

# Andrea Zanini

## Curriculum Vitae

Parco Area delle Scienze, 181/A  
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### General Information

Citizenship Italian

Web Page <https://personale.unipr.it/it/ugovdocenti/person/16477>

### Research Position held

Associate Professor of Hydrology and Hydraulic Structures at Department of Civil Engineering and Architecture at University of Parma.

Chair of the Civil and Environmental Engineering Program.

### Research interest keywords

Groundwater hydrology, Geostatistics, Inverse problems, Parameter estimation, Contaminated sites, Flow and transport modeling.

### Education and Qualification

17/03/2006 **Civil Engineering, University of Parma, curriculum: Hydraulic Engineering**, Università degli Studi di Parma, Parma, Italia.

Title of the thesis: *Geostatistical Approach for Solving Inverse Problems in Groundwater: Applications and Improvements*. The Phd was funded by Italian Ministry of University and Research.

1/10/2004 - **Visiting Researcher**, Stanford University, Stanford (CA), USA.  
31/03/2005

2002 **Professional Engineer**, Politecnico di Milano, Milano, Italia.

21/12/2001 **M.S. Environmental Engineer**, Politecnico di Milano, Milano, Italia.

04/1998 **TOEFL Certification**, Politecnico di Milano, Milano, Italia.

### Experience

16/09/2020 - **Associate Professor of hydrology and hydraulic structures**, Department of Engineering and Architecture, Università degli Studi di Parma, Parma, Italia.

1/11/2008 – **Assistant Professor of hydrology and hydraulic structure**, Department of Engineering and Architecture, Università degli Studi di Parma, Parma, Italia.  
15/09/2020

01/03/2006 – **Research fellow**, Università degli Studi di Parma, Parma, Italia.  
31/10/2008

- 2006 **Collaboration**, *Politecnico di Milano*, Milano, Italia.  
Analisi dati di prove di pompaggio presso il comune di Fabriano.
- 2003 **Collaboration**, *Politecnico di Milano*, Milano, Italia.  
Progetto di ricerca GENESTO (Gestione integrata e sostenibile delle risorse idriche in differenti contesti territoriali).
- 2002-2003 **Collaboration**, *Università degli Studi di Parma*, Parma, Italia.  
Allestimento di un modello matematico per lo studio della dinamica qualitativa dei flussi idrici sotterranei.

## Languages

Italian Native  
English TOEFL Certification, 1998

## Research ID

ORCID 0000-0002-4022-707X  
Scopus ID 55335940400  
Publons/ M-1389-2014  
Researcher ID  
ResearchGate [https://www.researchgate.net/profile/Andrea\\_Zanini](https://www.researchgate.net/profile/Andrea_Zanini)

## TeachingActivities

Environmental Data Analysis and Geostatistics (from 2021), Environmental Engineering (from 2020), River Basin Management (2008-2019) and Teaching Assistant of Groundwater Hydrology (2002-2020), Hydraulics Structures (2002-2008), Hydraulics (2004 - 2008). Advisor and co-advisor of about 50 thesis (bachelor, master and PhD).

Member of the PhD Faculty board since 2010 in Civil Engineering and Civil Engineering and Architecture at University of Parma.

## Phd Thesis

- Tutor **Mapping the Invisible: Geostatistical Breakthroughs from Rainfall Analysis to Aquifer Characterization**, *Camilla Fagandini*, 28 March 2025.
- Tutor **Theory and application of inverse problems in groundwater: numerical, laboratory and field studies**, *Fausto Cupola*, 8 April 2016.
- Co-tutor **Indagine modellistica sulla tenuta idraulica delle difese arginali deputate alla protezione idraulica del territorio**, *Roberta Lanubile*, 8 April 2016.
- Co-tutor **Studio sperimentale del trasporto di inquinanti in vasca di filtrazione mediante tracciante fluorescente**, *Donato Citarella* 16 April 2012.

Co-tutor **Characterization of aquifer parameters from Theis to hydraulic tomography**, Marco D'Oria, 22 March 2010.

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## Editorial and Dissemination Activities

Editorial Board member for the journal Scientific Report (Springer Nature) from 16/04/2025.

Co-Chair of the conference *13th International Geostatistics Conference* Parma, September 2028.

Member of the organizing Committee XXXIX Convegno Nazionale di Idraulica e Costruzioni Idrauliche, Parma, 15-18 September 2024.

Special Issue Editor (2023-2024) Computation (MDPI): “Recent Advances and Future Developments in the Modeling of Groundwater Flow and Contaminant Transport”.

Special Issue Editor (2025) Computation (MDPI): “Computational simulation of groundwater flow”.

Review Editor Frontiers in Water for section Water Resource Management from 2023.

Review Editor Frontiers in Water for section Water and Built Environment from 2023.

Special Issue Editor (2022-2023), Special Issue “Advances in Aquifer Systems Analysis: Flows, Interactions, Quality Status, and Remediation” on Water (MDPI) .

Member of the Editorial Board (as Review Editor) for the Journal Frontiers in Earth Science (Hydrosphere Section) from August 2022.

