



## Serena Ceola - Curriculum Vitae

### Personal information

Name Serena Ceola  
Email serena.ceola@unibo.it  
Nationality Italian  
Date of birth January 11, 1984

### Current position

#### Associate Professor

Department of Civil, Chemical, Environmental and Materials Engineering (DICAM), University of Bologna (UNIBO), Bologna, Italy

### Research statement

Research interests As an environmental engineer with a strong background in hydrology, I am deeply interested in the analysis of hydrological processes related to ecological and human activities both on a local and on a basin-scale perspective. So far, my research activity has been mainly focused on (i) river flow dynamics, being one of the main controls of fluvial ecosystem processes, (ii) flood risk assessment, and (iii) anthropogenic and hydrologic interactions.

Research activities Stochastic analysis of hydrologic and hydraulic variables  
Ecohydrological experimental activity  
Stream ecology  
Hydropower production  
Analysis of remote sensing data for water resources sustainability and water-related risks  
Flood risk assessment  
Anthropogenic and hydrologic interactions

### Employment

Sept 2022 – to date **Associate Professor**, DICAM, UNIBO, Bologna, Italy  
Sept 2019 – Sept 2022 Senior Assistant Professor, DICAM, UNIBO, Bologna, Italy  
Maternity leave: February 4, 2020 – September 18, 2020  
Nov 2014 – Sept 2019 Junior Assistant Professor, DICAM, UNIBO, Bologna, Italy  
Maternity leave: January 24, 2018 – July 31, 2018  
Maternity leave: January 25, 2016 – June 25, 2016  
Feb 2013 - Nov 2014 Postdoctoral Researcher, DICAM, UNIBO, Bologna, Italy

## Education

- Jun 2009 – Dec 2012 **Ph.D., Doctoral Program "Environment"**, Doctoral School in Civil and Environmental Engineering (EDCE), Laboratory of Ecohydrology (ECHO), School of Architecture, Civil and Environmental Engineering (ENAC), École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland.  
Thesis title: **Hydrologic drivers and controls of stream ecological processes**. Advisor: Prof. A. Rinaldo (ECHO, EPFL); co-advisor: Dr. E. Bertuzzo (ECHO, EPFL). Degree awarded on November 7, 2012. The thesis has been awarded by the **EDCE PhD Mobility Award – Honorable Mention**. Part of the work has been published in *Water Resources Research*, *Ecohydrology* and *PLoS ONE*.
- Oct 2006 - Apr 2009 **MSc., Environmental Engineering**, Facoltà di Ingegneria, Università degli Studi di Padova (UNIPD), Padova, Italy.  
Thesis title: **Contributi alla modellazione dei bacini idrografici come sistemi stocastici non lineari: caratterizzazione ed impatto sul regime idrologico** (*Catchments as nonlinear stochastic systems: characterization and impact on the hydrologic regime*). Advisor: Dr. G. Botter (UNIPD); co-advisor: Prof. A. Rinaldo (UNIPD). Mark: **110/110 cum laude**. The thesis has been awarded by the **MSc Degree Award "Claudio Bertuzzi" 2011**. Part of the work has been published in *Water Resources Research*.
- Oct 2003 - Jul 2006 **BSc., Environmental Engineering**, Facoltà di Ingegneria, UNIPD, Padova, Italy.  
Thesis title: **Contributi alla risposta idrologica del fiume Muson dei Sassi** (*Contribution on the hydrologic response of Muson dei Sassi river*). Advisor: Prof. M. Marani (UNIPD); co-advisor: Dr. M. Ferri (Alto Adriatico Water Authority, AAWA). Mark: **110/110 cum laude**. The thesis has been carried out during the 3-month internship at AAWA, Venezia, Italy.

## Qualifications

- 2017-2023 **National Academic Qualification as Associate Professor** sector 08/A1 – Hydraulic, Hydrology, Hydraulic and Maritime Constructions
- Dec 2013 **Qualification as Civil and Environmental Engineer**, UNIPD, Padova, Italy

## Awards

- Apr 2019 **Hydrological Sciences Division Outstanding Early Career Scientist Award**, European Geosciences Union (EGU), Vienna, Austria  
The award recognizes scientific achievements in the field covered by the related division, made by an early career scientist (PhD < 7 years). 1 awardee/year.  
<https://www.egu.eu/awards-medals/division-outstanding-ecs-award/2019/serena-ceola/>
- May 2017 Embassy of Canada award **Canada-Italy Innovation Award 2017**, Rome, Italy  
The Award strengthens the ties between the two countries in the fields of Science, Technology and Innovation. 5 winners/year.
- Sept 2016 GII (Gruppo Italiano d'Idraulica - Italian Hydraulic Group) award **Evangelista Torricelli**, Bologna, Italy  
Best Italian young (<35 years old) researcher in Hydraulic and Hydrology.
- Apr 2015 EGU 2015 **Young Scientist's Travel Award**, EGU General Assembly, 12-17 April 2015, Vienna, Austria  
Economic support for the registration to the EGU General Assembly. Candidates are early career scientists (PhD < 7 years). Approximately 10 awardees/year.

- Dec 2013 Istituto di Studi Avanzati (ISA)-**UNIBO selected candidate for AXA Research Fund (ARF) - Postdoctoral Fellowships**  
Sole candidate at UNIBO.
- Mar 2013 **Pigreco Party Special Award in FameLab Italy 2013**, Bologna, Italy  
(<http://www.youtube.com/watch?v=4KVYUqProQI>)  
Co-anchor in the radio programme "Pigreco Party" at Radio Città del Capo, Bologna, on May 28, 2013, talking about water resources  
(<http://fmblue.formicablu.it/index.php?id=613>)
- May 2011 **MSc Degree Award Claudio Bertuzzi**, Istituto Veneto di Scienze, Lettere ed Arti (IVSLA), Venezia, Italy  
The award recognizes the best Master Thesis in Environmental and Civil Engineering. 1 awardee/2 years.
- May 2011 **EDCE PhD Mobility Award – Honorable Mention**, Doctoral School in Civil and Environmental Engineering (EDCE), EPFL, Lausanne, Switzerland  
The award supports PhD students mobility abroad. 2 awardees/year.

## Publications

**Serena Ceola is author of 25 articles in refereed journals, 3 book chapters, 4 conference proceedings (with review), and editor of a volume.**

**ORCID ID:** <https://orcid.org/0000-0003-1757-509X>

Author-level metrics

	<b>Citations (total #)</b>	<b>Article citations (average #)</b>	<b>H-Index</b>
Scopus	841	30.04	15
Web Of Science	805	28.75	15

## Books

- [b03] P.Mazzoglio, A. Domeneghetti, **S. Ceola**, Flood Detection and Monitoring with EO Data Tools and Systems (Chapter 9) in *Earth Observation for Flood Applications - Progress and Perspectives* (2021), Editor: Guy Schumann, ISBN 9780128194126
- [b02] N. Nagabhatla, T. Avellán, P. Pouramin, M. Qadir, P. Mehta, J. Payne, C. Stefan, S. Hülsmann, T. Abrate, G. Teruggi, F. Pischke, R. Oakes, **S. Ceola**, C. Cudennec, I. Deregibus, S. Kuisma, Physical and environmental dimensions (Chapter 2) in *The United Nations World Water Development Report 2019: Leaving no one behind* (2019), Director of the Publication S. Uhlenbrook, Editor-in-Chief R. Connor, ISBN 978-92-3-100309-7
- [b01] A. Montanari, **S. Ceola**, E. Baratti, A. Domeneghetti, A. Brath, Po River Basin (Chapter 116) in *Handbook of Applied Hydrology- Second Edition* (2017), Editor-in-Chief V. P. Singh, McGraw-Hill Education, ISBN 978-0-07-183509-1

## Edited volumes

- [v01] A. Castellarin, **S. Ceola**, E. Toth, A. Montanari, editors (2014)  
*Evolving Water Resources Systems - Understanding, Predicting and Managing Water - Society Interactions*, IAHS Publication 364, Proceedings of ICWRS2014, Bologna, Italy, June 2014, ISBN 978-1-907161-42-1

