Corey Samuel Lesk

Département des sciences de la Terre et de l'atmosphère
Université du Québec à Montréal (UQAM)
Montréal, QC
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INTÉRÊTS DE RECHERCHE	Extrêmes hydroclimatiques, cycle hydrologique, interactions terre-atmosphère, agriculture	
POSTES ACADÉMIQUE	**Université du Québec à Montréal (UQAM)**, Montréal, QC Professeur Département des sciences de la Terre et de l'atmosphère	2025-
ÉDUCATION	**Columbia University**, New York, NY *Doctorat*, Sciences de la Terre et de l'environnement *Maîtrise*, Sciences de la Terre et de l'environnement Superviseur : Radley Horton Thèse : Nouvelles perspectives sur l'impact des changements hydroclimatiques sur le rendement des cultures, et une façon d'éviter le pire	 2022 2020
	McGill University, Montréal, QC *BSc*, Sciences de la Terre	 2011-2015
EXPÉRIENCES	*Chercheur Postdoctorale* Fellow de l'Institut Neukom Fellow des Fonds de recherche du Québec Nature et Technologie Département de Géographie, Dartmouth College, Hanover, NH	2022-2025
	Assistant de recherche Center for climate systems research, NASA GISS, New York, NY The Earth Institute, Columbia University	2015-2017
	Assistant de recherche Land use and global environment lab, Université McGill	2012-2015
	Assistant de recherche Landscape ecology lab, Université McGill	2013-2015
ENSEIGNEMENT	*Enseignant* Dartmouth College Printemps 2025: Earth System Modelling, GEOG 060 Automne 2023: The Natural Environment, GEOG 1.02 Printemps 2023: Life in the Anthropocene, GEOG 5.01	2023-
	Enseignant 2ième École de formation sur les extrêmes composées, Como, Italie	2022
	Enseignant Systèmes et changements climatiques, Programme d'excellence en sciences, Université Columbia	2019-2021
	Enseignant Analyse de données en sciences de l'environnement, Double Discovery Center, Université Columbia	2019

Instructeur de laboratoire 2018-2019
Méthodes quantitatives, programme de maîtrise Climat et société, Université Columbia

PUBLICATIONS

En cours

Pollack A, Campbell J, Condon M, Cooper C, Coronese M, Doss-Gollin J, Hegde P, Helgeson C, Kwakkel J, **Lesk C**, et al. Peer-reviewed climate change research has a transparency problem. The scientific community needs to do better. *Soumis*.

Lesk C, Callahan C, Mankin JS. Interactions among climate, economy, and adaptation strongly influence future warming. *En préparation.*

Horen Greenford D, **Lesk C**, Matthews HD. Robust climate tests for energy decisions under the Paris Agreement. *En preparation.*

PUBLICATIONS (suite)

