

Arnald Puy

Department of Ecology and Evolutionary Biology
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Updated: June 24, 2020

Present position

2019– today	Marie Skłodowska-Curie Fellow (GF) Dept. of Ecology and Evolutionary Biology, Princeton University, USA Centre for the Study of the Sciences and the Humanities, University of Bergen, Norway
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Previous positions

2018–2019	Researcher Centre de Recherches en Archéologie et Patrimoine, Université Libre de Bruxelles, Belgium
2015–2017	Marie Curie Fellow (IEF) Maritime Civilizations Department, University of Haifa, Israel
2014–2015	Humboldt Research Fellow Institute of Geography, University of Cologne, Germany
2012–2014	Postdoctoral Researcher Complexity and Social-Ecological Dynamics (CaSEs), Institució Milà i Fontanals, CSIC Barcelona. Spain
2008–2012	Predoctoral Fellow (FPI) Dept. de Ciències de l'Antiguitat i l'Edat Mitjana, Facultat de Filosofia i Lletres, Universitat Autònoma de Barcelona, Spain

Education

2012	PhD in Antiquity and Middle Ages Universitat Autònoma de Barcelona, Spain DISSERTATION TITLE: Construction criteria of Andalusí irrigated fields. The case of Ricote (Murcia, Spain) https://www.tdx.cat/handle/10803/96879?locale-attribute=en GRADE: <i>Summa cum laude</i>
2009	DEA in Medieval and Classical History and Archaeology Universitat Autònoma de Barcelona, Spain
2006	BA in History Universitat Autònoma de Barcelona, Spain