## Journal articles under review

**S. Ceola**, G. Grandi, E. Bertuzzo  
Geomorphology and hydroclimate control regional urban expansion

## Peer-reviewed journal articles

- [a25] **S. Ceola**, J. Maard, G. Di Baldassarre (2023)  
Drought and human mobility in Africa  
*Earth's Future*, 11, e2023EF003510  
<https://doi.org/10.1029/2023EF003510>
- [a24] A. Montanari, H. Nguyen, S. Rubineti, **S. Ceola**, S. Galelli, A. Rubino, D. Zanchettin (2023)  
Why the 2022 Po River drought is the worst in the past two centuries  
*Science Advances*, 9, eadg8304  
[10.1126/sciadv.adg8304](https://doi.org/10.1126/sciadv.adg8304)
- [a23] I. Palazzoli, A. Montanari, **S. Ceola** (2023)  
Contribution of anthropogenic and hydroclimatic factors on the variation of surface water extent across the contiguous United States  
*Environmental Research Communications*, 5, 051006  
<https://doi.org/10.1088/2515-7620/acd510>
- [a22] W. Cao, J. Liu, **S. Ceola**, G. Mao, M.G. Macklin, A. Montanari, P. Ciais, Y. Yao, P. Tarolli (2023)  
Landform-driven human reliance on rivers in imperial China  
*Journal of Hydrology*, 620, 129353  
<https://doi.org/10.1016/j.jhydrol.2023.129353>
- [a21] M.M. Kuglitsch, I. Pelivan, **S. Ceola**, M. Menon, E. Xoplaki (2022)  
Facilitating adoption of AI in natural disaster management through collaboration  
*Nature Communications*, 13, 1579  
<https://doi.org/10.1038/s41467-022-29285-6>
- [a20] I. Palazzoli, A. Montanari, **S. Ceola** (2022)  
Influence of urban areas on surface water loss in the contiguous United States  
*AGU Advances*, 3, e2021AV000519.  
<https://doi.org/10.1029/2021AV000519>
- [a19] **S. Ceola**, A. Domeneghetti, G. J.-P. Schumann (2022)  
Unraveling long-term flood risk dynamics across the Murray-Darling basin using a large-scale hydraulic model and satellite data  
*Frontiers in Water*, 3, 797259  
<https://doi.org/10.3389/frwa.2021.797259>
- [a18] **S. Ceola**, F. Laio, A. Montanari (2019)  
Global-scale human pressure evolution imprints on sustainability of river systems  
*Hydrology and Earth System Sciences*, 23, 3933–3944 (Impact Factor, IF=4.936)  
<https://doi.org/10.5194/hess-23-3933-2019>
- [a17] R. Paranunzio, **S. Ceola**, F. Laio, A. Montanari (2019)  
Evaluating the effects of urbanization evolution on air temperature trends using nighttime satellite data (IF=2.046)  
*Atmosphere*, 10(3), 117  
<https://doi.org/10.3390/atmos10030117>

- [a16] Y. Fang, **S. Ceola**, K. Paik, G. McGrath, P.S.C. Rao, A. Montanari, J.W. Jawitz (2018)  
Globally Universal Fractal Pattern of Human Settlements in River Networks  
*Earth's Future*, 6, 1134-1145 (IF= 4.59)  
<https://doi.org/10.1029/2017EF000746>
- [a15] **S. Ceola**, A. Pugliese, M. Ventura, G. Galeati, A. Montanari (2018)  
Hydro-power production and fish habitat suitability: Assessing impact and effectiveness of ecological flows at regional scale  
*Advances in Water Resources*, 116, 29-39 (IF=3.512)  
<https://doi.org/10.1016/j.advwatres.2018.04.002>
- [a14] W. Mangini, A. Viglione, J. Hall, Y. Hundecha, **S. Ceola**, A. Montanari, M. Rogger, J.L. Salinas, I. Borzi, J. Parajka, (2017)  
Detection of trends in magnitude and frequency of flood peaks across Europe  
*Hydrological Sciences Journal*, Vol. 63(4), 493-512 (IF=2.061)  
<https://doi.org/10.1080/02626667.2018.1444766>
- [a13] A. Elshorbagy, A. Lakhanpal, B. Raja, **S. Ceola**, A. Montanari, K.E. Lindenschmidt (2017)  
Topography- and nightlight-based national flood risk assessment in Canada  
*Hydrology and Earth System Sciences*, 21, 2219–2232 (IF=4.256)  
<https://doi.org/10.5194/hess-21-2219-2017>
- [a12] **S. Ceola**, A. Montanari, T. Krueger, F. Dyer, H. Kreibich, I. Westerberg, G. Carr, C. Cudennec, A. Elshorbagy, H. Savenije, P. Van Der Zaag, D. Rosbjerg, H. Aksoy, F. Viola, G. Petrucci, K. MacLeod, B. Croke, D. Ganora, L. Hermans, M.J. Polo, Z. Xu, M. Borga, J. Helmschrot, E. Toth, R. Ranzi, A. Castellarin, A. Hurford, M. Brilly, A. Viglione, G. Blöschl, M. Sivapalan, A. Domeneghetti, A. Marinelli, G. Di Baldassarre (2016)  
Adaptation of water resources systems to changing society and environment: a statement by the International Association of Hydrological Sciences  
*Hydrological Sciences Journal*, 61, 2803-2817 (IF=2.061)  
<http://dx.doi.org/10.1080/02626667.2016.1230674>
- [a11] M.P. Clark, B. Schaeffli, S.J. Schymanski, L. Samaniego, C.H. Luce, B.M. Jackson, J.E. Freer, J.R. Arnold, R.D. Moore, E. Istanbuloglu, **S. Ceola** (2016)  
Improving the theoretical underpinnings of process-based hydrologic models  
*Water Resources Research*, 52, 2350-2365 (IF=4.36)  
<https://doi.org/10.1002/2015WR017910>
- [a10] **S. Ceola**, F. Laio, A. Montanari (2015)  
Human-impacted waters: New perspectives from global high-resolution monitoring  
*Water Resources Research*, 51, 7064–7079 (IF=4.36)  
<https://doi.org/10.1002/2015WR017482>
- [a09] **S. Ceola**, B. Arheimer, E. Baratti, G. Blöschl, R. Capell, A. Castellarin, J. Freer, D. Han, M. Hrachowitz, Y. Hundecha, C. Hutton, G. Lindström, A. Montanari, R. Nijzink, J. Parajka, E. Toth, A. Viglione, T. Wagener (2015)  
Virtual laboratories: new opportunities for collaborative water science  
*Hydrology and Earth System Sciences*, 19, 2101-2117 (IF=4.256)  
<https://doi.org/10.5194/hess-19-2101-2015>
- [a08] **S. Ceola**, F. Laio, A. Montanari (2014)  
Satellite night-time lights reveal increasing human exposure to floods  
*Geophysical Research Letters*, 41, 7184-7190 (IF=4.34)  
<https://doi.org/10.1002/2014GL061859>

- [a07] S. Widder, K. Besemer, G.A. Singer, **S. Ceola**, E. Bertuzzo, C. Quince, W.T. Sloan, A. Rinaldo, T.J. Battin (2014)  
Fluvial network organization imprints on microbial co-occurrence networks  
*Proceedings of the National Academy of Sciences of the United States of America*, 11(35), 12799-12804 (IF=9.504)  
<https://doi.org/10.1073/pnas.1411723111>
- [a06] **S. Ceola**, A. Montanari, D. Koutsoyiannis (2014)  
Toward a theoretical framework for integrated modeling of hydrological change  
*WIREs Water*, 1, 427-438 (IF=3.943)  
<https://doi.org/10.1002/wat2.1038>
- [a05] **S. Ceola**, E. Bertuzzo, G. Singer, T.J. Battin, A. Montanari, A. Rinaldo (2014)  
Hydrologic controls on basin-scale distribution of benthic invertebrates  
*Water Resources Research*, 50, 2903-2920 (IF=4.36)  
<https://doi.org/10.1002/2013WR015112>
- [a04] **S. Ceola**, E. Bertuzzo, L. Mari, G. Botter, I. Hödl, T.J. Battin, M. Gatto, A. Rinaldo (2014)  
Light and hydrologic variability as drivers of stream biofilm dynamics in a flume experiment  
*Ecohydrology*, 7, 391-400 (IF=2.755)  
<https://doi.org/10.1002/eco.1357>
- [a03] R. Mutzner, E. Bertuzzo, P. Tarolli, S.V. Weijs, L. Nicotina, **S. Ceola**, N. Tomasic, I. Rodriguez-Iturbe, M.B. Parlange, A. Rinaldo (2013)  
Geomorphic signatures on Brutsaert base flow recession analysis  
*Water Resources Research*, 49, 5462-5472 (IF=4.36)  
<https://doi.org/10.1002/wrcr.20417>
- [a02] **S. Ceola**, I. Hödl, M. Adlboller, G. Singer, E. Bertuzzo, L. Mari, G. Botter, J. Waringer, T.J. Battin, A. Rinaldo (2013)  
Hydrologic variability affects invertebrate grazing on phototropic biofilms in stream microcosms  
*PLoS ONE*, 8(4): e60629 (IF=2.766)  
<https://doi.org/10.1371/journal.pone.0060629>
- [a01] **S. Ceola**, G. Botter, E. Bertuzzo, A. Porporato, I. Rodriguez-Iturbe, A. Rinaldo (2010)  
Comparative study of ecohydrological streamflow probability distributions  
*Water Resources Research*, 46, W09502 (IF=4.36)  
<https://doi.org/10.1029/2010WR009102>

