

Sylvain GIROUD

Animal Ecophysiologicalist

RESEARCH INTERESTS

Energetics & Lipids
Heterothermy
Global Change
Evolution

Professional address:

Northern Michigan University
Department of Biology
1401 Presque Isle Ave
Marquette, 49855 MI, USA
Phone +1 (906) 227 2145

E-mail: sgiroud@nmu.edu

ORCID: <http://orcid.org/0000-0001-6621-7462>

Lab website: <https://www.energetics-lab.com>

DOB: 25 July 1978 at Echirolles, France
Married, 2 Kids

EDUCATION

2022. Habilitation '*Venia Docendi*' in Animal Physiology

University of Vienna, Austria

Title: "Seasonal regulations of metabolic downstates"

2004-2008. PhD in Animal Ecophysiology

University of Strasbourg, France (Grant of the French Minister)

Department of Ecology, Physiology, Ethology; Hubert Curien Interdisciplinary Institute, CNRS-Uni Strasbourg

Title: "Energy-saving mechanisms in a heterothermic Malagasy primate: the grey mouse lemur"

2003-2004. Master in Integrative (Eco)physiology

Claude Bernard University, Lyon, France (Grant of the French Minister)

Master thesis: "System NMDA-receptor/oxide nitric and ventilatory acclimatization to chronic hypoxia in rat"

2000-2003. Bachelor in Cell Biology and Physiology

Joseph Fourier University, Grenoble, France & Concordia University, Montreal, Canada

ACADEMIC POSITIONS

Since 2023. Assistant Professor of Wildlife Animal Physiology

Department of Biology, Northern Michigan University (NMU), Michigan, USA

Since 2022. Guest Assistant Professor – Principal Investigator

Research Institute of Wildlife Ecology, Department of Interdisciplinary Life Sciences, University of Veterinary Medicine Vienna, Austria

2019 to 2023. Leader of the team '[Ecophysiology of Metabolic Downstates](#)'

Research Institute of Wildlife Ecology, Department of Interdisciplinary Life Sciences, University of Veterinary Medicine Vienna, Austria

2014 to 2022. Senior Research Associate – Principal Investigator

Research Institute of Wildlife Ecology, Department of Interdisciplinary Life Sciences, University of Veterinary Medicine Vienna, Austria

2012-2013 & 2015 & 2021-2023. Lecturer at the University of Vienna & University of Natural Resources and Life Sciences, Austria

2010-2014. Postdoctoral Researcher

Research Institute of Wildlife Ecology, Department of Interdisciplinary Life Sciences, University of Veterinary Medicine Vienna, Austria

2007-2009. Assistant Lecturer

Hubert Curien Interdisciplinary Institute, Department of Ecology, Physiology, Ethology; CNRS-UdS Nancy

FUNDED GRANTS, SPONSORSHIPS AND FELLOWSHIPS

Funded grants ~1.200.000€ including ~730.000€ as PI

2026-2031. Submitted Grant as Lead Investigator to the National Science Foundation (NSF), Organisms Responses to Climate Change (ORCC) for a project: ‘Disentangling genetic and non-genetic mechanisms of mammalian hibernation to predict climate change effects on seasonal life-history strategies (Total required amount: \$1,900,000 over 5 years) [Subaward of \$1,300,000]

2025-2028. Submitted Grant as Collaborator to the National Science Foundation (NSF), Equipment: MRI: Track I: ‘Acquisition of Fluorescence-Activated Cell Sorter (FACS) to Promote Interdisciplinary Research and Collaborative Education in Rural Michigan’ (Total required amount: \$773,740 over 3 years) [PI: Prof Lanrong Bi, Michigan Technological University, Houghton, MI, US]

2025-2029. Submitted Doctoral Research Grant as Co-Investigator to HORIZON-MSCA-2024: “Bridging healthy Living and planetary health by Using Exposome factors that Promote Longevity and healthy Ageing inspired by NaturE and Training of new generation health professionals” (BOUNLESS 4,500,000€ shared between 6 partners over 4 years) [PI: Prof Leon Schürgers at University of Maastricht]

2025. Faculty Reassigned Time Award as Lead Investigator at Northern Michigan University: “Establishment of a colony of thirteen-lined ground squirrels” (No extra-cost for 6 months)

2024-2025. Faculty Research Grant as Lead Investigator at Northern Michigan University: “Linking health status to seasonal telomerase ACTivation in hibernating species” (LIAC, 7,000\$ for 1.5 year)

2021-2024. Research grant as Co-Investigator to the French National Agency for Research (ANR): “Diving into physiological paradoxes: hypoxemia and hypothermia in foraging seals” (450,068€ over 3 years) [PI: Prof Caroline Gilbert at CNRS Brunoy / ENVA Maisons-Alfort, France]

2022-2025. Teaching grant as Co-Investigator from the National Science Fund (NSF), International Research Experience for Students (IRES) to act as students’ mentor on the topic “Comparative Physiology of Energy Balance” (Gross amount 250,000\$ for 3 years) [PI: Prof Jessica Healy at Austin College, US]

2020-2021. Research grant as Lead Investigator from the Scientific and Technological Cooperation (WTZ-Program) for a joint project: “Comparison of life-history traits between fat and food-storing hibernators” (5,800€) [Co-PI: Prof Caroline Hahold at CNRS Strasbourg, France]

2018-2022. Stand-Alone Project as Lead Investigator from the Austrian Science Fund (FWF): “[Plasticity of ontogeny of energy saving mechanisms in heterothermic mammals](#)” (392,797€ over 4 years)

2016-2019. Research grant as Collaborator of the Spanish National Research Council for a project: “Evolution of mammalian life history in continental Iberian ecosystems from the Miocene to Pleistocene: correlation with climatic changes” [In collaboration with Prof Meike Köhler at the Autonomous University of Barcelona, Spain]

2014-2017. Stand-Alone Project as Lead Investigator from the Austrian Science Fund (FWF): “[Polyunsaturated fatty acids and hibernation: underlying mechanisms and consequences for ageing](#)” (325,000€ over 3 years)

Sponsorships and fellowships ~46.000€

2023. Sponsorship from the Journal of Thermal Biology (2,250€) as support for a co-organized symposium on ‘Thermoregulatory and Metabolic Adaptations to a Changing World’ at the SEB Meeting [Edinburgh, 4-7 July 2023]

2019. Sponsorship from Sable Systems (1,750€) and Loligo System (750€) as support for a co-organized symposium on 'Saving energy in a fluctuating environment: from the whole organism down to the molecule' at the SEB Meeting [Seville, 2-5 July 2019]

2019. Sponsorship from Frontiers in Physiology (1,950€) as support for a co-organized symposium on 'Living at low pace: From the whole organism to the molecule' at the 2019 ICCPB [Ottawa, 5-9 August 2019]

2010-2013. Post-doctoral Fellowship of the University of Veterinary Medicine Vienna (10,000€/year for 4 years)

2003-2007. Research Fellowship of the French Ministry for Research (PhD thesis)