Publications

Peer reviewed papers

1. **A. Saltelli**, G. Bammer, I. Bruno, E. Charters, M. D. Fiore, E. Didier, W. N. Espeland, J. Kay, S. L. Piano, D. Mayo, R. P. Jr, T. Portaluri, T. M. Porter, **A. Puy**, J. R. Ravetz, E. Reinert, D. Sarewitz, P. B. Stark, **A. Stirling**, J. V. D. Sluijs, and P. Vineis. “Five ways to ensure that models serve society: a manifesto”. *Nature* 582.7813 (2020), pp. 482–484. DOI: [10.1038/d41586-020-01812-9](https://doi.org/10.1038/d41586-020-01812-9).
2. **A. Puy**, S. Lo Piano, and **A. Saltelli**. “Current models underestimate future irrigated areas”. *Geophysical Research Letters* 47.8 (Apr. 2020). DOI: [10.1029/2020GL087360](https://doi.org/10.1029/2020GL087360).
3. **A. Puy**, S. L. Piano, and **A. Saltelli**. “A sensitivity analysis of the PAWN sensitivity index”. *Environmental Modelling and Software* 127 (2020), p. 104679. DOI: [10.1016/j.envsoft.2020.104679](https://doi.org/10.1016/j.envsoft.2020.104679). arXiv: [1904.04488](https://arxiv.org/abs/1904.04488).
4. **A. Puy**, M. Herzog, P. Escriche, **A. Marouche**, Y. Oubana, and O. Bubenzer. “Detection of sand encroachment patterns in desert oases. The case of Erg Chebbi (Morocco)”. *Science of The Total Environment* 642 (Nov. 2018), pp. 241–249. DOI: [10.1016/j.scitotenv.2018.05.343](https://doi.org/10.1016/j.scitotenv.2018.05.343).
5. **A. Puy**. “Irrigated areas grow faster than the population”. *Ecological Applications* 28.6 (Sept. 2018), pp. 1413–1419. DOI: [10.1002/eap.1743](https://doi.org/10.1002/eap.1743).
6. A. L. Balbo, **A. Puy**, J. Frigola, F. Retamero, I. Cacho, and H. Kirchner. “Amplified environmental change: Evidence from land-use and climate change in medieval Minorca”. *Land Degradation & Development* 29.4 (Apr. 2018), pp. 1262–1269. DOI: [10.1002/ldr.2869](https://doi.org/10.1002/ldr.2869).
7. **A. Puy**, R. Muneeppeerakul, and A. L. Balbo. “Size and stochasticity in irrigated social-ecological systems”. *Scientific Reports* 7 (Mar. 2017), p. 43943. DOI: [10.1038/srep43943](https://doi.org/10.1038/srep43943).
8. **A. Puy**, J. García Avilés, A. L. Balbo, M. Keller, S. Riedesel, D. Blum, and O. Bubenzer. “Drip irrigation uptake in traditional irrigated fields: The edaphological impact”. *Journal of Environmental Management* 202 (Nov. 2017), pp. 550–561. DOI: [10.1016/j.jenvman.2016.07.017](https://doi.org/10.1016/j.jenvman.2016.07.017).
9. A. L. Balbo and **A. Puy**. “Terrace landscapes. Editorial to the special issue”. *Journal of Environmental Management* 202.3 (Nov. 2017), pp. 495–499. DOI: [10.1016/j.jenvman.2017.02.001](https://doi.org/10.1016/j.jenvman.2017.02.001).
10. A. L. Balbo, E. Gómez-Baggethun, M. Salpeteur, **A. Puy**, S. Biagetti, and J. Scheffran. “Resilience of small-scale societies: a view from drylands”. *Ecology and Society* 21.2 (2016), art53. DOI: [10.5751/ES-08327-210253](https://doi.org/10.5751/ES-08327-210253).
11. **A. Puy**, A. L. Balbo, and O. Bubenzer. “Radiocarbon dating of agrarian terraces by means of buried soils”. *Radiocarbon* 58.02 (June 2016), pp. 345–363. DOI: [10.1017/RDC.2015.21](https://doi.org/10.1017/RDC.2015.21).
12. **A. Puy**, A. L. Balbo, C. Zinsli, and M. Ramstad. “High-resolution stratigraphy of Scandinavian coastal archaeological settlements: the case of Håkonshella, W Norway”. *Boreas* 45.3 (2016), pp. 508–520. DOI: [10.1111/bor.12166](https://doi.org/10.1111/bor.12166).
13. **A. Puy**. “Land selection for irrigation in al-Andalus (Spain, 8th century AD)”. *Journal of Field Archaeology* 39.1 (2014), pp. 84–100. DOI: [10.1179/0093469013Z.00000000072](https://doi.org/10.1179/0093469013Z.00000000072).
14. **A. Puy**, A. L. Balbo, **A. Virgili**, and H. Kirchner. “The evolution of Mediterranean wetlands in the first millennium AD: The case of Les Arenes floodplain (Tortosa, NE Spain)”. *Geoderma* 232-234 (2014), pp. 219–235. DOI: [10.1016/j.geoderma.2014.05.001](https://doi.org/10.1016/j.geoderma.2014.05.001).

15. **A. Puy** and A. L. Balbo. “The genesis of irrigated terraces in al-Andalus. A geoarchaeological perspective on intensive agriculture in semi-arid environments (Ricote, Murcia, Spain)”. *Journal of Arid Environments* 89 (2013), pp. 45–56. DOI: [10.1016/j.jaridenv.2012.10.008](https://doi.org/10.1016/j.jaridenv.2012.10.008).
16. **A. Puy**. “Tracking down the gliter of gold in the Diplomatarium de Santes Creus”. *Imago Temporis - Medium Aevum* 7 (2013), pp. 175–224. DOI: [10.17605/OSF.IO/P6KMG](https://doi.org/10.17605/OSF.IO/P6KMG).