### Conference proceedings

- [p04] **S. Ceola**, A. Montanari, J. Parajka, A. Viglione, G. Blöschl, F. Laio (2016)  
Human signatures derived from nighttime lights along the Eastern Alpine river network in Austria and Italy  
*Proceedings of the International Association of Hydrological Sciences. Proceedings of ICWRS2016*, Bochum, Germany, June 2016 (IAHS Publ. 373, 2016), pp. 131-136  
<https://doi.org/10.5194/piahs-373-131-2016>
- [p03] **S. Ceola**, F. Laio, A. Montanari (2015)  
Human pressure on rivers is increasing worldwide and threatens water security  
*Hydrological Sciences and Water Security: Past, Present and Future. Proceedings of the 11th Kovacs Colloquium*, Paris, France, June 2014 (IAHS Publ. 366, 2015), pp. 109-110  
<https://doi.org/10.5194/piahs-366-109-2015>



- [p02] A. Montanari, **S. Ceola**, E. Baratti (2014)  
Panta Rhei: an evolving scientific decade with a focus on water systems  
*Evolving Water Resources Systems: Understanding, Predicting and Managing Water–Society Interactions*. Proceedings of ICWRS2014, Bologna, Italy, June 2014 (IAHS Publ. 364, 2014), pp. 279-284  
<https://doi.org/10.5194/piahs-364-279-2014>
- [p01] **S. Ceola**, A. Pugliese (2014)  
Regional prediction of basin-scale brown trout habitat suitability  
*Evolving Water Resources Systems: Understanding, Predicting and Managing Water–Society Interactions*. Proceedings of ICWRS2014, Bologna, Italy, June 2014 (IAHS Publ. 364, 2014), pp. 26-31  
<https://doi.org/10.5194/piahs-364-26-2014>

## Conferences and seminars

The underlined name identifies the presenter

### Invited talks at international conferences or seminars

- [s10] **S. Ceola**  
Climate extremes and changes in human settlement patterns - a focus on droughts in Africa  
*U.S. National Academies of Sciences, Engineering and Medicine – Workshop on Climate Change and Human Migration: An Earth System Science Perspective*  
March 18-19, 2024, online
- [s09] **S. Ceola**  
Model comparison protocol  
*DFG Scientific Network on “Identification and analysis of process limitations in hydrological model structures”*  
November 29-30, 2021, online
- [s08] **S. Ceola**  
Hydrologic drivers and controls of stream ecological processes  
*Clemson University (USA), Seminar for the course BE 4240/6240 Ecological Engineering*,  
February 18, 2021, online
- [s07] **S. Ceola**  
Invited Panelist – AGU-JpGU-EGU Great Debate: What Is the Future Earth, Environmental, and Space Science, and Who Are the Future Scientists?  
*AGU Fall Meeting 2019*, San Francisco, USA
- [s06] **S. Ceola**  
A worldwide analysis of human-water interactions using satellite data  
*University of Bergen, Coastal Change 21 Workshop: Predicting flooding and challenging shorelines for the 21<sup>st</sup> century: Interaction and feedbacks between nature and society*  
October 31, 2019, Bergen, Norway
- [s05] **S. Ceola**  
Human-impacted rivers: new perspectives from global high-resolution monitoring  
*EGU General Assembly 2019*, Vienna, Austria (Lecture **Hydrological Sciences Division Outstanding Early-Career Scientist Award**)
- [s04] **S. Ceola**  
Worldwide analysis of human-water interactions using nighttime lights  
*Global Institute for Water Security – University of Saskatchewan*  
September 5, 2017, Saskatoon, Canada (seminar delivered within the **Canada-Italy Innovation Award 2017**)

[s03] **S. Ceola**  
Human-impacted waters: temporal evolution of human proximity to rivers from global high resolution nighttime lights  
*Italian National Committee of IHP-UNESCO and MOXXI-LAHS Working Group Workshop "New insights for hydrological observations"*  
June 14, 2017, Perugia, Italy

[s02] **S. Ceola**  
A worldwide analysis of human exposure to floods by using satellite nighttime lights  
*EPFL Environmental Engineering Institute, Environmental Engineering Seminar Series*,  
May 19, 2015, Lausanne, Switzerland

[s01] **S. Ceola**, A. Montanari, F. Laio  
A worldwide analysis of human exposure to floods by using satellite nighttime lights  
*EGU General Assembly 2015*, Vienna, Austria

#### **Invited talks at national conferences or seminars**

[t02] **S. Ceola**  
La ricerca universitaria per la gestione e la manutenzione delle dighe: (1) Studio dell'effetto indotto da diversi scenari di Deflusso Minimo Vitale sul potenziale di produzione idroelettrica e sull'habitat fluviale dell'ittiofauna nella regione Marche  
*Open Day on Dams 2019: progettazione, gestione e manutenzione delle opere di sbarramento*,  
Bologna, Italy, February 19, 2019

[t01] **S. Ceola**  
Antropizzazione degli ambiti fluviali: impatto sul rischio idrologico e sui processi ecologici  
*XXXV Convegno nazionale di Idraulica e Costruzioni Idrauliche*, Bologna, Italy,  
September 14-16, 2016 (Lecture **Evangelista Torricelli** Award)

#### **International conferences**

[i55] **I. Palazzoli**, W. Zhao, **S. Ceola**, P. Gentile  
A Machine-Learning Model of Terrestrial Water Storage Changes at the Global Scale  
*AGU Fall Meeting 2022*, Chicago & Online

[i54] **I. Palazzoli**, **S. Ceola**, A. Montanari  
Anthropogenic and Climatic Factors Contributing to the Change in Surface Water Extent across the Contiguous United States  
*AGU Fall Meeting 2022*, Chicago & Online

[i53] **S. Ceola**, J. Maard, G. Di Baldassarre  
Exploring the interplay between human distance to rivers and drought events across Africa  
*LAHS XIth Scientific Assembly*, Montpellier, France

[i52] I. Palazzoli, A. Montanari, **S. Ceola**  
Spatial influence of urban areas on surface water loss across the contiguous United States  
*LAHS XIth Scientific Assembly*, Montpellier, France

[i51] I. Palazzoli, A. Montanari, **S. Ceola**  
Spatial distribution of surface water losses from urban areas across the contiguous United States  
*EGU General Assembly 2022*, Vienna & online