<https://www.frontiersin.org/journals/earth-science/editors>

Guest Editor (2022) for the Special Issue “Geostatistics applied to Environmental Applications” on Mathematical Geoscience.

Academic Editor for the Journal PLOS WATER. <https://journals.plos.org/water/s/editorial-board>

Special Issue Editor (2020-2021), Special Issue “Groundwater Flow and Transport Models” on Water (MDPI).

Member of the Topical Advisory Panel Editor for the Journal Water (MDPI).

[https://www.mdpi.com/journal/water/topic\\_editors](https://www.mdpi.com/journal/water/topic_editors)

Academic Editor for the multidisciplinary Journal PLOS ONE.

<https://journals.plos.org/plosone/static/editorial-board>

Special Issue Editor (2019-2020), Special Issue “Groundwater Modeling in Karst Areas” on Water (MDPI).

Reviewer for the main journals in environmental sciences: Water Resources Research,

Stochastic Environmental Research and Risk Assessment, Journal of Hydrology, Journal of Contaminat Hydrology, Transport in Porous Media, Hydrogeology Journal, Water, Journal of Hydro-Environment Research, Frontiers in Earth Science, Journal of Atmospheric and Oceanic Technology, Journal of Petroleum Science and Engineering, Journal of Optimization Theory and Applications, Geotechnical Engineering, Géotechnique letters. At <https://publons.com/researcher/1736622/andrea-zanini/peer-review/> it is possible to find some certified review.

Reviewer for the Italian translation of chapter 5 (Flow Net) of the book *Groundwater* by Freeze and Cherry, 1979, available at:  
<http://hydrogeologistswithoutborders.org/wordpress/1979-italiano/capitolo-5/#5.1>

Co-Chair and member of the organizing committee of the conference *14th International Conference on Geostatistics for Environmental Applications*, geoENV2024, Parma, 22-24 June 2022.

Co-Chair and member of the organizing committee of the conference *13th International Conference on Geostatistics for Environmental Applications*, geoENV2020, Online, 18 June 2021.

Member of the Scientific Committee of the 46th *IAH Congress*, Malaga, 22-27 September 2019.

Member of the organizing committee of the conference: *Progetto “AMIIGA” - INTERREG Central Europe: utilizzo di metodologie innovative di indagine nei fenomeni di inquinamento delle acque di falda: Biological Molecular Tools, Compound Specific Isotope Analysis, Indagini Metagenomiche e Isotopi Stabili dell’H<sub>2</sub>O*, Parma, 29 March 2019.

Member of the organizing committee of the conference: *Solventi clorurati nelle falde acquifere: il progetto “AMIIGA” Interreg Central Europe e altre esperienze regionali*, Parma, 4 May 2018.

Member of the organizing committee of the conference: *Aquifer Vulnerability and Risk-2<sup>nd</sup> Workshop*, Colorno (PR), 21-23 September 2005.

Chairman at conferences: 42<sup>nd</sup>IAH conference, AQUA 2015; XXXV *Convegno Nazionale di Idraulica e Costruzioni Idrauliche*; *12th International Conference on Geostatistics for Environmental Applications*, geoENV2018.

Member of International Association of Mathematical Geosciences (IAMG) since 2019.

## ■ **Partecipation at Research Projects**

Contratto di consulenza scientifica: Studio idrogeologico e definizione del modello di flusso del sito in cui ricade lo Stabilimento Sarlux Refining & Power di Sarroch, aprile 2025-ottobre 2026. Committente: Ecotherm. Responsabili Scientifici: F. Celico, **A. Zanini**.

Contratto di consulenza scientifica: La modellazione integrata idraulica-idrogeologica sul T.Enza, febbraio-maggio 2025. Committente: C e S Di Giuseppe ingegneri associati s.r.l..

Responsabile Scientifico: A. Segalini.

Contratto di consulenza scientifica: Sviluppo di uno studio finalizzato all'aggiornamento del modello numerico di flusso della falda sottostante l'area ex Alumix (ora Fintecna S.p.A.), all'interno dell'area industriale di Portovesme, luglio - novembre 2024. Committente: Fintecna. Principal Investigator: **A. Zanini**.

Progetto di ricerca: Sustainable water storage and distribution in the Mediterranean (OurMED), finanziato nell'ambito del programma PRIMA-Med, 2023-2026. Principal investigator: Prof. M. G. Tanda.

Contratto di consulenza scientifica: Modello idrogeologico del Deposito Eni di Pomezia (RM), Marzo-settembre 2023. Committente Proger spa. Principal investigator: **A. Zanini**.

Supporto scientifico in materia di idrogeologia, con particolare riferimento alla modellazione numerica degli acquiferi dei siti di Mantova e di Sarroch, per lo studio di fenomeni di potenziale trasporto e diffusione dei contaminanti, 2022-2025. Principal investigators: **A. Zanini**, Fulvio Celico.

Approccio interdisciplinare innovativo finalizzato alla gestione ed alla protezione delle risorse idriche sotterranee captate da AQA s.r.l., 2021-2024. Principal investigators: **A. Zanini**, Fulvio Celico.