PUBLICATIONS

Published and submitted in peer-reviewed journals

1. Ingelson-Filpula W.A, K bber-Heiss A, Painer J, Stalder G, Hadj-Moussa H, Bertile F, Habold C, **Giroud S***, Storey K.B*. Regulation of metabolism and energy-expensive processes in hibernating dormouse liver may be directed by microRNA. **Under review** in *Frontiers in Physiology - Special Topic "Torpor and Hibernation: Metabolic and Physiological Paradigms"* *equally-contributed authors
2. Constant T, Chignec H, Zahn S, Habold C*, **Giroud S***. Pace of life syndrome as a sex specific response to early life condition. **Under review** in *Royal Society Open Science*
3. Nowack J, Marshall K, Terrien T, **Giroud S**. Editorial: Thermoregulatory and Metabolic Adaptations in a Changing World. Submitted to *Journal of Thermal Biology*
4. Thiel A, Hertel A.G, Fuchs B, Friebe A, Ahlqvist D, Randi Gr sli A, **Giroud S**, Kindberg J, Arnemo J.M, Evans A.L. Behavioral responses of brown bears to helicopter captures. Submitted to *Wildlife Biology*
5. Mugnier M, Rauch H, Haw A, Jourdan G, **Giroud S**, Stalder G, Painer-Gigler J, Rocchi A, Pohlin F. Comparison of three sedation protocols in isoflurane anaesthetized garden dormice (*Eliomys quercinus*) undergoing laparotomy. **Under review** in *Journal of Zoo and Wildlife Medicine*
6. Posautz A, Springler G, K bber-Heiss A, **Giroud S**. First report of tumors in Garden dormice (*Eliomys quercinus*). **Accepted** in *Veterinary Pathology*
7. Constant T, Dobson F.S, **Giroud S***, Habold C*. Safe-periods and safe-activities: two phenological responses to mortality **Accepted** in *Ecology and Evolution* *equally-contributed authors
8. Redon L , Constant T , Smith S, Habold C, **Giroud S**. Understanding seasonal telomere dynamics in hibernating species. *Journal of Thermal Biology - Special Issue "Thermoregulatory and Metabolic Adaptations in a Changing World"* 123, **2024** [DOI: 10.1016/j.jtherbio.2024.103913]
9. Lewis C.T.A, Melhedegaard E.G, Ognjanovic M.M, Olsen M.S, Laitila J, Seaborne R.A.E, Gronset M.N, Zhang C, Iwamoto H, Hessel A.L, Kuehn M.N, Merino C, Amig  N, Frobert O, **Giroud S**, Staples J.F, Goropashnaya A.V, Fedorov V.B, Barnes B.M, Toien O, Drew K.L, Sprenger R.J, Ochala J. Remodelling of skeletal muscle myosin metabolic states in hibernating mammals. *eLife* 13:RP94616, **2024** [DOI: 10.7554/eLife.94616.3]
10. **Giroud S**, Yamaguchi Y, Terrien J, Henning R. Editorial of the Research Topic: Torpor and Hibernation: Metabolic and Physiological Paradigms. *Frontiers in Metabolic Physiology - Special Topic "Torpor and Hibernation: Metabolic and Physiological Paradigms"* 15:1441872, **2024** [DOI: 10.3389/fphys.2024.1441872]
11. Constant T, Dobson F.S, Habold C*, **Giroud S***. Trade-offs in dormancy phenology in endotherms and ectotherms. *eLife* **2023**;12:RP89644 [DOI: 10.7554/eLife.89644] *equally-contributed authors
12. Lalana C.G, Hoelzl F, Zahn S, Habold C, Cornils J.S, **Giroud S***, Smith S*. Seasonal variations in telomerase activity and telomere dynamics in a hibernating rodent, the garden dormouse (*Eliomys quercinus*). *Frontiers in Physiology - Special Topic "Torpor and Hibernation: Metabolic and Physiological Paradigms"* 14:1298505, **2023** [DOI: 10.3389/fphys.2023.1298505] *equally-contributed authors
13. Thiel A, Hertel A.G, **Giroud S**, Friebe A, Fuchs B, Kindberg J, Arnemo J.M, Evans A.L. The cost of research: Lasting effects of capture, surgery, and muscle biopsy on brown bear (*Ursus arctos*) movement and physiology. *Animal Welfare* 32, e75, 1-11, **2023** [DOI: 10.1017/awf.2023.95]

14. Haugg E, Borner J, Stalder G, **Giroud S***, Herwig A*. Comparative transcriptomics of the hibernating garden dormouse hypothalamus. *FEBS Open Bio* 14(2), 241-257, **2023** [DOI: 10.1002/2211-5463.13731] *equally-contributed authors
15. Evans A.L, Fuchs B, Navinder J.S, **Giroud S**, Blanc S, Laske T.G, Frobert O, Friebe A, Swenson J.E, Arnemo J.M. Body mass determines hibernation length, body temperature, and heart rate in free-ranging brown bears. *Frontiers in Zoology* 20(1):27, **2023** [DOI: 10.1186/s12983-023-00501-3]
16. **Giroud S**, Ragger M-T, Baille B, Hoelzl F, Smith S, Nowack J, Ruf T. Food availability positively affects the survival and somatic maintenance of hibernating garden dormice (*Eliomys quercinus*). *Frontiers in Zoology* 20(1):19, **2023** [DOI: 10.1186/s12983-023-00498-9]
17. Strandvik B, Qureschi A.R, Painer J, Backman-Johansson C, Engvall M, Fröbert O, Stenwinkel P*, **Giroud S***. Elevated plasma phospholipid docosapentaenoic acid concentrations during hibernation in garden dormice and brown bears. *PLoS One* 18(6):e0285782, 2023 [DOI: 10.1371/journal.pone.0285782] *equally-contributed authors
18. De Wit L, Hamberg M.R, Ross A.M, Goris M, Lie F.F, **Giroud S**, Henning R.H, Hut R.A. Temperature effects on DNA damage in hibernation. *Physiological and Biochemical Zoology - Special theme issue: 'Hibernation and Daily Torpor'* 96(2): 144-152, **2023** [DOI: 10.1086/722904]
19. Charlanne L, Vetter S, Einwaller J, Painer J, Gilbert C*, **Giroud S***. „Sleeping together’: energetic consequences of huddling behavior in hibernating juvenile garden dormice (*Eliomys quercinus*). *Physiological and Biochemical Zoology - Special theme issue: 'Hibernation and Daily Torpor'* 95(5): 400-415, **2022** [DOI: 10.1086/721184] *equally-contributed authors
20. Ruf T, **Giroud S**, Geiser F. Hypothesis and Theory: A two-process model of torpor-arousal regulation in hibernators. *Frontiers in Physiology - Special Topic 'Biological rhythms: Evolution, Population Biology, and Adaptation'* 13:901270, **2022** [DOI: 10.3389/fphys.2022.901270]
21. Thiel A, **Giroud S**, Hertel A.G, Friebe A, Devineau O, Fuchs B, Blanc S, Støen O.G, Laske T, Arnemo J.M, Evans A.L. Slowing the pace in winter: Seasonality of biological rhythms in Scandinavian brown bears. *Frontiers in Physiology - Special Topic 'Biological rhythms: Evolution, Population Biology, and Adaptation'* 13:785706, **2022** [DOI: 10.3389/fphys.2022.785706]
22. Ruf T, Gasch K, Stalder G, Gerritsmann H, **Giroud S**. An hourglass mechanism controls torpor bout length in hibernating garden dormice. *Journal of Experimental Biology* 224(23):jeb243456, **2021** [DOI: 10.1242/jeb.243456]
23. **Giroud S**, Chery I, Arrivé M, Prost M, Zumsteg J, Heintz D, Evans A.L, Gauquelin-Koch G, Arnemo J.M, Swenson J.E, Lefai E, Bertile F, Simon C, Blanc S. Hibernating brown bears are protected against atherogenic dyslipidaemia. *Scientific Reports* 11:18723, **2021** [DOI: 10.1038/s41598-021-98085-7]
24. Huber N, Gerritsmann H, Stalder G, **Giroud S**. Shifts in immune cell function and composition in hibernating garden dormouse (*Eliomys quercinus*) *Frontiers in Physiology - Special Topic 'The Integrative Physiology of Metabolic Down-states'* 12:620614, **2021** [DOI: 10.3389/fphys.2021.620614]
25. Bertile F, Habold C, Le Maho Y, **Giroud S**. Body protein sparing in hibernators: a source for biomedical innovation. *Frontiers in Physiology - Special Topic 'The Integrative Physiology of Metabolic Down-states'* 12:634953, **2021** [DOI: 10.3389/fphys.2021.634953]
26. **Giroud S**, Habold C, Nespolo R, Terrien J, Logan S, Henning R, Storey K. Torpor and hibernation: metabolic adaptations and protective mechanisms. *Frontiers in Physiology - Special Topic 'The Integrative Physiology of Metabolic Down-states'* 11:623665, **2020** [DOI: 10.3389/fphys.2020.623665]
27. Watts A.J, Logan S.M, Kübber-Heiss A, Posautz A, Stalder G, Painer J, **Giroud S***, Storey K.B*. Regulation of peroxisomal lipid metabolism pathway during torpor in the garden dormouse, *Eliomys quercinus*. *Frontiers in Physiology - Special Topic 'The Integrative Physiology of Metabolic Down-states'* 11:615025, **2020** [DOI: 10.3389/fphys.2020.615025] *equally-contributed authors
28. **Giroud S**, Storey K, Nord A, Nowack J. Editorial of the Research Topic: Coping with Environmental Fluctuations - Ecological and Evolutionary Perspectives. *Frontiers in Physiology - Special Topic 'Coping with Environmental Fluctuations: Ecological and Evolutionary Perspectives'* 11:605186, **2020** [DOI: 10.3389/fphys.2020.605186]