- [i50] **S. Ceola**, G. Grandi, E. Bertuzzo  
Geomorphic and hydrologic controls on urban expansion from 1992 to 2013 across North-East China  
*AGU Fall Meeting 2021*, New Orleans & Online
- [i49] **S. Ceola**, J. Maard, G. Di Baldassarre  
Exploring the interplay between human distance to rivers and drought events across Africa  
*AGU Fall Meeting 2021*, New Orleans & Online
- [i48] **I. Palazzoli**, A. Montanari, **S. Ceola**  
Contribution of Anthropogenic and Climatic Drivers on the Variation of Surface Water Extent Across the Contiguous United States  
*AGU Fall Meeting 2021*, New Orleans & Online
- [i47] **I. Palazzoli**, **S. Ceola**  
Spatial Influence of Urban Areas on Surface Water Loss Across the Contiguous United States  
*AGU Fall Meeting 2021*, New Orleans & Online
- [i46] **H. Kreibich**, D. Yu, N. Brozovic, **S. Ceola**, C. Flint, M. Madruga de Brito, K. Quesnel, K. Schroter, D. Walker  
Panta Rhei synthesis – A vision for human-water systems data  
*1<sup>st</sup> Sociohydrology Conference 2021*, Delft & Online
- [i45] **I. Palazzoli**, A. Montanari, **S. Ceola**  
Influence of urban areas on surface water loss across the contiguous United States  
*1<sup>st</sup> Sociohydrology Conference 2021*, Delft & Online
- [i44] **I. Palazzoli**, A. Montanari, **S. Ceola**  
Influence of urban areas on surface water loss across USA watersheds  
*EGU General Assembly 2021*, online
- [i43] **S. Ceola**, **I. Palazzoli**  
Contribution of urbanization and climate variability on surface water depletion across USA watersheds  
*EGU General Assembly 2021*, online
- [i42] **I. Palazzoli**, **S. Ceola**  
Urbanization influence on surface water loss across USA watersheds  
*AGU Fall Meeting 2020*, online
- [i41] **I. Palazzoli**, **S. Ceola**  
Anthropogenic and climatic controls on surface water loss across USA  
*EGU General Assembly 2020*, online
- [i40] **S. Ceola**, F. Laio, A. Montanari  
Global-Scale Human Pressure Evolution Imprints on Sustainability of River Systems  
*AGU Fall Meeting 2019*, San Francisco, USA
- [i39] **I. Palazzoli**, **S. Ceola**  
Anthropogenic and climatic controls on surface water decrease across USA  
*AGU Virtual Poster Showcase 2019*, online
- [i38] **S. Ceola**, G. Chiari, R. Genovesi, A. Montanari  
The experience of Irriframe and Acqua Campus® innovations in irrigation systems across Italy  
*EGU General Assembly 2019*, Vienna, Austria

- [i37] G. Grandi, **S. Ceola**, E. Bertuzzo  
Geomorphic and hydrologic controls on urban expansion  
*EGU General Assembly 2019*, Vienna, Austria
- [i36] A. Domeneghetti, **S. Ceola**, P. Colanzi, G. Schumann  
Evaluation of flood risk evolution on the Murray-Darling Basin (Australia) from 1975 to 2014 combining a hydrodynamic model and remote sensing data  
*EGU General Assembly 2018*, Vienna, Austria
- [i35] G. Galeati, **S. Ceola**, A. Pugliese, A. Castellarin, M. Ventura, A. Montanari  
Hydropower Production and Fish Habitat Suitability: Impact and Effectiveness of Environmental Flow Prescriptions  
*AGU Fall Meeting 2017*, New Orleans, USA
- [i34] **S. Ceola**, F. Laio, A. Montanari  
Increasing human pressure on freshwater resources threatens sustainability at the global scale  
*AGU Fall Meeting 2017*, New Orleans, USA
- [i33] **S. Ceola**, A. Pugliese, G. Galeati, A. Castellarin  
Hydropower production and fish habitat suitability: impact and effectiveness of environmental flow prescriptions  
*LAHS Scientific Assembly 2017*, Port Elizabeth, South Africa
- [i32] B. Arheimer, G. Boot, J. Calero, **S. Ceola**, F. Gyllensvärd, M. Hrachowitz, L. Little, A., R. Nijzink, J. Parajka, T. Wagener  
The SWITCH-ON Virtual Water-Science Laboratory  
*EGU General Assembly 2017*, Vienna, Austria
- [i31] **S. Ceola**, A. Ruggeri, A. Elshorbagy, F. Laio, A. Montanari  
Remote sensing data as a proxy of the anthropogenic-induced pollution of river basins  
*EGU General Assembly 2017*, Vienna, Austria
- [i30] **S. Ceola**, A. Pugliese, G. Galeati, A. Castellarin  
Hydropower production and fish habitat suitability: impact and effectiveness of environmental flow prescriptions  
*EGU General Assembly 2017*, Vienna, Austria
- [i29] **S. Ceola**, A. Montanari, F. Laio  
Night-time lights as a proxy of human pressure on freshwater resources  
*EGU General Assembly 2017*, Vienna, Austria
- [i28] Y. Fang, **S. Ceola**, K. Paik, G.S. McGrath, A. Montanari, P.S. Rao, J.W. Jawitz, K. McCurley  
River Networks and Human Activities: Global Fractal Analysis Using Nightlight Data  
*AGU Fall Meeting 2016*, San Francisco, USA
- [i27] B. Raja, A. Lakhanpal, A. Elshorbagy, S. Razavi, **S. Ceola**, A. Montanari  
Framework for National Flood Risk Assessment for Canada  
*AGU Fall Meeting 2016*, San Francisco, USA
- [i26] **S. Ceola**, A. Montanari, J. Parajka, A. Viglione, G. Bloeschl  
Nightlights along the Eastern Alpine river network in Austria and Italy as a proxy of human presence  
*EGU General Assembly 2016*, Vienna, Austria
- [i25] J. Parajka, W. Mangini, A. Viglione, Y. Hundecha, **S. Ceola**  
Pan-European catalogue of flood events  
*EGU General Assembly 2016*, Vienna, Austria

- [i24] **S. Ceola**, F. Laio, A. Montanari  
Human-impacted waters: New perspectives from global high-resolution monitoring  
*Earth and Space Science AGU Virtual Poster Showcase 2015*
- [i23] **S. Ceola**, A. Pugliese, A. Castellarin, G. Galeati  
Impact of Alternative Environmental Flow Prescriptions on Hydropower Production and Fish Habitat Suitability  
*AGU Fall Meeting 2015*, San Francisco, USA
- [i22] **S. Ceola**, F. Laio, A. Montanari  
Human-impacted waters: temporal evolution of human proximity to rivers from global high-resolution nighttime lights  
*AGU Fall Meeting 2015*, San Francisco, USA
- [i21] **S. Ceola**, F. Laio, A. Montanari  
Satellite nighttime lights reveal increasing human exposure to floods worldwide  
*EGU General Assembly 2015*, Vienna, Austria
- [i20] **S. Ceola**, A. Pugliese, A. Castellarin, G. Galeati  
Impact of alternative environmental flow prescriptions on hydropower production and fish habitat suitability  
*EGU General Assembly 2015*, Vienna, Austria
- [i19] **S. Ceola**, B. Arheimer, G. Bloeschl, E. Baratti, R. Capell, A. Castellarin, J. Freer, D. Han, M. Hrachowitz, Y. Hundecha, C. Hutton, G. Lindström, A. Montanari, R. Nijzink, J. Parajka, E. Toth, A. Viglione, T. Wagener  
Virtual laboratories: new opportunities for collaborative water science  
*EGU General Assembly 2015*, Vienna, Austria
- [i18] A. Montanari, **S. Ceola**, E. Baratti  
Panta Rhei: an evolving scientific decade with a focus on water systems  
*Evolving Water Resources Systems: Understanding, Predicting and Managing Water–Society Interactions 2014*, Bologna, Italy
- [i17] **S. Ceola**, A. Pugliese  
Regional prediction of basin-scale brown trout habitat suitability  
*Evolving Water Resources Systems: Understanding, Predicting and Managing Water–Society Interactions 2014*, Bologna, Italy
- [i16] **S. Ceola**, E. Bertuzzo, G. Singer, T.J. Battin, A. Montanari, A. Rinaldo  
Spatially-explicit hydrologic controls on benthic invertebrate habitat suitability  
*EGU General Assembly 2014*, Vienna, Austria
- [i15] **S. Ceola**, F. Laio, A. Montanari  
How close do we live to streams and rivers? A spatio-temporal analysis of flood risk vulnerability using nightlight data  
*EGU General Assembly 2014*, Vienna, Austria
- [i14] T.J. Battin, K. Besemer, S. Widder, G.A. Singer, **S. Ceola**, E. Bertuzzo, C. Quince, W.T. Sloan, A. Rinaldo  
Fluvial network imprints on microbial diversity and community network topology  
*AGU Fall Meeting 2013*, San Francisco, USA
- [i13] R. Mutzner, E. Bertuzzo, P. Tarolli, S.V. Weijs, L. Nicotina, **S. Ceola**, N. Tomasic, I. Rodriguez-Iturbe, M.B. Parlange, A. Rinaldo  
Geomorphic signatures on Brutsaert base flow recession analysis: case study of 27 Swiss catchments  
*AGU Fall Meeting 2013*, San Francisco, USA