Enhancement of Rwandan Higher Education in Strategic Fields for Sustainable Growth (EnRHed).

Innovative and Sustainable Groundwater Management in the Mediterranean (InTheMed), funded in the PRIMA-Med program, 2020-2023.

DILEMMA (Imaging, modeling, monitoring and design of earthen levees).

Contratto di consulenza per attività di ricerca relativa all'aggiornamento del modello idrogeologico nell'area ex-Alumix all'interno del sito industriale di Portovesme, nel comune di Portoscuso in provincia del Sud Sardegna, di proprietà Ligestra Due s.r.l.. 9/11/2018 - 9/07/2019

Supporto tecnico specialistico per attività di ingegneria idraulica ed idrogeologia. October 2019 – October 2021.

Affidamento di attività specialistica per definizione e affinamento di un modello numerico di flusso delle dinamiche di falda, nella relativa area pilota e per lo sviluppo del progetto AMIIGA (integrated approach to management of groundwater quality in functional urban areas) programma di cooperazione territoriale europeo Interreg Central Europe 2014 - 2020, nel Comune di Parma. September 2017 - October 2019. Principal investigator: **A. Zanini**

Research agreement for Prototyping a Next Generation of Water Quality Logger. June - December 2017. Committente: Ecosel Ltd. *Funded by the Australian Academy of*

*Technology and Engineering.* Principal investigator: **A. Zanini**

Convenzione per la realizzazione del modello idrogeologico dell'area dove verranno realizzate le casse del fiume Pescara. November – December 2016. Principal investigator: **A. Zanini**

Supporto tecnico specialistico per attività di ingegneria idraulica ed idrogeologia. October 2016 – October 2019.

Studio multidisciplinare dei principali acquiferi della Regione Abruzzo, 5/08/2015 - 31/05/2016

Convenzione di ricerca per studi di supporto alla richiesta di concessione per l'utilizzo di acque sotterranee presso la centrale termoelettrica di Caorso (PC). September – October 2014. Principal investigator: **A. Zanini**

Supporto scientifico alla Direzione QHSE di Versalis SpA ed agli stabilimenti in materia di idrogeologia e ingegneria idraulica con particolare riferimento alla modellazione dei fenomeni di trasporto e diffusione dei contaminanti nelle acque. December 2013 – December 2016.

Convenzione di ricerca per lo sviluppo di una serie di attività propedeutiche alla realizzazione della cassa di espansione del torrente Baganza. 2012-2013 Autorità Interregionale per il fiume Po (AIPO).

Appalto Gara 41LG/2011 - Affidamento dell'attività specialistica finalizzata alla prosecuzione e completamento attività di campo previste nell'ambito del progetto europeo FOKS e per il raffinamento di un modello numerico di flusso sull'area pilota del progetto, (Centrale di Gorla), September 2011-April 2012. Committente: Comune di Milano. Principal investigator **A. Zanini**

Convenzione di ricerca per la realizzazione del modello fisico del manufatto di regolazione della cassa di espansione sul fiume Panaro nel comune di San Cesario (MO). 2010- 2011.

Attività di consulenza specialistica consistente nell'attività di impostazione e realizzazione del modello concettuale per un modello idrogeologico nell'ambito del progetto FOKS (Focus On Key Sources of environmental risks). 2010-2011, Comune di Milano.

Studio delle interazioni tra grandi opere di sbarramento fluviale e sistema acquifero sotterraneo, in riferimento anche alle pressioni interstiziali che si propagano alle fondazioni delle opere di sbarramento: sviluppo di un modello concettuale di comportamento su base fisico-matematica e sperimentazioni sulla cassa di espansione del torrente Parma nei comuni di Parma e Basilicanova. 2007.

Convenzione di collaborazione scientifica per la realizzazione del modello della cassa di espansione dei torrenti rio Torto e Chisola, 2006.

Gestione integrata e sostenibile delle risorse idriche in differenti contesti territoriali. Pro-

getto di interesse strategico nazionale (fondi MIUR in cofinanziamento), April 2004 - April 2005.

Modellazione stocastica del trasporto di inquinante con decadimento radioattivo in un mezzo poroso eterogeneo insaturo, programma di ricerca scientifica di rilevante interesse nazionale (COFIN), December 2004 - December 2006.

Modelli matematici diretti e inversi della migrazione di contaminanti delle acque sotterranee, programma di ricerca scientifica di rilevante interesse nazionale (COFIN), December 2002 - December 2004.

Modello matematico della falda di pertinenza della società Sangemini, 2002-2003.