29. Ebert T, Painer J, Bergman P, Qureshi A.R, **Giroud S**, Stalder G, Kublickiene K, Vetter S, Göritz F, Fröbert O, Arnemo J.M, Zedrosser A, Redtenbacher I, Johnson R, Shiels P.G, Stenvinkel P. Insights in the Regulation of TMAO Production Using a Comparative Biomimetic Approach: Identification of a Metabolic Switch in Hibernating Bears. *Scientific Reports* 10:20323, **2020** [DOI: 10.1038/s41598-020-76346-1]
30. Constant T, **Giroud S**, Viblanc V, Tissier M.L, Bergeron P, Dobson F.S, Habold C. Integrating extrinsic mortality risk in the adaptiveness of hibernation framework. *Frontiers in Physiology - Special Topic 'Coping with Environmental Fluctuations: Ecological and Evolutionary Perspectives'* 11: 706, **2020** [DOI: 10.3389/fphys.2020.00706]
31. Logan S.M, Watts A.J, Posautz A, Kübber-Heiss A, Painer J, Stalder G, **Giroud S***, Storey K.B*. The ratio of linoleic and linolenic acid in the pre-hibernation diet influences NFκB signaling in garden dormice during torpor. *Frontiers in Molecular Biosciences* 7: 97, **2020** [DOI: 10.3389/fmolb.2020.00097] *equally-contributed authors
32. Nord A & **Giroud S**. Lifelong effects of thermal challenges during development in birds and mammals. *Frontiers in Physiology - Special Topic 'Coping with Environmental Fluctuations: Ecological and Evolutionary Perspectives'* 11: 419, **2020** [DOI: 10.3389/fphys.2020.00419]
33. Luu B.E, Lefai E, **Giroud S**, Swenson J.E, Chazarin B, Gauquelin-Koch G, Arnemo J.M, Evans A.L, Bertile F, Storey K.B. MicroRNAs facilitate skeletal muscle maintenance and metabolic suppression in hibernating brown bears. *Journal of Cellular Physiology* 1-10, **2019** [DOI:10.1002/jcp.29294]
34. Nowack J, Tarmann I, Hoelzl F, Smith S, **Giroud S***, Ruf T*. Always a price to pay: hibernation at low temperatures comes with a trade-off between energy savings and cellular damage. *Biology Letters* 15: 20190466, **2019** [DOI: 10.1098/rsbl.2019.0466] *equally-contributed authors
35. **Giroud S**, Chery I, Bertile F, Bertrand-Michel J, Tascher G, Gauquelin-Koch G, Arnemo J.M, Swenson J.E, Singh N.J, Lefai E, Evans A.L, Simon C, Blanc S. Lipidomics reveal seasonal shifts in a large-bodied hibernator, the brown bear. *Frontiers in Physiology* 10: 389, **2019** [DOI: 10.3389/fphys.2019.00389]
36. **Giroud S**, Evans A.L, Chery I, Bertile F, Tascher G, Bertrand-Michel J, Gauquelin-Koch G, Arnemo J.M, Swenson J.E, Lefai E, Blanc S, Simon C. Seasonal changes in eicosanoids metabolism in the brown bear. *The Science of Nature* 105(9-10), **2018** [DOI: 10.1007/s00114-018-1583-8]
37. **Giroud S**, Gerritsmann H, Stalder G, Anna Kübber-Heiss, Jae Kwak, Arnold W, Ruf T. Dietary lipids affect the onset of hibernation in the garden dormouse (*Eliomys quercinus*): Implications for cardiac function. *Frontiers in Physiology* 9: 1235, **2018** [DOI: 10.3389/fphys.2018.01235]
38. Mahler B, Gerritsmann H, Stalder G, Ruf T, Zahariev A, Blanc S, **Giroud S**. Being born late in the active season: implications for growth, pre-hibernation fattening, energetic strategies and reproductive success. *Elife* 7: e31225, **2018** [DOI: 10.7554/eLife.31225]
39. Nowack J, **Giroud S**, Arnold W, Ruf T. Muscular non-shivering thermogenesis and its role in the evolution of endothermy. *Frontiers in Physiology - Special Topic 'The Evolution of Endothermy: From Patterns to Mechanisms'* 8: 889, **2017** [DOI: 10.3389/fphys.2017.00889]
40. Williams C.T, Klaassen M, Barnes B.M, Buck C.L, Arnold W, **Giroud S**, Vetter S, Ruf T. Seasonal reproductive tactics: Annual timing and the capital to income breeder continuum. *Philosophical Transactions of the Royal Society B - Special theme issue: 'Wild Clocks: integrating chronobiology and ecology to understand timekeeping in free-living animals'* 372: 20160250, **2017** [DOI: 10.1098/rstb.2016.0250]
41. Bieber C, Cornils J.S, Hoelzl F, **Giroud S**, Ruf T. The costs of locomotor activity? - Maximum body temperatures and the use of torpor during the active season in edible dormice. *Journal of Comparative Physiology B - Special theme issue: 'Living in a Seasonal World'*, 187 (5-6): 803-814, **2017** [DOI: 10.1007/s00360-017-1080-y]
42. Stumpf S, Bieber C, Ruf T, **Giroud S**. Differences in growth rates and pre-hibernation body mass gain between early and late-born juvenile garden dormice. *Journal of Comparative Physiology B*, 187(1): 253-263, **2017** [DOI: 10.1007/s00360-016-1017-x]
43. Jastroch M*, Barrett P*, Geiser F*, **Giroud S***, Heldmaier G*, Herwig A*. Seasonal control of energy balance: recent advances and current status. *Journal of Neuroendocrinology* 28(11), 10.1111/jne.12437, **2016** [DOI: 10.1111/jne.12437] *equally-contributed authors

44. Arnold W, **Giroud S**, Valencak T.G, Ruf T. Ecophysiology of omega fatty acids: a lid for each jar. *Physiology* 30(3): 232-240, **2015** [DOI: 10.1152/physiol.00047.2014]
45. **Giroud S**, Zahn S, Criscuolo F, Chery I, Blanc S, Turbill C, Ruf T. Late-born intermittently fasted juvenile garden dormice use torpor to grow and fatten during pre-hibernation: consequences for ageing processes. *Proceedings of the Royal Society of London B* 281 1797 20141131, 1471-2954, **2014** [DOI: 10.1098/rspb.2014.1131]
46. **Giroud S**, Frare C, Strijkstra A, Boerema A, Arnold W, Ruf T. Membrane phospholipid fatty acid composition regulates cardiac SERCA activity in a hibernator, the Syrian hamster (*Mesocricetus auratus*). *PLoS One* 8(5): e63111, **2013** [DOI: 10.1371/journal.pone.0063111]
47. Gilbert C, McCafferty DJ, **Giroud S**, Ancel A, Blanc S. Private heat for public warmth: How huddling shapes individual thermogenic responses of rabbit pups. *PLoS One* 7(3): e33553, **2012** [DOI: 10.1371/journal.pone.0033553]
48. Gilbert C, McCafferty DJ, Le Maho Y, **Giroud S**, Blanc S, Ancel A. One for all and all for one: the energetic benefits of huddling in endotherms. *Biological Reviews* 85(3): 545-569, **2010** [DOI: 10.1111/j.1469-185X.2009.00115.x]
49. **Giroud S**, Perret M, Stein P, Goudable J, Aujard F, Gilbert C, Robin JP, Le Maho Y, Zahariev A, Blanc S, Momken I. The grey mouse lemur uses season-dependent fat or protein sparing strategies to face chronic food restriction. *PLoS One* 5(1): e8823, **2010** [DOI: 10.1371/journal.pone.0008823]
50. **Giroud S**, Perret M, Gilbert C, Zahariev A, Goudable J, Le Maho Y, Oudart H, Momken I, Aujard F, Blanc S. Dietary palmitate and linoleate oxidations, oxidative stress and DNA damage differ according to season in mouse lemurs exposed to a chronic food deprivation. *American Journal of Physiology – Regulatory Integrative and Comparative Physiology* 297: 950-959, **2009** [DOI: 10.1152/ajpregu.00214.2009]
51. **Giroud S**, Perret M, Le Maho Y, Gilbert G, Blanc S. Gut hormones in relation to body mass and torpor patterns changes during food restriction and re-feeding in the grey mouse lemur. *Journal of Comparative Physiology B – Biochemical Systemic and Environmental Physiology* 179(1): 99-111, **2009** [DOI: 10.1007/s00360-008-0294-4]
52. **Giroud S**, Blanc S, Aujard F, Bertrand F, Gilbert C, Perret M. Chronic food shortage and seasonal modulations of daily torpor and locomotor activity in the grey mouse lemur (*Microcebus murinus*). *American Journal of Physiology – Regulatory Integrative and Comparative Physiology* 294: 1958-1967, **2008** [DOI: 10.1152/ajpregu.00794.2007]
53. Gilbert C, Blanc S, **Giroud S**, Trabalon M, Le Maho Y, Perret M, Ancel A. Role of huddling on the energetic of growth in a newborn altricial mammal. *American Journal of Physiology – Regulatory Integrative and Comparative Physiology* 293: 867-876, **2007** [DOI: 10.1152/ajpregu.00081.2007]
54. Dali-Youcef N, Matakı C, Coste A, Messaddeq N, **Giroud S**, Blanc S, Koehl C, Chambon P, Fajas L, Metzger D, Schoonjans K. Auwerx J. Adipose tissue specific inactivation of the retinoblastoma protein protects against diabetes due to increased energy expenditure. *Proceedings of the National Academy of Sciences* 104(25): 703-708, **2007** [DOI: 10.1073/pnas.0611568104]