- [i12] **S. Ceola**, F. Laio, A. Montanari  
World-wide satellite night-light data as a proxy of society-hydrology interaction and vulnerability to flood risk  
*AGU Fall Meeting 2013*, San Francisco, USA
- [i11] E. Bertuzzo, **S. Ceola**, G.A. Singer, T.J. Battin, A. Montanari, A. Rinaldo  
Hydrologic controls on basin-scale distribution of benthic macroinvertebrates  
*AGU Fall Meeting 2013*, San Francisco, USA
- [i10] **S. Ceola**, A. Montanari, F. Laio  
Flood risk assessment by remote sensing estimation of spatial proximity of human settlements to river reaches  
*5th EGU Leonardo Conference 2013*, Kos, Greece
- [i09] **S. Ceola**, E. Bertuzzo, L. Mari, G. Botter, I. Hödl, T.J. Battin, M. Gatto, A. Montanari, A. Rinaldo  
Hydrologic and light variability as drivers of stream biofilm-invertebrate dynamics  
*EGU General Assembly 2013*, Vienna, Austria
- [i08] **S. Ceola**, I. Hödl, M. Adlboller, G. Singer, E. Bertuzzo, L. Mari, G. Botter, T.J. Battin, M. Gatto, A. Rinaldo  
Hydrologic variability enhances stream biofilm grazing by invertebrates  
*AGU Fall Meeting 2012*, San Francisco, USA
- [i07] A. Rinaldo, M. Parlange, R. Mutzner, N. Tomasic, **S. Ceola**, E. Bertuzzo, I. Rodriguez-Iturbe  
On the Brutsaert baseflow recessions and their geomorphic origins  
*Hydrologic discovery through physical analysis honoring the scientific legacies of Wilfried H. Brutsaert and Jean-Yves Parlange Symposium 2012*, Cornell University, Ithaca, USA
- [i06] **S. Ceola**, E. Bertuzzo, L. Mari, G. Botter, I. Hödl, T.J. Battin, A. Rinaldo  
Hydrologic drivers and controls of stream biofilm-grazer interactions  
*EGU General Assembly 2012*, Vienna, Austria
- [i05] **S. Ceola**, E. Bertuzzo, L. Mari, G. Botter, I. Hödl, T.J. Battin, A. Rinaldo  
Hydrologic drivers and controls of stream-biofilm grazer interactions  
*AGU Fall Meeting 2011*, San Francisco, USA
- [i04] **S. Ceola**, G. Botter, E. Bertuzzo, L. Mari, I. Rodriguez-Iturbe, A. Rinaldo  
Hydrologic controls on river trophic dynamics  
*EGU General Assembly 2011*, Vienna, Austria
- [i03] A. Rinaldo, E. Bertuzzo, L. Mari, S. Suweis, **S. Ceola**, F. Carrara, I. Rodriguez-Iturbe  
River networks as ecological corridors for species, populations and pathogens of water-borne disease  
*AGU Fall Meeting 2010*, San Francisco, USA
- [i02] **S. Ceola**, G. Botter, E. Bertuzzo, L. Mari, I. Rodriguez-Iturbe, A. Rinaldo  
Ecohydrological streamflow distributions and hydraulic food-chain models  
*AGU Fall Meeting 2010*, San Francisco, USA
- [i01] **S. Ceola**, G. Botter, E. Bertuzzo, A. Porporato, I. Rodriguez-Iturbe, A. Rinaldo  
Comparative study of ecohydrological probability distributions  
*Latsis Symposium 2010*, Lausanne, Switzerland

#### **National conferences**

- [n08] I. Palazzoli, S.Ceola, A. Montanari  
Urbanization effects on surface water loss across the contiguous United States  
*XXXVIII Convegno nazionale di Idraulica e Costruzioni Idrauliche*, Reggio Calabria, Italy, September 4-7, 2022
- [n07] I. Palazzoli, S. Ceola  
Anthropogenic controls on surface water loss across USA.  
*XXXVII Convegno nazionale di Idraulica e Costruzioni Idrauliche*, 2021, online
- [n06] S. Ceola, F. Laio, A. Montanari  
Global-scale human pressure evolution imprints on sustainability of river systems  
*Le Giornate dell'Idrologia della Società Idrologica Italiana*, Bologna, Italy, September 16-18, 2019
- [n05] A. Domeneghetti, S. Ceola, P. Colanzi, G. Schumann  
Evoluzione del rischio idraulico nel bacino del Murray-Darling (Australia) dal 1975 ad oggi: applicazione combinata di modelli idraulici e dati satellitari  
*XXXVI Convegno nazionale di Idraulica e Costruzioni Idrauliche*, Ancona, Italy, September 12-14, 2018
- [n04] R. Paranunzio, F. Laio, S. Ceola, A. Montanari  
Analisi dell'effetto dell'antropizzazione dei suoli sulla temperatura dell'aria mediante l'utilizzo di dati satellitari  
*XXXV Convegno nazionale di Idraulica e Costruzioni Idrauliche*, Bologna, Italy, September 14-16, 2016
- [n03] I. Soligno, S. Ceola, F. Laio, A. Montanari  
Analisi della pressione antropica sul reticolo idrografico italiano tramite dati satellitari di luminosità notturna ad alta definizione  
*XXXV Convegno nazionale di Idraulica e Costruzioni Idrauliche*, Bologna, Italy, September 14-16, 2016
- [n02] S.Ceola, F. Laio, A. Montanari  
Valutazione del grado di esposizione al rischio alluvionale mediante dati satellitari di luminosità artificiale  
*XXXIV Convegno nazionale di Idraulica e Costruzioni Idrauliche*, Bari, Italy, September 8-10, 2014
- [n01] S.Ceola, A. Montanari, F. Laio  
Quanto viviamo vicino ai corsi d'acqua? Stima della distribuzione spaziale della presenza antropica da dati satellitari e valutazione del rischio idraulico  
*Le Giornate dell'Idrologia della Società Idrologica Italiana*, Venezia, Italy, December 18-20, 2013

## Scientific activities

### Visiting positions

- Aug – Sept 2017 Visiting at University of Saskatchewan, Prof. A. Elshorbagy, Saskatoon (Canada). Development of the project “Rainfall- and income-driven human closeness to freshwater resources” within the **Canada-Italy Innovation Award 2017**.
- Jun - Sept 2011 Visiting at Biofilm and Ecosystem Research Group (BERG), Wasser Cluster Lunz (WCL), Lunz am See (Austria).  
Hydrologic, engineering design and coordination of a flume experiment, aimed at studying hydrologic influences on the interactions between stream algae and benthic invertebrates (collaboration among EPFL, University of Vienna and WCL, supported by **EDCE PhD Mobility Award – Honorable Mention**).

### Research projects

2023-2025	<b>Research Unit Leader</b> Project “unveilINg pasT Events foR dROught risk mitiGATION – INTERROGATION” (Italian Ministry of University and Research, PRIN 2024 - Progetti di ricerca di Rilevante Interesse Nazionale) – 80 k€
2016 – 2020	<b>WP member</b> Project “Mitigating the Impacts of natural hazards on Cultural Heritage sites, structure and artefacts - MiChE” (Italian Ministry of Education, University and Research, PRIN - Progetti di ricerca di Rilevante Interesse Nazionale)
2013 - 2017	<b>WP member</b> Project "Sharing Water-related Information to Tackle Changes in the Hydrosphere for Operational Needs – SWITCH-ON" (EU collaborative project 603587, FP7-ENV-2013-two-stage)
2009 - 2012	<b>PhD student</b> Project "River networks as ecological corridors for biodiversity, populations and waterborne disease" (European Research Council ERC project 227612, principal investigator: Prof. A. Rinaldo)
2009 - 2012	<b>PhD student</b> Project "Hydrologic controls on ecological processes: river networks as corridors for biodiversity, populations and waterborne diseases" (Swiss National Science Foundation FNS project 124930, principal investigator: Prof. A. Rinaldo)
	<b>Organization of scientific conferences</b>
2019-2021	EGU General Assembly, <b>Convener of sessions</b> <ul style="list-style-type: none"> <li>- Hydroclimatic change and unchange: exploring the mysteries of variability, nature and human impact</li> <li>- Innovative sensing techniques for water monitoring, modelling, and management: Satellites, gauges and citizens</li> </ul>
2018	EGU General Assembly 2018, <b>Convener of sessions</b> <ul style="list-style-type: none"> <li>- Naturally trendy: natural (and non-natural) trends (and non-trends) in climate and hydrology</li> <li>- Innovative sensing techniques for water monitoring, modelling, and management: Satellite, gauges, and citizens</li> <li>- Innovative sensing techniques and data analysis approaches to increase hydrological process understanding</li> </ul>
2017	EGU General Assembly 2017, <b>Convener of sessions</b> <ul style="list-style-type: none"> <li>- Climatic variability and the hydrological cycle</li> <li>- Innovative sensing techniques and data analysis approaches to increase hydrological process understanding</li> </ul>
2016	IDRA16 – XXXV National Assembly of Hydraulic and Hydraulic Constructions, <b>Organizing Committee</b>
2013 - 2014	Bologna IAHS 2014 - 6 <sup>th</sup> IAHS-EGU International Symposium on Integrated Water Resources Management "Evolving Water Resources Systems - Understanding, Predicting and Managing Water - Society Interactions" <b>Organizing Committee</b>
	<b>Scientific memberships</b>
2010 – to date	<b>Member</b> of the American Geophysical Society (AGU)
2010 – to date	<b>Member</b> of the European Geosciences Society (EGU)
2013 – to date	<b>Member</b> of the Italian Hydraulic Group (GII)
	<b>Academic service</b>



