambed aggradation" by Carlos M. Toro-Escobar, Gary Parker and Chris Paola **IAHR, Journal of Hydraulic Research**, Vol. 35, N.4, 563-566, 1997.
 49. Marion, A., Fraccarollo, L.
A new conversion model for areal sampling of fluvial sediments. ASCE, Journal of Hydraulic Engineering, Vol. 123, n.12, 1148-1151, 1997.
 50. Marion, A., Fraccarollo, L.
Experimental investigation of mobile armouring development. Water Resources Research, Vol. 33, n. 6, 1447-1453, 1997.
 51. Fraccarollo, L., Marion, A.
A statistical approach to bed material surface sampling. ASCE, Journal of Hydraulic Engineering, vol.121, n.7, 540-545, 1995.

a.2) Riviste italiane

52. Zaramella, M., Gaudio, R., Caloiero, T. and Marion, A.
Misure di trasporto superficiale e iporeico in un corso d'acqua naturale. (Transl: Measurements of surface and hyporheic transport in a natural stream). **L'Acqua**, Associazione Idrotecnica Italiana, vol. 1, pp. 25-33 ISSN: 1125-1255, 2004.
53. Bovolin, V., Gaudio, R. and Marion, A.
Erosione localizzata a valle di soglie di fondo. (transl: local scouring downstream of bed sills). **L'Acqua**, Associazione Idrotecnica Italiana, Vol.5, pp.89-98, ISSN: 1125-1255, 1999.

a.3) Capitoli di libri

54. Sabokrouhiyeh N., Bottacin-Busolin A., Nepf H., Marion A.

- Effects of vegetation density and wetland aspect ratio variation on hydraulic efficiency of wetlands.* in **GeoPlanet: Earth and Planetary Sciences. Hydrodynamic and Mass Transport at Freshwater Aquatic Interfaces**, 2016, pp 101-113, Springer, ISBN: 978-3-319-27749-3
55. Seco I., Gomez-Valentin M., Tait S.J. Marion A.
Vegetation and flow rate impact on in-stream longitudinal dispersion and retention processes in **GeoPlanet: Earth and Planetary Sciences. Hydrodynamic and Mass Transport at Freshwater Aquatic Interfaces**, 2016, pp 319-332, Springer, ISBN: 978-3-319-27749-3
56. Savickis J., Zaramella, M., Bottacin-Busolin A., Nutzmann G., Marion A.
Significance of the sediment properties and aquatic environmental conditions on the erodibility of deposited beds. in **GeoPlanet: Earth and Planetary Sciences. Hydrodynamic and Mass Transport at Freshwater Aquatic Interfaces**, 2016, pp 91-99, Springer, ISBN: 978-3-319-27749-3
57. Cecchetto M., Tait, S.J., Marion A.
Step Length Influence in Modelling Advection and Diffusion of Bed-Load Particles. in **GeoPlanet: Earth and Planetary Sciences. Hydrodynamic and Mass Transport at Freshwater Aquatic Interfaces**, 2016, pp 293-305, Springer, ISBN: 978-3-319-27749-3
58. Zaramella M., Bottacin-Busolin A., Tregnaghi M. and Marion A.
Exchange of Pollutants Between Rivers and the Surrounding Environment: Physical Processes, Modelling Approaches and Experimental Methods. in **GeoPlanet: Earth and Planetary Sciences. Rivers- Physical, Fluvial and Environmental Processes**, 2015, pp 567-590, Springer, ISBN: 978-3-319-17718-2
59. Marion A. and Tregnaghi M.
A new theoretical framework to model incipient motion of sediment grains and implications for the use of modern experimental techniques. in **GeoPlanet: Earth and Planetary Sciences. Experimental and Computational Solutions of Hydraulic Problems**, 2013, pp 85-100, Springer, ISBN: 978-3-642-30208-4
60. Marion, A
Physical transport processes in ecology: advection, diffusion and dispersion. in **Encyclopedia of Ecology**, 5 volumes, Ed. S.E. Jorgensen, Elsevier, 2008
61. Marion, A
Models of hyporheic contamination by non reactive solutes, metals and colloids. Chapter 11 in: Czernusznko W., Rowinski P.M. (2005), "**Water Quality Hazards and Dispersion of Pollutants**", Springer, USA, p.250, ISBN 0-387-23321-0

b) Tesi

62. Marion, A.
Analisi sperimentale sulla dinamica verticale dei sedimenti negli alvei fluviali.
Tesi di Dottorato di Ricerca, Consorzio Università Padova/Genova/Firenze, Trento, 1995, pp.136.
63. Marion, A.
Trasporto di sedimenti a granulometria non uniforme nei corsi d'acqua. Struttura verticale dell'alveo. **Tesi di Laurea**, Università di Padova, 1990, pp.157.

c) Articoli a conferenze

Oltre 40 articoli autorati dal 1992.

d) Rapporti scientifici

Autore di 7 rapporti tecnici

DIDATTICA E SUPERVISIONE ACCADEMICA

UNIVERSITA' DI PADOVA:

Idraulica Ambientale, Faculty of Engineering.