Parues

29. Mankin JS, Siegert J, Smerdon J, Cook BI, Seager R, Williams AP, **Lesk C**, Li Z, Singh H, Martinez E. Nonlinear plant responses to both carbon dioxide and climate diminish future freshwater availability. *Journal of Climate,* 2025. https://doi.org/10.1175/JCLI-D-24-0028.1
28. Hamed R, Steinmann C, Ma Q, Balanzategui D, Broadman E, Kornhuber K, **Lesk C**. Amplified agricultural impacts from increasingly sequential heat extremes. *Environmental Research Letters,* 2025. https://doi.org/10.1088/1748-9326/ae06b8
27. Fu J, Wang C, Qin Y, **Lesk C**, Müller C, Zscheischler J, Liu X, Liang H, Jian Y, Wang X, Zhou F. Regionally variable responses of maize and soybean yield to rainfall events in China. *Agricultural and Forest Meteorology*, 2025. https://doi.org/10.1016/j.agrformet.2025.110458
26. Hamed R, **Lesk C**, Shepherd T, Goulart H, Garderen L, van den Hurk B, Coumou D. One-third of the unprecedented global soybean failure in 2012 is attributable to climate change. *Communications Earth & Environment*, 2025. https://doi.org/10.1038/s43247-025-02171-x
25. **Lesk C**, Winter J, Mankin J. Projected runoff declines from plant physiological effects on precipitation. *Nature Water*, 2025. https://doi.org/10.1038/s44221-024-00361-z
24. Tian Y, Kleidon A, **Lesk C**, Zhou S, Luo X, Ghausi S, Wang G, Zhong D, Zscheischler J. Characterizing heatwaves based on land surface energy budget. *Communications Earth & Environment*, 2024. https://doi.org/10.1038/s43247-024-01784-y
23. Johnson S, Ivanovich C, Horton M, Ting M, Kornhuber K, **Lesk C**. On the Relationship between Humid Heat and Extreme Precipitation. *Environmental Research Letters, 2024.* https://iopscience.iop.org/article/10.1088/1748-9326/ad7edc
22. Coffel E, **Lesk C.** Recent shift from energy- to moisture-limitation over global croplands. *Environmental Research Letters,* 2024. https://doi.org/10.1088/1748-9326/ad5032
21. Kornhuber K, **Lesk C**, Schleussner CF, Jägermeyr J, Pfleiderer P, Horton RM. Risks of synchronized low yields are underestimated in climate and crop model projections. *Nature Communications*, 2023. https://doi.org/10.1038/s41467-023-38906-7
20. Ting M, **Lesk C**, Liu C, Li C, Horton RM, Coffel ED, Rogers CDW, Singh D. Contrasting impacts of dry versus humid heat Impact on US corn and soybean yields. *Scientific Reports,* 2023. https://doi.org/10.1038/s41598-023-27931-7
19. **Lesk C**, Anderson W, Rigden A, Coast O, Jägermeyr J, McDermid S, Davis KF, Konar M. Compound heat and moisture extreme impacts on global crop yields under climate change. *Nature Reviews Earth & Environment,* 2022. https://doi.org/10.1038/s43017-022-00368-8

18. **Lesk C**, Csala D, Krekeler R, Sgouridis S, Levesque A, Mach KJ, Horton RM. Mitigation and adaptation emissions embedded in the transition to a stable climate. *PNAS*, 2022. https://doi.org/10.1073/pnas.2123486119
17. Coffel E, **Lesk C**, Mankin JS. Earth System Model Overestimation of Cropland Temperatures Scales with Agricultural Intensity." *Geophysical Research Letters*, 2022. https://doi.org/10.1029/2021GL097135
16. **Lesk C**, Kornhuber K. An effective clean energy transition must anticipate growing climate disruptions. *Environmental Research: Climate*, 2022. https://doi.org/10.1088/2752-5295/ac76db
15. Coffel ED, **Lesk C**, Winter JM, Osterberg EC, Mankin JS. Crop-climate feedbacks boost US maize and soy yields. *Environmental Research Letters*, 2022. https://doi.org/10.1088/1748-9326/ac4aa0
14. **Lesk C**, Coffel ED, Winter JM, Ray DK, Zscheischler J, Seneviratne SI, Horton RM. Stronger temperature–moisture couplings exacerbate the impact of climate warming on global crop yields. *Nature Food*, 2021. https://doi.org/10.1038/s43016-021-00341-6
13. **Lesk C**, Anderson, W. Decadal variability modulates trends in concurrent heat and drought over global croplands. *Environmental Research Letters*, 2021. https://doi.org/10.1088/1748-9326/abeb35
12. Teitelbaum CS, Sirén AP, Coffel ED, Foster JR, Frair JL, Hinton JW, Horton RM, Kramer DW, **Lesk C**, Raymond C, Wattles DW. Habitat use as indicator of adaptive capacity to climate change. *Diversity and Distributions*, 2021. https://doi.org/10.1111/ddi.13223
11. Greenford DH, Crownshaw T, **Lesk C**, Stadler K, Matthews D. Shifting economic activity to services has limited potential to reduce global environmental impacts due to the household consumption of labour. *Environmental Research Letters,* 2020. https://doi.org/10.1088/1748-9326/ab7f63
10. **Lesk C**, Coffel E, Horton RM. 2020. Net benefits to US soy and maize yields from intensifying hourly rainfall. *Nature Climate Change*, 2020. https://doi.org/10.1038/s41558-020-0830-0
9. Kornhuber K, Coumou D, Vogel E, **Lesk C**, Donges JF, Lehmann J, Horton RM. Amplified Rossby waves enhance risk of concurrent heatwaves in major breadbasket regions. *Nature Climate Change*, 2020. https://doi.org/10.1038/s41558-019-0637-z
8. Coffel ED, Keith B, **Lesk C**, Horton RM, Bower E, Lee J, Mankin JS. Future hot and dry years worsen Nile Basin water scarcity despite projected precipitation increases. Earth's Future, 2019. https://doi.org/10.1029/2019EF001247
7. Heaney AK, Carrión D, Burkart K, **Lesk C**, Jack D. Climate change and physical activity: estimated impacts of ambient temperatures on bikeshare usage in New York City. *Environmental health perspectives*, 2019. https://doi.org/10.1289/EHP4039
6. Mandle L, Wolny S, Bhagabati N, Helsingen H, Hamel P, Bartlett R, Dixon A, Horton RM, **Lesk C**, Manley D, De Mel M. Assessing ecosystem service provision under climate change to support conservation and development planning in Myanmar. *PloS one*, 2017. https://doi.org/10.1371/journal.pone.0184951
5. **Lesk C**, Coffel E, D'Amato A, Dodds K, and Horton RM. Threats to North American forests from southern pine beetle with warming winters. *Nature Climate Change*, 2017. https://doi.org/10.1038/nclimate3375
4. Chen K, Horton RM, Bader DA, **Lesk C**, Jiang L, Jones B, Zhou L, Chen X, Bi J, Kinney PL. Impact of climate change on heat-related mortality in Jiangsu Province, China. *Environmental Pollution*, 2017. https://doi.org/10.1016/j.envpol.2017.02.011
3. Fox TA, Rhemtulla JM, Ramankutty N, **Lesk C**, Coyle T, Kunhamu TK. Agricultural land-use change in Kerala, India: Perspectives from above and below the canopy. *Agriculture, Ecosystems & Environment*, 2017. https://doi.org/10.1016/j.agee.2017.05.002