- 2023 – to date **Associate Editor** for *Hydrology and Earth System Sciences* and *Water Resources Research*
- 2013 – to date **Reviewer** for *Nature Climate Change*, *Water Resources Research*, *Advances in Water Resources*, *Hydrological Processes*, *Hydrobiologia*, *Ecohydrology & Hydrobiology*, *Science of the Total Environment*, *International Journal of Applied Earth Observations and Geoinformation*, *Journal of Hydrologic Sciences*, *Water*, *Remote Sensing*, *Energies*, *Geosciences*, *Ecological Indicators*, *Applied Sciences*.
- 2022 **Project Reviewer** for the Swiss National Science, Switzerland.
- 2015 **Project Reviewer** for the Autonomous Province of Bolzano, Italy
- 2015 **Reviewer** of the PhD proposal "Socio-Hydrological dynamics in Bangladesh: Understanding the interaction between hydrological and social processes along the Brahmaputra floodplain" by Md Ruknul Ferdous, UNESCO-IHE, Delft, Netherlands.
- 2014 **Editor** of *Evolving Water Resources Systems - Understanding, Predicting and Managing Water - Society Interactions*, IAHS Publication 364, Proceedings of ICWRS2014, Bologna, Italy, June 2014.

#### Service in scientific associations

- 2017 **Representative** of the International Association of Hydrological Sciences (IAHS) within UNESCO World Water Development Report 2019 "Leaving No One Behind" <https://en.unesco.org/water-security/wwap/wwdr/2019>

#### Service at University of Bologna

- 2015 – 2021 **Member** of the External Relations Committee, DICAM, UNIBO, Bologna, Italy
- 2015 – to date **Member** of the Environmental Engineering Board, UNIBO, Bologna, Italy
- 2020 – to date **Member** of the Working Group UNA EUROPA, UNIBO, Bologna, Italy
- 2021 – to date **Member** of the Research Committee, DICAM, UNIBO, Bologna, Italy

#### Public engagement

- May 2022 **Siam News** "A Mathematical Model to Analyze Shrinking Surface Water Bodies". Invited blog about the scientific paper "Influence of Urban Areas on Surface Water Loss in the Contiguous United States" published in *AGU Advances* (see [a20] In the publication list).  
<https://sinews.siam.org/Details-Page/a-mathematical-model-to-analyze-shrinking-surface-water-bodies>
- Mar 2022 **Corriere di Bologna** "Laghi e fiumi, lo studio dell'università di Bologna: vicino alle città si riducono e «soffrono»" by Federica Nannetti. Presentation to a general audience about the scientific paper "Influence of Urban Areas on Surface Water Loss in the Contiguous United States" published in *AGU Advances* (see [a20] In the publication list).  
[https://corrieredibologna.corriere.it/bologna/cronaca/22\\_marzo\\_06/laghi-fiumi-studio-dell-universita-bologna-alle-citta-si-riducono-soffrono-0a99316-9d90-11ec-ad87-df1f86f5e3ed.shtml](https://corrieredibologna.corriere.it/bologna/cronaca/22_marzo_06/laghi-fiumi-studio-dell-universita-bologna-alle-citta-si-riducono-soffrono-0a99316-9d90-11ec-ad87-df1f86f5e3ed.shtml)
- Feb 2022 **UNIBO Magazine** "I fiumi e i laghi vicini alle città si ritirano più rapidamente". Presentation to a general audience about the scientific paper "Influence of Urban Areas on Surface Water Loss in the Contiguous United States" published in *AGU Advances* (see [a20] In the publication list).  
<https://magazine.unibo.it/archivio/2022/02/10/i-fiumi-e-i-laghi-vicini-alle-citta-si-ritirano-piu-rapidamente>

- Feb 2022 **EOS Editor's Highlight** by Ana Barros. Presentation to a general audience about the scientific paper "Influence of Urban Areas on Surface Water Loss in the Contiguous United States" published in *AGU Advances* (see [a20] in the publication list).  
<https://eos.org/editor-highlights/urbanization-and-surface-water-loss-go-together>
- Sept 2019 **Young Hydrologic Society - Hallway Conversations**  
<https://younghs.com/2019/09/23/hallway-conversations-serena-ceola-september-2019/>
- Mar 2019 **GeoLog in EGU Blogs.** GeoTalk "Making their mark: how humans and rivers impact each other" - [https://blogs.egu.eu/geolog/2019/03/15/geotalk-making-their-mark-how-humans-and-rivers-impact-each-other/?fbclid=IwAR2YCF6ycPaGJxqx2\\_3r4nuJNWHka\\_pIo1iHQjOKE1WpU1AqkfhEmjQ\\_Xg](https://blogs.egu.eu/geolog/2019/03/15/geotalk-making-their-mark-how-humans-and-rivers-impact-each-other/?fbclid=IwAR2YCF6ycPaGJxqx2_3r4nuJNWHka_pIo1iHQjOKE1WpU1AqkfhEmjQ_Xg)
- Jun 2017 **Website of Department of Civil, Chemical, Environmental and Materials Engineering (DICAM).** News on the **Canada-Italy Innovation Award 2017**  
<http://www.dicam.unibo.it/it/archivio-news/serena-ceola-tra-i-vincitori-del-canada-italy-innovation-award-2017> (in Italian)
- Jun 2017 **UNIBO Magazine** "Vince il premio Canada-Italia per l'Innovazione e incontra Justin Trudeau". News on the **Canada-Italy Innovation Award 2017**  
<http://www.magazine.unibo.it/archivio/2017/06/06/vince-il-premio-canada-italia-per-linnovazione-e-incontra-justin-trudeau> (in Italian)
- Jun 2017 **Embassy of Canada:** awardees notification for the **Canada-Italy Innovation Award 2017** on the official website and social media (Facebook and Twitter)  
[http://www.canadainternational.gc.ca/italy-italie/highlights-faits/2017/innovation\\_2017.aspx?lang=eng](http://www.canadainternational.gc.ca/italy-italie/highlights-faits/2017/innovation_2017.aspx?lang=eng)  
<https://www.facebook.com/ambasciatadelcanada/posts/1392292250856515:0>  
<https://twitter.com/CanadainItalia/status/872096152409300993>
- Apr 2017 **Interview during the EGU General Assembly 2017** taken by science writers of a German public radio (Deutschlandfunk) and of a geosciences website (planeterde.de) about the scientific research on human pressure on freshwater resources
- Sept 2016 **European Researchers Night** – "I fiumi e le luci della notte", research story written by **Serena Ceola** and performed by the sand artist Nadia Ischia and the scientific communicator Danilo Cinti
- Feb 2016 **OggiScienza MeltingPod** – Podcast "Down to the river" - <https://soundcloud.com/oggiscienza/down-to-the-river> (in Italian)
- Oct 2015 **EOS Research Spotlight** - <https://eos.org/research-spotlights/night-lights-illuminate-human-presence-near-rivers>
- Sep 2015 **Cover image on Water Resources Research Volume 51, Issue 9** - <http://agupubs.onlinelibrary.wiley.com/agu/issue/10.1002/wrcr.v51.9/>
- Dec 2014 **GeoQ Newsletter**, Issue n. 12, December 2014 - Letter from the EGU President. Presentation to a general audience about the scientific paper "Satellite nighttime lights reveal increasing human exposure to floods worldwide" published in *Geophysical Research Letters* (see [a08] in the publication list).  
<http://www.egu.eu/newsletter/>