## Journal Papers

1. Cupola F., Menozzi E., **Zanini A.** (2025). *Analisi dei dati nella gestione dei rifiuti urbani nel comune di Fidenza*. Ingegneria dell'Ambiente Vol. 12 n. 2/2025.
2. Fagandini C., D'Oria M., Todaro V., **Zanini A.** (2025). *Comparison Between Empirical Bayes Combined with Akaike's Bayesian Information Criterion and Ensemble Smoother with Multiple Data Assimilation to Evaluate Geophysical Data*. Math Geosci (2025). doi:10.1007/s11004-025-10219-z
3. Delmonte, N., Spaggiari, D., Chiorboli, G., Fagandini, C., **Zanini, A.** (2025). *An electrical resistivity tomography system for imaging at laboratory scale*. Measurement, 252, 117366. doi:10.1016/j.measurement.2025.117366
4. **Zanini A.**, Celico, F. (2025) *Advances in Aquifer Systems Analysis: Flows, Interactions, Quality Status, and Remediation*. Water, 17, 421. doi:10.3390/w17030421
5. Secci D., Saysel A.K., Uygur İ., Yoloğlu, O.C., **Zanini A.**, Coptý N.K. (2024) *Modeling for sustainable groundwater management: Interdependence and potential complementarity of process-based, data-driven and system dynamics approaches*. Sci. Total Environ. 951, 175491. doi:10.1016/j.scitotenv.2024.175491
6. Fagandini C., Todaro V., Escada C., Azevedo L., Gómez-Hernández J.J., **Zanini A.** (2024) *Coupled hydrogeophysical inversion through ensemble smoother with multiple data assimilation and convolutional neural network for contaminant plume reconstruction*. Stoch. Environ. Res. Risk Assess. doi:10.1007/s00477-024-02800-5
7. **Zanini A.**, D'Oria M. (2024) *Special Issue: Geostatistics Applied to Environmental Applications*. Math Geosci 56:1–2. doi:10.1007/s11004-023-10131-4
8. Pereira J.L., Gómez-Hernández J.J., **Zanini A.**, Varouchakis E.A., Azevedo L. (2023) *Iterative Geostatistical Electrical Resistivity Tomography Inversion*. Hydrogeology Journal. doi:10.1007/s10040-023-02683-w
9. Todaro V., D'Oria M., **Zanini A.**, Gómez-Hernández J.J., Tanda M.G. (2023) *Experimental sandbox tracer tests to characterize a two-facies aquifer via an Ensemble Smoother*. Hydrogeology Journal. doi:10.1007/s10040-023-02662-1
10. Fagandini, C., Todaro, V., Tanda, M.G., Pereira J.L., Azevedo L., **Zanini A.** (2023) *Missing Rainfall Daily Data: A Comparison Among Gap-Filling Approaches*. Math Geosci. doi:10.1007/s11004-023-10078-6
11. Feo A., Celico F., **Zanini A.** (2023) *Migration of DNAPL in Saturated Porous Media: Validation of High-Resolution Shock-Capturing Numerical Simulations through a Sandbox Experiment*. Water 15:1471. <https://doi.org/10.3390/w15081471>

12. Chen Z., Xu T., Gómez-Hernández JJ, **Zanini A.**, Zhou Q. (2023), *Reconstructing the release history of a contaminant source with different precision via the ensemble smoother with multiple data assimilation*. J Contam Hydrol 252:104115. <https://doi.org/10.1016/j.jconhyd.2022.104115>
13. Todaro V., D'Oria M., Secci D., **Zanini A.**, Tanda M.G. (2022), *Climate Change over the Mediterranean Region: Local Temperature and Precipitation Variations at Five Pilot Sites*. Water 14, 2499. doi.: 10.3390/w14162499.
14. Secci D., Molino L., **Zanini A.** (2022), *Contaminant source identification in groundwater by means of Artificial Neural Network*. Journal of Hydrology, Volume 611. doi: 10.1016/j.jhydrol.2022.128003.
15. Giuliani F., Petrolo D., Chiapponi L., **Zanini A.**, Longo S., (2021), *Advancement in measuring the hydraulic conductivity of porous asphalt pavements*. Construction and Building Materials. Volume 300, 124110. doi: 10.1016/j.conbuildmat.2021.124110
16. **Zanini A.**, Ghirardi M., Emiliani R., (2021), *A Multidisciplinary Approach to Evaluate the Effectiveness of Natural Attenuation at a Contaminated Site*. Hydrology. 8(3):101. doi: 10.3390/hydrology8030101
17. **Zanini A.**, Feo A., Petrella E., Celico F., (2021), *Groundwater Modelling in Karst Areas*. Water. 2021 13(6):854. doi: 10.3390/w13060854
18. Chen Z., Xu T., Gómez-Hernández J.J., **Zanini A.**, (2021), *Contaminant Spill in a Sandbox with Non-Gaussian Conductivities: Simultaneous Identification by the Restart Normal-Score Ensemble Kalman Filter*. Math Geosci. doi: 10.1007/s11004-021-09928-y
19. Jamshidi A., Samani J.M.V., Samani H.M.V., **Zanini A.**, Tanda M.G., Mazaheri, M. (2020), *Solving Inverse Problems of Unknown Contaminant Source in Groundwater-River Integrated Systems Using a Surrogate Transport Model Based Optimization*, Water, 12, 2415. doi: 10.3390/w12092415
20. **Zanini A.**, D'Oria M., Tanda M.G., Woodbury A.D. (2020), *Coupling Empirical Bayes and Akaike's Bayesian Information Criterion to Estimate Aquifer Transmissivity Fields*, Mathematical Geosciences. doi: 10.1007/s11004-019-09850-4
21. Feo A., **Zanini A.**, Petrella E., Hernández-Díaz R., Celico F. (2019), *Analysis of the Saltwater Wedge in a Coastal Karst Aquifer with a Double Conduit Network, Numerical Simulations and Sensitivity Analysis*. Water, 11, 2311. doi: 10.3390/w11112311
22. Hernández-Díaz R., Petrella E., Bucci A., Naclerio G., Feo A., Sferra G., Chelli A., **Zanini A.**, Gonzalez-Hernandez P., Celico F. (2019), *Integrating Hydrogeological and Microbiological Data and Modelling to Characterize the Hydraulic Features and Behaviour of Coastal Carbonate Aquifers: A Case in Western Cuba*. Water, 11, 1989. doi: 10.3390/w11101989
23. D'Oria M., **Zanini A.** (2019), *Characterization of hydraulic heterogeneity of alluvial aquifer using natural stimuli: A field experience of Northern Italy*, Water 11(1) 176. doi: 10.3390/w11010176
24. **Zanini A.**, Petrella E., Sanangelantoni A.M., Angelo L., Ventosi B., Viani L., Rizzo P., Remelli S., Bartoli M., Bolpagni R., Chelli A., Feo A., Francese R., Iacumin P., Menta C., Racchetti E., Selmo E.M., Tanda M.G., Ghirardi M., Boggio P., Pappalardo F., De Nardo M.T., Segadelli S., Celico F. (2019), *Groundwater characterization from an ecological and human perspective: an interdisciplinary approach in the Functional Urban Area of Parma, Italy*, Rend. Fis. Acc. Lincei, 30(1), pp 93-108. doi: 10.1007/s12210-018-0748-x
25. Chen Z., Gómez-Hernández J.J., Xu T., **Zanini A.** (2018), *Joint identification of contaminant source and aquifer geometry in a sandbox experiment with the restart ensemble Kalman filter*, Journal of Hydrology, 564:1074-1084. doi: 10.1016/j.jhydrol.2018.07.073
26. Petrella E., Bucci A., Ogata K., **Zanini A.**, Naclerio G., Chelli A., Francese R.,