Book chapters and congress abstracts

1. **Giroud S**. Ontogeny of seasonal rhythms. In: *Terrien J et al. (eds). Seasonal rhythms in living organisms*. ISTE, in preparation, expected for **2024**
2. Ingelson-Filpula W.A, **Giroud S**, Storey K.B. MicroRNA regulation of hepatic metabolism and energy-expensive processes during torpor in the garden dormouse. *Cryobiology* 113:104740, *Congress Abstract*, **2023** [DOI: 10.1016/j.cryobiol.2023.104740]
3. **Giroud S**, Habold C, Vetter S, Painer J, Four-Chaboussant A, Smith S, Gilbert C. Living in a changing world: Physiological and behavioral flexibility of juvenile garden dormice. *11th International Dormice Conference*, Svilengrad, Bulgaria, May 9-13, 2022, *Congress Abstract* [DOI: 10.3897/aca.5.e81850]
4. Haugg E, Borner J, **Giroud S**, Herwig A. Differential gene expression in the hypothalamus of hibernating garden dormice (*Eliomys quercinus*). 14th Meeting of the German Neuroscience Society, Virtual Conference, Göttingen, Germany, March 22-30, 2021. *Neuroforum* (27), S T22-1, *Congress Abstract*, 2021 [ISSN: 2363-7013]

5. **Giroud S**, Turbill C, Ruf T. Torpor use and body mass gain during pre-hibernation in late-born juvenile garden dormice exposed to food shortage. In: *Ruf T, Bieber C, Arnold W, Millesi E (eds). Living in a seasonal world: thermoregulatory and metabolic adaptations*. Springer, Heidelberg, pp. 481-491, **2012** [DOI: 10.1007/978-3-642-28678-0_42]
6. **Giroud S**, Blanc S, Perret M. Seasonal difference in energy-saving mechanisms during chronic food shortage in a Malagasy primate. *Comparative Biochemistry and Physiology A – Molecular and Integrative Physiology* 146(4): 79, *Congress Abstract*, **2007** [DOI: 10.1016/j.cbpa.2007.01.095]

Popular Science

1. **Giroud S** & Painer-Gigler J. "Bären: Metabolische Wunder der Natur!". *Jagd in Tirol* 01/2023, pp. 13-17

COMMUNICATIONS - CONFERENCES AND INVITED SEMINARS

Keynote lectures

1. **Giroud S**. Physiological and metabolic adaptations of torpor [French & Online]. *Mountain & Altitude Scientific & Medical Meeting - Centre of Expertise on Altitude (EXALT), Grenoble, France; 10 November 2023*
2. **Giroud S**, Simon C, Arnold W, Blanc S, Ruf T. Energetics of torpor and hibernation: implications for human space travels. *Europhysiology, London, UK; 14-16 September 2018*
3. **Giroud S**. Metabolism of torpor and hibernation: from small to large hibernators [French]. *Congress of Physiology and Integrative Biology, Lille, France; 27-29 June 2018 [ISSN: 1748-1716]*

Invited oral communications

1. Habold C, Constant T, **Giroud S**. Evolutionary physiology of mammalian hibernation. The regulation and function of seasonal quiescent states in animals: a comparative approach. *The Physiology in Focus – Joint Physiology Meeting – The Scandinavian Physiological Society & The Federation of Physiological Societies & The Baltic Physiological Societies, Tallinn, Estonia; 14-16 September 2023*
2. **Giroud S**. The effects of feeding on the energetics of torpor in hibernating species. *The Society for Experimental Biology (SEB), Montpellier, France; 5-8 July 2022*
3. **Giroud S**, Evans A, Bertile F, Simon C, Blanc S. Protective mechanisms against atherogenic dyslipidaemia in bears during hibernation [French]. *Congress of Physiology and Integrative Biology, Lyon, France; 22-24 June 2022 [ISSN: 1748-1716]*
4. **Giroud S**. Energy managements of wild heterothermic species: Ecological and evolutionary prospects. *Conference of the European Wildlife Disease Association Student Chapter, Virtual Conference; 19-22 April 2022*
5. **Invitation to attend presentations and discussion forums**. *Nobel Conference 'Biomimetics – unlocking access of nature to opportunities in health', Stockholm, Sweden; 4-6 September 2019*
6. **Giroud S**, Blanc S, Gilbert C. Phenotypic flexibility of juveniles in seasonal environments: ecological and evolutionary implications. *International Conference for Comparative Physiology and Biochemistry (ICCPB), Ottawa, Canada; 5-9 August 2019*
7. **Giroud S**, Arnold W, Simon C, Blanc S, Ruf T. The effect of lipids on hibernation and cardiac function. *Intersociety Meeting, Comparative Physiology: Complexity and Integration, New Orleans, Louisiana, US; 25-28 October 2018*
8. **Giroud S**, Blanc S, Ruf T. Energetics of torpor and hibernation: mechanisms and beyond. *International Conference for Comparative Physiology and Biochemistry (ICCPB), Krakow, Poland; 23-28 August 2015*

Oral communications

1. Kalogeropoulou S.K, Stenvinkel P, **Giroud S**, Shiels P, Johnson R, Painer-Gigler J. Hibernation inspired survival strategies of bile-farmed bears. *28th International Conference on Bear Research and Management, Edmonton, Alberta, Canada; 15-20 September 2024*

2. Constant T, Dobson F.S, Habold C, **Giroud S**. Trade-offs in dormancy phenology in endotherms and ectotherms. *Ecological Society of America (ESA) Great Lakes Regional Conference, Kalamazoo, USA; 5-7 April 2024*
3. **Giroud S**, Fux B, Vetter S, Rauch-Schmücking H, Painer J, Smith S, Lagger S, Egger G, Gilbert C. Keep the pace: Lifelong effects of torpor use during development in a small hibernator. *The Society of Integrative and Comparative Biology (SICB), Seattle, USA; 2-6 January 2024*
4. Redon L, Carré B, Rauch-Schmücking H, Pohlin F, Habold C, Smith S, Gilbert C, **Giroud S**. Inheritance of torpor phenotype and consequences on life-history traits in a small hibernator *6th Animal Ecophysiology Conference, Tours, France; 2-4 November 2023*
5. Gilbert C, Mc Cafferty D, Guinet C, **Giroud S**, Ancel A. Let's huddle! Energy savings and social thermoregulation. *The Society for Experimental Biology (SEB), Edinburgh, UK; 4-7 July 2023*
6. **Giroud S**, Prestel L, Carré B, Vetter S, Rauch H, Painer J, Smith S, Gilbert C. Lifelong effects of the use of heterothermy during development in a small hibernator. *2nd Münster Evolution Meeting (MEM); 13-16 March 2023*
7. **Giroud S**, Habold C, Vetter S, Painer J, Four-Chaboussant A, Smith S, Gilbert C. Living in a changing world: Physiological and behavioral flexibility of juvenile garden dormice. *International Dormice Conference (IDC); 9-13 May 2022*
8. Lie F, de Wit L, **Giroud S**, Henning R. DNA damage during torpor in garden dormice, *Eliomys quercinus*. *16th International Hibernation Symposium (IHS), Virtual Conference; 1-5 August 2021*
9. Constant T, Dobson S, **Giroud S**, Habold C. Reproductive investment explains the sex difference in hibernation season phenology. *16th International Hibernation Symposium (IHS), Virtual Conference; 1-5 August 2021*
10. **Giroud S**, Prestel L, Vetter S, Einwaller J, Painer J, Gilbert C. Lifelong effects of the use of energy-saving strategies during development in a small hibernator. *16th International Hibernation Symposium (IHS), Virtual Conference; 1-5 August 2021*
11. Haugg E, Borner J, Stalder G, Dietrich V, **Giroud S**, Herwig A. Differences in hypothalamic transcriptomics comparing hibernation and spontaneous daily torpor. *16th International Hibernation Symposium (IHS), Virtual Conference; 1-5 August 2021*
12. Stranvik B, **Giroud S**, Painer J, Engvall M, Arnemo J, Fröbert O, Qureshi AR, Stenwinkel P. Does docosapentaenoic acid play a role during hibernation? *International Society for the Study of Fatty Acids and Lipids, Qingdao, China; 14-17 June 2020*
13. Hölzl F, Zahn S, Criscuolo F, **Giroud S**, Smith S. Measuring telomerase activity in tissues of non-model species via droplet digital PCR. *Diversity in Telomere Dynamics workshop, Edinburgh, UK; 29-31 October 2019*
14. Constant T, Kletty K, **Giroud S**, Habold C. Metabolic adaptations of hibernating species: a comparison between fat- and food-storing hibernators. *International Conference for Comparative Physiology and Biochemistry (ICCPB), Ottawa, Canada; 5-9 August 2019*
15. **Giroud S**, Blanc S, Gilbert C. Phenotypic flexibility of juveniles in seasonal environments: ecological and evolutionary implications. *The Society for Experimental Biology (SEB), Seville, Spain; 2-5 July 2019*
16. Nowack J, Tarmann I, Hoelzl F, Smith S, **Giroud S**, Ruf T. Implications of warming winter temperatures on hibernation pattern and telomere dynamic of fat-storing hibernators. *The Society for Experimental Biology (SEB), Seville, Spain; 2-5 July 2019*
17. Nowack J, Tarmann I, Stawski C, **Giroud S**, Geiser F, Ruf T. Keeping up with a warming world: Risks and benefits of torpor use during climate change. *Conference of the British Ecological Society, Birmingham, UK; 16-19 December 2018*
18. Ruf T, Tarmann I, Smith S, **Giroud S**, Nowack J, Gasch K. On metabolic rates during torpor as well as during interbout euthermia. *European Space Agency Workshop 'Topical Team: Hibernation and Torpor', Innsbruck, Austria; 8-11 February 2018*
19. Ruf T, Tarmann I, Smith S, **Giroud S**, Nowack J. Does torpor retard ageing? *European Space Agency Workshop 'Topical Team: Hibernation and Torpor', Innsbruck, Austria; 8-11 February 2018*