Peer-reviewed book chapters

1. **A. Balbo**, J. García-Avilés, J. Hunink, F. Alcón, J. Palenzuela-Cruz, J. Martínez, **A. Puy**, J. Rodríguez López, and J. Scheffran. “Challenges and opportunities for historical irrigated agricultural systems in Mediterranean regions: Technical, cultural, and environmental assets for sustainable rural development in Ricote (Murcia, Spain). In Press”. CLISEC Special Volume, University of Hamburg Press
2. H. Kirchner, **A. Puy**, and **A. Virgili**. “Drainage and irrigation systems in madina Turtusa (Tortosa, Spain). In press”. *Agrarian Archaeology: Irrigation, Drainage, Dry Agriculture and Pastures in al-Andalus*. Ed. by F. Sabaté. Brepols Publisher
3. **A. Puy**. “La huerta de Ricote (Murcia, España) entre los siglos XV y XVIII”. *Estudiar el pasado: aspectos metodológicos de la investigación en Ciencias de la Antigüedad y de la Edad Media. Proceedings of the First Postgraduate Conference on Studies of Antiquity and Middle Ages Universitat Autònoma de Barcelona 26-28th October 2010*. Ed. by **A. Castro Correa**, D. Gómez Castro, G. González Germain, J. Oller Guzmán, **A. Puy**, R. Riera Vargas, K. Krystyna Starczewska, and N. Villagra Hidalgo. Oxford: BAR International Series 2412, 2012, pp. 199–209. DOI: [10.13140/2.1.1883.4887](https://doi.org/10.13140/2.1.1883.4887)

Edited books

1. **A. Castro Correa**, D. Gómez Castro, G. González Germain, J. Oller Guzmán, **A. Puy**, R. Riera Vargas, K. Krystyna Starczewska, and N. Villagra Hidalgo, eds. *Estudiar el pasado: aspectos metodológicos de la investigación en Ciencias de la Antigüedad y de la Edad Media. Proceedings of the First Postgraduate Conference on Studies of Antiquity and Middle Ages Universitat Autònoma de Barcelona 26-28th October 2010*. BAR International Series 2412, 2012

Non peer-reviewed papers

1. **A. Puy**. “The construction of fertility in al-Andalus. Geoarchaeology in Ricote (Murcia, Spain, 8th century AD)”. *Geophysical Research Abstracts* 15 (2013), p. 2335.
2. **A. Puy**. “Moneda, peces de moneda d’or i magnats a Santes Creus”. *Revista de l’Arxiu Bibliogràfic de Santes Creus* 23 (2010), pp. 39–49
3. **A. Puy**. “La moneda d’or al diplomatarium de Santa Maria de Santes Creus (975-1225)”. *Gaceta Numismática* 169 (2008), pp. 39–60

Under review

1. **A. Puy**, S. Lo Piano, S. A. Levin, and **A. Saltelli**. “The Achilles heel of Global Hydrological Models”. *Proceedings of the National Academy of Sciences* (2020)
2. **A. Puy**, S. Lo Piano, W. Becker, and **A. Saltelli**. “The battle of total-order sensitivity indices”. *European Journal of Operational Research* (2020)
3. S. Kucherenko, **A. Puy**, S. Lo Piano, and **A. Saltelli**. “Efficient computation of Sobol’ sensitivity indices based on ranking”. *Reliability Engineering & System Safety* (2020)

- S. Lo Piano, F. Ferretti, **A. Puy**, D. Albrecht, and **A. Saltelli**. “Variance-based sensitivity analysis: The quest for better estimators between explorativity and efficiency”. *Reliability Engineering & System Safety* (2020)

Working papers

- A. Puy** and F. P. Santos. “Dynamics of collaboration in irrigation systems” ()
- A. Puy**, S. Lo Piano, **A. Saltelli**, and S. Levin. “sensobol: an R package to compute high-order sensitivity indices” ()

R packages

- A. Puy**. *sensobol: Computation of High-Order Sobol’ Sensitivity Indices*. 2019. DOI: [10.5281/zenodo.2579855](https://doi.org/10.5281/zenodo.2579855). <https://cran.r-project.org/web/packages/sensobol/index.html>