- Boschetti T., Pittalis D., Celico F. (2018), *Hydrodynamics in evaporate-bearing fine-grained successions investigated through an interdisciplinary approach: a test study in Southern Italy*, *Geofluids*, vol. 2018, Article ID 5978597, 15 pages, 2018. doi: 10.1155/2018/5978597
27. Chelli A., **Zanini A.**, Petrella E., Feo A., Celico F. (2018), *A multidisciplinary procedure to evaluate and optimize the efficacy of hydraulic barriers in contaminated sites: a case study in Northern Italy*, *Environmental Earth Sciences*, 77: 246. doi: 10.1007/s12665-018-7420-8
  28. D’Oria M., **Zanini A.**, Cupola F. (2018), *Oscillatory pumping test to estimate aquifer hydraulic parameters in a Bayesian Geostatistical framework*, *Mathematical Geosciences*, 50(2):169-186. doi: 10.1007/s11004-017-9717-7
  29. Feo A., **Zanini A.**, Petrella E., Celico F. (2018), *A Python script to compute isochrones for MODFLOW*, *Groundwater*, 56(2): 343–349. doi: 10.1111/gwat.12588
  30. **Zanini A.**, Tanda M.G., Woodbury A.D. (2017), *Identification of Transmissivity Fields using a Bayesian strategy and perturbative approach*, *Advances in Water Resources*, Volume 108, 2017, Pages 69-82, ISSN 0309-1708. doi: 10.1016/j.advwatres.2017.07.022
  31. Segadelli S., Vescovi P., Ogata K., Chelli A., **Zanini A.**, Boschetti T., Petrella E., Toscani L., Gargini A., Celico F. (2017), *A conceptual hydrogeological model of ophiolitic aquifers (serpentinised peridotite): The test example of Mt. Prinzera (Northern Italy)*. *Hydrological Processes*. 2017;31:1058–1073. doi: 10.1002/hyp.11090
  32. **Zanini A.**, Woodbury A.D. (2016), *Contaminant source reconstruction by empirical Bayes and Akaike’s Bayesian Information Criterion*, *Journal of Contaminant Hydrology*. doi: 10.1016/j.jconhyd.2016.01.006
  33. Cupola F., Tanda M.G., **Zanini A.** (2015), *Contaminant release history identification in 2-D heterogeneous aquifers through a minimum relative entropy approach*, *SpringerPlus* 2015, 4:656. doi: 10.1186/s40064-015-1465-x
  34. Cupola F., Tanda M.G., **Zanini A.** (2015), *Laboratory estimation of dispersivity coefficients*, *Procedia Environ. Sci.*, Volume: 25, pp 74-81. doi: 10.1016/j.proenv.2015.04.011
  35. D’Oria M., Lanubile R., **Zanini A.** (2015), *Bayesian Estimation of a highly parametrized hydraulic conductivity field: a Study case*. *Procedia Environmental Sciences*, Volume: 25, Pages 82–89. doi: 10.1016/j.proenv.2015.04.012
  36. Citarella, D., Cupola F., Tanda M.G., **Zanini A.** (2015), *Evaluation of dispersivity coefficients by means of a laboratory image analysis*, *Journal of Contaminant Hydrology*, 172(0), 10-23. doi: 10.1016/j.jconhyd.2014.11.001
  37. Cupola F., Tanda M.G., **Zanini A.** (2015), *Laboratory sandbox validation of pollutant source location methods*, *Stochastic Environmental Research and Risk Assessment*, January 2015, Volume 29, Issue 1, pp 169-182, Springer Berlin/Heidelberg, ISSN: 1436-3240 (online) 1436-3259 (cartaceo). doi: 10.1007/s00477-014-0869-4
  38. Gzyl G., **Zanini A.**, Frączek R., Kura K. (2014), *Contaminant source and release history identification in groundwater: a multi-step approach*, Vol 157, pp 59-72, *Journal of Contaminant Hydrology*. doi: 10.1016/j.jconhyd.2013.11.006, ISSN: 0169-7722
  39. Butera I., Tanda M.G., **Zanini A.** (2013), *Simultaneous identification of the Pollutant Release History and the Source Location in Groundwater by means of a Geostatistical Approach*, Volume 27, Issue 5, pp 1269-1280, *Stochastic Environmental Research and Risk Assessment*, Springer Berlin / Heidelberg, ISSN: 1436-3240 (online) 1436-3259 (cartaceo). doi: 10.1007/s00477-012-0662-1
  40. Alberti L., Lombi S., **Zanini A.** (2011), *Identifying sources of chlorinated aliphatic hydrocarbons in a residential area in Italy using the integral pumping test method*,