20. **Giroud S**, Gerritsmann H, Stalder G, Blanc S, Ruf T. Being born late in the active season: implications for growth, fattening, torpor use and fecundity. *11th International Conference on Behaviour, Physiology and Genetics of Wildlife, Berlin, Germany; 4-7 October 2017* & *3rd Animal Ecophysiology Conference, Strasbourg, France; 6-8 November 2017*
21. Nowack J, Stawski C, Tarmann I, **Giroud S**, Ruf T, Geiser F. Costs and benefits of torpor use in times of a warming climate. *11th International Conference on Behaviour, Physiology and Genetics of Wildlife, Berlin, Germany; 4-7 October 2017*
22. Bieber C, Cornils J.S, Hoelzl F, **Giroud S**, Ruf T. Body temperature may indicate high costs of locomotor activity in an arboreal species, the edible dormouse (*Glis glis*). *12th International Mammalogical Congress, Perth, Western Australia; 9-14 July 2017*
23. **Giroud S**, Blanc S, Gerritsmann H, Stalder G, Ruf T. Being born in the active season: implications for growth, pre-hibernation fattening and energetic strategies. *15th International Hibernation Symposium (IHS), Las Vegas, US; 31 July to 4 August 2016*
24. **Giroud S**, Mahler B, Ruf T. Differences in torpor use, growth and pre-hibernation fattening in female garden dormice according to the time of birth and food availability. *The Society for Experimental Biology (SEB), Manchester, UK; 1-4 July 2014*
25. **Giroud S**, Turbill C, Hofer I, Ruf T. Torpor use and body mass gain during pre-hibernation in late-born juvenile garden dormice (*Eliomys quercinus*). *14th International Hibernation Symposium (IHS), Semmering, Austria; 8-14 August 2012*
26. Frare C, **Giroud S**, Strijkstra A, Boerema A, Arnold W, Ruf T. The effects of membrane phospholipid composition on Ca²⁺-ATPase in the heart of hibernators. *14th International Hibernation Symposium (IHS), Semmering, Austria; 8-14 August 2012* & *The Society for Experimental Biology (SEB), Salzburg, Austria; 29 June to 2 July 2012*
27. **Giroud S**, Perret M, Aujard F, Gilbert C, Blanc S. Season-dependant strategies of fat or protein sparing in food-deprived grey mouse lemurs. *The Society for Experimental Biology (SEB), Prague, Czech Republic; 29 June to 3 July 2010*
28. **Giroud S**, Perret M, Blanc S. Seasonal differences in energy saving mechanisms in response to chronic food restriction, in a heterothermic Malagasy primate: *Microcebus murinus*. *13th International Hibernation Symposium (IHS), Swakopmund, Namibia; 6-12 August 2008*
29. **Giroud S**, Blanc S, Perret M. Seasonal differences in modulation of heterothermic phases in a small Malagasy primate – *Microcebus murinus* – Coping with a chronic food shortage. *The Society for Experimental Biology (SEB), Glasgow, Scotland; 31 March to 14 April 2007*
30. **Giroud S**, Blanc S, Aujard, F, Bertrand F, Gilbert C, Perret M. Effect of chronic food restriction on daily torpor and locomotor activity in a seasonal Malagasy primate, *M. murinus*: A statistical approach. *Neuroscience upper Rhine network (Neurex: Strasbourg, France; Freiburg, Germany; Basel, Switzerland). Workshop "The Forgotten Partner: The Statistical Tool", Strasbourg, France; 19 June 2007*
31. **Giroud S**, Blanc S, Perret M. Différences saisonnières des mécanismes d'économie d'énergie en réponse à une restriction calorique au long cours, chez un primate malgache. *19th Congress of the French Society of Primatology (SFDP), Strasbourg, France; 18-20 October 2006*

Posters

1. Ingelson-Filpula W.A, **Giroud S**, Storey K.B. MicroRNA regulation of hepatic metabolism and energy-expensive processes during torpor in the garden dormouse. *Cryo2023 – 60th Annual Meeting of the Society for Cryobiology, Minneapolis, USA; 25-27 July 2023*
2. Redon L, Carré B, Rauch-Schmücking H, Pohlin F, Habold C, Smith S, Gilbert C, **Giroud S**. Long-lasting and intergenerational effects of developmental torpor use on seasonal heterothermy and telomere dynamics in a hibernator. *The Society for Experimental Biology (SEB), Edinburgh, UK; 4-7 July 2023*
3. Chignec H, Constant T, Habold C, **Giroud S**. The link between growth rate, hibernation duration, and reproduction in the common hamster. *16th International Hibernation Symposium (IHS), Virtual Conference; 1-5 August 2021*