Fellowships, grants and awards

2018 Jan	Marie Skłodowska-Curie Individual Fellowship–Global Fellowship (IF–GF) (EU) FUNDS: 276,330.60€ SCORE: 99.2/100, ENV panel
2015 May	Outstanding PhD Award Award granted by UAB to PhD theses of exceptional scientific relevance
2014 Oct	Humboldt Research Stay Abroad Grant, Alexander von Humboldt Foundation (Germany) FUNDS: 2.000€
2013 Nov	Marie Curie Intra-European Fellowship (IEF) (EU) FUNDS: 185.558,80€ SCORE: 99.2/100 99.4/100, SOC panel
2013 Nov	Humboldt Research Fellowship, Alexander von Humboldt Foundation (Germany) FUNDS: 82.800€
2013 Apr	The Wenner-Gren Foundation Post-PhD Research Grant (NY, USA) FUNDS: 17.580€
2011 Jan	Ministry of Science and Innovation, Research Stays Abroad Grant (Spain) FUNDS: 3.100€
2010 Feb	Ministry of Science and Innovation, Research Stays Abroad Grant (Spain) FUNDS: 7.350€
2009 Nov	Ministry of Science and Innovation, Research Stays Abroad Grant (Spain) FUNDS: 3.640€
2009 Feb	Research Grant. Centro de Experimentación y Obras Públicas (CEDEX), Spain FUNDS: 6.760€

2009 Nov	Joaquím Sarret i Arboç award (Spain) 600€-award granted to the best MA dissertation
2008 Sep	Formación de Personal Investigador Fellowship (FPI) FUNDS: 60.000€

Projects directed as PI

2019-2022	The role of size in the sustainability of irrigation systems (SIZE, #792178) European Commission H2020, EU. 276.330,80€ https://cordis.europa.eu/project/rcn/214099_en.html
2015-2017	Bloom the dry II. The creation of traditional Mediterranean irrigated fields (DryIR, #623098) European Commission FP7, EU. 184.558,80€ https://cordis.europa.eu/project/rcn/187738_en.html
2014-2017	Bloom the dry I. The creation of traditional Mediterranean irrigated fields Alexander von Humboldt Foundation, Germany. 82.800€
2013-2015	Building up intensive labour areas: terraces, irrigation and agrarian change in the Ricote Valley (Murcia, Spain) after 711 AD (#8716) The Wenner-Gren Foundation for Anthropological Research, USA \$17.580 http://www.wennergren.org/grantees/puy-maeso-arnald

Stays in internationally recognized research centers (≥ 6 months)

2011	Charles McBurney Laboratory University of Cambridge, UK
2010	Departamento de Prehistoria, Arqueología, Historia Antigua, Historia Medieval y Ciencias y Técnicas Historiográficas Universidad de Murcia, Spain.

Congresses, conferences and workshops

International

2020 Feb	The scale of irrigated agriculture matters. Should we believe official projections to 2050? MAIN AUTHOR: Arnald Puy Center for the Sciences and the Humanities. University of Bergen, Norway
2020 Jan	Is the model robust against uncertainties? a brief introduction to sensitivity analysis MAIN AUTHOR: Arnald Puy Brown Bag Lunch Seminar. Stockholm Resilience Center, Stockholm, Sweden.