Years: 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016

Course size: 78 lecturing hours (54/48 hours since 2007)

Course level: Graduate. 5th and final year of Laurea Course in Environmental Engineering (from 2000 to 2004, fall term), 4th year of Master Course in Environmental Engineering (from 2004 to 2006, summer term).

Typical class size: 30.

Note: 1st ranked teacher of Environmental Engineering in 2014 and 2016.

Meccanica dei Fluidi, Faculty of Engineering.

Years: 2014, 2015, 2016

Course size: 72 lecturing hours

Course level: undergraduate. 2nd year of Laurea Course in Mechanical Engineering

Typical class size: 200.

Meccanica dei Fluidi, Faculty of Engineering.

Years: 2011, 2012, 2013

Course size: 78/72 lecturing hours

Course level: undergraduate. 2nd year of Laurea Course in Energy Engineering

Typical class size: 200.

Misure e Modelli Idraulici, Faculty of Engineering.

Years: 2008

Course size: 54 lecturing hours

Course level: undergraduate. 3rd year of Laurea Course in Civil Engineering

Typical class size: 20.

16-hour lecture module in *Environmental Hydraulics* within the Master Course in Land Reclamation and Irrigation (1-year degree),

Years: 2007, 2009, 2011

Course level: Post-Graduate.

Typical class size: 15.

8-hour lecture module in the *Master in Gestione Ambientale Strategica (Strategic Environmental Management)*

Years: 2014

Course level: Post-Graduate.

Typical class size: 20.

8-hour lecture module in the *Advanced Course in Hydrography and Hydrology* (after Laurea 1-year degree),

Years: 2000, 2001, 2002

Course level: Post-Graduate.

Typical class size: 10.

20-hour lecture module within the 78-hour course “*Fluid Mechanics*” for the degree of Environmental Engineering.

Years: 2004, 2005, 2006, 2007

Course level: Undergraduate.

Typical class size: 70.

30-hour lecture module within the 78-hour course “*Environmental Hydraulics*” for the degree of Environmental Engineering.

Years: 1998, 1999

Course level: Undergraduate.

Typical class size: 30.

20-hour experimental module within the 40-hour course “*Hydraulic Laboratory*” for the degree of Environmental Engineering.

Years: 2002, 2003

Course level: Undergraduate.

Typical class size: 90.

44-hour lecture module within the 120-hour course “*Hydraulics*” for the degree of Environmental Engineering.

Years: 1996, 1997, 1998, 1999, 2000, 2001

Course level: Undergraduate.

Typical class size: 90.

44-hour lecture module within the 120-hour course “*Hydraulics*” for the degree of Civil Engineering and Environmental Engineering.

Years: 1996, 1997, 1998, 1999, 2000, 2001

Course level: Undergraduate.

Typical class size: 100.

32-hour lecture module “*Hydraulics and pumping systems*” for ASKOLL, a private company designing and producing pumps.

Years: 2001, 2002, 2004, 2005

Course level: Post-graduate.

Typical class size: 15.

Relatore di oltre 100 tesi di Laurea.

Supervisore di 6 Dottorati di Ricerca.

- *Dr. Gianluca Giacometti, completed Ph.D. in 2000, with a thesis on the prediction of scouring at bed sills. (co-supervisor)*
- *Dr. Francesco Comiti, completed Ph.D. in 2004, with a thesis on field validation of scouring at bed sills. (co-supervisor)*
- *Dr. Mattia Zaramella, completed Ph.D. in 2005, with a thesis on hyporheic flow modelling.*
- *Dr. Matteo Tregnaghi, completed Ph.D. in 2007, with a thesis on the development of scouring under unsteady flows.*

- *Dr. Andrea Bottacin Busolin, completed Ph.D. in 2009, with a thesis on the vulnerability of riverine environments to pollution due to vegetation and hyporheic retention.*
- *Dr. Tommaso Musner, completed Ph.D. in 2009, with a thesis on optimal design of constructed wetlands.*

Supervisor of 2 Marie-Curie Ph.D. candidates (ongoing).

Drexel University, Philadelphia (USA), Visiting professor, summer term 1999

- Teacher of "Hydraulics I".

Course size: 45 lecturing hours

University of Pavia, Italy, 2002: Teacher of the "Environmental Hydraulics" module, Ph.D. Programme in Civil Engineering

Course size: 16 lecturing hours

University of Aberdeen, UK

- External examiner for Ph.D. thesis, 2001.