4. Charlanne L, Vetter S, Rauch H, Stalder G, Gilbert C, **Giroud S**. Energetic consequences of huddling behavior in hibernating juvenile garden dormice. *16th International Hibernation Symposium (IHS), Virtual Conference; 1-5 August 2021*
5. Haugg E, Borner J, **Giroud S**, Herwig A. Differential gene expression in the hypothalamus of hibernating garden dormice (*Eliomys quercinus*). *14th Meeting of the German Neuroscience Society, Virtual Conference; 22 March 2021*
6. Nowack J, Ragger MT, Tarmann I, Ruf T, **Giroud S**. Telomere dynamics during hibernation is positively affected by warmer winter temperatures and food availability. *Future Physiology, Virtual Conference; 6-10 July 2020*
7. Four-Chamboussant A, Sente B, Smith S, **Giroud S**. Effects of huddling and food availability on torpor use and telomeres dynamics in juvenile garden dormice before and during hibernation. *The Society for Experimental Biology (SEB), Seville, Spain; 2-5 July 2019 & International Conference for Comparative Physiology and Biochemistry (ICCPB), Ottawa, Canada; 5-9 August 2019*
8. Ragger MT, **Giroud S**, Hölzl F, Smith S, Nowack J, Ruf T. The influence of temperature on feeding behaviour and telomere dynamics in hibernating garden dormice. *The Society for Experimental Biology (SEB), Seville, Spain; 2-5 July 2019 & International Conference for Comparative Physiology and Biochemistry (ICCPB), Ottawa, Canada; 5-9 August 2019*
9. Tarmann I, Nowack J, Ruf T, **Giroud S**. Global warming impacts on the hibernation of the garden dormouse (*Eliomys quercinus*) – 1st poster prize of the conference. *11th International Conference on Behaviour, Physiology and Genetics of Wildlife, Berlin, Germany; 4-7 October 2017 & 3rd Animal Ecophysiology Conference, Strasbourg, France; 6-8 November 2017*
10. **Giroud S**, Arnold W, Gerritsmann H, Stalder G, Ruf T. Dietary lipids affect the onset of hibernation in the garden dormouse (*Eliomys quercinus*). *15th International Hibernation Symposium (IHS), Las Vegas, US; 31 July to 4 August 2016*
11. Chery I, **Giroud S**, Bertile F, Tasher G, Gauquelin-Koch G, Arnemo JM, Swenson JE, Singh N, Lefai E, Simon C, Blanc S, Evans AL. Lipid composition of free-ranging hibernating brown bears. *24th International Conference on Bear Research and Management, Anchorage, Alaska, USA; 12-16 June 2016*
12. **Giroud S**, Mahler B, Arnold W, Ruf T. Differences in torpor use, growth and pre-hibernation fattening in female garden dormice according to the time of birth and food availability. *Wild Clocks Meeting: 'Eco meets chrono', Wadden island of Texel, The Netherlands; 15-20 March 2015*
13. Stumpf S, Ruf T, **Giroud S**. Differences in growth rates and pre-hibernation body mass gain in the juvenile garden dormouse according to the time of birth. *The Society for Experimental Biology (SEB), Manchester, UK; 1-4 July 2014*
14. **Giroud S**, Hofer I, Blanc S, Turbill C, Ruf T. Fasted juvenile garden dormice use short torpor bouts to grow and fatten during pre-hibernation: consequence on winter hibernation. *The Society for Experimental Biology (SEB), Valencia, Spain; 3-6 July 201*
15. **Giroud S**, Ruf T, Turbill C. Effects of n-6 fatty acids on torpor expression and SERCA activity in a daily heterotherm: the Djungarian hamster (*Phodopus sungorus*). *Meeting on the International Hamster Workgroup, Strasbourg, France; 14-17 October 2011*
16. Gilbert C, **Giroud S**, Padzys G.S, Martrette J.M, Boivin S, Trabalon M. Short and long-term behavioural and physiological effects of a postnatal olfactory deprivation. *XIX European Chemoreception Research Organization Congress, Villasimius, Cagliari, Italy; 24-27 September 2009*
17. Gilbert C, Boivin S, Padzys G.S, Erbrech A, **Giroud S**, Trabalon M. Long-term behavioural impacts of an early olfactory deprivation. *International Ethological Conference (IEC), Rennes, France; 19-24 August 2009*
18. **Giroud S**, Reichardt F, Perret M, Le Maho Y, Gilbert C, Blanc S. Gut hormones in relation to body mass and torpor patterns changes during food restriction and re-feeding in the grey mouse lemur. *The Society for Experimental Biology (SEB), Marseille, France; 6-11 July 2008*
19. Gilbert C, Aujard F, Perret M, Blanc S, Le Maho Y, **Giroud S**, Ancel A. Régulation de la température interne chez le manchot empereur en reproduction. *40th Congress of the French Society of Chronobiology (SFC), Caen, France; 4-6 June 2008*

Invitations to seminars and lectures

Giroud S. Early-life metabolic flexibility and its lifelong and intergenerational effects in a small hibernator
Department of Interdisciplinary Life Sciences, University of Veterinary Medicine, Vienna, Austria; 18 June 2025

Giroud S. Hibernators as metabolic magicians for translational science
Department of Chemical Science & Engineering, Michigan Technological University, Michigan, USA; 24 January 2025

Giroud S. How to fluctuate? The seasonal regulation of energy balance in hibernators
Department of Basic and Clinical Sciences, University of Nicosia Medical School, Nicosia, Cyprus; 7 April 2023
Faculty of Applied Ecology, Inland Norway University of Applied Sciences, Evenstad, Norway; 17 April 2023

Giroud S. How to spend the winter? The pros and cons of seasonal torpor
Department of Biology, University of Wisconsin-Oshkosh, Wisconsin, USA; 31 January 2023
Department of Biology, Montclair State University, New Jersey, USA; 2 February 2023
Department of Biology, University of Northern Michigan, Michigan, USA; 20 March 2023

Giroud S. How to spend the winter? The ups and downs of seasonal dormancy
Institute of Biology, University of Graz, Austria; 26 January 2023

Smith S, Hoelzl F, Lalana C, **Giroud S.** Seasonal activation of telomerase in hibernating rodents?
Department of Ecology, Physiology, Ethology, UMR 7178 CNRS-UdS, Strasbourg, France; 13 January 2022

Giroud S. Seasonal regulations of metabolic downstates: From small to large hibernators
School of Biological Sciences, University of Aberdeen, Scotland, UK; 14 October 2022

Giroud S. Seasonal regulations of metabolic downstates
Department of Ecology, Physiology, Ethology, UMR 7178 CNRS-UdS, Strasbourg, France; 13 January 2022

Giroud S. Adaptations to extreme environments
Laboratory of Ecology of Natural and Anthropized Hydro-systems, University of Lyon, France; 5 November 2021

Giroud S. Being a heterotherm in a changing world: ecological and evolutionary implications
Centre for Organismal Systems Biology, University of Vienna, Austria; 3 December 2018

Giroud S. Being a heterotherm in a changing world: underlying mechanisms and further implications
Department of Ecology and Biodiversity Management, UMR 7179 CNRS-MNHN, Brunoy, France; 12 October 2018
Institute of Evolutionary Ecology and Conservation Genomics, University of Ulm, Germany; 22 May 2018
Department of Ecology, Physiology, Ethology, UMR 7178 CNRS-UdS, Strasbourg, France; 16 November 2017

Giroud S. Being born late: consequences for growth, energetic strategies and hibernation in garden dormice
Black Forest National Park, Ruhstein, Germany; 12 November 2015

Giroud S. Energétique et adaptations physiologiques de la torpeur et de l'hibernation [French]
Department of Ecology, Physiology, Ethology, UMR 7178 CNRS-UdS, Strasbourg, France; 10 November 2015
Department of Ecology and Biodiversity Management, UMR 7179 CNRS-MNHN, Brunoy, France; 13 May 2013

Giroud S, Perret M, Blanc S. Energy saving mechanisms in an heterothermic Malagasy primate: the grey mouse lemur
Research Institute of Wildlife Ecology, University of Veterinary Medicine, Vienna, Austria; 27 January 2010

Invitations to public lectures

Giroud S. The winter repose: Hibernation in a changing world
Science on Tap, Blackrocks Brewery, Marquette, Michigan, USA; 14 May 2024

PRESS RELEASES AND ARTICLES

February & March 2021. "Warmes Wetter belastet auch die Winterschläfer" by the Austrian Press « Die Presse » & "Winterschlaf, Klimalabor" by the Austrian radio « ORF Wissen Aktuell » after the publication of a Research Topic 'Coping with fluctuating environments' in the scientific journal 'Frontiers in Physiology'.

March 2018. “Hibernators born late in the season grow quicker and have more sex” following the publication of an article in eLife. This press release was relayed by the Austrian press: « Der Standard ».

March 2016. “Sleeping soundly: Polyunsaturated fatty acids play a role in winter hibernation” by the PR department of the Austrian Science Fund (FWF): [“Fatty acids play a role in torpor”](#).

July 2014. “The power of the power nap” by the PR department of the Society for Experimental Biology. This press release was relayed by BBC News Online: [“Dormice take naps to aid chances of survival”](#).

May 2013. “And the beat goes on: the reliable heartbeat of hibernators” following the publication of an article in PLoS One. This press release was relayed by the Austrian press: « Wiener Zeitung » and « Krone ».