- 2019 Dec **Why uncertainty and sensitivity analysis? Some very simple examples**
 MAIN AUTHOR: Arnald Puy
 Conversation Hour of the Levin Lab. Ecology and Evolutionary Biology Department, Princeton University, USA.
- 2019 Oct **Is it possible to improve existing sample-based algorithm to compute the total sensitivity index?**
 MAIN AUTHOR: Samuele Lo Piano
 CO-AUTHORS: Federico Ferretti, Arnald Puy, Daniel Albrecht, Stefano Tarantola, Andrea Saltelli
 Ninth International Conference on Sensitivity Analysis of Model Output. Universitat Oberta de Catalunya, Barcelona, Spain.
- 2019 Oct **How sensible is the PAWN index to its tuning parameters?**
 MAIN AUTHOR: Arnald Puy
 CO-AUTHORS: Samuele Lo Piano, Andrea Saltelli
 Ninth International Conference on Sensitivity Analysis of Model Output. Universitat Oberta de Catalunya, Barcelona, Spain.
- 2019 May **Why FAOs projection of Mediterranean (and global) irrigated areas to 2050 should not be trusted**
 MAIN AUTHOR: Arnald Puy
 Challenges and opportunities for the sustainable development of Mediterranean rural regions: integrating agricultural, environmental and cultural heritage. Ricote, Spain. Invited speaker
- 2019 Apr **Current projections of global irrigated areas are fragile against uncertainty**
 MAIN AUTHOR: Arnald Puy
 CO-AUTHORS: Samuele Lo Piano, Andrea Saltelli
 Humboldt Colloquium “Research without Borders. Alexander von Humboldt’s Legacy Today”. Madrid, Spain. Invited poster
- 2019 Mar **Can we predict future irrigated areas?**
<https://doi.org/10.6084/m9.figshare.7902623>
 MAIN AUTHOR: Arnald Puy
 Young-researchers workshop: The challenge of sustainability across scales and dimensions. Universitat Oberta de Catalunya, Barcelona, Spain. Invited speaker
- 2019 Mar **Uncertainty and global sensitivity analysis of the projection of continental and global irrigated areas to 2050**
<https://doi.org/10.6084/m9.figshare.7856963>
 MAIN AUTHOR: Arnald Puy
 CO-AUTHORS: Samuele Lo Piano, Andrea Saltelli
 Society for Risk Analysis (SRA) - Benelux 2019 Annual Conference: “Reasoning with Uncertainty”. University of Luxembourg, Luxembourg.
- 2018 Nov **Les études géoarchéologiques dans le centre historique de Bruxelles**
 MAIN AUTHOR: Yannick Devos
 CO-AUTHORS: Cristiano Nicosia, Arnald Puy
 CRéA Patrimoine, Université Libre de Bruxelles. Brussels, Belgium.
- 2018 Aug **A stable floor in Tour Anneessens, Brussels**
<https://doi.org/10.6084/m9.figshare.6828668.v2>

- MAIN AUTHOR: Arnald Puy
 CO-AUTHORS: Yannick Devos
 International Workshop on Archaeological Soil Micromorphology. Brussels, Belgium. Organizing Committee
- 2018 Jun **How to better protect oases from sand encroachment? Insights from Erg Chebbi (Morocco)**
 MAIN AUTHOR: Arnald Puy
 Navigating Complexity: human-environmental solutions for a challenging future. XXIII International Conference of the Society for Human Ecology. Lisbon, Portugal
- 2017 Oct **Dynamics between sand inputs and irrigation in the oases of Merzouga and Hassilabiad (Morocco). Preliminary results**
 MAIN AUTHOR: Arnald Puy
 From refugia to oases: living in arid environments from prehistoric times to the present day. 38ème Rencontres Internationales d'Archéologie et d'Histoire d'Antibes, CEPAM, Nice, France. Invited speaker
- 2016 Aug **Increasing the resolution of Scandinavian anthropic deposits: the potential of XRF core scanning and geoarchaeology**
 MAIN AUTHOR: Arnald Puy
 CO-AUTHORS: A.L. Balbo, Camilla Zinsli, Morten Ramstad
 4th International Landscape Archaeology Conference, University of Uppsala, Uppsala, Sweden
- 2015 May **Land use and climate change in Minorca between al Andalus and the feudal conquest**
 MAIN AUTHOR: A.L. Balbo
 CO-AUTHORS: Jaime Frigola, Fèlix Retamero, Helena Kirchner, Isabel Cacho
 Shaping the Mediterranean basin: islands, coastlines and cultures. International Geoarchaeology Workshop, Cagliari, Sardinia
- 2015 May **An integrative approach to assess the reliability of AMS dates for terrace construction: bulk analyses, terrace clustering and statistics**
 MAIN AUTHOR: Arnald Puy
 Shaping the Mediterranean basin: islands, coastlines and cultures. International Geoarchaeology Workshop, Cagliari, Sardinia. Invited speaker
- 2015 Apr **A long-term perspective on Western Mediterranean irrigation: past and future prospects**
 MAIN AUTHOR: Arnald Puy
 Conference at Maritime Civilizations Deptment, Haifa University, Israel
Invited speaker
- 2014 Dec **Socio-ecological resilience of small-scale societies in drought-prone regions**
 MAIN AUTHOR: Andrea L. Balbo
 CO-AUTHORS: Stefano Biagetti, Erik Gómez-Baggethun, Matthieu Salpeur, Jürgen Scheffran
 Conference Small-scale societies and environmental transformations: co-evolutionary dynamics, Barcelona. Invited speaker
- 2014 Nov **The creation and management of traditional Mediterranean irrigated fields**
 MAIN AUTHOR: Arnald Puy

