Christopher V. Henri, Ph.D.

Research associate • University of California, Davis

nationality: France
Center for Watershed Sciences
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RESEARCH INTERESTS	o Human health risk assessment in heterogeneous hydrogeological systems
	o Modeling of groundwater contamination under heterogeneous conditions
	o LaGrangian numerical methods for multispecies reactive transport problems
	o Stochastic hydrogeology - Application of geostatistical methods
	o Impact of land-use and non-point sources on groundwater quality

EDUCATION	Ph.D. in Civil and Environmental Engineering (2015), grade: excellent, cum laude Universitat Politècnica de Catalunya. Barcelona, Spain
	Master in Earth and Environmental Sciences (2010), honors University of Rennes I, France
	Bachelor in Water Sciences (2008), honors Environmental School of Rennes, France

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ACADEMIC AND PROFESSIONAL EXPERIENCES	**Research associate (postdoc)** Center for Watershed Science University of California, Davis, USA "Providing tools to enable decision makers to develop policy and guidance for the application of the Anti-Degradation policy to groundwater" – Probabilistic risk assessment for non-point source contaminations; Impact of land-use on groundwater quality.	2016-present
	Research associate (postdoc) Institute of Environmental Sciences and Water Research, IDAEA, Spanish Research Council (CSIC) / Department of Civil and Environmental Engineering, Universitat Politècnica de Catalunya, Barcelona, Spain "Developing Lagrangian numerical method for non-linear reactive transport (in collaboration with the Colorado School of Mines)"	2015-2016 (10 months)
	Research assistant Advisor: Dr. Daniel Fernàndez-Garcia Department of Civil and Environmental Engineering Universitat Politècnica de Catalunya UPC, Barcelona, Spain "Risk management of complex aquifers contaminated by chemical	2011-2015

mixtures: Numerical tools and human health risk assessment"

Visiting researcher Collaborator: Dr. Felipe P.J. de Barros		2014 (Sept. - Dec.)

Sonny Astani Department of Civil and Environmental Engineering
University of Southern California, Los Angeles, California, USA

"Probabilistic human health risk assessment for chemical mixture"

Research assistant Advisor: Dr. Marie Boucher		2010 (Jan. - July)

IRD (Research Institute for Development) Department of Niamey, Niger

"Hydrogeological modeling of the Wankama site and estimation of the contribution of geophysics to the modeling", project GHYRAF (Gravity and Hydrology in Africa)

Research assistant Advisor: Dr. Jean-Christophe Marechal		2009 (Apr. - June)

Indo-French Cell for Water Science (Collaboration between the Civil engineering department of the Indian Institute of Science and the IRD), Bangalore, India

"Monitoring of the agricultural watershed of Maddur, India"

Research assistant Advisor: Dr. Olivier Bour		2007-2008 (partial time)

Geosciences Rennes, Armorican Research Center in Environment (CNRS, University of Rennes 1), Rennes, France

Data compilation and analysis (precipitation, groundwater table, pumping, etc.), fieldwork for the French network of hydrogeological sites (H$^+$)

Assistant manager of "water network" dpt.		2005-2007 (partial time)

Veolia Water, Lisieux, France

Water network design, modeling, field work planning, administrative task, storage management

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PEER REVIEWED PUBLICATIONS
(link to Google Scholar)

7(+2 to come) papers in international journals with IF>3;

4(+1 to come) as first author.

· **Christopher V. Henri** and Thomas Harter (in preparation), Non-point source contamination and aquifer heterogeneity: a stochastic assessment of the joint impact of heterogeneity and extraction wells characteristics on arrival times and contributing areas.

· Dong Ding, David A. Benson, **Christopher V. Henri**, Daniel Fernàndez-Garcia, Mantha S. Phanikumar, David W. Hyndman (in review for publication in Water Resources Research), Application of the Lagrangian particle-tracking method to simulating mixing-limited, field-scale biodegradation at Schoolcraft, MI site.

· David A. Benson, Tomás Aquino, Diogo Bolster, Nicholas Engdahl, **Christopher V. Henri**, Daniel Fernàndez-Garcia (2016), A comparison of Eulerian and Lagrangian transport and non-linear reaction algorithms, Advances in Water resources, doi:10.1016/j.advwatres.2016.11.003.

· **Christopher V. Henri**, Daniel Fernàndez-Garcia and Felipe P. J. de Barros (2016), Assessing the joint impact of DNAPL source-zone behavior and degradation products on the probabilistic characterization of human health risk, Advances in

Water Resources, doi:10.1016/j.advwatres.2015.12.012.

- Daniel Fernàndez-Garcia, Marco Barahona, **Christopher V. Henri** and Xavier Sanchez-Vila (2015), A local adaptive kernel regression method for facies delineation, Journal of Hydrology, 531, 62-72, doi: 10.106/j.hydrol.2015.09.066.

- **Christopher V. Henri** and Daniel Fernàndez-Garcia (2015), A Random Walk Solution for Modeling Solute Transport with Network Reactions and Multi-Rate Mass Transfer in Heterogeneous Systems: Impact of Biofilms, Advances in Water Resources, 86, 119-132, doi: 10.1016/j.advwatres.2015.09.028.