COMMUNITY SERVICES & MEMBERSHIPS (ESTEEM FACTORS)

Organisation of symposia and conferences

2022. **‘Thermoregulatory and metabolic adaptations in a changing world’** [co-organized with Prof J r my Terrien (MNHN Brunoy) and Dr Julia Nowack (LJMU)] – *The Society for Experimental Biology (SEB)*, Edinburgh, UK; 4-7 July 2023

2021. Organisation of **cross-institute online meetings for scientific exchange** at the Department of Interdisciplinary Life Sciences, University of Veterinary Medicine, Vienna, Austria

2019. **‘Living at low pace: From the whole organism to the molecule’** [co-organized with Prof Kenneth Storey, University of Ottawa] – *International Conference for Comparative Physiology and Biochemistry (ICCPB)*, Ottawa, Canada; 5-9 August 2019

2019. **‘Saving energy in a fluctuating environment: from the whole organism down to the molecule’** [co-organized with Prof Caroline Gilbert (ENVA Maisons-Alfort) and Prof Damien Roussel (LEHNA Lyon)] – *The Society for Experimental Biology (SEB)*, Seville, Spain; 2-5 July 2019

2015-16. Organisation of an **internal research symposia** at the Department of Interdisciplinary Life Sciences, University of Veterinary Medicine, Vienna, Austria

2006. **Organization of the 2nd Animal Behaviour and Ecology Congress** (SERL) for European PhD students and youth researchers, 14-17 March 2006, Strasbourg, France

Editing and reviewing activities

Since 2024. **Reviewing Expert** for the National Science Foundation (NSF) – CAREER Scheme (2024)

2024-25. **Journal of Thermal Biology Guest Editor** – Giroud, S., Terrien J, A., Nowack, J., eds. [Thermoregulatory and Metabolic Adaptations in a Changing World](#). Elsevier. [DOI]

2023-24. **Frontiers Topic Editor** – Giroud, S., Terrien J., Yamagchi Y., eds. [Torpor and Hibernation: Metabolic and Physiological Paradigms](#). Lausanne: Frontiers Media SA. [DOI: 10.3389/fphys.2024.1441872]

Since 2023. **Expert Examiner** for German Research Foundation (DFG)

Since 2021. **Editorial Board Member** for **PLOS One** and **Scientific Reports**

2019-20. **Frontiers Topic Editor** – Giroud, S., Nowack, J., Storey, K. B., Nord, A., eds. (2020). [Coping With Environmental Fluctuations: Ecological and Evolutionary Perspectives](#). Lausanne: Frontiers Media SA. [DOI: 10.3389/978-2-88966-273-9]

Since 2019. **Reviewing Expert** for the Polish National Science Centre - Sonata-15 (2019), Austrian Agency for Education and Internationalization - OeAD-WTZ (2022), German Research Foundation - DFG (2023), Funds for Research Qu bec Nature & Technology - FRQNT (2024), Alaska IDEa Network of Biomedical Research Excellence – INBRE (2024)

Since 2010. **Reviewers for scientific journals**: International Journal of Primatology (2010), Journal of Tropical Ecology (2010), PLoS One (2011), Physiological Genomics (2011), Integrative and Comparative Biology (2011), Lipids (2012), Journal of Thermal Biology (2013), Journal of Comparative Physiology B (2013), Naturwissenschaften (2013), Experimental Gerontology (2013), Journal of Behavioral Ecology and Sociobiology (2014), Physiological and Biochemical Zoology (2014), Chemistry and Physics of Lipids (2015),

Comparative Biochemistry and Physiology (2015), Proceedings of the Royal Society of London B (2015), Physiology and Behavior (2016), British Journal of Nutrition (2016), Pflügers Archiv - European Journal of Physiology (2018), Frontiers in Zoology (2018), Molecular Ecology (2019), Scientific Reports (2019), Journal of Neuroendocrinology (2019), PeerJ (2019), Biological Review (2020), Biology Letters (2020), Bone (2020), Functional Ecology (2020), Neuroscience and Biobehavioral Reviews (2020), Communications Biology (2020), American Journal of Physiology (2022), Cryobiology (2022), Cellular Signalling (2022), Biochimie (2022), Animal Behaviour (2022)

Committees and advisory boards

2025. PhD evaluation committee as external expert of Natarsha Babic; *School of Biological Science, Monash University, Australia*

Since 2024. **Board member of the International Hibernation Society** in charge of scientific networking & publications

2024. PhD evaluation committee as external expert of Sarah Viola Emser; *Department of Behavioral and Cognitive Biology, University of Vienna, Austria*

2023-2025. Master advisory committee of Jacqueline Jacobs; *Department of Biology, Northern Michigan University, USA*

2023. Search committee for tenure-track assistant professor of Animal Physiology. *Department of Biology, University of Northern Michigan, Marquette, USA*

2021. Selection committee for technical assistant. *Department of Ecology, Physiology, Ethology, CNRS Strasbourg, France*

2020. PhD advisory committee of Anne Randi Græsli; *Department of Forestry and Wildlife Management, Inland Norway University of Applied Sciences, Norway*

2019 & 2021. Selection committee for PhD candidates in Applied Ecology and Biotechnology. *Inland Norway University of Applied Sciences, Norway*

2018-2020. PhD advisory committee of Aude Noiret; *Department of Ecology and Biodiversity Management, UMR 7179 CNRS-MNHN, Brunoy, France*

2018-2023. Departmental Leading & Organisation Committee. *Department of Interdisciplinary Life Sciences, University of Veterinary Medicine, Vienna, Austria*

2015-2023. Institute Leading & Organisation Committee. *Research Institute of Wildlife Ecology, University of Veterinary Medicine, Vienna, Austria*

Memberships

Since 2024. Member of the **Society of Integrative and Comparative Biology (SICB)**

Since 2016. Member of the **Australian and New Zealand Society for Comparative Physiology and Biochemistry (ANZSCPB)**

Since 2008. Member of the **International Hibernation Society (IHS)**

Since 2007. Member of the **Society for Experimental Biology (SEB)**

June 2005. **Certificate of Animal Care and Experimentation (FELASA-A)**

LOCAL, NATIONAL AND INTERNATIONAL COLLABORATIONS

| Year | Researchers/Institutions | Subject | Nature |
|------------|--|---|--|
| Since 2010 | Prof Stéphane Blanc CNRS/Uni Strasbourg, France | Energy and lipid metabolism in hibernating brown bears | Samples and data analyses |
| Since 2014 | Prof Rob Henning Groningen Uni, NL | Protective repair mechanisms during hibernation | Sharing samples |
| | | Guest Associate Editor | Frontiers Research Topic |
| Since 2014 | Prof Thomas Ruf FIWI/Vetmeduni Vienna, AT Dr Steve Smith KLIVV/Vetmeduni Vienna, AT | Lipids and hibernation Telomere dynamics during hibernation | Co-supervision Master students Co-investigator FWF 'PUFA, Hibernation & Ageing' FWF 'Ontogeny of Heterothermy' |
| Since 2016 | Dr Julia Nowack University of Liverpool, UK | Telomere dynamics during hibernation | Co-supervision Master students |
| | | Guest Associate Editor | Frontiers Research Topic Journal of Thermal Biology |
| Since 2017 | Dr Johanna Painer Vetmed Uni Vienna, Austria Prof Peter Stenwinkel Karolinska Institute, Sweden | Chronic kidney disease, TMAO and fatty acids: A biomimetic approach | Sharing samples and data analyses |
| Since 2017 | Prof Kenneth Storey Carleton Uni, Canada | Molecular regulations of lipid metabolism and oxidative stress during hibernation | Sharing samples and data analyses |
| | | Guest Associate Editor | Frontiers Research Topic |
| Since 2018 | Prof Caroline Gilbert CNRS Brunoy, France | Hypometabolism in juvenile heterotherms and diving mammals | Co-investigators FWF 'Ontogeny of Heterothermy' ANR 'Diving into physiological paradoxes' |
| Since 2018 | Prof Gerda Egger Medical Uni Vienna, Austria Dr Sabine Lagger Vetmed Uni Vienna, Austria | Epigenetic regulations & energy metabolism | Co-investigators FWF-Project 'Ontogeny of Heterothermy' |
| Since 2018 | Prof Caroline Habold CNRS/Uni Strasbourg, France | Hibernation and life histories: food vs. fat-storing hibernators | OEAD-WTZ Grant Co-supervision PhD student |
| Since 2019 | Dr Andreas Nord Lund Uni, Sweden | Thermal tolerance and development in birds and mammals | Literature review |
| | | Guest Associate Editor | Frontiers Research Topic |
| Since 2020 | Prof Alina Evans Inland Norway Uni Applied Sciences | Climate change and hibernation behaviour in brown bears | Co-supervision PhD student |
| Since 2020 | Dr Fabrice Bertile CNRS/Uni Strasbourg, France | Proteomics Muscle sparing Cardiac adaptation in hibernators | Literature review Sharing samples and data analyses |
| Since 2020 | Prof Jessica Healy Austin College, US | Teaching exchange for US students | Co-applicant NSF-IRES |
| Since 2021 | Prof Lars Folkow Arctic University of Norway | Thermoregulation in harp and hooded seals | Samples analyses |
| Since 2022 | Prof Yoshifumi Yamaguchi Hokkaido University, Japan | Guest Associate Editor | Frontiers Research Topic |
| Since 2022 | Prof Jérémy Terrien CNRS Brunoy, France | Guest Associate Editor | Frontiers Research Topic Journal of Thermal Biology |

PEDAGOGICAL QUALIFICATIONS

Teaching experience

Since my PhD, I have regularly participated to teaching activities in Animal Physiology and Animal Biology. The table below summarizes my teaching experience from 2005 to 2022.

