

Benjamin Le Roy

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POSTDOCTORAL RESEARCH EXPERIENCE

	Climate Service Center Germany (GERICS) Helmholtz-Zentrum Hereon	Marie Skłodowska-Curie Actions Postdoctoral fellow
	City-oriented Impacts of Regional Climate for Europe (CIRCE)	
Jul. 2023 – Current	Supervisor: Diana Rechid (<i>GERICS, Helmholtz-Zentrum Hereon</i>)	
	<ul style="list-style-type: none">• Identify impact indicators that are relevant for local urban decision-makers• Find the best regional climate modelling configurations for urban impact studies• Analyse the future evolution of city-oriented impacts of climate change • Collaboration with the EURO-CORDEX, CORDEX-FPS-Convection and CORDEX-FPS-URB-RCC projects	
	Princeton University/GFDL/NOAA	Postdoctoral researcher
	Cooperative Institute for Modelling the Earth System. Downscaled Climate Projections for Heat & Health Applications	
May 2022 – Apr. 2023	Supervisor: Keith Dixon (<i>GFDL/NOAA</i>)	
	<ul style="list-style-type: none">• Development of a modelling framework for the study of the US urban climate• Case study for the city of Philadelphia, Pennsylvania• SURFEX-TEB simulations of Philadelphia driven by ERA5 reanalysis in the past downscaled CMIP6 global climate models in the future	
Feb. 2021 – Jan. 2022	Météo-France/CNRS	Postdoctoral researcher
	Funded by the RÉSILIANCE and MODRADURB projects supported by the French Agency for the Environment and Energy Management (ADEME) as part of the research project “Towards responsible buildings”	
	Supervisor: DR. Aude LEMONSU (<i>Météo-France/CNRS</i>)	
	<ul style="list-style-type: none">• Production of Typical Meteorological Year combining EURO-CORDEX projection ensemble and high-resolution CNRM-AROME urban climate simulations for building energy simulations• Statistical correction of regional climate models (EURO-CORDEX)• Statistical analysis and extraction of future extreme heat waves • Application of a statistical-dynamical downscaling approach combining EURO-CORDEX regional climate projections and high-resolution Meso-NH urban climate simulations on several French cities• Production of impact indicators over the Paris region with SURFEX(TEB)	

PREDOCTORAL RESEARCH EXPERIENCE

	Météo-France/CNRS	Doctoral student
Nov. 2017 – Feb. 2021	Funded by the URCLIM project as a part of ERA4CS (JPI-Climate /European Union) Funded by the French “Ministry of Ecological and Solidarity Transition” as part of the “Climate Services Convention” Supervisor: DR. Aude LEMONSU (<i>Météo-France/CNRS</i>)	<ul style="list-style-type: none"> • Climatological analysis of multi-sources geo-spatialized data • Development of a statistical-dynamical downscaling approach combining EURO-CORDEX regional climate projection and Meso-NH urban climate simulations • Production of impact indicators over the Paris region with SURFEX(TEB)
	Grenoble Alpes University	Research intern student
Mar. 2017 – Jul. 2017	Supervisor: MCF. Sandra ROME (IGE, UGA) & PR. Sylvain BIGOT (IGE, UGA) “Study of the urban microclimate of the Auvergne-Rhône-Alpes region using a stationary approach and optical remote sensing”	
	University Joseph Fourier	Research intern student
Apr. 2016 – May 2016	Supervisor: MCF. Sandra ROME (LTHE, UJF) “Characterisation of summer temperatures and hot extremes in Grenoble, present and future trends”	

EDUCATION

	University of Toulouse III – Paul Sabatier	PhD
Nov. 2017 – Feb. 2021	Doctoral School Geosciences, Astrophysics, Space and Environmental Sciences Speciality Ocean, Atmosphere and Continental Surfaces Traning courses at the National School of Meteorology (<i>ENM, Météo-France</i>)	<ul style="list-style-type: none"> • Urban Meteorology (2nd year course of the <i>ENM</i>) • SURFEX training
	Grenoble Alpes University	Master
Sep. 2015 – Aug. 2017	Geography, Planning, Environment, and Development (<i>GAED</i>) <i>Institut de Géographie Alpine</i> of Grenoble (Grenoble Alpes University) Speciality Geography, Information, Interfaces, Sustainability, Environments (GEOIDES)	
	Joseph Fourier University	Bachelor
Sep. 2012 – Aug. 2015	Geography and Planning <i>Institut de Géographie Alpine</i> of Grenoble (University Joseph Fourier) Speciality Environment	

PUBLICATIONS

Le Roy, B., Dixon, KW., Adams-Smith, D., Lanzante, JR & Nath, MJ. (*In prep*). Historical simulation of Philadelphia's urban climate for heat and health applications.

Le Roy, B., Lemonsu, A. & Schoetter, R.. (*In prep*). Study of the future evolution of the urban climate of Paris by statistical-dynamical downscaling of the EURO-CORDEX ensemble.