- Visiting Socrates-Erasmus Teacher, 2008

- Supervisor of 12 Socrates-Erasmus joint research projects leading to Laurea Thesis

University of Sheffield, UK

Supervisor of 16 Socrates-Erasmus joint research projects leading to Laurea Thesis

- Visiting Socrates-Erasmus Teacher, *Years: 1999, 2000, 2001, 2002, 2003, 2004, 2005*

University of Bradford, UK

- Supervisor of 8 Socrates-Erasmus joint research projects leading to Laurea Thesis

University of Southampton, UK

Supervisor of 2 Socrates-Erasmus joint research projects leading to Laurea Thesis

Istituto Tecnico, Lisbon, Portugal

Supervisor of 1 Socrates-Erasmus joint research project leading to Laurea Thesis

University of Braunschweig, Germany

Supervisor of 1 Socrates-Erasmus joint research projects leading to Laurea Thesis

University of California at Santa Barbara, USA

Visiting Professor, supervisor of one joint research project leading to Laurea Thesis.

Years: 2005, 2006

Northwestern University, Evanston, USA

Visiting Professor, supervisor of one joint research project leading to Laurea Thesis.

Year: 2002

International School of Hydraulics

- Lecturer, XXIX ISH, Goniadz, Poland, 2006

- Lecturer, XXXII ISH, Łochów, Poland, 2012

- Member of the Scientific Committee.

Numero di corsi lunghi (>20 ore) tenuti	45
Numero di corsi brevi (6-20 ore) offerti	22
Seminari e lezioni ad invito	41

INCARICHI ACCADEMICI DIRETTIVI O AMMINISTRATIVI

Member of the Steering Committee of the Doctoral School of Industrial Engineering, University of Padua, 2015-.

Member of the Research Committee, Department of Industrial Engineering, University of Pauda, 2014-.

Member of the Italian Delegation of the Conference for Engineering (COPI) in Nicaragua, 2014.

Member of the Research Committee of the Department of Industrial Engineering, 2013-.

Member of the Steering Committee of the Doctoral School of Industrial Engineering, University of Padova.

Member of the Committee for student admission, 2000 and 2006.

Member of the Steering Committee for the Doctorate in Hydrodynamics, University of Padova, 2001-2005.

Member of the Committee for the final examination of the language course in English, Faculty of Engineering, University of Padova, 2000-2005.

Member of the Committee for the selection procedure of Post-Doctoral Fellowships, Faculty of Engineering, University of Padova, 2004.

Member of the Committee for the National Professional Examination, 2001, 2003 and 2013

Coordinator of the Socrates-Erasmus student exchange program between the University of Padova and the following European Universities (since 2001):

- Techn. University of Aachen (Germany)
- University of Aberdeen (UK)
- University of Sheffield (UK)
- Technical University of Lisbon (Portugal)
- University of Bradford (UK)

Member of the Committee for the selection procedure of an Assistant Professor of Hydraulics, University of Bologna, 2006.

ATTIVITA' PROFESSIONALE E DI CONSULENZA

- Iscritto all'Ordine degli Ingegneri dal 1991.
- Coordinatore del Gruppo di Studio su "Impianti Idroelettrici" della Federazione degli Ordini degli Ingegneri del Veneto (FOIV), 2012

Studi di impatto ambientale

- Estensore dello Studio di Impatto Ambientale per l'ampliamento del Depuratore di Salvatronda, Comune di Castelfranco Veneto, 2009.
- Consulenze a studi di ingegneria e aziende produttrici di turbine sull'impatto ambientale delle centrali idroelettriche ad alto, medio e basso salto.

Perizie legali come Consulente Tecnico d'Ufficio e come Perito di Parte su cause riguardanti:

- Acquedotti e fognature
- Sistemazioni fluviali in aree di pianura e montane
- Allagamenti e sovralluvionamenti
- Impianti idroelettrici di media e piccola dimensione

N.B. Nelle cause trattate nell'ultimo decennio sono stati parti in causa, oltre a molti privati, una Regione, un Magistrato alle Acque, una Provincia, due Aziende Municipalizzate, quattro Consorzi di Bonifica, 9 Comuni.

Modellazione

- Applicazione di modelli numerici ad aste fluviali, casse di laminazione, aree umide
- Consulenza a modelli in scala di opere idrauliche.

Consulenze a privati e aziende su:

- Tecnologie moderne di produzione idroelettrica
- Recupero di vecchie condotte interrate
- Gestione delle reti di fognatura
- Verifiche di tenuta dei serbatoi.

Corsi di formazione offerti presso aziende

- Dimensionamento dei sistemi idraulici in pressione, corso di due giornate + applicazioni.
- Dimensionamento di pompe centrifughe, corso di due giornate + applicazioni.
- Dimensionamento di impianti idroelettrici a basso salto, corso di una giornata.