Hydrogeology Journal 19(6): 1253-1267, Springer Berlin / Heidelberg, ISSN:1431-2174 (Print) 1435-0157 (Online). doi: 10.1007/s10040-011-0742-1

41. **Zanini A.**, Kitanidis P. K. (2009), *Geostatistical inversing for large-contrast transmissivity fields*, Stochastic Environmental Research and Risk Assessment, 23:565–577, Springer Berlin / Heidelberg, ISSN: 1436-3240 (online) 1436-3259 (cartaceo). doi: 10.1007/s00477-008-0241-7
42. Butera I., Tanda M.G., **Zanini A.** (2006), *Use of numerical modeling to identify the transfer function and application to the geostatistical procedure in the solution of inverse problems in groundwater*, Journal of Inverse and Ill-Posed Problems, Volume 14(6), pp. 547-572(26), W De Gruyter, Berlin New York, ISSN: 0928-0219. doi: 10.1163/156939406778474532
43. Tanda M.G., Butera I., **Zanini A.** (2006), *The recovering of the pollutant release history in aquifer with non uniform transport process*, IGEA, 21-2006, supplemento a GEAM, A. XLIII, n. 3, September 2006, ISSN: 1121-9041, Genesi Gruppo Editoriale, Città di Castello PG.
44. **Zanini A.**, Alberti L., Ceccon S., Bauer S., Ptak T., Tanda M.G. (2004), *Application of the integral investigation pumping test in Milano*, IGEA, 19-2004, supplemento a GEAM, A. XLI, n. 3, September 2004, ISSN: 1121-9041, Litografia Geda, Nichelino TO.

## Report and Conference Papers

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2. Secci D., Saysel A.K., Uygur I., Yoloğlu O.C., **Zanini A.**, Coptly N.K. (2024) *Water Resource Management in the Konya Closed Basin: Insights of Process-Based, Data-Driven, and System Dynamics Modeling Approaches*, Sustain Istanbul 2024 Book of Abstracts, ISBN: 978-625-00-2417-1, Sustain Istanbul -Towards Sustainable Groundwater Use under Changing Climate, Istanbul 9-11 ottobre 2024.
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## Project's Report