2. Horton RM, Mankin JS, **Lesk C**, Coffel E, Raymond C. A review of recent advances in research on extreme heat events. *Current Climate Change Reports*, 2016. https://doi.org/10.1007/s40641-016-0042-x

1. **Lesk C**, Rowhani P, Ramankutty N. Influence of extreme weather disasters on global crop production. *Nature*, 2016. https://doi.org/10.1038/nature16467

Rapports et chapitres de livres

Alestig M, Dabi N, Jeurkar A, Maitland A, Lawson M, Horen Greenford D, **Lesk C**, Khalfan A. Carbon Inequality Kills: Why curbing the excessive emissions of an elite few can create a sustainable planet for all. *Oxfam International,* 2024. https://doi.org/10.21201/2024.000039

Raymond C, Coumou D, Foreman T, King A, Kornhuber K, **Lesk C**, Mora C, Perkins-Kirkpatrick S, Russo S, Vijverberg S. Projections and hazards of future extreme heat. Planning for Climate Change Hazards. *In* The Oxford Handbook of Planning for Climate Change Hazards, 2019. https://doi.org/10.1093/oxfordhb/9780190455811.013.59

Schumacher P, Garstecki T, Mislimshoeva B, Morrison J, Ibele B, **Lesk C**, Dzhumabaeva S, Bulbulshoev U, Martin S. Using the Open Standards-Based Framework for Planning and Implementing Ecosystem-Based Adaptation Projects in the High Mountainous Regions of Central Asia. *In* Theory and Practice of Climate Adaptation (pp. 23-48). Springer, Cham, 2018. https://doi.org/10.1007/978-3-319-72874-2_2

Horton RM, De Mel M, Peters D, **Lesk C**, Bartlett R, Helsingen H, Bader D, Capizzi P, Martin S, and Rosenzweig C. Assessing Climate Risk in Myanmar: Technical Report. New York, NY, États-Unis: Center for Climate Systems Research at Columbia University, WWF-US and WWF-Myanmar, 2017.