- 2014 Oct Humboldt Network Meeting, Julius- Maximilians-Universität Würzburg, Würzburg, Germany. Invited speaker
The creation and management of traditional Mediterranean irrigated fields
 MAIN AUTHOR: Arnald Puy
 Geographisches Institut, Universität zu Köln, Köln, Germany. Invited speaker
- 2013 Jul **Terrasses et archéologie d'al-Andalus: possibilités d'étude**
 MAIN AUTHOR: Arnald Puy
 Conference at Université Sidi Mohamed ben Abdellah, Fes, Morocco. Invited speaker
- 2013 May **From dry to wet, from wet to dry. Micromorphological and physico-chemical features of strategies of soil reclamation in al-Andalus**
 MAIN AUTHOR: Arnald Puy
 CO-AUTHOR: Andrea L. Balbo
 25th International soil micromorphology workshop, Charles McBurney Geoarchaeological Laboratory, Department of Archaeology, University of Cambridge, UK
- 2013 Apr **The creation of fertility in al-Andalus. Geoarchaeology in Ricote**
 MAIN AUTHOR: Arnald Puy
 European Geosciences Union (EGU) General Assembly, Vienna, Austria
- 2013 Mar **Drylands in bloom**
 MAIN AUTHOR: Arnald Puy
 Conference at the Kimmel Centre for Archaeological Science, Weizmann Institute of Science, Israel
- 2012 Nov **Pre-andalusi soils and irrigated terraces in Ricote (Murcia, Spain).**
 MAIN AUTHOR: Arnald Puy
 Society for Medieval Archaeology student colloquium, Cardiff University, UK
- 2012 Jun **Buried soils under terrace fills. Reconstructing the formative stages of the hydraulic system of Ricote (Murcia, Spain)**
 MAIN AUTHOR: Arnald Puy
 2nd International Medieval Meeting, Universitat de Lleida, Spain
- 2011 Jun **Possibilities for topographical analysis of andalusi hydraulic systems**
 MAIN AUTHOR: Arnald Puy
 1st International Medieval Meeting, Universitat de Lleida, Spain
- 2011 Jun **Irrigation and drainage around the Islamic city of Turtusa (Spain)**
 MAIN AUTHOR: Helena Kirchner
 CO-AUTHORS: Antoni Virgili
 1st International Medieval Meeting, Universitat de Lleida, Spain

National

- 2015 Sep **La huerta de Ricote entre pasado y futuro. Historia, arqueología, tecnología**