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2. Todaro V., Secci D., D'Oria M., Tanda M.G., **Zanini A.** (2023). *InTheMed D3.2 Report on Surrogate Models in the Case Studies*. Zenodo. doi:10.5281/zenodo.6597537
3. D'Oria M., Secci D., Tanda M.G., Todaro V., **Zanini A.** (2023). *InTheMED D3.1 Selection of the Smart Model Types Suitable for Application to Groundwater Systems - Application Examples*. Zenodo. doi:10.5281/zenodo.8160059
4. D'Oria M., Secci D., Tanda M.G., Todaro V., **Zanini A.** (2022). *InTheMED D3.3 Data Archive Containing the Downscaled Climate Projections in the Case Studies (1.0)*. Zenodo. doi:10.5281/zenodo.7248044
5. Tanda M.G., **Zanini A.**, Uribe Asarta J., Gómez Hernández J.J., Almeida De Godoy V. (2022). *InTheMED D3.1 Selection of the Smart Model Types Suitable for Application to Groundwater Systems*. doi:10.5281/zenodo.5149787
6. Report AMIIGA Project (2016-2019)
7. **Zanini et al.** (2012), *WP3 Report: Testing and evaluation of the numerical modeling tool*, Report progetto europeo FOKS.
8. **Zanini A.**, Alberti L., Lorenzo C., De Salvia A., Bagnato F. (2012), Chapter 4 *Transnational Guideline for Implementing Innovative Tools for Remediation*, edited by L. Trzaski, G. Gzyl, J. Gzyl, Stampato da Drukarnia Progress Sp. z o.o., ISBN 978-83-930319-4-8 Katowice, March 2012.
9. Busoni S., De Salvia A., Pedron R., Bertolodo S., **Zanini A.**, Bagnato F. (2011), Section 8 *FOKS Handbook for Integral Groundwater Investigation, Toolbox for the identification of key sources of groundwater contamination*, edited by T. Ertel, Stampato da Grafiche S. Vito Biban di Carbonera (TV), November 2011.
10. Ptak, T., Jarsjö, J., Kirchholtes, H., Schäfer, G., Tanda, M. G., Teutsch, G., **Zanini, A.**, Zeru, A. (2003), *Delimiting of potential contamination source zones*. Integrated Concept for Groundwater Remediation - INCORE. UW Umweltwirtschaft Stuttgart, May 2003, ISBN: 3-00-0111706-7.
11. Ptak, T., Alberti, L., Bauer, S., Bayer-Raich, M., Ceccon, S., Elsass, P., Holder, T., Kolesar, Ch., Müller, D., Padovani, C., Rinck, G., Schäfer, G., Tanda, M., Teutsch, G.,

**Zanini, A.** (2003), *Integral investigation of groundwater quality*. Integrated Concept for Groundwater Remediation - INCORE. UW Umweltwirtschaft Stuttgart, May 2003, ISBN: 3-00-0111706-7.

## Attended Conferences

- Convegno **Geostatistics for Natural and Energy Resources Dialogues - GeoNERDs**, *Flagstaff, 1-5 Settembre 2025.*
- Workshop **Mathematics for planet Earth (M4E) Workshop, 2024**, *Milano, 11-12 November 2024.*
- Conference **XXXIX Convegno Nazionale di Idraulica e Costruzioni Idrauliche**, *Parma, 15-18 September 2024.*
- Conference **12th International Geostatistics Congress**, *Ponta Delgada (P), 2-6 September 2024.*
- Conference **15th International Conference on Geostatistics for Environmental Applications - geoENV2024**, *Chania (GR), 19-21 June 2024.*
- Seminar **InTheMED Final Meeting**, *Istanbul, 10-13 July 2023.*
- Conference **Sustain Valencia 2022 - Achieving Sustainable Groundwater Management: Promising Directions and Unresolved Challenges**, *Valencia, 5-8 October 2022.*
- Seminar **Second InTheMED Annual Meeting**, *Chania, 12-13 September 2022.*
- Conference **14th International Conference on Geostatistics for Environmental Applications - geoENV2020**, *Parma, 22-24 June 2022.*
- Seminar **IAHR Webinar on Uncertainty in Hydrological Modelling and Water Resources Management**, *Online, 14 October 2021.*
- Seminar **First InTheMED Annual Meeting**, *Online, 16-17 September 2021.*
- Conference **11th International Geostatistics Congress**, *Online, 12-16 luglio 2021.*
- Conference **13th International Conference on Geostatistics for Environmental Applications - geoENV2020**, *Online, 18 giugno 2021.*
- Seminar **InTheMED kick-off meeting**, *Online, 28 April 2020.*
- Conference **AMIIGA Final conference**, *Jawozno (PL), 23-24 October 2019.*
- Seminar **Progetto “AMIIGA” - INTERREG Central Europe: utilizzo di metodologie innovative di indagine nei fenomeni di inquinamento delle acque di falda: Biological Molecular Tools, Compound Specific Isotope Analysis, Indagini Metagenomiche e Isotopi Stabili dell'H<sub>2</sub>O**, *Parma, 29 March 2019.*
- Workshop **Interreg Central Europe AMIIGA Fifth Project Partner Meeting**, *Zadar (HR), 9-11 March 2019.*