- **Christopher V. Henri**, Daniel Fernàndez-Garcia and Felipe P. J. de Barros (2015), Probabilistic human health risk assessment of degradation-related chemical mixtures in heterogeneous aquifers: Risk statistics, hot spots and preferential channels, Water Resources Research, 51, doi: 10.1002/2014WR016717.

- **Christopher V. Henri** and Daniel Fernàndez-Garcia (2014), Toward efficiency in heterogeneous multispecies reactive transport modeling: A particle tracking solution for first-order network reactions, Water Resources Research, 50(9), 7206-7230, doi: 10.1002/2013WR014956.

- Julia Pfeffer et al. (2013), Evaluating surface and subsurface water storage variations at small time and space scales from relative gravity measurements in semi-arid Niger, Water Resources Research, 49(6), 3276–3291, doi: 10.1002/wrcr.20235.

CONFERENCE PRESENTATIONS (WITH ABSTRACTS)

9 presentations; 8 in international conferences

- **Christopher V. Henri** and Thomas Harter, Hydrogeologic heterogeneity enhances the transfer of salt toward the high-quality deep aquifers of the western San Joaquin Valley (CA, USA). Poster presentation at the American Geophysical Union Fall Meeting 2016, San Francisco (USA).

- Dong Ding, David A. Benson, **Christopher V. Henri**, Daniel Fernàndez-Garcia, Mantha S. Phanikumar, David W. Hyndman, Application of a lagrangian particle tracking and reaction method to simulate the field-scale bioremediation experiment at the Schoolcraft site, Michigan. Oral presentation at the American Geophysical Union Fall Meeting 2016, San Francisco (USA).

- **Christopher V. Henri**, Daniel Fernàndez-Garcia and Felipe P. J. de Barros, Human health risk management tools for degradation-related chemical mixtures in heterogeneous aquifers: Hot spots prediction and impact of connectivity. Poster presentation at the European Geophysical Union General Assembly 2015, Vienna (Austria).

- **Christopher V. Henri**, Daniel Fernàndez-Garcia and Felipe P. J. de Barros, Probabilistic human health risk assessment of chemical mixtures: Controlling factors. Poster presentation at the American Geophysical Union Fall Meeting 2014, San Francisco (USA).

- **Christopher V. Henri**, Daniel Fernàndez-Garcia and Felipe P. J. de Barros, Probabilistic human health risk assessment of chemical mixtures: Controlling factors. Oral presentation at the European Geophysical Union General Assembly 2014, Vienna (Austria).

- **Christopher V. Henri**, Daniel Fernàndez-Garcia and Felipe P. J. de Barros, Interplay between subsurface structural heterogeneity and multispecies reaction transport in human health risk assessment. Poster presentation at the American Geophysical Union Fall Meeting 2013, San Francisco (USA).

- · **Christopher V. Henri** and Daniel Fernàndez-Garcia, Relevant modeling of network reaction and multirate mass transfer under heterogeneous conditions? A particle tracking solution. Poster presentation at the European Geophysical Union General Assembly 2013, Vienna (Austria).

- · **Christopher V. Henri** and Daniel Fernàndez-Garcia, Toward efficiency in multispecies reactive transport modeling under heterogeneous conditions: A particle tracking solution for network reactions. Poster presentation at the 3rd SCARCE International Conference, 2012, Valencia (Spain).

- · **Christopher V. Henri** and D. Fernàndez-Garcia, Serial reactions using random walk particles tracking methods. Poster presentation at the European Geophysical Union General Assembly 2012, Vienna (Austria).

INVITED ORAL PRESENTATION

Van Tuyl lecture, Colorado School of Mines, Golden, CO, USA, Oct. 2015.

Risk management tools for heterogeneous aquifers contaminated by degradation-related chemical mixtures.

CURRENT INTERNATIONAL COLLABORATIONS

Felipe P. J. de Barros' research group
Sonny Astani Department of Civil and Environmental Engineering
University of Southern California, Los Angeles, California, USA

David A. Benson's research group
Department of Geology and Geological Engineering
Colorado School of Mines, Golden, Colorado, USA

Daniel Fernàndez-Garcia and Xavier Sanchez-Vila's research group
Department of Civil and Environmental Engineering
Universitat Politecnica de Catalunya, Barcelona, Spain

CONSULTING

Modeling of the Calama (Chile) watershed
3-Dimentional Visual Modflow model

DNAPL contaminated sites in Catalonia (for the Catalan Waste Agency)
Groundwater flow and source zone modeling

GRANTS

Mobility Grant (from France to Niger) 2010
Ministry of Higher Education and Research, France

Mobility Grant (from France to India) 2009
Ministry of Higher Education and Research, France

MEMBERSHIP

European Geosciences Union (since 2012)

American Geophysical Union (since 2013)

REVIEW FOR   Water Resources Research

Journal of Hydrology

Hydrological Processes

OTHER SKILLS   **Languages**

French: native   English: fluent   Spanish: advanced

Computing

Programing:	Fortran90, Matlab, HTML
Scientific and mathematical tools:	Mathcad, Maple, Origin, Grapher, Surfer, Tecplot
Water sciences related:	Modflow (+RT3D/MT3D), RemChlor, RW3D
GIS and geostatistics:	ArcGis,, SGEMS, T-PROGS
Words and Numbers:	LaTeX, Microsoft Office (Word, Excel, Access, Powerpoint), Pages, Numbers, Keynote
Editing:	Illustrator, Paraview, Photoshop, Final Cut