	<p>MAIN AUTHOR: Arnald Puy CO-AUTHORS: Andrea L. Balbo Conference at the Ayuntamiento de Ricote, Ricote, Murcia. <u>Invited speaker</u></p>
2014 Jun	<p>¿Cómo se transforma un terreno seco en una zona agraria fértil y productiva?. Ejemplos de al-Andalus (siglos VIII-XV dC) MAIN AUTHOR: Arnald Puy Converses del Raval, IMF-CSIC, Barcelona, Spain. <u>Invited speaker</u></p>
2013 Nov	<p>Gearqueología de los espacios irrigados tradicionales del Mediterráneo MAIN AUTHOR: Arnald Puy Archéogéographie et anthropologie de l'espace. L'agriculture irriguée et la morphologie agraire des milieux humides. Casa de Velázquez, Madrid, Spain. <u>Invited speaker</u></p>
2012 Dec	<p>Cómo y cuándo se fundó la huerta de Ricote (Murcia, España) MAIN AUTHOR: Arnald Puy Centro de conferencias de Ricote, Murcia, Spain. <u>Invited speaker</u></p>
2011 Jun	<p>Possibilitats del registre topogràfic en l'estudi de les hortes del sud-est peninsular. El cas de Ricote (Murcia, Spain) MAIN AUTHOR: Arnald Puy Facultat de Geografia i Història, Universitat de València, València, Spain. <u>Invited speaker</u></p>
2010 Oct	<p>Cuestiones metodológicas sobre la arqueología hidráulica MAIN AUTHOR: Arnald Puy First postgraduate conference on studies of Antiquity and Middle Ages. Universitat Autònoma de Barcelona, Barcelona, Spain</p>
2010 Oct	<p>Cuestiones metodológicas sobre la arqueología hidráulica MAIN AUTHOR: Arnald Puy First postgraduate conference on studies of Antiquity and Middle Ages. Universitat Autònoma de Barcelona, Barcelona, Spain</p>
2010 Apr	<p>Arqueología hidráulica en Ricote MAIN AUTHOR: Arnald Puy Conference at the Universidad de Murcia, Spain</p>

Fieldwork campaigns

2017 Nov	Soil sampling in Erg Chebbi and the Ziz Valley, Morocco. PI: Arnald Puy
2016 Oct	Soil sampling and measurement of aeolian sand inputs in the oases of Hassilabiad and Merzouga, Erg Chebbi, Morocco. PI: Arnald Puy
2015 Oct	Core drilling, soil sampling and ERT (Electrical Resistivity Tomography) measurements in Saddina, Taounate, Morocco. PI: Arnald Puy
2015 Oct	Soil sampling and dune drilling in Erg Chebbi, Morocco. PIs: Arnald Puy and Olaf Bubenzer
2015 Sep	Soil augering of drip-irrigated and flood-irrigated plots in Ricote, Murcia, Spain. PIs: Arnald Puy and Olaf Bubenzer
2015 Feb	UAV (Unmanned Aerial Vehicle) survey of the Ricote Valley, Murcia, Spain. PIs: Arnald Puy and Steve Markofsky

2015 Jan	Geoarchaeological trenching and sampling of the huerta of Valencia, Valencia, Spain. PIs: Arnald Puy and Enric Guinot
2014 Sep	Soil sampling and geoelectrical measurements [Electrical Resistivity Tomography (ERT)] of drip-irrigated and flood-irrigated plots, Ricote, Spain. PI: Arnald Puy
2014 Feb	Geoarchaeological excavations in the irrigated terraces of Ricote, Murcia, Spain. PI: Arnald Puy
2013 Jul	Saddina and Mghila sites survey, Fès-Bouleman, Morocco. PI: Virgilio Martínez Enamorado
2012 Jun	Sampling and analysis of the Vaksdal charcoal pit (Viking Age), Bergen, Norway. PI: Morten Råmstad
2012 Apr	Sampling of Mesolithic and Neolithic soils in Hakönshella, Bergen, Norway. PI: Morten Råmstad
2011 Nov	Field survey of the Cabezo del Rife hill, Murcia, Spain. PI: Arnald Puy
2011 Jul	Field survey and geoarchaeological sampling of the Lower Ebro alluvial plain, Tortosa, Spain. PI: Helena Kirchner
2010 Nov	Archaeological excavation and geoarchaeological sampling of irrigated terraces, Ricote, Murcia, Spain. PI: Arnald Puy
2010 Jul	Field survey of the Lower Ebro river, Tortosa, Spain. PI: Helena Kirchner
2009 Jul	Archaeological excavation of Torrepetxina Vella site, Menorca, Spain. PI: Helena Kirchner
2008 Jul	Survey of the hydraulic system of Casarabonela, Málaga, Spain. PI: Fèlix Retamero
2007 Sep	Field survey and archaeological excavation of Es Torretó site, Menorca, Spain. PI: Helena Kirchner