PRÉSENTATIONS

Lesk C. How compound extremes impact crops and what they mean for adaptation. *Workshop on agriculture and climate change,* Harvard University*,* 16 May 2024. **Invited seminar.**

Lesk C. Future emissions and warming under climate-energy-economy feedbacks. *Institut de Ciència i Tecnologia Ambientals,* Autonomous University of Barcelona, 8 May 2024. **Invited seminar.**

Lesk C, Winter J, Mankin J**.** Projected runoff declines from plant physiological effects on precipitation. European Geophysical Union General Assembly, 15-19 April 2024

Lesk C. How compound extremes impact crops and what they mean for adaptation. *Barcelona Supercomputing Center-Catalan Institution for Research and Advanced Studies,* 9 April 2024. **Invited seminar.**

Lesk C. Plants as receivers and shapers of hydrologic intensification. *Department of Earth and Planetary Science,* Yale University, 29 February 2024. **Invited seminar.**

Lesk C. Complex climate risk: food, water, and the transition. *Department of Earth and Planetary Science,* Yale University, 28 February 2024. **Invited seminar.**

Lesk C. Complex climate risk: food, water, and the transition. *Department of Geography and Environmental Studies,* Carleton University, 12 December 2023. **Invited seminar.**

Lesk C. How compound extremes impact crops and what they mean for adaptation. *Safe Landing Climates Discussion Series webinar*, World Climate Research Programme, 20 November 2023. **Invited seminar.**

Lesk C, Horen Greenford D**.** Greenhouse gas emissions under tertiarization and renewable energy transitions. *Integrated Earth System Dynamics Lab*, Department of Earth and Planetary Science, McGill University, 12 May 2023. **Invited seminar.**

Lesk C. Implications of climate-vegetation interactions for water availability and agriculture in a warming world. *Department of Earth and Atmospheric Science*, City College of New York, 10 March 2023. **Invited seminar.**

Lesk C. Implications of climate-vegetation interactions for water availability and agriculture in a warming world. *Department of Geography*, McGill University, 6 March 2023. **Invited seminar.**

Lesk C, Csala D, Krekeler R, Sgouridis S, Levesque A, Mach KJ, Horen Greenford D, Matthews HD, Horton R. Mitigation and adaptation emissions embedded in the broader climate transition. *Center for social and environmental futures seminar,* University of Colorado-Boulder, 9 February 2023. **Invited seminar.**

Lesk C. Compound heat and moisture extreme impacts on global crop yields with climate change. *Midi-GÉO*, Université de Montréal. 16 September 2022. **Invited seminar.**

Lesk C, Csala D, Krekeler R, Horton R. Greenhouse gas emissions embedded in the transition to a stable climate. AGU Fall Meeting, Nouvelle-Orléans, États-Unis, 15 décembre 2021.

Lesk C, Csala D, Krekeler R, Sgouridis S, Levesque A, Mach KJ, Horton R. Greenhouse gas emissions embedded in the transition to a stable climate. Managed Retreat Conference, Université Columbia, 25 juin 2021.

Lesk C. Greenhouse gas emissions embedded in the transition to a stable climate. New era network for societally integrated climatology seminar, en ligne, 24 février 2021. **Invité.**

Lesk C, Coffel E, Winter JM, Zscheischler J, Seneviratne SI, Ray DK, Horton RM. The hidden signature of temperature-moisture couplings in the heat sensitivity of global crops. Workshop on Compound Weather and Climate Events, Berne, Suisse, 15 janvier 2021.

Lesk C, Coffel E, Winter JM, Zscheischler J, Seneviratne SI, Ray DK, Horton RM. The hidden signature of temperature-moisture couplings in the heat sensitivity of global crops. American Geophysical Union Fall Meeting, en ligne, 1-17 décembre 2020.

Lesk, C. Not all bad: New insights on how changing hydroclimate might affect crop yields. International Research Institute for Climate and Society Seminar, en ligne, 25 février 2020. **Invité.**

Lesk C, Coffel E, Winter JM, Ray D, Horton RM. Joint impacts of heat and moisture on global crop yields. American Meteorological Society Annual Meeting, Boston, États-Unis, 12-17 janvier 2020.

Lesk C, Coffel E, Horton RM. Net benefits to US crop yields from intensifying hourly rainfall. American Meteorological Society Annual Meeting, Boston, États-Unis, 12-17 janvier 2020.