- Nov 2014 **WIRED-Science Graphic of the Week: Nighttime Satellite Maps Show Increasing Flood Risks**, By Nick Stockton. Presentation to a general audience about the scientific paper "Satellite nighttime lights reveal increasing human exposure to floods worldwide" published in *Geophysical Research Letters* (see [a08] in the publication list).  
<http://www.wired.com/2014/11/nighttime-maps-flood-risks/>
- Nov 2014 **UNIBO Magazine "Rischio alluvione: aumentano gli insediamenti vicino ai corsi d'acqua"** by Matteo Benni. Presentation to a general audience about the scientific paper "Satellite nighttime lights reveal increasing human exposure to floods worldwide" published in *Geophysical Research Letters* (see [a08] in the publication list).  
<http://www.magazine.unibo.it/archivio/2014/11/19/rischio-alluvione-in-una-mappa-laumento-degli-insediamenti-nei-pressi-dei-corsi-dacqua> (in Italian)
- Nov 2014 **AGU Blogosphere - GeoSpace "Satellite nightlight images show flood exposure increasing worldwide"** by Kate Wheeling. Presentation to a general audience about the scientific paper "Satellite nighttime lights reveal increasing human exposure to floods worldwide" published in *Geophysical Research Letters* (see [a08] in the publication list).  
<http://blogs.agu.org/geospace/2014/11/13/satellite-nightlight-images-show-flood-exposure-increasing-worldwide/>
- Mar 2014 **Café Scientifique**, Bologna, Italy. Public seminar "Quanto beve il fiume? (How much does a river drink?)".
- May 2013 **Co-anchor in the radio programme "Pigreco Party"** at Radio Città del Capo, Bologna, talking about water resources.  
<http://fmblue.formicablu.it/index.php?id=613> (in Italian)
- Mar 2013 **Finalist in FameLab Bologna 2013**  
<https://www.youtube.com/watch?v=4KVYUqProQI> (in Italian)

### Teaching activities

- Academic Year 2019-2020, 2020-2021, 2021-2022, 2022-2023, 2023-2024 **Teacher of the course "Climate impact on tangible cultural heritage and water resources" (4 hours)**, PhD in Future Earth, Climate Change and Societal Challenges, UNIBO, Bologna, Italy
- A. Y. 2015-2016, 2016-2017, 2017-2018, 2018-2019, 2019-2020, 2020-2021, 2021-2022, 2022-2023, 2023-2024 **Teacher of the course "Gestione delle Risorse Idriche M"**, Master Degree in Environmental Engineering (in Italian), UNIBO, Bologna, Italy  
Student evaluation: 89.5% positive for A. Y. 2015/2016, 100% positive for AA. YY. 2016-2017, 2017-2018, 2018-2019, 2019-2020, 2020-2021, 2021-2022, 2022-2023, 2023-2024
- A. Y. 2022-2023, 2023-2024 **Teacher of the course "Large-scale Water Structures"**, Master Degree in Civil Engineering (in English), UNIBO, Bologna, Italy
- A. Y. 2022-2023, 2023-2024 **Teacher of the course "Advanced Hydrosystems Engineering – Module 2"**, Master Degree in Civil Engineering (in English), UNIBO, Bologna, Italy
- A. Y. 2021-2022 **Teacher of the course "Tecnologie per la mitigazione degli effetti del cambiamento climatico – Modulo 1"**, Minor in La sfida del cambiamento climatico (in Italian), UNIBO, Bologna, Italy
- A. Y. 2020-2021, 2021-2022 **Teacher of the course "Large-scale Water and Wastewater Structures"**, Master Degree in Civil Engineering (in English), UNIBO, Bologna, Italy  
Student evaluation: 100% positive for A. Y. 2020/2021

A. Y. 2018-2019	<b>Teacher of the course “Large-scale Water and Wastewater Structures – Module 1”</b> , Master Degree in Civil Engineering (in English), UNIBO, Bologna, Italy Student evaluation: 100% positive for A. Y. 2018/2019
A. Y. 2013 - 2014 and 2014 - 2015	<b>Seminars for the course “Advanced Hydrology &amp; Water Resources Management”</b> , Prof. A. Montanari, Master Degree in Civil Engineering, UNIBO, Bologna, Italy
A. Y. 2011 – 2012 and 2010-2011	<b>Teaching assistant (20 hours) for the course “Hydrology for Engineer”</b> , Prof. A. Rinaldo, ECHO, EPFL, Bachelor Degrees in Civil Engineering and Environmental Sciences and Engineering, EPFL, Lausanne, Switzerland
<b>PhD Students advisory</b>	
Nov 2023 – Oct 2026	Gianluca Lelli, PhD student within the PhD Program “Engineering and Information Technology for Structural and Environmental Monitoring and Risk Management - EIT4SEMM” UNIBO, Bologna, Italy. Advisor: <b>S. Ceola</b>
Nov 2018 – Jan 2022	Irene Palazzoli, PhD student within the PhD Program “Structural and Environmental Health Monitoring and Management – SEHM <sup>2</sup> ” UNIBO, Bologna, Italy. Advisor: <b>S. Ceola</b>
<b>Master Degrees Advisory</b>	
Academic Year 2020-2021	Sara Napoleone, “Stima con modelli idrologici del rischio idraulico del Rio Torriane” ( <i>Hydraulic risk assessment of the Rio Torriane based on hydrological models</i> ), Master Degree in Civil Engineering, UNIBO, Advisor: A. Montanari, CoAdvisor: <b>S. Ceola</b>
A. Y. 2020-2021	Gianluca Lelli, “Studio dell’influenza delle aree urbanizzate e irrigue sulla perdita di risorsa idrica superficiale in Italia” ( <i>Influence of urban and irrigated areas on surface water loss across Italy</i> ), Master Degree in Environmental Engineering (in Italian), UNIBO, Advisor: <b>S. Ceola</b> , Co-Advisor: I. Palazzoli
A. Y. 2020-2021	Michele Laffi, “Analisi delle interazioni tra dighe, densità di popolazione e caratteristiche climatiche a scala di bacino negli Stati Uniti d'America continentali” ( <i>Basin-scale analysis of the interactions among dams, population density and climate characteristics across the contiguous United States</i> ), Master Degree in Environmental Engineering (in Italian), UNIBO, Advisor: <b>S. Ceola</b>
A. Y. 2019-2020	Jacopo Venturi, “Caratterizzazione della frequenza degli estremi di precipitazione sub-giornalieri a Brindisi” ( <i>Analysis of annual maximum rainfall events in Brindisi</i> ), Bachelor Degree in Environmental Engineering (in Italian), UNIBO, Advisor: <b>S. Ceola</b>
A. Y. 2019-2020	Odillia Colarusso, “Valutazione del potenziale effetto di attrattività demografica di dighe localizzate negli Stati Uniti d'America” ( <i>Assessment of the potential demographic attractiveness of dams across the United States of America</i> ), Master Degree in Environmental Engineering (in Italian), UNIBO, Advisor: <b>S. Ceola</b>
A. Y. 2018-2019	Ezio Casciaro, “Dimensionamento di serbatoi per la raccolta di acque piovane destinate all’utilizzo irriguo in un orfanotrofio ad Allada (Benin)” ( <i>Pluvial water collection for irrigation purposes: design of reservoirs for an orphanage in Allada (Benin)</i> ), Master Degree in Environmental Engineering (in Italian), UNIBO, Advisor: <b>S. Ceola</b>