André, J., **Le Roy, B.**, Lemonsu, A., Colombert, M. & Masson, V. (*In prep*). Diffusion to public stakeholders of the Paris region of high resolution simulations for the evolution of local urban climate.

Lemonsu, A., Caillaud, C., Alias, A., Riette, S., Seity, Y., **Le Roy, B.**, Michau, Y. & Lucas-Picher, P. (**2022**). What added value of CNRM-AROME convection-permitting regional climate model compared to CNRM-ALADIN regional climate model for urban climate studies? Evaluation over Paris area (France). *Climate Dynamics*.

Le Roy, B., Lemonsu, A., & Schoetter, R. (**2021**). A statistical–dynamical downscaling methodology for the urban heat island applied to the EURO-CORDEX ensemble. *Climate Dynamics*, 56(7), 2487-2508.

Masson V., E. Bocher, B. Bucher, Z. Chitu, S. Christophe, C. Fortelius, R. Hamdi, A. Lemonsu, A. Perrels, B. Van Schaeybroeck, B. Wichers Schreur, L. Velea, Y. Beddar, J.-C. Calvet, A. Delcloo, A. Druel, F. Duchêne, G. Dumas, J. Gautier, M. Goret, M. Horttanainen, R. Kouznetsov, A. Le Bris, S. Lecorre, **B. Le Roy**, Y. Palamarchuk, G. Petit, R. Ruuhela, O. Saranko, M. Sofiev, P. Siljamo, H. Van de Vyver, P. van Velthoven, A. Votsis (**2020**) : The Urban Climate Services URCLIM project, *Climate Services*, in press, 10.1016/j.cliser.2020.1

Le Roy, B., Lemonsu, A., Koukou-Arnaud, R., Brion, D. & Masson, V. (**2019**). Long time series spatialized data for urban climatological studies: A case study of Paris, France. *International Journal of Climatology*, 40(7), 3567-3584. <https://doi.org/10.1002/joc.6414>

GRANTS

Horizon Europe Framework Programme (HORIZON)
2023 Marie Skłodowska-Curie Actions Postdoctoral Fellowships 2021 (HORIZON-
- MSCA-2021-PF-01)
2025 City-oriented Impacts of Regional Climate for Europe (CIRCE)

CONFERENCES / ORAL PRESENTATIONS

103rd American Meteorological Society Annual Meeting

High-resolution urban climate simulations to study health impacts of heat in Philadelphia. **Le Roy B.**, Dixon, KW., Lanzante, J.R., Adams-Smith, D., Nath, M.J., Whitlock, C.E., Jones H., Mecray, H. 2023. Denver, Colorado

On the Representation of the Urban Heat Island in Climate Data Products used in Heat and Health Studies. Dixon, KW., **Le Roy, B.**, Adams-Smith, D., Lanzante, J. 2023. Denver, Colorado

International Association For Urban Climate IAUC

Study of the impacts of climate change on the urban climate of Paris by statistical-dynamical downscaling of the EURO-CORDEX ensemble. **Le Roy, B.**, Lemonsu, A., Machado, T., Robert, S. 2022. Virtual Poster Conference

International Conference on Regional Climate CORDEX

Challenges of statistical-dynamical downscaling of EURO-CORDEX regional climate models for impact studies at the city scale **Le Roy, B.**, Lemonsu, A., Robert, S. & Masson, V. 2019. Beijing, China.

High-resolution regional climate modelling with CNRM-AROME to study the urban climate of Paris (France) area and its evolution with climate change. Lemonsu, A., **Le Roy, B.**, Caillaud, C. 2019. Beijing, China.

10th International Conference on Urban Climate/14th Symposium on the Urban Environment

Infrared Satellite Imagery for Urban Climate Model Evaluation at City Scale **Le Roy, B.**, Lemonsu, A., Masson, V., Koukou-Arnaud, R. & Brunel, P. 2018. New York City, USA.

XXXIe colloque annuel de l'Association Internationale de Climatologie

Les services climatiques pour faciliter l'analyse des températures extrêmes à l'échelle locale: cas d'étude en Auvergne-Rhône-Alpes, France. Rome, S., Bigot, S., **Le Roy, B.**, Madelin, M. & Duché, S. 2018. Nice, France.

INTERVENTION / SUPERVISION

Nov. 2019	Speech in the Master 1 Geography, Information, Interfaces, Sustainability, Environments (GEOIDES), Grenoble Alpes University "Introduction to the Urban Climate and the Urban Heat Island" in the "Climatic Resources" course supervised by MCF. Sandra ROME
Jan. 2019	Speech in the "CREDIGE" multi-disciplinary week of Toulouse' schools of engineering, National School of Meteorology (Toulouse) "Introduction to the Urban Climate"
Oct. 2016 - Feb. 2017	Coordination of a workshop for the city of Grenoble as part of the Master 2 Geography, Information, Interfaces, Sustainability, Environments (GEOIDES) <i>"Predisposition to urban heat islands (UHI) in Grenoble: mapping by remote sensing and interest of in situ measurements"</i>