Lesk C, Coffel E, Winter JM, Ray DK, Horton RM. Disentangling the joint impacts of heat and moisture on global crop yield variability. Workshop on Correlated Extremes, New York, États-Unis, 29-31 mai 2019.

Lesk C, Coffel E, Horton RM. Sensitivity of maize yields to sub-seasonal rainfall distribution and extremes in the United States. European Geosciences Union General Assembly, Vienne, Autriche, 10-14 avril 2018.

Lesk C, Rowhani P, Champalle C, Ramankutty N. Estimating impacts of extreme weather on agricultural production. McGill Global Food Security Conference, Montréal, Québec, 9 octobre 2013.

Lesk C, Fox T, Coyle T, Ramankutty N, and Rhemtulla J. Tree species diversity in homegardens of Kerala. Special Meeting of the International Biogeographical Society, Montréal, Québec, 16 novembre 2013.

BOURSES

Bourse Postdoctorale Fonds de recherche du Québec	2022
Bourse Postdoctorale Institut Neukom	2022
Bourse Centre de la science de l'adaptation climatique du nord-est	2021
Bourse de recherche doctorale National Science Foundation	2018-2021
Bourse du doyen de l'Université Columbia	2017
Prix de recherche en sciences de la Terre de l'Université McGill	2014
Prix de recherche en sciences de la Terre de l'Université McGill	2013
Bourses de recherche d'été de 1er cycle du CRSNG	2013
Liste du doyen, Université McGill	2012
Bourse d'études de la famille Bubar en sciences de la Terre	2012
Bourses de recherche d'été de 1er cycle du CRSNG	2012

COMMUNICATIONS PUBLIQUES

Couverture médiatique et entrevues : Radio-Canada, New York Times, Nature News, Vice, Mother Jones, Carbon Brief, Climate Central, Inside Climate News, Daily Beast, Live Science, phys.org, KAKE News, Yale Environment 360, entre autres.

Éditoriaux, balado, débats : Éditoriaux dans The Montreal Gazette et Al Jazeera, invité à *For the Wild*, vérificateur des débats climatiques des élections canadiennes 2021

Formations : Application des données climatiques pour l'adaptation écosystèmique, Deutsche Gesellschaft für Internationale Zusammenarbeit, Tajikistan, 2017
Données climatiques pour l'adaptation, Département de Météorologie, Myanmar, 2017

SERVICE

Organisation:	Student Workers of Columbia-UAW Local 2110	2018-2021
	Lamont 'TG' colloque et apéro hebdomadaire	2018-2020
	Action climat Global Week for the Future	2019
Juge d'exposcience :	New Orleans Charter Science & Mathematics High School Science Fair	2020
Révision :	Nature, PNAS, Nature Water, Nature Communications, Nature Food, Geophysical Research Letters, Environmental Research Letters, Earth's Future, Earth System Discussions, Agriculture and Forest Meteorology, Weather and Climate Extremes, Science of the Total Environment, Pest Management Science, Journal of Pest Science	2018-
Mentorat :	Noel Siegert (interne au BAC, climat-végétation)	2022-2023
	Sophie Johnson (recherche MS, précipitations extrêmes)	2021-2022
	Rhys Murray (recherche au BAC, précipitations extrêmes)	2021
	Tess Walther (mentorée 1re année de Lamont)	2021
	Anton Safonov (recherche au secondaire, émissions GES)	2020-2021
	Bryn Stecher (mentorée Femmes en Science à Columbia)	2020-2021
	Connor Diaz (mentoré du programme de BAC de Lamont)	2020
	Sophie Billinge (recherche au BAC, agrobiodiversité)	2018-2019

COMPÉTENCES

Programmation : Python, R, Matlab, Jupyter, Pandas, QGIS, ENVI
Données : Observations hydrométéorologiques, modèles climatiques et hydrologiques, modélisation statistique, données géospatiales (agriculture, climat, couverture terrestre), inventaires des émissions
Langues : Anglais (natif), Français (courant)
Autres : Construction (charpenterie, tuile, gypse et plâtre, plomberie, bois rond)
Plein air (canot, premiers soins, sauvetage, navigation, pêche)