| Year | Level | Nature | Discipline | Hours | Status |
|---------|-------------------------|-----------------------|--|-------|------------------------------|
| 2005 | Undergraduate | Practical | Biodiversity and animal biology | 18 | External |
| 2006 | Undergraduate | Practical | Animal biology | 14 | External |
| 2008 | Master 2 | Lecture | Ecophysiology: applications of stable isotopes | 4 | Lecturer |
| 2007-09 | Undergraduate | Lecture | Physiology of circulation, blood and haemostasis | 28 | Lecturer |
| 2007-09 | Undergraduate | Practical | Physiology circulation and respiration | 118 | Lecturer |
| 2007-09 | Undergraduate | Tutorial | Nervous physiology | 18 | Lecturer |
| 2007-09 | Undergraduate | Practical | Nervous physiology | 59 | Lecturer |
| 2012-15 | Undergraduate | Tutorial Practical | Ecophysiology of thermoregulation* | 114 | External (Responsible) |
| 2019-22 | Master | Lecture | Adaptations to extreme environments* | 30 | External (Co-responsible) |
| 2021-23 | Undergraduate | Lecture | Animal biology and physiology* | 24 | Lecturer (Co-responsible) |
| 2023 | Undergraduate Master | Tutorial | Behavioural ecology & population ecology* | 18 | Lecturer (Co-responsible) |
| 2023-24 | Undergraduate | Lecture | Human Anatomy & Physiology II* | 168 | Professor (Responsible) |
| 2023-24 | Undergraduate | Practical | Human Anatomy & Physiology II* | 28 | Professor (Responsible) |
| 2024-25 | Undergraduate | Lecture | Animal Physiology* | 84 | Professor (Responsible) |
| 2024-25 | Undergraduate | Practical | Animal Physiology* | 56 | Professor (Responsible) |

* These courses were taught in English

Student supervision and mentoring

In parallel to my teaching activities, I (co-)mentored and am currently (co-)mentoring students performing an experimental work in my field of research. Students were/are from all university levels: **3 PhDs (including 1 Training ERASMUS)**, **13 Masters (including 1 Training ERASMUS)**, **4 Veterinary Diplomas**, and **4 Undergraduates**. The table below reports my experience in mentoring students.

| Year (Duration) | Level Stream | Student name | Topic | Supervision | Student Fate |
|---------------------|---------------------------------|---------------------|---|--|--|
| 2009 (6 months) | Undergraduate Zoology | Pierick Mouginot | Long-term effects of post-natal stress on anxiety and activity behaviours in rats | 50% Co-supervision Prof Caroline Gilbert | PhD University Greifswald Germany |
| 2009 (6 months) | Undergraduate Zoology | Cécile Person | Sex differences in anxiety and activity behaviours in adult rats | 50% Co-supervision Prof Caroline Gilbert | - |
| 2011-12 (1 year) | Master Zoology | Ines Hofer | Growth and pre-hibernation fattening in late-born juvenile garden dormice | 100% | Nature Conservation Environment |

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|-----------------------|---|---|---|---|--|
| 2012-13 (6 months) | Diploma Veterinary Medicine | Lea Weiß | Effect of n-6 and n-3 polyunsaturated fatty acid diets on electrical cardiac activity in artificially cooled mice | 100% Co-supervision Dr Hanno Gerritsmann | Practicing veterinarian |
| 2012-13 (6 months) | Diploma Veterinary Medicine | Roland Tulzer | Effect of SERCA overexpression on electrical cardiac activity in artificially cooled mice | 100% Co-supervision Dr Hanno Gerritsmann | Practicing veterinarian |
| 2013-14 (6 months) | Undergraduate Zoology | Stefan Stumpf | Differences in growth rates and pre-hibernation body mass gain in the juvenile garden dormouse according to the time of birth | 100% | Freelance Software Engineer |
| 2013-15 (2 years) | Master Wildlife Management | Britta Mahlert <small>Prix de la Société allemande de zoologie (DZG) meilleure thèse de Master 2015</small> | Differences in torpor use, growth and pre-hibernation fattening in female garden dormice according to the time of birth and food availability | 100% | Nature Conservation Environment |
| 2014-16 (2 years) | Master Zoology | Stefanie Jernej | Differences in reproductive success and ageing processes between early and late-born juvenile garden dormice | 100% | Animal Protection & Animal Welfare |
| 2016-17 (1 year) | Master Wildlife Management | Kristina Gasch | How do hibernators behave in inter-bout arousals during hibernation? | 50% Co-supervision Prof Thomas Ruf | PhD Vetmed Uni Vienna Austria |
| 2016-17 (1 year) | Master Wildlife Management | Iris Tarmann | Temperature effects on hibernation in the garden dormouse (<i>Eliomys quercinus</i>): possible consequences of global warming | 50% Co-supervision Dr Julia Nowack | Nature Conservation Environment |
| 2017 (6 months) | Master Training ERASMUS | Juraj Trecer | Effects of photoperiod on growth in juvenile garden dormice | 100% | PhD Jagiellonian University in Krakow PL |
| 2017-19 (2 years) | Master Wildlife Management | Marie- Therese Ragger | Effects of torpor patterns and food availability on telomere dynamics in garden dormice | 50% Co-supervision Dr Julia Nowack | Nature Conservation Environment |
| 2018-19 (1 year) | Master Ecophysiology Ecotoxicology | Anouck Four- Chaboussant | Telomere dynamics in juvenile garden dormice: effect of huddling and food availability | 100% | PhD Auburn University USA |
| 2018-20 (2 years) | Master Wildlife Management | Beata Sente | Energy-saving strategies in juvenile garden dormice prior to winter and during hibernation | 100% | Nature Environment Writing in progress |
| 2019 (3 months) | Undergraduate Veterinary Medicine | Laura Steininger | Effect of early-life experience on reproductive performances in garden dormice | 100% | Veterinary studies |
| 2019-22 (2 years) | Diploma Veterinary Medicine | Sabrina Rosner | Effect of early-life torpor on heterothermy flexibility in adulthood and in the next generation of garden dormice | 100% | Practicing veterinarian Writing in progress |
| 2019-20 (1 year) | Master 2 Evolutionary Functional Ecology | Laura Charlanne | Effect of huddling on the energy budget of torpor-arousal cycle in hibernating garden dormice | 100% | PhD University of Strasbourg France |
| 2019-22 | PhD Evolutionary Ecophysiology | Theo Constant | Evolutionary causes and consequences of the phenology of hibernation: a case study on the Common hamster | 50% Co-supervision Dr Caroline Habold | Teacher University of Strasbourg France |

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|----------------------|--|----------------------------------|--|---|---|
| 2020-22 (2 years) | Master Wildlife Management | Sandra Stickler | Regional body temperature and fatty acid composition in hibernating garden dormice: a focus on cardiac function | 50% Co-supervision Prof Walter Arnold | Biology Engineer Writing in progress |
| 2020-24 | PhD Ecology Wildlife Management | Alexandra Thiel | Interacting effects of human activity and climate on animal phenology and behaviour: focus on brown bears | 50% Co-supervision Prof Alina Evans | In progress |
| 2020-22 (2 years) | Diploma Veterinary Medicine | Lisa-Marie Prestel | Lifelong effects of torpor use during development in a hibernating rodent | 100% | Practicing veterinarian |
| 2021 (6 months) | PhD Training ERASMUS | Marta Grossiak | Energetics and telomere dynamics in a small hibernator | 100% | PhD Jagiellonian University in Krakow PL |
| 2021-22 | Master Wildlife Management | Barbara Fux | Lifelong effects of torpor use during development in a hibernating rodent: a follow-up study | 100% | Human Resources |
| 2021-22 | Master Integrative Physiology | Bernadette Carré | Lifelong effects of developmental torpor use on telomere dynamics in the garden dormouse | 100% | Biology Engineer |
| 2021-22 | Master Ecophysiology Ecology & Ethology | Camille Marie-Jean- Robert | Physiological costs and energetic benefits of torpor in a food-storing hibernator | 50% Co-supervision Dr Caroline Habold | Practicing veterinarian |
| 2022-23 | Master Integrative Physiology | Lilian Redon | Effects of parental torpor use on seasonal dynamics of telomere length and torpor expression in a hibernating rodent | 100% | PhD University of Helsinki Finland |
| 2023-25 | Master Biology | Peggy Meißner | Testing the membrane pacemaker hypothesis according to early-life conditions in a small heterotherm | 70% Co-supervision Dr Alba Hykollari | In progress |
| 2024-26 | Master Biology | Ceirighen Gill | Effect of climate warming on body condition and telomere dynamics in a fat-storing hibernator | 100% | In progress |