- Workshop **Interreg Central Europe AMIIGA Fourth Project Partner Meeting**, *Lubiana (SLO)*, 24-26 September 2018.
- Conference **Strumenti innovativi per la gestione dell'inquinamento diffuso e delle sorgenti puntuali di contaminazione delle acque sotterranee in Remtech**, *Ferrara*, 19 September 2018.
- Conference **12th International Conference on Geostatistics for Environmental Applications, geoENV 2018**, *Belfast (UK)*, 4-6 July 2018.
- Seminar **Solventi clorurati nelle falde acquifere: il progetto "AMIIGA" interreg central europe e altre esperienze regionali**, *Parma*, 4 May 2018.
- Conference **Giornata mondiale dell'Acqua**, *Fontanellato (PR)*, 22 March 2018.
- Workshop **Interreg Central Europe AMIIGA Third Project Partner Meeting**, *Liberec (CZ)*, 5-8 March 2018.
- Workshop **Interreg Central Europe AMIIGA Second Project Partner Meeting**, *Milano*, 11-13 October 2017.
- Workshop **Interreg Central Europe AMIIGA First Project Partner Meeting**, *Stuttgart (DE)*, 14-16 February 2017.
- Workshop **Interreg Central Europe AMIIGA Kick off Meeting**, *Katowice (PL)*, 29-30 September 2016.
- Conference **XXXV Convegno Nazionale di Idraulica e Costruzioni Idrauliche**, *Bologna*, 14-16 September 2016.
- Conference **11th International Conference on Geostatistics for Environmental Applications, geoENV 2016**, *Lisbona (P)*, 5-8 July 2016.
- Conference **AGU Fall meeting 2015**, *San Francisco (USA)*, 14-18 December 2015.
- Conference **42<sup>nd</sup> IAH conference, AQUA 2015**, *Roma*, 13-18 September 2015.
- Workshop **MAGPlan, Clean Groundwater for Stuttgart**, *Stoccarda (DE)*, 6-7 October 2014.
- Conference **IAHR International Groundwater Symposium**, *Perugia* 22-24 September 2014.
- Conference **9th International Conference on Geostatistics for Environmental Applications, geoENV 2012**, *Valencia (ES)*, 19-21 September 2012.
- Conference **XXXIII Convegno Nazionale di Idraulica e Costruzioni Idrauliche**, *Brescia*, 10-14 September 2012.
- Workshop **Il contributo della ricerca allo sviluppo dell'ingegneria delle acque in Italia**, *Pavia*, 10 February 2011.
- Workshop **FOKS Project Partner meeting**, *Treviso*, 17-18 January 2012.
- Conference **Public conference on groundwater protection in Milan and first results from FOKS project**, *Milano*, 13 October 2010.
- Workshop **FOKS Semi Annual meeting**, *Milano*, 11-12 October 2010.

- Conference **IAHR International Groundwater Symposium**, *Valencia (ES)*, 22-24 September 2010.
- Conference **Le acque di superficie e sotterranee e le infrastrutture di trasporto. Dalla pianificazione all'esercizio**, *Roma*, 6-7 May 2010.
- Workshop **Metodologie e tecniche innovative: l'approccio europeo per le tematiche delle acque sotterranee**, *Treviso*, 2 April 2009.
- Conference **AGU Fall meeting 2008**, *San Francisco (USA)*, 15-19 December 2008.
- Workshop **Idrogeologia e gestione delle acque sotterranee: tutela ambientale e salvaguardia della salute umana in Geofluid 2008**, *Piacenza*, 1-4 October 2008.
- Conference **IAHR International Groundwater Symposium**, *Istanbul (TR)*, 18-20 June 2008.
- Workshop **Cassa di espansione del torrente Parma**, *Parma*, 31 May 2007.
- Conference **Water Pollution in natural Porous media at different scales. Assessment of fate, impact and indicators. WAPO<sup>2</sup>**, *Barcellona*, 11-13 April 2007.
- Conference **AGU Fall meeting 2006**, *San Francisco (USA)*, 11-15 December 2006.
- Conference **Gestione delle acque sotterranee e Geologia applicata alla tutela ambientale**, in **Geofluid 2006**, *Piacenza*, 4-6 October 2006.
- Workshop **SAFE infrastrutture, Autorità di bacino del fiume Po 1<sup>a</sup> giornata di lavoro**, *Parma*, 7 June 2006.
- Conference **AGU Fall meeting 2005**, *San Francisco (USA)*, 5-9 December 2005.
- Conference **Aquifer Vulnerability and Risk 2005, 2<sup>nd</sup> Workshop**, *Colorno (PR)*, 21-23 September 2005.
- Seminar **Il campionamento delle acque di scarico, superficiali sotterranee e dei sedimenti. Metodi, problematiche ed esperienze di applicazione**, *Milano*, 5 July 2005.
- Conference **AGU Fall meeting 2004**, *San Francisco (USA)*, 13-17 December 2004.
- Conference **Sviluppo degli studi in sedimentologia degli acquiferi e acque sotterranee in Italia**, *Parma*, 25 June 2004.
- Conference **Saturated and unsaturated zone: Integration of process knowledge into effective models**, *Roma*, 5-7 May 2004.
- Seminar **Bonifiche dei siti contaminati in Europa**, *Milano*, 28 November 2003.
- Conference **Applied Environmental Geology in central and eastern Europe**, *Vienna (A)*, 7-10 October 2003.
- Conference **La difesa idraulica del territorio 2003**, *Trieste*, 10-12 September 2003.
- Conference **Conferenza finale progetto europeo INCORE: Groundwater contamination in urban areas -integrated approaches-**, *Stoccarda (D)*, 25-26 June 2003.
- Seminar **Modellizzazione applicata alle falde acquifere**, *Milano*, 22 May 2003.

Convegno **Contaminated Soil (Consoil) 2003**, *Ghent (B), 12-16 May 2003.*

Seminar **Le acque sotterranee nella pianura padana: studi, gestione e tutela**, *Parma, 10 April 2003.*

Workshop **Per un risparmio sostenibile sull'acqua**, *Torino, 28 March 2003.*

*Parma, December 2025*