- A. Y. 2018-2019 Alessandra Polerà, “Studio degli effetti della realizzazione di dighe sull’evoluzione spazio-temporale della densità abitativa negli Stati Uniti d’America” (*Effects of dam building on the spatio-temporal evolution of human density in the U.S.*), Master Degree in Environmental Engineering (in Italian), UNIBO, Advisor: **S. Ceola**
- A. Y. 2018-2019 Arianna Ridolfi, “Evoluzione spazio-temporale della distribuzione della popolazione in relazione ad eventi alluvionali. I casi di India e Regno Unito” (*Spatio-temporal evolution of human population related to flood events: India and UK*), Master Degree in Environmental Engineering (in Italian), UNIBO, Advisor: **S. Ceola**, Co-Advisor: A. Montanari
- A. Y. 2018-2019 Serena Rossi, “Mappatura della pericolosità idraulica da nubifragio mediante l’analisi di modelli digitali delle quote del terreno ad elevata risoluzione orizzontale” (*Flash flood hazard mapping by using high resolution DEM*), Degree in Environmental Engineering (in Italian), UNIBO, Advisor: A. Castellarin, Co-Advisors: S. Bagli, S. Persiano, **S. Ceola**
- A. Y. 2018-2019 Dayane Silva Sallet, “Regional flood frequency analysis: evaluation of the design flood for 5 Brazilian dams”, Master Degree in Civil Engineering (in English), UNIBO, Advisor: **S. Ceola**, Co-Advisor: S. Persiano, A. Bonafé, L. Ruggeri
- A. Y. 2018-2019 Andrea Mazzola, “Evoluzione della pressione antropica sui corsi d’acqua del sud-est asiatico mediante dati satellitari” (*Evolution of anthropogenic pressure on river systems in South-East Asia by using satellite data*), Master Degree in Environmental Engineering (in Italian), UNIBO, Advisor: **S. Ceola**, Co-Advisor: I. Palazzoli
- A. Y. 2017-2018 Giulia Grandi, “Studio degli effetti di variabili idrologiche e geomorfiche sull’espansione urbana nel nord-est della Cina” (*Hydrologic and geomorphic controls of urban growth in the North-East of China*), Master Degree in Environmental Engineering (in Italian), UNIBO, Advisor: **S. Ceola**, Co-Advisor: E. Bertuzzo
- A. Y. 2017-2018 Valeria Amelii, “Evoluzione spazio-temporale della distribuzione della popolazione nel bacino del Limpopo in relazione a eventi di siccità” (*Spatio-temporal evolution of human population across the Limpopo river basin related to drought events*), Master Degree in Environmental Engineering (in Italian), UNIBO, Advisor: **S. Ceola**, Co-Advisor: G. Di Baldassarre, J. Maard
- A. Y. 2017-2018 Silea Cortecchia, “Evoluzione temporale del fabbisogno e del deficit irriguo delle principali colture in Italia: analisi mediante dati satellitari e modelli idrologici” (*Temporal evolution of agricultural water requirements across Italy: analysis based on satellite data and hydrologic models*), Master Degree in Environmental Engineering (in Italian), UNIBO, Advisor: **S. Ceola**
- A. Y. 2016-2017 Tamara Ricchi, “Influenza delle variabili idrologiche e socio-economiche sul livello di inquinamento dei corsi d’acqua: analisi globale mediante dati satellitari e modelli idrologici” (*Hydrologic and socio-economic drivers of riverine nutrient pollution: global analysis based on satellite data and hydrologic models*), Master Degree in Environmental Engineering (in Italian), UNIBO, Advisor: **S. Ceola**
- A. Y. 2016-2017 Fabio Gerardo Berterame, “Stime ad alta risoluzione dell’impronta idrica delle principali colture per il territorio italiano” (*High-resolution water footprint assessment for main crops across Italy*), Master Degree in Environmental Engineering (in Italian), UNIBO, Advisor: **S. Ceola**
- A. Y. 2016-2017 Girolamo Alaimo, “Possibili innovazioni del sistema di distribuzione della risorsa idrica nei canali di bonifica” (*Possible innovations of water resources distribution*), Master Degree in Environmental Engineering (in Italian), UNIBO, Advisor: **S. Ceola**

- A. Y. 2016-2017 Piera Colanzi, “Evoluzione del rischio idraulico nel bacino del Murray-Darling (Australia) dal 1975 ad oggi: applicazione combinata di modelli idraulici e dati satellitari” (*Flood risk evolution in the Murray-Darling river basin (Australia) from 1975 to 2014: application of hydraulic model and remote-sensing data*), Advisor: A. Domeneghetti, Master Degree in Civil Engineering (in Italian), UNIBO, Co-Advisor: **S. Ceola**
- A. Y. 2015-2016 Andrea Ruggeri, “Analisi di dati satellitari a scala globale per la stima dell’impatto antropico sull’inquinamento dei corsi d’acqua” (*Analysis of global scale satellite data to estimate the anthropogenic impact on river pollution*), Master Degree in Environmental Engineering (in Italian), UNIBO, Advisor: **S. Ceola**, Co-Advisor: A. Montanari
- A. Y. 2015-2016 Matteo Mancuso, “Antropizzazione dei corsi d’acqua italiani ed impatto sul rischio alluvionale: analisi mediante dati satellitari di luminosità artificiale notturna” (*Anthropogenic presence close to Italian rivers and impact on flood risk: analysis through satellite nighttime light data*), Master Degree in Environmental Engineering (in Italian), UNIBO, Advisor: **S. Ceola**, Co-Advisors: A. Montanari, A. Domeneghetti
- A. Y. 2015-2016 Luca Marchetti, “Nighttime lights as proxy for the spatial growth of dense urbanized areas”, Master Degree in Civil Engineering (in English), UNIBO, Advisor: A. Montanari, Co-Advisor: **S. Ceola**
- A. Y. 2015-2016 Matteo Ventura, “Studio del possibile impatto indotto da diverse ipotesi di rilascio del Deflusso Minimo Vitale (DMV) sull’ittiofauna dei corsi d’acqua Marchigiani” (*Induced effects of alternative environmental flows on fish habitat suitability in the Marche administrative district*), Master Degree in Environmental Engineering (in Italian), UNIBO, Advisor: A. Castellarin, Co-Advisors: **S. Ceola**, G. Galeati
- A. Y. 2014-2015 Giulia Sisca, “Studio dell’effetto indotto da diverse ipotesi di rilascio del deflusso minimo vitale (DMV) sul potenziale di produzione idroelettrica nella regione Marche” (*Induced effects of alternative environmental flows on hydropower production in the Marche administrative district*), Master Degree in Environmental Engineering (in Italian), UNIBO, Advisor: A. Castellarin, Co-Advisors: **S. Ceola**, G. Galeati, A. Pugliese

### Activities in National and International Ph.D. Tribunals and other Evaluating Commissions

- Jun 2019 Member of the jury of the admission exam for the PhD course in Future Earth, Climate Change and Societal Challenge, UNIBO
- Mar 2019 Member of the jury of the final exam for the award of the PhD degree in Civil and Environmental Engineering at Università degli Studi di Padova
- Academic Year 2016-2017 Member and Secretary of the Examination Board of Master Degree in Environmental Engineering, UNIBO
- Jun 2017 Member of the Examination Board of the final Ph.D. defense of Roberta Paranunzio, at Politecnico di Torino
- May-Jun 2017 Member of the Examination Board for 2 engineer positions at Distretto delle Alpi Orientali, Venice

### Certifications

- Jun 2013 Training course ArcGIS Desktop 10: Getting started with GIS, UNIPD, Padova, Italy



Jun 2013	Training course ArcGIS Desktop 10: Geodatabase, Spatial and 3D Analyst, Modelbuilder, UNIPD, Padova, Italy
Jun 2011	LabVIEW Core 1, EPFL, Lausanne, Switzerland
Dec 2009	Professional Qualification for Civil and Environmental Engineer, UNIPD, Padova, Italy
Jun 2008	Certificate IPSOA "Environmental Expert: Specialization Course", IPSOA Wolters Kluwer Group, Italy
Mar 2003	First Certificate in English (FCE), University of Cambridge - ESOL Examination, Cambridge, England
Sept 2001	European Computer Driving Licence (ECDL)

## Personal skills

### Languages

Italian	Mother tongue
English	Proficient user (CEF level <sup>1</sup> : listening C1, speaking C1, writing C1)
French	Independent user (CEF level: listening B2, speaking B1, writing B1)
German	Basic user (CEF level: listening A0, speaking A0, writing A0)

### Computer skills

Operating System	Windows, Mac OS, Linux
Software	Matlab, ArcGIS, Office, LaTeX, Adobe Illustrator, LabView

Bologna, March 22, 2024

Serena Ceola (digitally signed)

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<sup>1</sup> Common European Framework of Reference