Thematic courses and workshops attended

2018 Aug	Numbers for policy: practical problems in quantification Centre for the Study of the Sciences and the Humanities, University of Bergen (Norway), & Open Evidence Research, Universitat Oberta de Catalunya (UOC) (Spain). Universitat Oberta de Catalunya, Castelldefels, Spain.
2018 Jun	Tenth summer school on sensitivity analysis of model output Joint Research Centre (JRC), European Commission. Hotel Conca Azurra, Ranco, Italy.
2018 Apr	Fractals and scaling Complexity Explorer, Santa Fe Institute, USA
2017 Feb	Sensitivity analysis, sensitivity auditing and beyond Institut de Ciència i Tecnologia Ambientals (ICTA), Universitat Autònoma de Barcelona, Spain
2013 Feb	Complexity and network theory Institució Milà i Fontanals, CSIC Barcelona, Spain
2011 Feb	Soil micromorphology and geoarchaeology Department of Archaeology, University of Cambridge, UK
2010 Feb	Stable isotopes and environmental change Department of Archaeology, University College London, UK
2008 Nov	GIS specialized course

CREAF, Facultat de Ciències, Universitat Autònoma de Barcelona, Spain

Teaching

2011–2012	Agrarian Archaeology (fieldwork) Archaeology Degree, Universitat Autònoma de Barcelona, Spain
2009–2010	Techniques for Historical Research II History Degree, Universitat Autònoma de Barcelona, Spain

Languages

Spanish	Mother tongue
Catalan	Mother tongue
English	Proficient

Software

<i>R</i>	Proficient
<i>XLSTAT</i>	Proficient
<i>L^AT_EX</i>	Proficient
Microsoft Office	Proficient

Memberships

2018	Ecological Society of America
2018	Society for Human Ecology

Mentored students

2014–2015	Svenja Riedesel (Institute of Geography, University of Cologne, Germany) I provided Svenja with training in soil sampling methods, follow-up during her BA degree in Geography, externally reviewed her BA thesis “Transport and sedimentation of modern litoral and fluvial deposits along the Black Sea coast of Georgia. A multi-proxy dataset approach”, graded 1 out of 4 (1 = highest grade, 4 = lowest grade), and provided references for her applications to conduct the MSc degree abroad. Michèle Keller (Institute of Geography, University of Cologne, Germany) I hired Michelle as a student to provide support in the laboratory, and trained her in soil physico-chemical analysis such as PSD, carbon tests and pH/EC.
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Scientific reviewing

Environmental and Natural Resources Research Journal, National Geographic Society, Israel Science Foundation, Catena, Land Degradation and Development, Revista del Centro de Estudios Históricos de Granada y su Reino, Arid Land Research and Management.

Scientific referees

NAME, SURNAME: Andrea Saltelli
PROFESSIONAL RELATIONSHIP WITH APPLICANT: Supervisor in Bergen
LENGTH OF RELATIONSHIP: 2017–present
BODY TO WHICH THEY BELONG TODAY: University of Bergen
POST: Professor
TELEPHONE: +47-55-58-00-00
E-MAIL: andrea.saltelli@uib.no

NAME, SURNAME: Simon Levin
PROFESSIONAL RELATIONSHIP WITH APPLICANT: Supervisor in Princeton
LENGTH OF RELATIONSHIP: 2019–present
BODY TO WHICH THEY BELONG TODAY: Princeton University
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